

**THE PROPOSED CONSUMERS ENERGY KARN-
WEADOCK COAL PLANT:
AN UNREASONABLE PRICE FOR AN
UNNECESSARY PLANT**

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PREPARED BY TR ROSE ASSOCIATES

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Executive Summary

The proposed Karn-Weadock plant, if built, will cause a dramatic rate increase for customers of Consumers Energy. Electric utility customers have come to expect modest annual increases in their utility bills, even as their paychecks have shrunk. In return they receive the promise of reliable service and sound energy planning from their utility and the public officials who run the system and set prices. If the proposed plant is built, it will mean that rate increases will no longer be modest and the plant will cause a long term environmental and financial headache for the Company and its ratepayers.

Customers will feel the impact of the plant on their pocketbook in the following ways:

- Customers of Consumer Energy have received average annual rate increases of between 4 and 5 percent in the recent past. This amounts to an increase of \$32.70 for the average household per year. Consumers pending request for an 8.5% rate increase sets a worrisome precedent.
- The cost of electricity from the proposed plant will be approximately 45 percent higher than the current average cost of generating power at Consumers existing power plants. This will create a significant upward pressure on prices. In fact, to pay for this one plant, customers will likely see a rate increase that is more than double the usual and customary increase, meaning not a 4.5% increase but more like 9% and 11%. This will mean that ratepayers will pay between \$67.00 and \$76.00 more annually when Karn-Weadock comes on line in 2017 – or at least an additional \$34.00 to \$46.00 annually due to the plant. Current market indicators suggest these estimates are conservative and that rate hikes are likely to be higher.
- Electricity price hikes have outpaced increases in household income for Michigan residents in the last few years. Economic forecasters for the state predict some improvement for Michigan household income, but this improvement will not keep pace with electricity prices, and paying for the proposed coal plant will only add to this imbalance.
- Consumers Energy expects that a number of municipal electrical systems will buy into this plant. Those systems, and their customers, face particular risks from investing in a long-term carbon-intensive project like Karn-Weadock as they are smaller and are already struggling. They will have a more difficult time absorbing both the higher priced electricity and the new financial risks from the proposed Karn-Weadock plant. For example, small village, towns and cities across Ohio recently cancelled a proposed coal project when escalating costs demonstrated that the project was not economically viable. Unfortunately, those communities still face the burden of paying for \$200 million in plant costs because they took too long to cancel the project.
- The major credit rating agencies in the country have issued warnings that new coal fired plants are likely to be beset by long term financial and regulatory problems. Over 127 coal plants have been delayed or cancelled across the country because energy decision makers have refused to pass along these new high costs and risks to current and future

ratepayers. Communities that have gone forward with new coal plants are now announcing electricity rate hikes that range between 20% and 40%.

Michigan's energy planners have long relied upon coal fired technology to supply affordable electricity to large numbers of people and businesses. The financial risks outlined in this paper – rising construction costs; an uncertain regulatory environment; increases in the cost of coal; tightening air pollution standards and new waste disposal rules have changed the economic equation of coal as a source of electricity. These changes are taking place at a time when the country and financial markets are moving forward with other energy options: energy efficiency, wind, solar, combined heat and natural gas. The nation's credit markets and investment community have sent red flag warnings that new coal fired power plants are less competitive now than they were in the past.

In the coming months, Consumers Energy and state regulators will subject the Karn-Weadock plant to a more detailed review of its financial and environmental assumptions and will investigate a number of key questions. Is there a need for the proposed plant? Is it cost effective? Is it a good environmental investment? Are other energy sources economically and environmentally superior? Other states have reviewed the relative economics and rejected coal plants. These rejections answered another question: is this project good for the consumer? This paper is written to help customers of Consumers Energy ask questions about the impact that this project will have on their electricity bills from this new plant.

Methodology

The estimated rate impacts presented in this report are based on the models used by Consumers Energy in analyses and presentations that the Company has made on the Karn-Weadock plant. The effort to determine impacts on electricity rates, and ultimately on the price of electricity charged to customers, of a power plant that will open in 2017 requires making assumptions about future costs that will not be experienced for years or even decades down the road and thus are difficult to predict. There is, as a result, room for professional disagreement. What is beyond question though is that the Company must meet certain internal financial benchmarks if it is to receive the approval of its shareholders and proceed with investment in the plant. It is within those financial bounds, as mediated by state regulators, that prices for electricity to customers are set. Further public discussion and refinement on the question of what consumers will pay for this plant is needed. The truly wrong direction would be not to ask, or try to answer, the question of how much the consumer will pay.

I. Background

On September 21, 2007 Consumer Energy (“CE”, “the Sponsor”, “the Company” or “Consumers”) submitted to the Michigan Public Service Commission (“MPSC”) a formal proposal for the development of an 800 MW supercritical coal fired power plant on the site of the Karn/Weadock Generating Complex near Bay City. The sponsor, Consumers Energy, anticipated that it would own 500 MW of the plant, and a consortium of unspecified municipalities and other entities would own the other 300 MW.¹ Later technical design analysis increased the plant’s total capacity from 800 MW net to 830 MW.

At the time that Consumers submitted its proposal to the Michigan PSC in September 2007, the Company estimated the cost of the plant would be approximately \$2 billion. However, in January 2009 the company reported that the estimated cost of building the plant had increased to more than \$3.5 billion. As a report by Synapse Energy Economics has explained:

The estimated construction cost of the proposed Karn-Weadock coal plant has increased from \$2,765 per kW in 2007 to \$3,589 per kW in January 2009, a 32 percent increase. Both of these estimates excluded AFUDC or other financing costs. The new cost estimate roughly translates into a total plant cost, without financing costs, of \$3 billion. With financing costs, the total cost of the plant can be expected to exceed \$3.5 billion. Consumers Energy’s 519 MW share of the plant would be \$1.86 billion without financing costs, and in excess of \$2.1 billion with financing costs.²

The original 2007 plan for the new supercritical coal plant was part of the Company’s “Balanced Energy Initiative”. It contained other energy policy initiatives that included a new natural gas fired combined cycle plant, various reforms in the state’s regulatory laws, property tax abatements and environmental approvals. Subsequent to the filing of the 2007 plans, additional updates and most recently the Company’s Electric Generation Alternatives Analysis (EGAA), greater emphasis has been placed on retiring 950 MW of the Company’s existing coal plants by 2017, many of which have been in operation prior to 1961. The Company has not revealed to the public which plants would be retired. It has requested permission from the Michigan Public Service Commission to collect from ratepayers all of the remaining costs of these retired plants at the same time it will be collecting the costs of the new Karn-Weadock coal plant. Thus, ratepayers will be asked to pay both for the new plant and for the older coal plants that Consumers Energy says the new plant will replace.

¹ The details of the initial filing can be found in Michigan Public Service Commission, *In the Matter of the Application of Consumers Energy Company for approval of a Balanced Energy Initiative and for Other relief*, Case No. U-15290, September 2007 (Letter and Attachments from Jon Robinson, Consumers Energy to Mary Jo Kunkle, Michigan Public Service Commission, September 21, 2007).

² Synapse Energy Economics, Inc, *Comments on Consumers Energy’s Electric Generation Alternatives Analysis for the Balanced Energy Initiative including the Proposed Karn-Weadock Coal Plant*, July 7, 2009, p. 28.

According to a recent Consumers Securities and Exchange Commission filing, the Company's electric generating system capability consists of 9586 MW, of which 2850 MW is coal fired generation and an additional 1997 MW is oil/coal fired generation. 1455 MW of the coal fired generation has been in service since 1961. The full system includes all coal generation, oil-gas generation, hydroelectric plants, gas/oil combined turbines and purchase and interchange power.

The Company serves 1.8 million customers – 1.58 million residential, 208,932 commercial, 8500 industrial and a grouping of other users. Consumers is the second largest utility in the state with an annual revenue base in 2008 from electricity sales of \$3.5 billion generated from 37.1 million MWH of electricity sold.

According to the Michigan Public Service Commission on March 1, 2010, an average residential customer of Consumer Energy who used 500 kWh of electricity in a given month received a bill of \$59.10. This translated into an average regulated rate of 11.82 cents per kWh for that residential consumer.³ The “rate” covers the basic charges incurred by the Company to produce electricity plus a rate of return, a distribution charge and a series of surcharges.⁴ As of this writing the Company has a rate case pending before the MPSC requesting an approximate 8.5% rate increase for the average residential customer.⁵

II. Consumers Energy's Cost Estimates of The Karn-Weadock Coal Plant and its Relation to Customer Rates

The annual rate impact from any generating facility reflects its capital cost, its annual operating and maintenance costs (fixed and variable), regulatory compliance costs, fuel costs and its operating performance.

A. Capital Cost: The Company is allowed to recover an annual return on its investment in a generating facility like the Karn-Weadock plant. The annual return represents both the cost of borrowing money to build the plant and the investment that Company's shareholders have made. For the proposed Karn-Weadock plant, this capital return will be

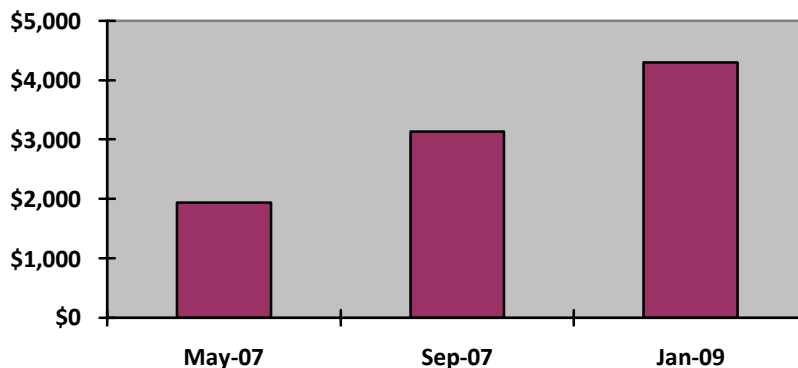
³ www.dleg.state.mi.us/mpsc/electric/download/rates1.pdf

⁴ The component parts of the rate are generally identified on the MPSC website www.dleg.state.mi.us/mpsc.consumer information. Further detail can be found on the MPSC's website in the Consumers Energy Company, *Rate Book For Electric Service*, MPSC No. 13 – Electric, Consumers Energy Company, March 31, 2008. Despite the provision of this information, none of these documents provide a clear, concise set of definitions of the component parts of the rate that are set side by side, added together, and then linked and displayed in a consistent manner in the public presentation. The result is a confusing set of technical background documents and a public presentation of generalized rates and average billing that lacks a supportable basis. The figure “11.82%” is used in this paper as the “rate” provided by MPSC, as an average, proximate rate for an average residential customer.

⁵ *In the Matter of the application of the Consumers Energy Company for authority to increase its rates for the generation and distribution of electricity and for other relief*, Mich. PSC. Case No. U -16191, January 22, 2010. The rate case offers several accounting treatments of the Company's revenues and expenditures, actual and projected. The presentations are instructive; however, they are designed to support the case for the rate increase.

the single largest impact on rates. The higher the plant's construction cost, the greater the impact it will have on rates.

**Figure: 1: Rising Construction Cost Environment of
Karn Weadock Plant (Installed Cost \$/KW)**



As stated above, when the plant was originally announced in 2007 the construction price was estimated in excess of \$2 billion.⁶ The most recent detailed estimate of construction and overall capital cost calculation for the project is dated January 9, 2009. The January 2009 \$3589 kw estimate translates into a construction price of \$2.97 billion without financing. The Company's January 2009 estimate placed the Total Installed Cost for the project at \$3.577 billion with financing. This places the total cost of the project at \$4310 kW.⁷ The 2009 cost update also places the initial operation date of the plant in 2016.

Figure 1 provides an additional insight into the rising cost environment this project faces. In May 2007, the Company submitted to MPSC a copy of its Annual Capital Revenue Requirements Plan. The Plan contained a new Super Critical Coal plant with a preliminary construction cost estimate (with financing) of \$1934 kw. By 2009, after a more refined design process for the Karn-Weadock plant, the construction costs and financing came to \$4310 kw – an increase of 122%.

The \$3.577 billion figure is the estimated amount the company will have to raise from lenders and its shareholders to build the plant. It is the basis for the annual capital cost that will be included in the rates.

⁶ See: David F. Ronk, Jr. submission, MPSC Case No. U-15280, Exhibit A-70 (DFR-18), September 21, 2007. The earlier May 2007 estimate of \$1934 kw for a SuperCritical Coal Plant can be found: David Ronk, MPSC Case No. U-15290, Exhibit A-28 (DFR-8), May 1, 2007.

⁷ Consumer Energy Company, *BEI Electric Generation Alternatives Analysis, Table 5, - Coal Technology Summary, Levelized Cost of Advanced Supercritical Pulverized Coal Plant*, June 15, 2009. For the purposes of discussion in this report all detailed budget citations are derived from this June spreadsheet, alternately referred to as the spreadsheet and budget. The presentation dated January 9, 2009 which only addresses the capital cost uses the figure \$3276 kW in 2008 nominal dollars as does the submission made in June 2009 as part of the Electric Generation Alternatives Analysis. The January presentation also includes the \$3.5 billion installed cost figure for the project.

At this point the figure is merely an estimate or projection. No construction contracts have been signed between Consumers Energy and any vendor or contractor. Consequently, it is reasonable to expect that the estimated cost of building the plant will continue to rise, perhaps significantly, before it is completed in 2016.⁸ Infact, rising construction costs have played a role in the cancellation of over 127 proposed coal plants in the United States.⁹

The EGAA budget estimate, prepared in 2009, estimates the plant's annual capital cost at \$336 million per year. There is an assumption of 40 year financing. As part of its budget estimate for the plant the Company assumes it will require an overall capital charge of 12.38% in any future regulatory proceeding for this plant. This 2009 capital charge estimate illustrates how the cost of financing of the project has increased since 2007. According to the Company's 2007 Balanced Energy Initiative (BEI) submission,¹⁰ it was anticipated that the 830 MW coal plant would require a fixed capital charge of 11.77% . By the time the update appeared in 2009, the new capital charge increased to 12.38%.

The 2007 BEI capital planning document also provides a snapshot of ten proposed generation projects, a mix of natural gas and coal facilities that the Company viewed as necessary. It projected it would need capital rates ranging from 11.77% to 15.69%

In the early years of the Karn-Weadock project, debt service constitutes 59% of the cost of electricity (as fuel price and carbon costs rise over time they become larger factors in the cost calculation). While specific interest rate assumptions are not disclosed (regarding the borrowing costs for the plant), in recent planning documents Consumer Energy filed, the company disclosed it enjoys a BBB credit rating. For two issuances in 2009 it received a 6.7% interest rate on a \$500 million note, and a 6.125% on a \$350 million note.¹¹ The Company enjoys a Long Term Debt Cost of 5.92%.

B. Fuel Cost: The new facility is designed to burn western sub bituminous coal from the Powder River Basin ("PRB"). It will also have the capability to burn eastern bituminous coal up to 50 percent. The Company currently utilizes 80% PRB western coal in its existing coal fleet. Maximizing the use of this fuel, according to the Company, is less costly than eastern bituminous coal and has lower sulfur content.

⁸ A recent article on the status of the coal plant construction industry suggests the persistence of the current high cost environment. See: *Black Goals*, Project Finance Magazine, March 2010.

⁹ For detailed discussion of the economics of rising plant costs and how many proposed plants in the price range of the Karn Weadock project were canceled see: Synapse, *Op Cit*. For background and a listing of the 127 plants see: <http://www.sierraclub.org/environmentallaw/coal/plantlist.asp>.

¹⁰ Ronk, David, F., *Balanced Energy Initiative: Annual Capital Revenue Requirement for New Units and Life Extension Units 2007*, September 21, 2007, Case No. U-15290, Exhibit A-70 (DFR-18), p. 1 of 1.

¹¹ See: Consumer Energy Filing and Exhibits, Case No. U-16191, Witness DV Rao, Exhibit No: A-40 (DVR-13), Date 2010.. 1-3. For a more complete statistical accounting of Consumers current and forward looking capital structure, including its Long Term Debt, profile see also DVRao Exhibits A-9 (DVR – 1,11); A-33 (DVR -2); A-34 (DVR -3).

The Company's cost projections for coal for the period starting 2010 through 2020 rise from \$151 million to \$203 million, or approximately 3% annually.¹²

C. Capacity Factor: The financial plan assumes in the early years (2009 through 2016) that the plant will have a capacity factor of over 90%. For the next ten years, the capacity factor is projected to be over 80%. The Company assumes the plant will generate (and charge costs) between 6662GWh and 5881 GWh of electricity annually. The Company plans to use the plant aggressively. Such use allows for greater revenue generation, improved cash flow and improved ability to retire long term debt obligations generally.

D. Carbon Costs: The financial model also projects carbon costs against plant operations starting in 2012. These costs reflect the impact of new federal carbon regulations that have not yet been passed. The model projects a cost of \$22.30 per ton or an annual 2012 cost of \$139 million growing to \$221 million in 2020, to \$389 million in 2030.

E. Overall Cost Analysis: The Company's estimates, which we believe are understated in a number of key ways, demonstrate that this plant will increase the cost of electricity to consumers. The new plant will require the Company to apply to the Michigan Public Service Commission for a major rate increase.

The original estimate assumed the plant would open in 2009. This is obviously not going to happen. To demonstrate the point about the plants cost in relation to what a consumer pays, let's assume the plant were able to open in 2012. The Company has projected that it would cost 10.9 cents per kilowatt hour to produce electricity from the plant in 2012. This figure represents only the cost of generating power at Karn-Weadock, and does not include any distribution costs.¹³ By 2012 we can safely assume the cost for distribution would at least be an additional 3.1 cents per kilowatt hour.¹⁴ Including other typical charges, this would mean a likely cost of power to a consumer from this plant would approximate 14.5 cents per kilowatt hour. This means that our average consumer who now pays 11.82 cents per kilowatt hour is probably going to be paying upward of 12.3 cents per kilowatt hour for the same electricity in 2012¹⁵. So, taking Consumers estimates

¹² The full analysis provided by Energy Ventures for Consumers Energy is part of the EGAA docket Ronk's Testimony, Exhibit A-14, DFR-7.

¹³ For a discussion of the 'busbar' costs and how it relates to the Consumer's model under discussion for this paper see: Michigan Public Service Commission, *Consumers Energy Electric Generation Alternatives Analysis for Proposed Permit to Install (PTI) No. 341-07 For an Advanced Supercritical Pulverized Coal Boiler at the Karn Weadock Generating Station, Essexville, Michigan*, Docket: U-15966, Staff Report, September 8, 2009, p.18. The discussion of how distribution costs relate to the overall rate of electricity and ultimately to the monthly charge to the consumer is identified on the MPSC website and Consumers Rate Book, previously described. But, as previously discussed, there is nothing in those documents that provide clear definitions of terms or simple aggregation of rates and actual dollar charges that allow for an easy understanding of the component parts of the rate, and subsequent charges associated with the rates.

¹⁴ The current rate case assumes the new Delivery distribution rate will rise from 2.74 cents per kwh to 3.195 per kwh. See: Consumers Energy Company, *2010 Test-year Calculation Present and Proposed Revenue Detail*, Case No. U-16191, Exhibit A-11 (HWM-4), Schedule F-3, Line 7, Distribution, January 2010, P. 1 of 11.

¹⁵ This assumes a usual and customary recent annual rate increase of 4.5%. See Attachment 1, and see also Table I and discussion in section of this paper "Recent Rate Increases".

at face value the new plant is going to put electricity into the system for about 20% more than the average residential consumer will be paying in 2012.

This does not mean prices to consumers will go up by 20%. The story, as explained below, is more complicated. *The main point is that the basic financial plan for the plant assumes by design that the electricity produced by the new plant will cost more than the average cost of electricity to residential consumers. By definition, this will place substantial upward pressure on prices.*

III. Is the Consumers Energy Estimate Reliable?

One of the initial questions for a consumer is: are the Company's estimates reliable? The answer is: some of them are reliable, and some of them need to be adjusted. The Company uses an economic model to predict the final cost of electricity from the plant. The results of this modeling can help a reader understand the cost of the plant, but many of the values used in the model are not made clear, so it is hard to replicate all of the calculations. What is provided is professionally done and offers some idea of the project objectives.

The Company has updated its overall financial plan on a number of occasions since 2007. During the past four years, the energy markets in the United States and the world have changed dramatically. Plans for any new power generation, but particularly coal plants, need to be updated regularly because construction prices have skyrocketed to unprecedented levels; coal prices have become volatile with periods of sharp upward increases; the potential for state, regional and/or federal regulation of greenhouse gas emissions has created long term price uncertainty; air pollution standards and enforcement have become more stringent and new regulation on coal ash disposal likely will impose new costs on coal fired power generation. These factors have a direct impact on coal plant finances. Broader market forces related to natural gas, renewable energy and energy efficiency are also placing competitive pressures on coal fired generation. All of this requires that utilities, consumers and state regulators frequently reassess the need for and economics of pending projects.

The financial factors that have an impact on the viability of the Karn-Weadock plant are changing at the same time that the need for the power from the proposed plant is decreasing. This plant was originally proposed in 2007. Since then Consumers has reduced its forecast of electricity demand downward to reflect both short and long term economic developments.¹⁶ According to the Michigan Public Service Commission the plant is not warranted absent the closing of 950 MW of existing coal fired generation currently in operation by the Company. And, the Commission has expressed its view that the coal plant may not be the best energy option for the people of Michigan given the

¹⁶ Fitch's recent stable outlook incorporated management's 2010 1% electric sales decline estimate. See: *Fitch Affirms CMS Energy and Consumers Energy Ratings, Outlook Stable*, Business Wire, March 12, 2010.

existing alternatives.¹⁷ To receive approval from the MPSC the Company will need to go through further formal review of its energy and financial assumptions (many of which are discussed in this paper).

At this point the following can be said about the need for the plant:

- There is no need for a new plant for the foreseeable future (through 2020, at least) based on current economic growth trends;
- Upcoming modifications of electricity forecasts based on the changing underlying economic forecasts are likely to show slower growth than anticipated thus far;¹⁸
- To the degree there will be a need for new energy resources in the future it is more likely to stem from the fact that the State of Michigan is working with the Company to shut down existing coal plants;¹⁹
- The Company will need to submit financial information that shows the proposed coal plant is a better financial deal than currently available options such as energy efficiency, renewable energy, combined heat and power, and existing natural gas combined cycle capacity. It has not done that to date.²⁰

The purpose of frequent updates, and the more comprehensive review required by the Michigan system of regulatory review and oversight, is to ensure that all stakeholders are fully apprised of relevant market factors as they make critical decisions that commit both public and private resources to the project.

A. Rising Construction Costs/Rising Interest Rates

The Company's June 2009 estimate provides an annual, level payment Capital Cost figure of \$349 million for 40 years. The actual basis for this number is not provided, but it appears that the number assumes a \$2.7 billion cost at an annual capital charge of

¹⁷ For a complete discussion of MPSC's most recent perspective on the plant see: Staff Report from Michigan Public Service Commission, Generation and Certificate of Need Section, *Consumers Energy Electric Generation Alternatives Analysis For Proposed Permit to Install (PIT) No. 341-07 For an Advanced Supercritical Pulverized Coal Boiler at the Karn-Weadock Generating Station*, Docket Number: U-15966, pps. 12-17.

¹⁸ Some indication has been given by the company of improvement in demand, but whether this amounts to sufficient growth to warrant the capacity involved with Karn-Weadock remains to be seen. See recent discussion: *CMS Energy Corporation Q4 2009 Earnings Call Transcript*, specifically Messrs. Joos and Garrity p. 22 of 25, March 3, 2010.

¹⁹ MPSC has informed the Company that it will address the rate issues related to the closure of the existing plants as it considers the regulatory issues related to Karn Weadock. It is very likely that customers will pay for the remaining undepreciated value on the existing unused coal plants as well as costs for the new coal plan. See: MPSC, *In the matter of Consumers Energy Company for clarification of procedure Order*, December 28, 2009, Mich. PSC: Case No. U-16174.

²⁰ While the MPSC staff provided a general discussion of the issue of the need for electricity and how the proposed plant addressed it, Synapse Energy Economics, Inc., *Comments on Consumers Energy's Electric Generation Alternatives Analysis for the Balanced Energy Initiative including the Proposed Karn Weadock Coal Plant*, July 7, 2009 offers a quantitative and analytical perspective on the need for electricity, the options available and the role of this plant, see pps. 3-12.

12.3807% projected over a 40 year operating life. As noted above the Company's January 2009 cost calculation provides a total installation estimate of \$3.5 billion.

As noted earlier, the Company's January 2009 construction cost estimate had climbed 122 percent from its earliest preliminary estimates. Given that the plant will not be completed until at least 2017, it is reasonable to expect that the construction cost will continue to rise. This will put pressure on the rates paid by the Company's customers. In addition, for the past month news reports have highlighted the growing likelihood of long-term interest rate increases. When such increases occur and how they will be felt in the economy is not clear, but given signals from the federal reserve,²¹ and other market indicators rate increases are likely to impact the cost of capital for companies like Consumers as they plan for new projects.

The Company has already adjusted its capital charge for the project upward since 2007. It remains to be seen what other impacts on borrowing an improving economy will bring with it. Even with the very modest projections in Michigan's population and economic forecasts moving forward, it is highly likely that the cost of capital for the coal plant will rise. As is clear from the Company's BEI the capital charge range they anticipate for different types of projects may rise as high as 15.69%. It is not outside a reasonable estimate for the Company to be asking the MPSC for a capital charge in excess of the currently projected 12.38%, more in the area of 14% to 15% reflecting the risks associated with coal plants going forward.²²

B. Carbon Risk: Federal Regulations Will Internalize Consumers Energy's Carbon Costs: Currently, Congress is considering legislation concerning how it will regulate the economic behavior of utilities and other energy providers that emit greenhouse gases. If Congress does not act, the United States Environmental Protection Agency has the authority to regulate greenhouse gas emissions. The agency has already published draft findings for public comment, but the Administration has stated its preference for Congressional action in this area. All of these efforts seek to reduce the level of greenhouse gas emissions into the atmosphere.²³ The legislation that has been considered in the U.S. Congress assumes that some sort of cap-and-trade program would be established under which companies that emit greenhouse gases (including carbon dioxide) would have to purchase emissions allowances. The cost of buying these emissions allowances would become a cost of operating generating plants. The proposed

²¹ Ryssdall, Kai, *Fed signals end to cheap money*, Marketplace, February 21, 2010 and Gibson, Kate, *US Stock Market factoring in interest rate hike ahead*, Marketwatch, January 28, 2010.

²² Sustainablebusiness.com reports that in 2009 no new coal plants were started in the United States. See: *No New Coal Plants Started in 2009*, December 23, 2009. The United States Department of Agriculture, Rural Utility Service suspended loans to rural electric cooperatives in March 2008 because of the risky nature of the market. See letter from James Andrew, Administrator, Utilities Program to Honorable Henry Waxman, House Committee on Oversight and Government Reform, March 11, 2008. It is unclear what interest rate the market or the federal government will set for loans to coal plants once they re-enter the market.

²³ For a complete discussion of the various pieces of legislation, policy models and forms of economic regulation, including how they would specifically impact the financial assumptions of this project see Synapse, *Op Cit*.

Karn-Weadock plant would generate electricity by burning coal. Coal is the most carbon intensive fuel. Thus, it is expected that the proposed Karn-Weadock plant would emit upwards of 6.5 million tons of carbon dioxide each year.

The financial model used by the Company adopts a set of carbon cost assumptions for the Karn-Weadock plant. Those assumptions are phased in, and begin to have an economic impact in 2012. The model projects a cost of \$22.30 per each ton of carbon dioxide that the plant would emit each year or an annual total cost of \$139 million in 2012 growing to an annual cost of \$221 million in 2020, and \$389 million in 2030.

A number of independent federal agencies, universities and organizations have investigated the potential costs of regulating greenhouse gas emissions. Based on these modeling analyses, Synapse has created a wide range of carbon dioxide emissions prices to reflect the uncertainties in the timing, design and stringency of federal regulation. Synapse reviewed the 2009 EGAA submission on the Karn-Weadock plant. Their analysis produced a number of detailed observations regarding Consumer's carbon cost assumptions that are germane to this review.

The Company's "cost trajectory starts somewhat higher than the Synapse Mid-Forecast but over time decreases to a trajectory between the Synapse Low-and Mid-Forecasts. Although this single set of CO₂ prices is reasonable, the costs of any federal program to regulate greenhouse gas emissions will be affected by important details that are still uncertain, such as the timing, goals and design of the program."²⁴

The Synapse report is critical of the Company for failing to provide a more robust set of scenarios. For example, the Synapse High Forecast has a first year carbon cost of \$30 per ton. The sensitivity test that the Synapse analysis performs on its own model shows that this high cost analysis is within the bounds of reasonableness given the science and regulatory assumptions of some of the modeling exercises conducted around the United States in the last few years.

The Synapse report goes on to show that higher carbon costs are very likely under many reasonable scenarios in which the plant becomes even more uneconomic.²⁵ In addition, the medium and long term carbon cost assumptions employed by the Company rise at a much slower rate than most models. For example, by 2017, the Synapse High model shows an annual budget cost to the Consumer project of \$251 million, whereas the submitted budget to MPSC suggests a cost of \$189 million – a 32 percent difference.

The Synapse analysis also raises several important technical issues with the modeling used by the Company which might substantively alter the analysis. For example, the Synapse analysis expresses concern as to whether the modeling used to arrive at the actual CO₂ emissions quantities are accurate. The calculations provided in the study are not fully explained.

²⁴ Synapse, *Op Cit*, p. 25.

²⁵ Synapse, *Op Cit*, p.26.

C. Coal Will No Longer Be Reliably Cheap: The Company has provided the MPSC with a fuel cost analysis that projects rising coal prices over the next ten years at a rate of 3% annually. The MPSC characterized this cost analysis as ‘conservative’. The MPSC, nevertheless offered the following critique of the Company’s coal price presentation: “significant risk exists regarding how relative fuel prices will play out in the face of increasingly stringent environmental regulations throughout the life of the proposed plant.”²⁶

A considerable body of information indicates that future coal markets will not be like past coal markets, notably prices will be considerably higher. Currently, prices of PRB coal are rising slowly after a decline from historic highs experienced in mid 2008. In the short term (the next twelve months), gradual increases can be expected. For the medium and longer term, coal markets can no longer be relied upon to produce a reliable supply of low cost fuel. Instead of being an anomaly, the price run-ups of 2007 and 2008 are more a harbinger of how markets will perform in the future.

Despite the current recession and relatively low prices of coal across the country, between 2010 and 2012 industry analysts and market data tell us the price of PRB coal will rise by approximately 40 percent, and potentially higher.²⁷ Coal from the PRB is expected to be the primary source of fuel for the Karn-Weadock plant.

From 2012 and thereafter, the price environment for PRB coal will rise significantly due to new industry cost pressures as mining becomes more complex and expensive and as large coal producers cultivate a worldwide base of users. Domestically, coal producers will use PRB’s low price to capture a larger portion of the energy market (new plants, retrofits and carbon capture projects). Further success with this strategy will place additional upward pressure on prices and hasten the depletion of PRB mines as an energy resource.

Future PRB coal supplies come with heightened risks. Recent indications from the United States Geological Survey (USGS) and industry leaders have raised red flag warnings about long term supply sufficiency of economically recoverable coal in the Powder River Basin. These price pressures are structural in nature and will redefine the nation’s coal markets going forward making prices less responsive to the normal patterns of domestic business cycles. This will further erode coal’s competitive edge with other power generation fuels in the United States.

One study, conducted by the United States Geological Society (USGS), released in 2008 raised a fundamental question about the size of economically recoverable coal reserves in the PRB Region.²⁸ The USGS study has raised many questions, but perhaps most

²⁶ MPSC, *Op Cit*, p.21.

²⁷ Peabody Energy, Forward Looking Statement, February 18, 2010 estimates PRB 8800 rising from \$10.00 per ton in 2009 to \$14.00 in 2012. NYMEX Futures (March 1, 2010) is reflecting a price movement of \$10.51 per ton in March 2010 to \$14.58 in December 2012.

²⁸ United States Geological Society, *Assessment of Coal Geology, Resources and Reserves in the Gillette Coalfield, Powder River Basin, Wyoming*, Open-File Report: 2008-102. <http://pubs.usgs.gov/of/2008/1202/>

important for Consumers Energy and the State of Michigan is that it focused on the Powder River Basin's Gillette mines. The report prompted press coverage in the Wall Street Journal that uncovered the fact that: a) the United States Energy Information Agency concurred with the findings of the study and was revising the methodology by which the nation's coal reserve levels were being calculated; b) one of the nation's largest utilities agreed with the findings of the study; and, c) another large power generator had purchased its own mine due to risks and uncertainties it perceived with the traditional mining industry.²⁹

A recent analysis of PRB coal offered by Arch Coal, a major mine owner in the PRB region, estimates growing production and sales from the area.³⁰ The company points to shrinking stockpiles of PRB coal, diminished production of steam coal from Central Appalachia and historic price patterns (which indicate a coming period of volatile upward price swings). The company is viewing a \$2 to \$5 per ton increase in the price of coal in the near to medium term as a realistic estimate of its potential.

Industry reporting and analysis is placing delivery costs of coal between \$30 and \$35 per ton currently and PRB coal at \$10.50 per ton, or delivered coal at \$45.00 per ton.³¹ This rising price environment is complicated by the new market factor of what market analysts believe will be longer term, lower natural gas prices.

The issue of the long term impact of low natural gas prices is having its impact on large scale investment decisions. A recent article in the New York Times documents the distressed condition of a \$48 billion private equity energy transaction involving the Texas power grid and Energy Future Holdings. The 2007 buyout, which included the construction of three new coal plants, has come unraveled for a number of reasons.

To a large degree, the prospects of Energy Future Holdings hinge on something it and its owners can't control: the price of natural gas. While it has insulated itself somewhat, through financial hedges that protect it from price swings, it still needs the prices to rise sharply to have any hope of paying off its staggering debt load.

Indeed, while the company met its roughly \$3.6 billion in interest payments on its debt last year, it still faces a \$20 billion balloon payment coming due in 2014. To leap that hurdle, the private equity owners have a handful of options: persuade bondholders to swap their debt at a discount for debt that matures later; sell a stake of the company in an I.P.O.; or sell assets.³²

One coal industry newsletter that closely monitors both the natural gas and coal markets summarized the current and future market direction in the following manner:

²⁹ Smith, Rebecca, *U.S. Foresees A Thinner Cushion of Coal*, Wall Street Journal, June 8, 2009.

³⁰ See. Arch Coal, *Investor Presentation*, February 2010, pps. 11-14 and 27, 28.

³¹ The coal price modeling for the plant submitted in response to the Balanced Energy Initiative June 15, 2009 places the 2010 projection for PRB coal per ton deliver price at \$39.98 per ton. The overall analysis projects an annual 3% increase. Our analysis suggests a price rise on underlying price of coal from current price of \$10.50 by end of 2011 to \$14.00 and then a price spike through 2011-12 upward of \$18.00; rising through 2017 into the lower \$20 per ton for a delivered price in the range of \$50-\$56 ton in the first year of operation 2017.

³² Anderson, Jenny and Creswell, Julie, *For Buyout Kingpins, The TXU Utility Deal Gets Tricky*, February 27, 2010.

...the assumption that coal will most always be the most economic fossil fuel choice is now out the window. It won't boomerang until and unless natgas proves to be persistently more expensive than it was during 2009.³³

D. Lower Capacity Factors: The Company's financial plan assumes that for the first decade the Karn-Weadock plant will operate at an average capacity factor of over 90%. There are a number of factors that suggest this goal may be difficult to achieve. First, recent changes in the natural gas market suggest that the price of natural gas will remain competitive with coal for an extended period.³⁴ For those places in the country such as Michigan, where there already exists a substantial amount of under-utilized natural gas capacity, new, more costly coal plants may operate less than regulators and owners now anticipate.

Moreover, these natural gas changes are occurring at a time when the United States and other countries around the world are deciding on the appropriate public policy and legislative mechanism to address climate change. Although the Company's financial model for the plant addresses the carbon issue somewhat, the broader implications of a new carbon regulatory system are expected to have important impacts on the nation's coal fleet, especially new plants or those with high capital costs. Standard and Poor's recent analysis of capital market highlights the risk:

Lower capacity factors at coal plants – As fuel switching becomes a widespread compliance strategy, most coal plants will have lower capacity factors. This will imply more start-up and shut-down costs, as well as the need to recover a coal plant's higher fixed costs from fewer megawatt hours (MWh). From an operational perspective, this creates a need to manage fleet dispatch differently, while from a financial perspective, it can steeply reduce the operating margins of coal plants. Ratepayers of regulated utilities may need to cover the same fixed costs over fewer MWhs, contributing to rate pressures.³⁵

In a more recent analysis³⁶ by UBS the natural gas/coal dynamic is stated more emphatically:

Given the significant citing/permitting issues and high relative fixed costs involved in building new coal, nuclear, and hydro facilities, the next obvious source for incremental baseload generation is gas generation. With significant improvements in gas turbine technology, combined cycle gas turbines (CCGT) units have made natural gas a significantly more competitive fuel source. In the last decade 1999-2008, the US built almost exclusively gas fired generation to meet incremental demand (87% of all new capacity).

³³ Coal and Energy Price Report, *Market Commentary*, Volume 12, No. 26, February 26, 2010,

³⁴ For a discussion of the depth and likely duration of this phenomenon both internationally and domestically see the International Energy Agency, *World Energy Outlook, 2009*, November 2009. The profound change in the United States outlook warranted inclusion as part of IEA's worldwide press release on November 10, 2009.

³⁵ Standard and Poor's, *The Potential Credit Impact Of Carbon Cap-And-Trade Legislation On U.S. Companies*, September 14, 2009, p.5.

³⁶ UBS, *Independent Power Producers*, UBS Investment Research, February 22, 2010.

With natural gas turbines remaining the least expensive, most environmentally friendly, and the greatest dispatch flexibility to operators, we anticipate further investment in new gas generation through the coming decade. We believe the trend towards gas would accelerate should an aggressive cap and trade program for regulating carbon emissions be adopted. We agree with experts terming natural gas fired generation as a “bridge fuel”, as it provides the next best alternative to a cost effective, truly carbon-free generation source.³⁷

The UBS analysis adds:

Adding to the lack of anticipated new generation, approximately 62GW of coal generation have been terminated in the last decade, mostly due to both rising costs and difficulty procuring air pollution permits from state environmental agencies. Currently, very little new coal generation is anticipated to come on line beyond 2013.³⁸

There is considerable risk to the Company’s capacity factor given these market trends. The strength of the natural gas markets, growing potential for renewables, development of efficiency programs and changes brought on by carbon regulation all are converging at the same time. The changes in the nation’s grid management are only beginning to happen and coal faces real competitive hurdles.

These competitive challenges make it unlikely that the Company will achieve its early year projections of 91% capacity utilization, and will more likely use the plant at an 80% capacity level.

E. Regulation of Coal Ash: When Progress Energy, a North Carolina based utility, recently announced it was closing 11 existing coal plants, it cited additional costs from impending regulation of ash or waste from its coal plants as a contributing factor.

EPA is currently considering re-characterizing the nature of and regulation of coal combustion products (bottom ash, fly ash and related materials, hereinafter (CCP’s) in response to TVA’s Kingston Plant ash pond impoundment failure. Speculation is focusing on EPA’s regulation of CCP’s as a hazardous waste. A narrow exclusion may be possible where the finished product of CCP is fully encapsulated. If EPA characterizes CCP’s as a hazardous waste or otherwise increases the regulatory requirements applicable to CCP’s, the handling, storage and disposal of this material will result in significantly increased costs of operation, and more sophisticated handling equipment and disposal requirements. Classification of power plant CCP operations as activities that produce hazardous wastes as defined by the Resource Conservation and Recovery Act (RCRA) would trigger a number of additional regulatory requirements as well as potential liability associated with closure of impoundments, leachate management and site remediation.³⁹

F. Distribution, Surcharge and Other Fees: The typical consumer receives a bill with several charges added to their actual electricity usage.⁴⁰ Customers are charged separately for the distribution system as well as a number of other fees and surcharges related to energy generation and energy programs. Customers are also sometimes credited for

³⁷ UBS, *Op Cit*, p.32.

³⁸ UBS, *Op Cit*, p. 31.

³⁹ Progress Energy, *Progress Energy Carolinas, Inc.’s Plan to Retire 550 MW of Coal Generation Without SO2 Controls*, Docket No. E-2, Sub 960, December 1, 2009, p. 7-8.

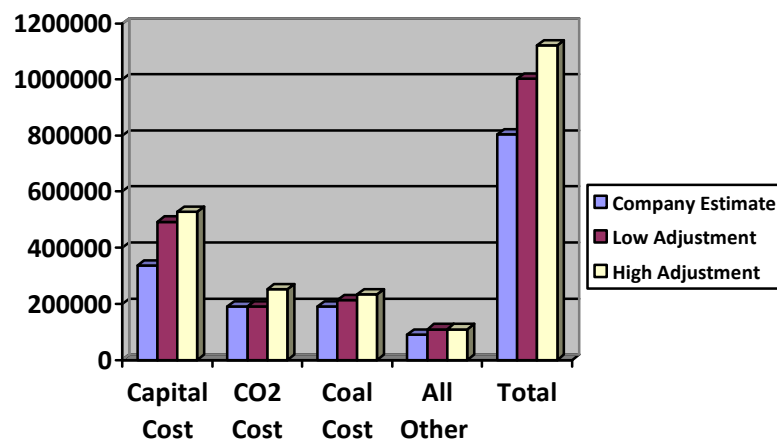
⁴⁰ One newspaper has made a similar observation regarding bill complexity. See: Alan Adler, *DTE Energy, Consumers Energy Bills are laden with surcharges, fees*, Oakland Press, January 24, 2010.

money given back to them from prior investments. Most of the charges are presented in terms of electricity usage in cents per kilowatt hour. However, some charges, like the monthly Access Charge are simply flat fees charged each month.

As part of its most recent rate proceeding the Company is seeking an increase in the rate charged for the distribution of electricity from 2.71 cents per kilowatt hour to 3.1 cents per kilowatt hour. For the purposes of this report we assume a 3.6 cents per kwh generalized charge beyond the cost of electricity from the plant that will be charged to the consumer.

G. Summarizing the Cost of Electricity from the Plant: The Company's 2017 Estimate Versus A Low and High Adjustment: Each of the risk areas cited above related to the capital cost (construction and interest rate), carbon regulation, fuel costs, ash disposal and capacity factors have an estimated quantifiable impact on the financial projections made by the Company. Those quantities form the basis for the low and high adjustments this analysis makes to the bottom line cost of electricity that the plant will produce. The remainder of this paper then follows the logic of those higher costs of electricity prices through the regulatory process and into the price of electricity received by consumers in their monthly bills as a result of the Karn Weadock addition.

Figure 2: Comparison 2017 Company Estimates Versus Low and High Estimates For Annual Cost of Operation of Karn Weadock Plant (in thousands)



- According to the Company's estimate, the cost of electricity from the plant in 2017 will be 12.3 cents per kilowatt hour. Our analysis adjusts for the distribution and surcharges discussed above. The customer price of electricity from the plant, with the adjustment, is estimated at 15.9 cents per kilowatt hour. The Company's estimate assumes \$2.7 billion capital cost at a 12.3807% capital charge for 40 years. It assumes a \$30 per ton cost for CO2 emissions. Its fuel cost estimates PRB coal at \$44.25 per ton and a capacity factor of 89.93%.

- The low range adjustment arrives at a cost of electricity from the plant in 2017 at 20.84 cents per kwh, inclusive of distribution and surcharge costs. This adjustment assumes a capital cost of \$3.5 billion at a capital charge of 14% for 40 years.⁴¹ It accepts the Company's CO2 cost estimate of \$30 per ton. It assumes \$51 per ton for PRB coal, 80% plant capacity and \$20 million for ash disposal.
- The high range adjustment arrives at a cost of electricity from the plant in 2017 at 22.86 cents per kwh. This adjustment assumes a capital cost of \$3.5 billion at a capital charge of 15% for 40 years. It assumes a higher CO2 cost estimate of \$40 per ton. It assumes \$55 per ton for PRB coal, 80% plant capacity and \$20 million for ash disposal.

IV. Understanding The Risks to the Company's Analysis and What They Mean For Customers

The presentation provided by the Company has several weaknesses. Almost all of the weaknesses will cause an increase in the cost of electricity from the plant. This would typically result in more costs and future risks being passed along to businesses and residents served by Consumers Energy, or to the customers of the municipal systems who buy ownership shares in the coal plant. This analysis has identified five broad risk areas: construction and interest rate, fuel cost, carbon, capacity and waste disposal risk.

Standard and Poors, one of the nations leading credit agencies, has issued warnings to large utilities and state public service commissions regarding these and other risk areas. Their warning is important. The risks identified in this paper are singularly of concern. Typically, a public service commission working with an investor owned utility is capable of handling one or more of the challenges outlined in this paper within the confines of the regulatory structure. *However, it is the combination of factors that will have an impact on the power plant specifically and the general finances of the Company and the choices made for the Michigan's energy system generally that are extremely troubling. They constitute a separate, cumulative problem for the utility, regulators and consumers.*

Among the risks are that CO2 compliance costs could spiral out of control, those costs could be up for rate recovery at the same time that other expenses are rising, and the costs could then get "crowded out" if regulators try to ease customer rate shock. Any disallowance would not necessarily be explicit, since it is difficult and legally suspect to keep prudent, legislatively mandated costs out of rates. The real risk to credit quality is to the prospect that CO2 compliance costs will be the proverbial straw that leads to harsh regulatory responses such as a disallowance or deferral because of costs pressures tied to commodity prices, more capital spending for basic reliability needs on the transmission or distribution system, and added construction costs for new generation to meet rising demand...Clearly, the pursuit of a cooler planet will leave utilities sweating over the risk to their credit quality.⁴²

⁴¹ The \$3.5 billion total installed cost is taken from Consumers January 2009 document. As demonstrated throughout this report many of the cost components of this estimate are increasing. The acceptance of this 2009 Consumers estimate is quite conservative.

⁴² Standard and Poors, *The Credit Cost of Going Green for U.S. Electric Utilities*, Credit Week, March 10, 2008,

The Company is beginning to recognize some of the interconnections of the risk factors. In its most recent SEC filing it outlines the risks broadly and views the financial implications to the company and shareholders.

CMS Energy, Consumers, and their subsidiaries are subject to costly and increasingly stringent environmental regulations. They believe that environmental laws and regulations related greenhouse gas emissions, ash disposal and cooling water use will continue to become stringent and require them to make additional significant capital expenditures for emissions control equipment installation and upgrades.....

CMS Energy and Consumers expect to collect fully from their customers, through the ratemaking process, expenditures incurred to comply with environmental regulations. If Consumers were unable to recover these expenditures from customers in rates, it could negatively affect CMS Energy's and/or Consumers' liquidity, results of operations, and financial condition and CMS Energy and/or Consumers could be required to seek additional financing to fund these expenditures.⁴³

The principle point to be taken from these warnings for the purposes of the rest of the discussion in this paper is that the financial projections made about the plant and Consumers Energy's longer term status, and the assumptions made about Michigan's utility rate setting process cannot be known precisely at this point in time. However, the basic trajectory and magnitude of the impact of the Karn-Weadock Generating Station proposed coal plant on consumer rates can be reasonably estimated and must be a critical part of any final decision on the plant.

A. Recent Rate Experience: The Backdrop for Assessing the Impact of The Karn-Weadock Plant Impact. Most of Consumer Energy's residential customers are protected by a system of rate regulation. The system requires the Company to petition the Michigan Public Service Commission prior to making any adjustments in the basic rates or any ancillary charges to the monthly bills of those who receive either electricity or gas service from the utility.

Table I
Consumer Energy
Recent Residential Rate History
500 kw Usage per Month

Years	Rates (cents per kwh)	Monthly Bill	Annual Bill	\$\$ Full Year Increase
2006	9.64	\$48.20	\$578.40	N/A
2007	9.70	\$48.50	\$582.00	\$3.60
2008	10.49	\$52.45	\$629.40	\$47.40
2009	11.09	\$55.45	\$665.40	\$36.00
2010	11.82	\$59.10	\$709.20	\$43.80

Table I shows the recent rate history of Consumer Energy and applies the rates to an average consumer who uses 500 kilowatts of electricity per month. A customer pays on

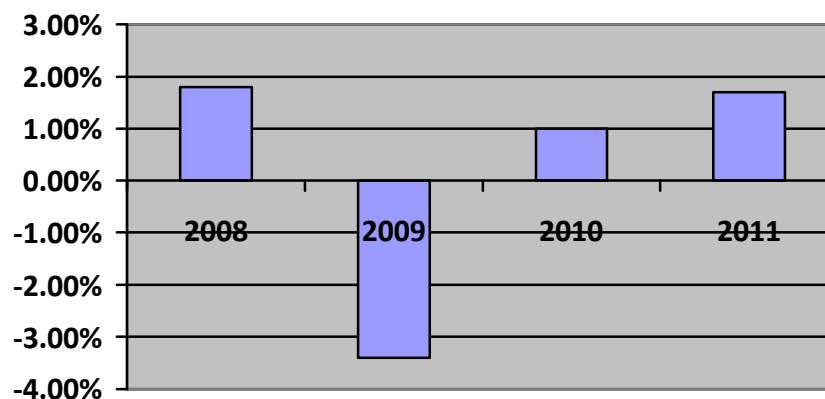
⁴³ Consumers Energy, Form 10K, March 1, 2010, pps. 33-34.

average \$32.70 more each year for the same electricity, or approximately 4.5% per year.⁴⁴

These generalized price increases of 4.5% per year, have taken place as Michigan's economy works to come out of the national recession and improve its long term economic competitiveness. Medium term economic forecasts for the state see continued high levels of unemployment and weak income growth.⁴⁵

Although the utility has received 4.5 percent annual increases during this period, and expects similar if not higher future increases, a recent Michigan state economic forecast, shows electricity prices far outpace wage and income growth in the state.⁴⁶ From 2007 through 2011, actual and projected wage and employment growth and real disposable income are flat or declined. Personal income during this period rose by 1.0 percent in 2008, dipped in 2009 and is expected to rise in 2010 and grow by 1.7% in 2011.⁴⁷

Figure 3: Michigan Actual and Projected Personal Income Growth



In a slow growth environment utilities and energy planners need to pay particular attention to price of electricity issues. The indicators highlighted in this paper strongly

⁴⁴ See Appendix I for the ten year average residential rate for Consumer Energy's customers.

⁴⁵ House Fiscal Agency, *Economic Outlook and Revenue Estimates for Michigan, FY 2009-10 and FY 2010-2011*, January 2010.

⁴⁶ According to Consumers Energy most recent investor briefing the company anticipates 7%-8% annual increases in its rate base between 2010 and 2014. See: CMS Energy, *Growing Forward*, Investor Briefing, March 2, 2010, p. JGR 11. These increases are due to a series of ongoing and anticipated corporate and regulatory actions designed to improve the company balance sheet. The increases suggest an active regulatory docket in the coming years. How the costs are allocated are subject to state law, the MPSC and the company. What this paper attempts to estimate is the price of electricity impact of the Karn-Weadock plant to consumers in this shifting context. Based on past practices and estimates the cost of the plant is likely to cause an increase in the price of electricity. The overall 7%-8% annual rate base increase made in these projections to investment community seem to be within the range of increases that would support the estimates made in this paper.

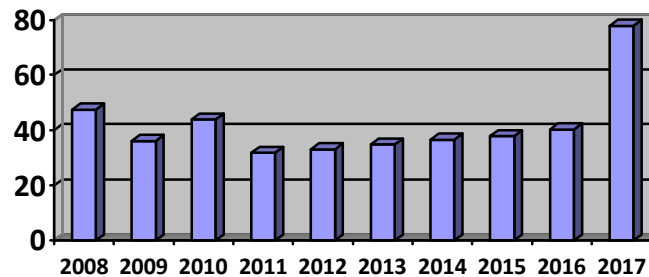
⁴⁷ RSQE Forecast, *RSQE Michigan Forecast*, Research Seminar in Quantitative Economics, University of Michigan, Ann Arbor, November 20, 2009.

suggest that the introduction of a new coal plant at this time will also bring with it a series of additional regulatory problems. These problems will almost by necessity require additional outlays by consumers to pay for the plant. In this environment the questions must be asked again is this plant needed at this time, is this the best investment considering the alternatives, will the higher costs stabilize or will the plant be more likely to incur greater legal and environmental problems in the future?

B. What will be the Karn-Weadock Coal Plants Impact on Customer Bills? There are many assumptions that must be made to estimate the impact of the cost of electricity when the plant opens in 2017. Then, further estimates must be made to understand how the electrical system that governs the regulation, distribution and sale of electricity within the state will handle the electricity. This paper has selected a range of assumptions to demonstrate the basic point. However, as the regulatory process for the State of Michigan goes forward it would be advisable for the utility and state regulators to engage in a much broader process that includes a selection of capital projects and regulatory assumptions in order to help the public better understand what the customer dollar buys with regard to sound energy policy.

- The plant is likely to produce electricity that is priced to the consumer between 21 and 23 cents per kwh including distribution and other charges. Even if current residential rates rose by 30% between 2010 and 2017, the cost of this new coal plant would still be comparatively very expensive. The cost of electricity from the plant would be 45% higher than what consumers normally pay for electricity from the rest of the system. Adding this plant adds significant pressure to raise prices.
- The price increase would come largely, if not exclusively, on top of the normal increases that the Company has been getting to run the system. A review of past increases granted by the MPSC shows that residential customer rates increased the annual cost of electricity on average \$32.70 per year per household since 2006, or approximately 4.5% per year. The recent request by Consumers to raise rates by 8.5% sets a worrisome potential precedent for new annual rate ceilings.

Figure 4: Actual/Projected Annual Increases for Average Electricity Customer Thru 2017 -- First Year of Karn-Weadock Plant Operation (Dollars Per Year)



- Based on the estimates in this report, residential customers are likely to see their bills increase at least within a range of \$34.00 to \$46.00 per year to cover the costs of the plant. Rather than the historically typical 4.5% annual increase, customers can expect an increase between 9.3% and 11.07%. The MPSC and the Company can take steps between now and 2017 to soften the impact on customers, but given current conditions, this level of increase is the likely consequence from the introduction of the Karn-Weadock plant into the rate base of Consumer Energy's customers.⁴⁸ If handled poorly by regulators and the Company, the Standard and Poor's warning of a regulatory system that is overburdened by too many costs occurring at one time could double the normal annual increase.
- The underlying analysis in this paper is based on Consumers Energy data prepared in 2008/2009 and released during the first part of 2009. As demonstrated throughout this paper market trends are occurring that suggest further price increases. The estimates are conservative, and the impact on rates presented in this paper is likely to be understated.

Some communities have completed coal plants and have announced significant increases in electricity price increases to consumers. In January of this year We Energies Michigan customers received the first phase of a three phase 41% increase in electricity rates to pay for the costs of new coal fired plants at the Elm Road Generating Facility in Oak Creek, Wisconsin.⁴⁹ Customers in Wyoming and South Dakota were recently surprised when the

⁴⁸ There are many methods available to the regulators and the Company to diminish the appearance of the increase. If MPSC and the Company agree to processes that lengthen the payment period, for example, customers would be prudent to inquire whether such an action would increase the overall cost of the plant.

⁴⁹ Nikki Younk, *We Energies adjusts rate hike*, Iron Mountain News, December 16, 2009.

WyGen III plant resulted in 20% rate increases to pay for the new 110 MW coal plant sponsored by Black Hills Power Corp.⁵⁰

C. Special Concern for Municipal Electric Systems and their Customers. The Company assumes that an ownership interest in 300 MW of electricity from this plant will be sold to Michigan's municipal electric systems. This paper assumes that the financial risks associated with coal plants in today's environment are more challenging than they were when many of the municipal systems purchased interests in coal fired technology prior to and during the 1980's. The cost to customers and financial risks to the fiscal health of the municipal electric systems and the local governments of which the electric systems are a significant contributor are not the same. The following points illustrate this new reality using the statistical history and fiscal projections of the City of Bay City.

Bay City Electric Power and Light⁵¹ is a municipal electric system that is a potential purchaser of power from the Karn-Weadock plant. It currently holds an ownership interest through the Michigan Public Power Association in two coal fired power plants: 5.2 MW in Campbell and 8.7 MW in the Belle River Plant. The Michigan Municipal Electric Association (MMEA), of which BCEPL is a member, has written in support of the Karn-Weadock plant generally and of an unspecified group of its members who have expressed interest in buying electricity from the plant.⁵² The City has a population of 33,874 in 2009 (down from 36,817 in 2000).⁵³ The City projects annual sales of 324,000 MWH for 2010.⁵⁴ BCEPL.

BCEPL financial statements show average annual operating revenue of approximately \$32 million and average operating expenditures of \$35.5 million for the period 2008-2014.⁵⁵ The long term, annual deficit in the electric fund is offset by existing assets of \$30+ million. Those assets are expected to decline in value by \$5 + million over this period in order to fill the gap between revenues and expenditures.

This overview of BCEPL's finances – annual expenses exceeding revenues; annual revenue increases unable to keep pace with expenditure increases; annual deficits;

⁵⁰ 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

⁵¹ BCEPL serves 20,000 customers from wholesale purchases and ownership in Belle River and Campbell coal fired power plants through the Michigan Public Power Agency. For a more complete discussion and financial details see: <http://www.baycitymi.org/Utilities/Electric>

⁵² Letter from Michigan Municipal Electric Association in support of Consumer Permit 341-07; MPSC Case No. U-15996, April 21, 2009. Filed as part of Consumer Energy Letter from Stephen Waword, Manager, Next Generation to Mary J. Kunkle, Michigan Public Service Commission, June 5, 2009.

⁵³ Bay City Michigan, *Comprehensive Annual Financial Report For the Fiscal Year Ending June 30, 2009, Demographic and Economic Statistics Last Ten Years*, Table 15, p. 109.

⁵⁴ Bay City Electric Light and Power, *Renewable Energy Plan, Attachment C – Renewable Energy Plan Surcharge Summary for Municipal Utilities – Bay City Sales Forecast 2010*, U-15849,

⁵⁵ This information on Bay City Electric Light and Power is taken from the Bay City, *Financial Forecasts: Fiscal Years Ending June 30, 2008-2014, City of Bay City, Projection of Revenues and Expenditures and Changes of Fund Balance, Electric Fund, For years ending June 30, 2008-2014*, pps.. 18-21.

dipping into reserves regularly to close deficits and declining balances in a reserve asset are indications of financial distress.

During the same period customers of BCEPL can expect to see a 27.9% increase in the average residential rate of electricity (from 8.6 cents per kwh in 2008 to a projected 11.09 cents per kwh in 2014). If rates continue to rise at a similar rate through 2017, then the rate for electricity in 2017 should be 12.15 cents per kwh.

Municipalities like Bay City have relied upon coal fired generation for many decades because it has provided inexpensive electricity.⁵⁶ The proposed Karn-Weadock plant will create electricity at 21-23 cents per kwh. Electricity from the plant will be between 65% and 80% higher than the generalized price of electricity paid by customers. What ownership terms Consumers Energy and Bay City ultimately agree upon will influence the cost of electricity to Bay City customers. The cost of the new plant, however, will place considerable upward pressure on customer prices or force a more rapid depletion of the net assets of the municipal system (thereby weakening the stability of the City's Electric Fund which is an integral part of the City's fiscal structure).

The Company and the municipal systems that might consider signing on to this project need to consider the financial risks of participating in a coal fired power plant in the current economic climate. In 2007 and early 2008, AMP-Ohio, an Ohio-based public authority, solicited and received binding contract participation from 81 municipal electrical systems for partial ownership in a 960 MW coal fired power plant in Meigs County Ohio. During the public discussion leading up to community ratification of these arrangements concerns were raised about the rising cost of construction, cost of electricity, terms of ownership, environmental risks and a host of other business and environmental issues.⁵⁷ AMP-Ohio pushed forward with the project, confident that the risks could be managed. The total installation cost, including financing, however, went from \$1.5 billion in May 2006, to \$2.912 billion in June 2007, to \$3.391 billion in January 2008, to \$3.940 billion in October 2008. In early 2009, AMP reduced the construction cost estimate (not including financing) to just over \$3 billion, a decline of approximately \$250 million. Then, in late 2009 AMP-Ohio announced it was canceling the coal plant due to an unforeseen 37% increase in the cost of construction that occurred *after a construction contract was signed with a project developer*.⁵⁸ According to one press account AMP Ohio incurred \$200 million in project expenses that will now have to be absorbed by the 81 participating communities.⁵⁹ The Municipal power systems will

⁵⁶ For a detailed discussion of the development of the current primary sources of coal fired generation used to serve Bay City see: www.mpower.org/mppa_history.htm. For further discussion on the history of coal plants see Attachment II: The History of the Campbell 3 Plant.

⁵⁷ For a detailed, chronological account of the events and copies of the technical evaluations performed at the time see: www.ohiocitizen.org/AMPCoalPlant. The author of this study prepared a technical paper that reviewed the terms and conditions of the contract between the municipal electric systems and the public power authority.

⁵⁸ Hunt, Spencer, *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.

⁵⁹ Powell, Mickey, *AMP, city abandon plant plan*, Martinsville Bulletin, November 26, 2009. See also: Powell, Mickey, *Adviser: City Needs AMP cost report*, Martinsville Bulletin, January 11, 2010

have to absorb the planning costs for a plant that will never be built. AMP Ohio has announced it is entertaining the possibility of constructing a new natural gas plant on the Meigs County site.

D. One State's Recent Experience With A Coal Plant in the Regulatory Process. In early 2007 Interstate Power and Light, the Iowa corporate subsidiary of Alliant Energy made application to the Iowa Utility Board for a 649 MW coal fired power plant in Marshalltown, Iowa. The Iowa Utility Board approved the Certificate of Need for the plant and the case proceeded to the rate setting stage.⁶⁰

During the rate setting proceeding it was announced that the cost of the plant had increased. The case was fully reviewed by the Iowa Utility Board. Briefs were submitted, discovery held, and hearings and cross examination conducted. At the end of the rate setting proceeding the Iowa Utility Board issued a set of rate setting principles that were described by Alliant Energy accordingly:⁶¹

In its decision, the IUB established a return on equity of 10.1 percent and a cost cap of 2816 per kilowatt, excluding AFUDC. IPL had requested a return on equity of 12.3 percent and a cost cap of \$3483 per kilowatt, excluding AFUDC. IPL has proposed to own 350 megawatts of the facility's output, with remaining owned by other partners or included in purchased power agreements.

“We will need to review the IUB’s written order to determine our next steps”, states Aller, president-IPL. “However, the conditions placed by the IUB on the proposed hybrid power plant present a number of challenges in today’s financial climate, and we are disappointed that this decision seemingly does not take that reality into account...”⁶²

On March 5, 2009, Alliant Energy Corporation announced that it was canceling plans to move forward with the Marshalltown plant. The press release cited the current economic and financial climate, increasing environmental, legislative and regulatory uncertainty regarding regulation of future greenhouse gas emissions and terms placed on the proposed power plant by regulators.⁶³

The February press statement makes it clear that Iowa utility regulators could not see fit to pass along the entire costs of the plant to Iowa consumers. To do so would have added electrical capacity onto Iowa’s grid with a capital and operations costs that were too far out of line with the cost of existing generation and the structural price of electricity

⁶⁰ Alliant Energy, *Interstate Power and Light receives pre-certification approval for construction of proposed Sutherland Generating Station Unit 4*, April 30, 2008.

⁶¹ Going into the regulatory approval process for the plant Alliant Energy was said to have had a “constructive” relationship with State of Iowa utility regulators. See: Standard and Poors, *Alliant Energy: Ratings Direct*, August 8, 2008. On March 12, 2010, Fitch Ratings affirmed Consumers Stable Outlook and “constructive” regulatory climate. Despite these characterizations the rating agency has expressed concern over the regulatory outcome related to Karn-Weadock. See: *Fitch Affirms CMS Energy and Consumers Energy’s Ratings; Outlook Stable*, Business Wire, March 12, 2010.

⁶² Alliant Energy Corporation, *Interstate Power and Light Company Receives Sutherland Generating Station Unit 4 Ratemaking Principles Decision from Iowa Utilities Board*, February 4, 2009.

⁶³ Alliant Energy Corporation, *Interstate Power and Light Company Cancels Plans for Sutherland Generating Station Unit 4*, March 5, 2009.

familiar to Iowa residents and businesses. In March 2009, Alliant responded that its shareholders and management could not bear the financial and other risks involved with having to absorb such a large portion of the known costs and uncertainties that were likely to create yet other costs.⁶⁴ On December 9, 2009 the company reported unanticipated charges against 2009 shareholder earnings valued at between \$0.10 and \$0.15 per share. The charges were attributed to the rejection of the Marshalltown and Wisconsin coal plants.⁶⁵ This same financial conundrum faces regulators in Michigan.⁶⁶

V. Conclusion

Later this year the Michigan Public Service Commission will hold hearings to determine whether there is a need for the plant. During this formal proceeding many of the energy and financial issues discussed in this paper will be updated and discussed in more detail. The focus of these discussions will be on the need for the plant and the potential for other alternative energy mechanisms to serve the people of Michigan. Given the slow growth projections of Michigan's economy and the rapid changes in national and world energy markets, new coal plants have become a considerably more risky investment than in the past. How Consumers Energy and Michigan state regulators decide the fate of the Karn - Weadock plant will determine whether or not those financial risks are passed onto state residents.

As it stands, this analysis offers a basic set of conclusions that shows the coal plant causing rates and consumer prices to rise well beyond what is considered within the normal bounds of typical increases in Michigan. While it is always difficult to predict rate impacts seven years into the future, the cost magnitudes are so great given the fundamentally weak economic dynamics for new coal plants in the country that the risk to consumers is not if, but how much. Customers will feel the impact of the plant on their pocketbook in the following ways:

- Customers of Consumer Energy have received average annual rate increases of between 4 and 5 percent in the recent past. This amounts to about \$32.70 per year per household.
- If the proposed plant is built, the cost of electricity from the plant will be approximately 45 percent higher than what it costs from the rest of Consumers

⁶⁴ During the proceeding the author of this report provided expert testimony for a coalition of groups opposed to the plant. Included in that testimony was an analysis very similar to the one presented in this paper. Alliant Energy Corporation officials disagreed strongly with the testimony calling it, among other things, an oversimplification.

⁶⁵ Alliant Energy Services, *Alliant Energy announces expected regulatory charges to earnings*, December 9, 2009.

⁶⁶ At the same time Alliant Energy Corporation was rejected in Iowa the Public Service Commission of Wisconsin also denied another proposal the company had for a coal fired plant as too costly, inconsistent with the public interest and not the cheapest alternative (specifically citing natural gas as a cheaper alternative). See; Public Service Commission of Wisconsin, *PSC Rejects Power and Lights Proposed Coal Power Plant*, November 11, 2008. A January 4, 2010 release from Alliant mentions that the Iowa Utility Board has granted some relief to the company regarding certain cancellation costs for the Marshalltown plant.

operations. This will create a significant upward pressure on prices. In fact, to pay for this one plant, customers will likely see a rate increase that is more than double the usual and customary increase, meaning not a 4.5% increase but more like between 9% and 11%. , This will mean that ratepayers can expect a rate increase of between \$67.00 and \$76.00 annually when Karn-Weadock comes on line in 2017, at least an additional \$34.00 to \$46.00 annually.

- Electricity price hikes have outpaced increases in household income for Michigan residents in the last few years. Consumers Energy is expecting a continuation of ample, regular increases. Economic forecasters for the state predict some improvement for Michigan household income, but this improvement will not keep pace with electricity prices, and paying for the proposed coal plant will only add to this imbalance.
- Consumers Energy expects that many municipal electrical systems will buy into this plant. Those systems, and their customers, face particular risks as they are smaller and are already struggling. They will have a more difficult time absorbing both the higher priced electricity and the new financial risks from the proposed Karn-Weadock plant. For example, small village, towns and cities across Ohio recently cancelled a proposed coal project when escalating costs demonstrated that the project was not economically viable. Unfortunately, those communities still face \$200 million in plant costs because they took too long to cancel the project.

The major credit rating agencies in the country have issued warnings that new coal fired plants are expensive now and are likely to be beset by long term financial and regulatory problems. Over 127 coal plants have been canceled across the country because energy planners, corporate leaders and public officials have refused to pass along these new high costs and risks to current and future ratepayers

ATTACHMENT I

AVERAGE RATE (IN CENTS PER kWh) FOR CONSUMERS ENERGY MPSC- REGULATED ELECTRIC UTILITIES FOR RESIDENTIAL USERS (2001-2010) 500 kWh

Year	Rate
2001	8.00
2002	8.00
2003	7.95
2004	8.07
2005	7.94
2006	9.64
2007	9.70
2008	10.49
2009	11.09
2010	11.82
Avg. Ann	4.77%

Source: www.dleg.state.mi.us/mpsc/electric/download/rates1.pdf.

ATTACHMENT II THE HISTORY OF THE CAMPBELL 3 PLANT

“In 1980, there had been concern that Campbell Unit 3 was the highest-cost generating capacity that MPPA could purchase. “One thing that the IOUs classically do when they must give you ownership interest”, explained Gary Zimmerman, MPPA’s general manager since 1990, “is that it is always in their most recent plant which is, by the way, their highest cost plant. So, again, even when we buy into a plant to stabilize our cost, it is much like taking a mortgage out on your house. You fix your cost, but you had to buy the highest-cost house on the block. We did that.”

What looked to be the highest-cost house plants in the Midwest 20 years later. By the early 2000s, Campbell Unit 3 produced the lowest-cost energy of any long-term resource available to MPPA and its members.⁶⁷

Energy planners are proud of the financial choices they made regarding the Campbell plant, and other coal fired plants, as resources to meet the needs of Michigan’s families and businesses over the past several decades. Market conditions worked favorably for the plants despite some initial financial risks.

It is not surprising that MPPA and other energy officials have supported Karn-Weadock given this track record of success. After all, one could argue that price increases caused by new plant construction are the normal course of events. In plain speak; these increases are large, and likely to be larger still. And, 2010 is not 1980. In investment speak; past results are no predictor of future performance.

- Recently MPSC issued an order informing Consumers that when it retired a number of its coal plants it could continue to collect on the ‘undepreciated’ value of the plants. This means customers will be paying for plants that were mothballed but not fully paid off. The life-cycle costs of those investments in the 1980’s have become more expensive.
- Although energy planners were able to lock in the final capital costs in 1980, referred to above as the ‘mortgage’ costs, those costs now are unlikely to be fixed for long. Depending on how the carbon regulatory process moves forward new technology for carbon capture and storage may require significant new capital investment in the plant. Thus, what appears to be today’s fixed capital charge may not be the final capital charge for the Karn-Weadock plant, at all.
- Although plant costs were high in 1980, rising plant costs had not resulted in the cancellation of 127 new plant proposals nationwide. The 122% rise in the cost of the plants cited in this report since 2007 is not uncommon, but rather consistent with the trend that has caused other decision makers to postpone or cancel plans for new coal plants. It should not pass without notice that the AMP Ohio example used in this paper was canceled after a 37% increase was announced in the fourth

⁶⁷ www.mpower.org/mppa_history.htm

quarter of 2009 --- a significant increase during a period of recession! The energy alternatives planners in Michigan are looking at from a financial perspective are competitive (and not the out of control nuclear market that served as the backdrop to the Campbell 3 selection).

- Interest rates are currently at an all time low. They are likely to rise in the coming years which only makes the economic climate for large capital investments more risky.
- In 1980 there were no impending carbon regulations or new waste disposal regulations that would require changes in the way plants would do business. These challenges are not potential issues; they will occur during the life of the Karn-Weadock plant and must be addressed.
- In the 1980's it was without question a fact that the United States coal supply was seen as cheap, abundant and reliable. Thirty years has seen changes. The United States has consumed almost 30 billion tons of coal; Central Appalachia is substantially depleted; the PRB region is becoming more expensive (and federal agencies have raised questions about the reliability of economically recoverable reserves); international pressure is growing as demand increases and shareholder concerns grow and environmental concerns have increased regulatory activity with regard to mining. The next thirty years in US domestic coal markets will not be like the last thirty years with price, quality and supply being more complex.

We might want to heed Mark Twain:

We should be careful to get out of an experience only the wisdom that is in it --- and stop there; lest we be like the cat that sits down on a hot stove lid. She will never sit down on a hot stove-lid again --- and that is well; but also she will never sit on a cold one anymore. (From: Pudd'nhead Wilson's New Calendar).

ATTACHMENT III

**TOM SANZILLO
TR Rose Associates
150 East 49th Street
New York, New York, 10017**

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. The period 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 (including towns, villages, cities, school districts and special districts) and debt offerings; audit programs for all state agencies, public 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, Tom served for a short period as the New York State Comptroller from 2006-07.

For the past two 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:

- served as an expert witness in a case brought by a coalition opposed to a coal fired power plant in Marshalltown, Iowa. Recently, the sponsor withdrew the plant.
- prepared a review of a bond prospectus by a power authority in South Carolina for a coalition opposing plans for the Pee Dee coal plant. The power authority has recently canceled the plant.
- prepared a critical review of the proposed contract between municipal electric systems and the public power systems in Ohio for the Meigs County coal plant. The plant has since been canceled.

Tom is involved with several other coalition efforts in different states and provides policy advice to national organizers seeking to change private sector and federal financing policy for coal plants. Tom also serves on an Advisory Board on the future management of the Long Island Power Authority in New York State. His clients also include business, labor and community organizations covering a host of public and private finance and policy issues.

Tom's work in the public policy arena covers over thirty years. As a government official or not for profit director Tom has published 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, public debt, local government finances and the electoral process. His audit and oversight work included several energy related studies focused on: energy deregulation, rate setting policy, utility budget planning, public power capital projects and administration.

Tom is a graduate of Brooklyn Technical High School. He received a bachelor's degree in Politics from the University of California at Santa Cruz.