July 2003

PUBLIC SERVICE COMMISSION OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

Final Environmental Impact Statement

Elm Road Generating Station – Volume 3

Docket 05-CE-130

Date Issued, July 2003

Introduction

The applicants, most parties to this docket, and over 270 individuals provided written comments on the ERGS draft EIS. Many members of the public also provided oral comments regarding the draft EIS to PSC and DNR staff during the public meetings conducted in the city of Oak Creek and the town of Caledonia during late May 2003. Comments from the applicants, parties, and the public generally provided substantive information, constructive criticism, or questions regarding the content of the draft EIS. Some comments were related to PSC and DNR review procedures or expressed personal opinions about the proposed project. All written comments postmarked by June 15, 2003 and the information obtained during public information meetings were considered in the development of this final EIS.

All members of the public who submitted comments that specifically addressed issues or questions about the draft EIS have been listed in Table 1 below and the topics or questions that they addressed are also listed. These comments are not reproduced in Volume 3 due to production problems (scanning difficulties, being handwritten, etc), however, they are available for review at the PSC.[1] Public comments that expressed a personal opinion about the project and whether it should be approved or not, without addressing the draft EIS, were read and acknowledged, but the names of these commenters are not included in Table 1.

All comments from parties or organizations that were submitted to the PSC have been reproduced in this volume of the final EIS.

During the review of the comments on the draft EIS, PSC and DNR staff pulled questions or statements from the written and oral comments and they have reproduced below. PSC or DNR staff has responded to each of the questions or statements. In many instances, the comments received prompted PSC and DNR staff to perform additional analyses for particular issues. In these cases, the results of that additional analysis are usually in the text of Volume 1 of the final EIS and a reference to that analysis is provided in Volume 3. In other circumstances, further investigation by staff into the arguments being made by a particular commenter led staff to the conclusion that its original assumptions and analyses were accurate. In these situations, the reasoning behind the original assumption or analyses are more fully described in Volume 3.

Many of the comments were extremely useful in pointing out omissions, typos, or errors in staff's analyses that have been corrected in the final EIS. Because of the press of time and statutory deadlines, it was not possible to respond in writing to each question or comment received. It is our hope that the questions and statements covered in the following section are representative of the major concerns and issues that the public and the intervenors believed needed to be addressed in the final EIS.

The questions and statements along with staff responses have been grouped according to the issues covered by the chapters in Volume 1. For example, comments and staff responses related to air emissions are found under the Chapter 7 heading in this volume.

[1] Contact Jeff Kitsembel, Case Coordinator, at (608) 266-9658 or at jeff.kitsembel@psc.state.wi.us.

The staff of the PSC and DNR have given careful consideration to all of the comments received and have attempted to reflect as many of the comments as possible in the text of the final EIS as well as this volume. We appreciate all of the time, effort, and careful thought on the part of all of the commenters who read the draft EIS and provided the input that was so valuable in producing the final EIS.

Table 1 Summary of Public Commenters and the Topics Addressed

Commenter	Topics Addressed
Daniel Bach	There is no air quality/health impact study. Believes that the comparison with highway numbers minimizes the ERGS impact, that the train/traffic data is suspect, that there should be a more thorough discussion of property values and that the BACT is still unresolved.
Jim Baker	The pollutant dispersion areas will change due to a lower stack height. The EIS should include a complete, comprehensive risk assessment.
John Berger	The draft EIS doesn't fully explain that gas prices could go down. The emission credits used by WEPCO won't be available for commercial/industrial businesses. The final EIS should disclose full cost of needed transmission facilities. The economic analysis should include costs associated with health care and lives lost.
Carla Beyerl	The loss of woodlands, wetlands and shoreline needs more emphasis. The permanent jobs created will be very specialized and may be filled with staff displaced by the closing of the Port Washington coal units. How many entry level jobs will be created? The issue of transmission lines should be more fully discussed. The EIS should show the area that will be served by the plant.
Dorothy Bocciardi	The cost analysis should include all externalities (mercury, road infrastructure, disposal of by-products, etc).
Rick Burt	The air modeling should include fumigation effects, periodic transport of pollutants from the Chicago area, secondary emissions from diesel trains, secondary emissions from coal dust from open rail cars, and the new height of the stacks for the North Site. The need for additional rail crossing modifications at Four Mile Road should be discussed.
Richard Clark	Health impacts and the cost of health care should be included.
Frank Egerton	The Welland Canal opened in 1892. (Page 183)
Barbara Eisenberg	The EIS should discuss the Navitas wind proposals for Shawano and the Upper-Midwest. Conservation and DSM should be a part of an integrated alternative. The EIS should look at what other states are doing and should discuss energy demand throughout the year (when is it the highest, what sector uses the most).
Dorothy Feeney	Health impacts associated with the proposed coal-fired plants should be evaluated. Expand the discussion of renewable technologies.
Carla Freeman	Discuss why coal (and not natural gas) is the fuel of choice. The

	reburning of flyash should be more thoroughly discussed. The demand for energy doesn't appear to require building ERGS.
John Graham	Human health costs should be included in economic evaluation.
Alec Granger	Costs associated with externalities should be included. Why wasn't the retirement of Oak Creek Units 5 & 6 announced earlier?
William Guenther	The effects of the project on tourism and sport fishing should be discussed.
Mary Ann Hernke	Train and traffic congestion increases local air pollution. Windows crack due to the rumble and vibration of trains. Discuss these impacts.
Jane Hutterly	Health impacts associated with the proposed coal-fired plants should be included, as well as impacts on the water table and aquatic life.
Gretchen Kalmer	Why does the EIS contain only air modeling done by WEPCO?
Robert Keller	The EIS should discuss the difference between the permitted emission rates and pollution caps (EPA agreement).
S. Kniesly	More information on mercury and coal dust and diesel emissions from trains should be included. The EIS should also include a discussion of WEPCO's compliance record.
Bill Lavalette	The information in Table 4-1 is outdated. Include a better evaluation of the wind potential in Wisconsin. Avian mortality caused by turbines should be discussed in more depth. The Production Tax Credit may not apply.
Sally and Mike Madden	There needs to be more research on cost, availability of alternative power sources, health issues, economics of air pollution and traffic.
Frances Martin	The effects of air pollutants on in-land waters should be discussed.
Stephen Mawn	The EIS lacks a meaningful discussion of health impacts.
Vicky Mayer	Describe the responsibility of the Joint Commission on the Great Lakes. Is their approval required?
Frank Michna	Train data is inaccurate.
Michael Miller	Wind power in the EGEAS runs should not be limited to 250 MW.
Robert Nemanich	Discuss the future probability of non-compliance with air emission regulations. The EIS should discuss wrongful deaths since 1995 due to non-compliance.
Nancy Pierce	The impacts to navigable waters, health impacts and the effects of transmission line upgrades should be discussed more thoroughly.
Bruce Renquist	There are hidden costs that should be disclosed (transmission lines, rail impacts, maintenance).
Linda Robers	Discuss potential for accidents and spills during shipment of sulfuric acid.
Leroy Roberts	What will be the effect on new and expanding businesses? What effect will the proposed plants have on emission credit trading?
Tedine Ross	Fuel diversity should be more thoroughly examined. There should be more discussion of the source and transportation of natural gas.
Thomas Rutkowski	The discussion of hazardous air pollutants should be expanded.
Jo Sandin	More information is needed about the impacts on fire, police and medical staff in the event of a catastrophic accident.
Wayne Stroesser	Does "least cost" include all externalities? It should include costs associated with lives lost, acid rain, smog, health impacts, mercury reduction costs, toxic emissions, global warming, maintaining the

	railroad, and coal mining environmental costs.
Brad Stong	The EIS needs to analyze more alternative sites.
Jeff Systma	Health impacts associated with the proposed coal-fired plants and the cost of transmission lines should be evaluated and discussed. Impacts of once-through-cooling, dust from coal handling, and site alternatives should be discussed more thoroughly.
David Ultrag?	A "big picture" discussion of our dependence on foreign fuel sources is missing.
Tom Ward	EGEAS should be allowed to choose more than one natural gas-fired plant.
Jay Warner	Tables 7-29 and 7-33 aren't consistent with respect to mercury data. Why are the emissions of the super-critical auxiliary boilers lower than those for the super-critical unit? Expand the discussion of the impacts of HAPS, particularly Hg and HF.
Andy Weber	EIS needs to explain the issue of coal and ash leaching. The differences between WEPCO's ads about coal delivery and the information in the draft EIS needs to be explained. The potential impacts of barging ash off-site should be evaluated in the final EIS. The effects of a wallboard plant are unclear. The impacts of hazardous air emissions (including those from reburning of ash) need to be explained more completely.
Dona Wininsky (American Lung Assoc.)	The draft EIS fails to address health impacts.
Sharon Worthy	The final EIS should consider the effect of lake breezes in keeping pollutants concentrated near the shore.
Unsigned	A comparison of the air emissions from coal and natural gas should be included.
Unsigned	How long will the plant emissions be trapped in the Lake Michigan basin by sea/shore breezes? Would the increased coal train traffic prevent the establishment of a Chicago-Racine-Milwaukee commuter rail?

Following is the question and response section of Volume 3. We attempted to list the commenter(s) that raised the question or made a statement. Due to the large volume of comments, we may have inadvertently attributed the question or statement to the wrong commenter or not to all of the commenters that had similar concerns.

Chapter 2 PTF Costs and Financing Mechanism

***The benefits of the lease arrangement with respect to reducing adverse impacts of wholesale electric competition and enabling smaller utilities to purchase baseload capacity should be recognized.* – (WPPI)**

The final EIS already indicates that price-regulated leases do mitigate horizontal market power concerns. The final does not cover small utilities purchasing long-term capacity because FERC and US DOJ guidelines indicate that long-term capacity markets beyond three years are competitive markets that have been deregulated.

***The risk of cost overruns is actually lower in the current environment of low interest rates and low inflation.* - (WPPI)**

An overrun is an overrun and risk is unaffected by low interest rates and inflation. The magnitude of the risk is clearly affected and the final EIS speaks to the magnitude.

***The EIS overstates the impact of adding baseload capacity too soon.* – (WPPI)**

This issue is best managed by adopting a proper materiality threshold which the final EIS does.

***Externality costs, such as the cost of future pollution controls, health impact costs, morbidity and mortality, etc. should be taken into consideration when assigning costs to the project.* – (Town of Caledonia, Sierra Club, Clean Wisconsin, SC Johnson)**

The final EIS speaks to the effect of externalities. Additional EGEAS modeling incorporated monetization of SO_2, NOx and Hg. Morbidity and mortality issues are addressed to some extent by EPA standards. Potential health impacts and morbidity and mortality are discussed in greater detail in a response to a related question in Chapter 7 of this volume.

***A 13.7% rate of return (ROR) assumption is too high, based on historical and other current projects. The cost analysis should be redone using a lower ROR*. – (SC Johnson)**

The final EIS indicates that lower RORs would strongly support using ratebase financing for this project rather than a lease.

Chapter 3 Need for Baseload Capacity in Southeastern Wisconsin

***The historical outage data indicates that natural gas combined-cycle plants are as reliable as coal-fired generation. Inputs to the EGEAS model should be adjusted to reflect a more accurate outage rate of natural gas technology.* - (SC Johnson)**

***The 2% outage rate, suggested by the applicants, for the ERGS facility is too low based on historical data. Historical outage rates are closer to 6-7% per year*. - (SC Johnson)**

A 5 percent forced outage rate was used in EGEAS for all combined-cycle units and a 2 percent outage rate was used for the SCPC units. The 2 percent value is based on a best case average for coal plants. However, there is little data for combined-cycle units in Wisconsin for comparison. Staff will continue to research this issue and attempt to provide more information at the time of the hearings.

The peak growth demand assumption is too high. **– (SC Johnson)**

The final EIS includes a lower demand EIA forecast for energy and demand as well as a sensitivity in which load growth is further reduced by available DSM.

Discuss the yearly energy demand in WEPCO's service territory -- when is it highest, and which sector uses the most energy. **– (Barbara Eisenberg)**

Energy usage is highest in the month of August (per WEPCO's 2001 Annual Report to PSCW. The industrial sector uses the most energy.

Include the perspective that ERGS provides a hedge against early retirement of baseload nuclear generation units **- (WPPI)**

WPPI is correct here, but this is best handled qualitatively as there is no probability known about nuclear retirements. Such a probability would be needed to do a proper hedging cost/expected benefit analysis.

The 1000 MW of cost-effective energy efficiency savings identified in staff's analysis (Chapter 4) should be incorporated in the demand forecast in Chapter 3. **– (SC Johnson)**

The lower EIA forecast is being adjusted to include even more energy efficiency than modeled in the draft EIS.

Provide a need analysis that assumes that the current economic showdown would continue into the planning period. **– (Clean Wisconsin)**

History shows that recession slowdown would, at best, change the timing of new plants by a few years. If the slowdown is permanent, timing can be greatly affected. Growth forecasts of the US economy do not suggest a permanent slowdown, so it was not modeled.

Chapter 4 Alternatives to the Proposed Project

The EGEAS model does not incorporate many subjective factors, such as the fact that wind generation is not a suitable substitute for baseload coal generation. **– (WPPI)**

One subjective factor that is included is the capacity of the plant allocated to meet the reserve margin. Only 20 percent of the total wind capacity is considered. Other alternatives utilize 100 percent of the capacity towards meeting the required reserve margin.

***The risks of high natural gas prices are not adequately captured in the draft EIS. Suggestion for an EGEAS run in which the high-natural gas sensitivity is 50% over base natural gas prices. Another run should be done that includes CO_2 monetization and a high-natural gas sensitivity to reflect the high demand and price for natural gas if CO_2 is monetized.* – (WPPI)**

EGEAS modeling has adapted the applicant's best forecasts for gas and coal fuel prices. These appeared reasonable. 2003 Base Case gas prices are already $6.50 in the model. By 2007 the base price is $4.50 which is what most consensus forecasts predict. Commenters are free during briefing to suggest an ever higher gas price interpretation. Using significantly higher gas prices would stop gas plant construction. This aspect is obvious, therefore modeling is not needed.

***Add a discussion of an integrated resource alternative* – (Clean Wisconsin, Sierra Club, R. Owen)**

PSC staff views the EGEAS run that includes the DSM-EIA load growth sensitivity as an integrated alternative. Under the Optimal scenario (through the year 2014), this alternative includes 600 MW of simple-cycle CTs, both 545 MW Port Washington combined-cycle units, the two SCPC units (in 2012 and 2013), and 280 MW of wind capacity.

***Energy efficiency analyses are inadequate and outdated. Acknowledge that STEP doesn't address energy efficiency potential in the industrial sector. Include more discussion about the potential for additional load management opportunities.* – (Sierra Club, Clean Wisconsin, CUB, R. Owen)**

Both the applicant and PSC staff conducted an energy efficiency analysis, but these analyses have several shortcomings. The most significant of the shortcomings of Commission staff's analysis is that the data used is outdated and incomplete. However, it is currently the best information available. Commission staff does not have sufficient resources to complete a comprehensive energy efficiency potential study. The STEP Study, upon which Commission staff's analysis is based, was a multi-year endeavor using the resources of a consultant and numerous utility staff. Estimating energy efficiency potential is difficult. This difficulty is due not only to the lack of data regarding the savings of energy efficiency measures, but also the uncertainty regarding the actions customers will take in response to energy efficiency information and incentives. Commission staff's analysis compensates for the lack of information by varying several assumptions in its analysis, resulting in several energy efficiency scenarios. The scenarios provide a broad range of energy efficiency potential. The most aggressive of these scenarios, which assumes a market potential of 85 percent, identifies more than 600 MW of additional energy efficiency potential in 2011. This is far more than the additional 47 to 146 MW in 2011 identified by the applicant's consultants using a data-intensive measure-specific analysis.

Neither the applicant's nor Commission staff's energy efficiency analysis included an estimate of the energy efficiency potential of other utilities or entities that have rights to acquire a portion of ERGS-- Madison Gas and Electric Company; Wisconsin Public Power, Inc.; and Dairyland Power Cooperative. The need assessment of the applicant includes a sensitivity that indicates that

it has need for the entire 1830 MW if no other entities acquire a portion of ERGS. It is therefore appropriate that the energy efficiency analysis include only the potential of the applicant. If another entity requests approval from the Commission at a later date to lease a portion of ERGS, Commission staff would conduct a needs and energy efficiency potential analysis for that entity, at that time.

Changes were made to the energy efficiency discussion in Chapter 4 of the final EIS to indicate that the avoided generation costs used in the STEP Study are outdated and likely underestimate the energy efficiency potential. Changes were also made to identify the failure of STEP to include avoided transmission and distribution costs as a weakness of staff's analysis.

***The Base Case should reflect at least a reasonable level of energy efficiency*. – (SC Johnson)**

The final EIS will include a new sensitivity using a lower EIA demand and energy forecast (as in the draft EIS), but it will also be further lowered to incorporate more energy efficiency.

***Improve the discussion of Wisconsin wind potential, including off-shore wind*. – (Clean Wisconsin, R. Owen)**

A section of text related to off-shore wind has been added to Chapter 4.

***The stated costs for biomass are too high and the potential described is too low.* – (R. Owen)**

PSC staff reviewed and utilized EIA data when preparing its assumptions for the EGEAS modeling.

***BASE Case construction costs for natural gas plants are too high* – (SC Johnson)**

For the gas plants, the final EIS uses actual bid prices from Calpine, but those prices cannot be revealed due to confidentiality.

***CO_2 monetization costs should be added to the Base Case. Costs of other pollutants should also be monetized - only SO2 allowances are monetized.* – (SC Johnson)**

Monetization of Hg, SO_2, NO_x, and CO_2 have been examined in the final EIS.

***Per the consent decree, the potential retirement of Oak Creek Units 5 and 6 should be included in an EGEAS model run, as should the possibility of just installing controls. Consider dispatch effects*. – (City of Oak Creek)**

EGEAS modeling performed by PSC staff included retirement of OCPP units 5 and 6 in 2012 as a sensitivity run. Staff also performed a sensitivity run that retired all units (including units 5 and 6) at 60 years of life. The cost of pollution controls for these units from 2012 forward were not included however, since they are not known at this time.

***Describe transmission line interconnection and transmission service costs for all of the alternative scenarios (i.e. the Optimal plan, Calpine, ERGS, and ERGS w/o IGCC)* - (Clean Wisconsin)**

Due to the complexity of transmission alternatives and the uncertainty related to future load centers, this analyses cannot be performed within the time allowed or to any degree of certainty.

Chapter 5 Fuel Diversity Perspectives

***Provide more information about the ability to transport natural gas into Southeastern Wisconsin---what is the current capacity? Would new facilities be needed?* - (CUB)**

This issue is being investigated by PSC staff and additional information may be presented in testimony at the hearing.

***Provide a comparative analysis of air emissions for natural gas vs. coal.* - (Town of Caledonia)**

Such a comparison has been provided in Appendix C.

***ANR Pipeline Company states in reference to problems experienced on the ANR Pipeline system last winter as follows: "[A] reference to a single unique situation hardly acts to validate that there is a legitimate concern about the reliability of natural gas pipelines to provide service at contracted levels."* – (ANR Pipeline)**

Any potential reliability problem on an interstate pipeline is a concern for natural-gas-fired generators because such generators tend to have no back-up supplies of natural gas or alternative fuels. That is not to say that delivery problems should be viewed as a fatal flaw associated with natural-gas-fired generators. No energy delivery system is 100 percent reliable.

If electricity is to be provided reliably by natural gas-fired generators all parts of the natural gas delivery system must work together to ensure that natural gas can be delivered reliably. ANR states in its comments that its pressure problems affected not only electric generators, but all of its customers last winter. ANR also notes that it was able to remedy the situation within a matter of hours. Such quick responses to pressure problems will continue to be necessary in the future so that system integrity of the natural gas and electrical systems can be maintained.

ANR asks that comments about the reliability of electric generators due to pressure problems be removed from the EIS. That does not appear to be appropriate. Natural gas-fired generators must be served at relatively high pressures. ANR acknowledges that it did have some difficulty

maintaining pressure last winter, but suggests that this was a unique situation. Even if the actual problem had not occurred, it would seem prudent to mention the possibility that pressure problems could threaten the reliability of natural gas-fired generators.

To its credit, in the end ANR was able to avoid major outages of service last winter. ANR and other interstate pipelines serving Wisconsin have had a generally good track record of providing reliable service. That does not mean, however, that reliability problems will not arise in the future. Just as the possibility of a derailment of a coal train bound for the Elm Road facility can be considered in assessing reliability of coal-fired generation, so can the possibility of pressure problems on the pipeline system be considered in assessing the reliability of natural gas-fired plants. Neither represents a fatal flaw associated with the type of plant in question. It seems reasonable to mention both in the final EIS.

***"Natural gas prices can be forecasted into the future notwithstanding their season to season variability, because long-term trend lines establish a basis for such forecasting."* – (SC Johnson)**

It is true that natural gas prices can be forecasted based on long-term trends in the historical data. What is critically important, however, is that the forecasts from such a model be accurate and that they appropriately reflect the inherent volatility of the data in question. When data are statistically non-stationary, as is the case with natural gas prices, long-term trend models, such as the one recommended by S.C. Johnson, tend to produce very poor forecasts relative to other models.[2] While it may appear to be a simple model, the random-walk model used in the draft EIS is much more sophisticated in a statistical sense than is a trend model, and research has shown that the random-walk model will tend to produce more reasonable and more accurate forecasts.[3]

Economic research indicates that long-term trend models significantly overstate the true precision with which time series data can be forecasted. Confidence bands around trend-based models are almost always far too narrow relative to the future observations of the data.[4] The long-term trend model attempts to force a set of rigid assumptions, which clearly do not apply here, onto the natural gas price data. Such a trend-based forecast is therefore likely to be a highly unreliable indicator of future natural gas prices.

For a trend model to be valid in this circumstance one of the conditions that must be satisfied is that natural gas prices must have, among other things, a constant long-term variance.[5] If this condition is not satisfied, then the trend model does not provide useful forecasts of the degree to which natural gas prices can vary. We can see that the variance of natural gas prices is far from constant. In recent years prices have been much more volatile than those of the prior periods, as is shown in the following chart.

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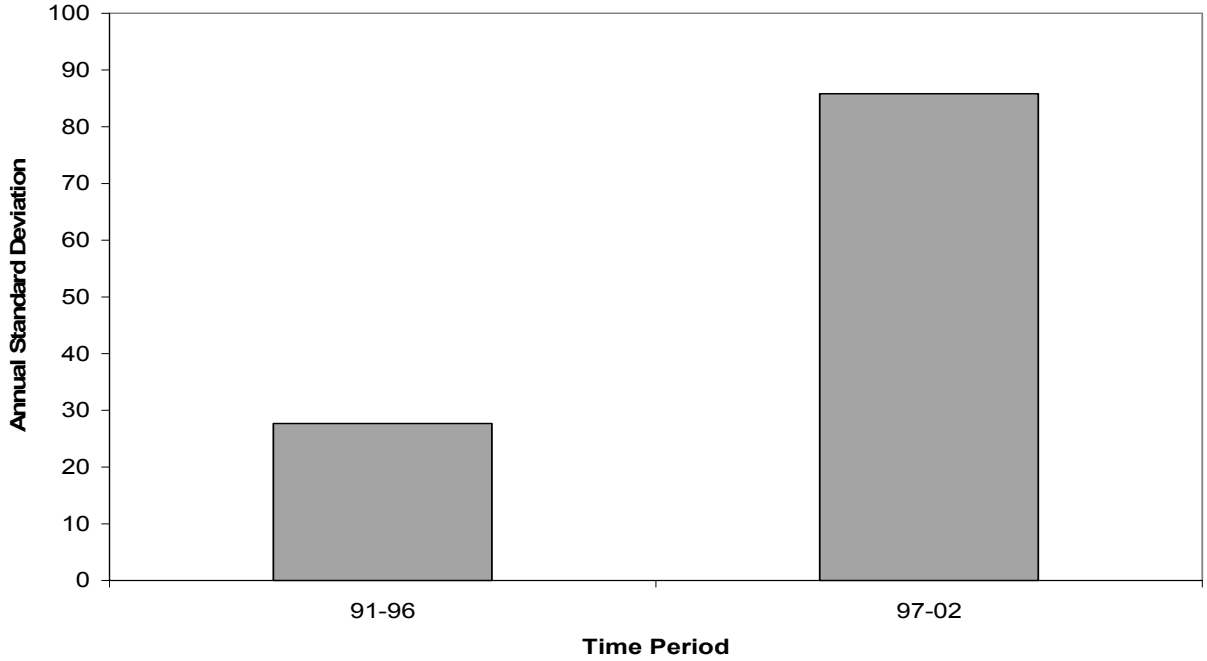
[2] For a discussion of stationarity and non-stationarity see Alan Pankratz, Forecasting With Univariate Box-Jenkins Models, John Wiley & Sons, 1983, p. 133.
[3] See Robert Pindyck and Daniel L. Rubinfeld, Econometric Models and Economic Forecasts, McGraw-Hill, 1981, p. 497.
[4] See, for example, Eduard J. Bomhoff, Financial Forecasting for Business and Economics, The Dryden Press, 1994, pp. 26-27.
[5] This is referred to as strict stationarity. See Jonathon D. Cryer, Time Series Analysis, Duxbury Press, 1986, p. 14.

Changes in the Volatility of Natural Gas Prices Over Time



The chart shows that the standard deviation of natural gas prices in the six-year period from 1997 through 2002 is three times as great as it was in the prior six-year period. That means that if the data from the earlier period are used to develop the trend in prices the future volatility of those prices is likely to be significantly understated. The prior period data, therefore, cannot help us to develop a statistically valid forecast, unless one uses a non-stationary model, such as the random-walk model used in the DEIS, or an advanced econometric technique such as an autoregressive conditional heteroskedasticity (ARCH) model.[6]

One can demonstrate, using actual natural gas price data, how poorly a long-term trend model forecast would typically fare against a forecast developed by the non-stationary random-walk model. If we use a long-term trend model based on the 1991-1999 natural gas price data, we would obtain a 95 percent prediction interval of prices in the year 2002 ranging from $2.51 to $3.00 per MMBtu. That forecast interval significantly understated the potential change in natural gas prices as the actual price for the year 2002 turned out to be $3.49 per MMBtu, which is 16 percent higher than the highest level suggested by the long-term trend model's prediction interval.

On the other hand, the 95 percent prediction interval for 2002 from the random-walk model, based on the same 1991-1999 data, ranged from $1.66 per MMBtu to $4.39 per MMBtu. The actual result was 20 percent lower than the high price suggested by the random-walk model forecast, or well within the range of forecasted prices.

The random-walk model uncovers the true volatility inherent in the natural gas price data in way that a long-term trend model cannot. Even though a price as high as $3.49 per MMBtu was never observed in the data used to develop the model, the random-walk model anticipated the 2002

[6] A discussion of ARCH models is beyond the scope of this EIS. Interested readers should see, for example, Stephen Taylor, Modelling Financial Time Series, JohnWiley & Sons, 1986, p. 107.

actual price as a real possibility. The trend model, which places the same weight on prices observed in 1991 as it does on prices observed in 1999, tends to produce forecasts that are tied closely to the actual data. It cannot anticipate a run-up in price to a significant degree, which is what happened in the case of natural gas prices.

While being tied to the actual data has an intuitive appeal, it turns out to be the very cause of the inaccurate forecasts from the model. The future values of economic series are not tied to past values in the manner that the long-term trend model assumes they are. The natural gas prices observed over the past several years have made that point quite clear. In fact, that is the problem with using long-term trend models to forecast the future—economic variables often deviate substantially from past values, as has been the case for natural gas prices. The long-term trend model assumes that no such deviations will occur, or when they do, the data will return to the long-term trend line. Such is rarely the case.[7] Its own characteristics, therefore, make the long-term trend model a fairly inaccurate forecasting tool. The results observed here are not the exception, but rather represent the typical poor forecasting performance of long-term trend models.

The random-walk model, on the other hand, assumes that noticeable deviations from historic levels are quite likely, as has occurred in the case of natural gas prices. Even though the highest price in the 1991-1999 dataset was $2.98 per MMBtu, the random-walk model estimated that over the three year forecast interval (2000-2002) natural gas prices could spike up to $4.39 per MMBtu, which represents an increase of 47 percent over the highest historic price level observed at the time the forecast was prepared. This is summarized in the following table:

Comparison of Forecasting Approaches
Predicting Natural Gas Price in 2002[8]
Based on Data from 1991-1999
$ Per MMBtu

Model	2002 Low Price Forecast	2002 High Price Forecast	Highest Observed Price in 1991-1999 Period	2002 Actual Price	Actual Price Within Prediction Interval?
Long-Term Trend	$2.51	$3.00	$2.98	$3.49	NO
Random-Walk	$1.66	$4.39	$2.98	$3.49	YES

Even the random-walk model, however, did not anticipate the natural gas prices observed this year. The 2003 upper prediction limit based on the 1991-1999 dataset was $4.73 per MMBtu. It appears that the average wellhead price of natural gas for the year will exceed that level. Nevertheless, this does not support the use of the long-term trend model. Despite the fact that its forecast was too low, the random-walk model was a much better predictor than was the long-

[7] See Walter Enders, Applied Econometric Time Series, John Wiley & Sons, 1995, pp. 181-185.
[8] Prediction intervals are based on 95 percent confidence, or alternatively, with an alpha of 5 percent.

term trend model, which suggested that the upper limit on natural gas prices in the year 2003 was only $3.36 per MMBtu.

The random-walk prediction intervals are many times as wide as the trend-based regression prediction intervals for good reason. The seemingly tight prediction intervals from the trend models are illusions that do not reflect reasonable expectations as to the variability of future natural gas prices, as has been demonstrated with the actual data.

Even if we were convinced that the natural gas price data did tend to realign themselves with the historic data, a model that would adapt to the data better than a long-term trend model is a stationary Box-Jenkins autoregressive moving average (ARMA) model. We fit the following ARMA model to the natural log[9] of monthly natural gas prices from January 1992 through July 2003:

$$\ln(\text{Gas Price}_{t)} = 0.09 + 0.90 \text{ x } \ln(\text{Gas Price}_{t-1)} + \varepsilon_{t-1}$$

The fact that the coefficient on the lagged gas price variable is close to 1.0 confirms again that the data are likely non-stationary.[10] By fitting this model the forecast will be constrained by the historic prices, which is a highly questionable assumption to make for this data. In fact, the high first-order autoregressive parameter suggests that such a condition should not be imposed.[11]

Setting that concern aside for the moment, however, we can examine the prediction intervals from this model to see that the error inherent in any proper forecast of natural gas prices is likely quite high. If we use this model to produce forecasts that revert to the mean level over time we can be 95 percent confident that in five years the wellhead price of natural gas will range from a low of $1.01 per MMBtu to a high of $5.88 per MMBtu. This demonstrates that even if the data do revert to mean levels, which is unlikely based on the analysis of the autocorrelation structure of the data, the prediction interval for a five-year forecast is still almost $5.00 per MMBtu wide.

Random-walk-based forecasts, such as the one used in the DEIS, typically produce prediction intervals that are several times wider than those produced by trend models. This makes the random-walk-based prediction intervals appear to some to be "too wide." While the width of the prediction interval may be troubling to some, it simply reflects the variability of the data. Everyone could agree that it would be easier to predict natural gas prices accurately if they were not so volatile. The fact is that natural gas prices are, however, extremely volatile. It is more productive to accept that natural gas prices are very difficult to predict and attempt to address that volatility through price hedging, for example, than it is to try to manipulate the prediction interval in ways that will mask the true volatility.

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[9] Natural logs are used to adjust for the heteroskedasticity of natural gas prices. Another approach that can be used to adjust for this problem is to use the square root of the data. See Arthur S. Goldberger, A Course in Econometrics, Harvard University Press, 1991, p. 272. Some adjustment must be made if the variance of the residuals is to have a constant variance.

[10] For a discussion of the approach suggested for choosing between a stationary model and a non-stationary model, see G.E.P. Box and Gwilym M. Jenkins, Time Series Analysis: Forecasting and Control, Holden-Day, 1976, p. 192.

[11] The non-stationarity of the data is also confirmed by the slow decay of the autocorrelation function as the order of the autocorrelation increases. If the data were truly stationary, the autocorrelation function should decay fairly rapidly with an increasing order. See Charles R. Nelson, Applied Time Series Analysis for Managerial Forecasting, Holden-Day, Inc., 1973, pp. 75-76.

Forecasting economic data into the future is a daunting task. Trend-based regression models produce forecasts that appear to be relatively precise, but that precision belies an underlying problem with the model. The more properly specified random-walk model tells the Commission to be prepared for long-term natural gas prices perhaps as low as $1.50 per MMBtu and perhaps as high as $10.00 per MMBtu. This may seem like a wide range, but a tighter prediction interval does not seem to be consistent with the actual data.

WPPI Comments

The need to represent the high degree of volatility in natural gas prices is supported by the comments of WPPI on the draft EIS. WPPI calls for a scenario analysis that includes an increase in natural gas prices that are "at least 50 percent over the base price."[12] The analysis from the random-walk model suggests that even a 50 percent increase in the assumed price might be conservative.

Comments in Other Proceedings

MGE Energy is proposing to construct a generating facility under the lease generation statute.[13] In that proceeding Dr. Richard Ferguson, who is testifying on behalf of RENEW Wisconsin suggests that it is not reasonable to expect that North American natural gas production will increase to meet projected demand.[14] He also argues that liquefied natural gas (LNG) will not provide a ceiling on natural gas prices, as some experts have suggested.[15] At page 14 of his testimony he concludes: " I expect prices we see in today's gas markets to become commonplace during the decade ahead with potential spikes to higher values than we saw last March and April." Dr. Ferguson has laid out a scenario for sustained high natural gas prices over the next decade. S.C. Johnson suggests that natural gas prices will return to more historic trends rather than remain at the current high prices. Both of these scenario forecasts are included in the range of possible prices suggested by the random-walk model.

Conclusion

The random-walk analysis of natural gas prices presented in the DEIS is a valid means of forecasting future natural gas prices. The model forecast encompasses the scenarios of some experts who suggest that natural gas prices will remain high, if not trend higher, as well as the scenarios of experts who suggest that natural gas prices will revert to lower historic trends. The random-walk model is, therefore, consistent with the evidence that natural gas prices are very difficult to forecast and that a wide range of prices should be considered as possible.

The trend model suggested by S.C. Johnson is not appropriate for forecasting volatile time series, such as natural gas prices. It is likely to produce less accurate forecasts than the random-walk model, and it is likely to understate significantly the true volatility of future natural gas prices.

No modification to the analysis of future natural gas prices is required for the final EIS.

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[12] Comments of WPPI at p. 6.
[13] PSCW Docket 05-CE-121.
[14] Direct testimony of Richard B. Ferguson, Docket 05-CE-121, p. 4.
[15] *Ibid*, p. 10.

Chapter 6 Overview of Proposed Sites and Technologies

Discussions of the Wallboard plant are inconsistent and confusing; is it part of the proposal and/or analyzed features or not? **- (City of Oak Creek, SC Johnson, Andy Weber)**

The discussion of the possible wallboard plant in Chapter 6 of the EIS has been expanded.

Add discussion about how accidents or spills related to the sulfuric acid shipments would be handled. **- (Linda Robers)**

Sulfuric acid is used for various industrial purposes and routinely shipped across roads and rail systems. Rules and appropriate procedures exist for avoiding spills and containing and cleaning up spills should they occur.

Describe the controls that would be installed to reduce coal dust during handling and storage.

Many methods would be employed to reduce coal dust during handling and storage including sprays, planting vegetation on reserve coal piles, and enclosure of the coal piles. For details see the Fugitive Dust section of Chapter 11.

Chapter 7 Air Emissions

Provide a description of the consent decree (EPA and WEPCO, the cooperative multi-pollutant agreement (WEPCO and the DNR), and the WEPCO/Oak Creek agreement. Explain how each agreement would interact with and affect the expected emissions and air modeling results for the proposed ERGS facilities. Explain the cumulative effect on local and regional air quality. **- (CUB, City of Oak Creek, SC Johnson)**

<u>Proposed EPA Settlement (Consent Decree)</u>
WEPCO and the U.S. Environmental Protection Agency (EPA) announced in April 2003 that they had reached a tentative settlement to resolve alleged violations by WEPCO of federal PSD rules. Details concerning the alleged violations were not presented in EPA's formal complaint and were not shared with DNR prior to the closing of the public comment period for the proposed Consent Decree that would formalize the settlement. For this reason and other reasons, Wisconsin's attorney general requested that EPA extend the public comment period. DNR has since been informed that EPA and WEPCO instead intend to revise the proposed Consent Decree based on comments received from the state of Michigan, and initiate a new public comment period. EPA must review any comments received before deciding whether to lodge the Consent Decree in federal court.

The proposed Consent Decree is detailed and complicated. Most importantly, it would require WEPCO to install pollution control equipment and technologies on specific existing coal-fired

units in Wisconsin and Michigan on a fixed schedule spanning the next ten years. Newly controlled units would not be allowed to exceed specified maximum emissions rates for NOx and SO_2. In addition, the proposed Consent Decree would establish system-wide mass emission caps and system-wide average emission rate limits for NOx and SO_2 from the existing coal-fired units. New units would not be included in the system-wide caps or limits. Finally, the proposed Consent Decree states that if one or more new units are constructed at the Elm Road Generating Station, WEPCO would limit the combined emissions of SO_2, NOx, PM, mercury, VOCs, hydrochloric acid, hydrofluoric acid, and sulfuric acid from both Oak Creek Power Plant and Elm Road Generating Station to 38,400 tons per year, collectively.

More information about the proposed settlement is available at the following website:

http://www.epa.gov/compliance/resources/cases/civil/caa/wepco.html

Cooperative Agreement

On September 30, 2002, DNR and WEPCO signed a Multi-Emission Cooperative Agreement (MECA) under Wisconsin's Environmental Cooperation Pilot Program, a voluntary program authorized by s. 299.80, Wis. Stats., for the purpose of encouraging superior environmental results. Under the MECA, WEPCO volunteered to reduce air emissions of NOx, SO_2, and mercury from the company's existing coal-fired boilers in Wisconsin. The four coal-fired boilers at Oak Creek Power Plant that existed in 2002 are among those covered by the MECA.
The MECA calls for reductions in NOx emissions to achieve a system-wide average for the coal units that existed in 2002 of 0.25 lb/mmBtu by October 2007 and 0.15 lb/mmBtu by October 2012, on both an annual and an ozone season basis. SO_2 emissions will similarly be reduced to a system-wide annual average of 0.70 lb/mmBtu by October 2007 and 0.45 lb/mmBtu by October 2012, and annual mercury emissions will be reduced 10 percent by October 2007 and 50 percent by October 2012 from 1998-2000 levels. The 2012 targets represent roughly 50-60 percent reductions in each of these three pollutants from year 2000 levels. In return for these voluntary emission reductions, DNR granted WEPCO flexibility on certain specific regulatory requirements that would normally apply to fossil fuel power plants. This flexibility is limited to procedural and administrative requirements only (e.g., routine reporting), and does not include any relief whatsoever from current or future emission limits or pollution control requirements.

The MECA does not and will not change any of the regulatory requirements that would apply to the Elm Road Generating Station, nor does it preclude the possibility that WEPCO's total system-wide emissions could increase, due to contributions from company-owned units in Michigan or from proposed new coal units that did not exist in 2002. It should be noted that the Elm Road proposal could have a significant effect, however, on what WEPCO does to meet the commitments in the MECA. This is because MECA includes an incentive for WEPCO to retire old coal units and replace the lost generating capacity with new, cleaner units. Specifically, if a coal-fired unit at Oak Creek Power Plant is replaced with one or more new units at Oak Creek (or Elm Road), NOx and SO_2 emissions from the new unit or units may be used in the system averaging to meet the specified reduction targets of MECA, but only to the extent that the unit or units replace actual coal heat input at Oak Creek. Actual coal heat input in this context means the average seasonal/annual heat input to the replaced coal-fired unit over the last two seasons/years prior to the retirement of the coal-fired unit.

A copy of the MECA is available at the following website:

http://www.dnr.state.wi.us/org/caer/cea/ecpp/agreements/wepco2/agreements/finalagreement.htm

Relationship between MECA and Proposed Settlement (Consent Decree)

The MECA and the proposed EPA settlement are mostly complementary and in no way contradictory. Most of the pollution control projects that WEPCO plans to undertake over the next decade will serve to satisfy requirements of both agreements, but there are a few differences that should be noted. The proposed Consent Decree requires NOx and SO_2 emission reductions that go beyond the voluntary commitments made by WEPCO in the MECA -- well beyond, in the case of SO_2. Without question, the proposed Consent Decree would require WEPCO to apply pollution controls beyond what the company envisioned when it signed the MECA. This does not obviate the need for the MECA, however, because the MECA includes mercury reduction commitments that go far beyond what would be required under the proposed Consent Decree or what would be achieved coincidentally through NOx or SO_2 controls required under the Consent Decree.

Relationship between the Consent Decree and the ERGS emissions

On April 29, 2003, a consent decree between WEPCO, the US EPA, and US Department of Justice (DOJ) was lodged with the District Court for the Eastern States of Wisconsin, which resolved allegations by EPA and DOJ that WEPCO failed to obtain PSD permits for certain activities that EPA and DOJ allege constituted major modifications under the CAA. As set forth in the Consent Decree, WEPCO denied and continues to deny the allegations and maintains that it has been and remains in compliance with the CAA. With the lodging of the Consent Decree, the company has begun to undertake actions to meet the schedule and requirements set forth in the Decree. The parties expect that the Court will enter the Consent Decree within the next several months, following the conclusion of the public comment period.

WEPCO provided the following information regarding the Consent Decree on June 27, 2003. The Consent Decree requires WEPCO to implement the following changes at the Oak Creek Power Plant (OCPP) no later than December 31, 2012.

- Retire Units 5 and 6
- Install FGD scrubbers (or equivalent sulfur dioxide control technology approved by EPA) on Units 7 and 8 to achieve either a 30-day rolling average emission rate of not greater than 0.100 lb/MMBtu SO_2 or a 30-day rolling average SO_2 removal efficiency of at least 95 percent.
- Install SCR equipment (or equivalent NOx control technology approved by EPA) on Units 7 and 8 to reduce nitrogen oxide emissions to levels not less than 0.100 lbs/MMBtu.

WEPCO has informed the DNR that the consent decree will result in emission reductions of SO_2 and NOx at the Oak Creek site. WEPCO also provided the following table that compares the expected SO_2 and NOx emissions in 2013 following the construction of the ERGS units and implementation of the consent decree with the emissions from the OCPP Units 5-8 in 2002.

	SO_2 (tons per year)	NOx (tons per year)
2002 Oak Creek Units 5-8	12,547	6,519
2013 Oak Creek Units 5-8	2,906	1,453
2013 ERGS facilities	6,356	3,809
2013 Total	9,262	5,262

WEPCO also informed the Department on July 1, 2003 that on June 30, 2003, the Company was contacted by US EPA with information that the Company had made a clerical error in assigining sulfur dioxide allowances to individual units at Valley Power Plant for the year 2002. Specifically US EPA informed the Company that it had assigned thirty-three (33) fewer allowances than necessary to its #3 Boiler. There was no exceedance of an emissions limitation at the Valley Power Plant, or at any other unit in the Wisconsin Electric system as a result of this error. The Company expects written notification of the error from USEPA within the next week, which will set forth the procedure and deadline for re-allocating allowances. As a result of the clerical error, Wisconsin Electric will pay a penalty pursuant to sec. 411 of the CAA.

***Emission rates assumed for the existing units are unrealistically high based on the consent decree and the WEPCO/Oak Creek agreement.* - (City of Oak Creek)**

The emission rates used in the air modeling analyses were provided by the applicant in its air permit application.

***Calculated CO_2 emissions numbers for the ERGS are inaccurate*. – (R. Owen, Sierra Club)**

The discussion related to CO_2 emissions has been revised and updated in the final EIS.

Evidently there will be no attempt to sequester carbon dioxide. What effect will this large amount of CO_2 have on global warming?

Under average operating conditions, the two SCPC units are expected to emit 8.4 to 8.9 million tons per year of greenhouse gases. This is about six percent of statewide greenhouse gas emissions in 2000.

Explain the statement in the Draft EIS page 151 " Currently, there are no regulatory requirements for individual projects such as the proposed ERGS to reduce or eliminate CO2 Emissions. At any rate, requirements to reduce emissions from this facility may be counterproductive if those requirements restrict this facility's utilization, since this project would be more efficient than the existing coal-fired generation equipment that it would displace."

This statement says that we can reduce greenhouse gas emissions by replacing older less-efficient power plants with newer more efficient power plants, and that this may be a better way to reduce emissions than by restricting emissions from the proposed ERGS power plant.

***Add more discussion about global warming to the EIS text* - (R. Owen)**

The EIS discussion about global warming has been expanded and updated.

Discuss the cost effects of global warming.

There will most likely be economic consequences of global warming in Wisconsin. It is not possible to quantify the dollar costs of global warming because of the uncertainty about exactly what the impacts will be and the difficulty in assigning costs to environmental or health impacts. Some of the potential costs to Wisconsin could include:

- Costs to great lakes shipping due to low water levels (decreased cargo capacity per ship and/or increased dredging costs)
- Costs to rebuild or modify docks, piers, and boathouses due to lower water levels
- Losses to revenue due to decreased opportunities for winter recreation (decreased snow and ice cover reduces opportunities for skiing, snowmobiling, and ice fishing)
- Increase in health care and sick day costs due to increased mosquito-borne and water-borne diseases and lower air and water quality
- Potential crop losses due to drought and flooding
- Potential for increased flood damage
- Losses due to more frequent and severe forest fires

***Describe periodic transport of pollutants from the Chicago area and their contribution to southeast Wisconsin's non-attainment status.* - (Rick Burt)**

There are literally millions of sources of ozone precursor pollution that contribute to the ozone air quality problem in Lake Michigan including local sources (Milwaukee and Chicago) and some sources that contribute from as far away as Texas. In general, on ton by ton basis the closer the source is to the problem the more it contributes to the problem.

***Provide updated air modeling analysis to include new stack heights on both North and South Sites* – (Clean Wisconsin, SC Johnson)**

WEPCO has conducted an initial air modeling analysis based on the lower stack heights at the South Sites and provided its results to the DNR for use in this final EIS. However, that analysis

did not incorporate the BACT refinements that DNR would require if the facilities were approved and built on those sites.

***Provide information on the human health effects, morbidity, and mortality related to the emissions of the proposed ERGS facilities. Include effects on children, people with deceased lung capacity, or other sensitive receptors.* – (Sierra Club, Clean Air Task Force, Town of Caledonia, American Lung Association, W. Guenther, S. Mawn, B. Nitz, W. Stroessner)**

The chemicals found in emissions from coal-fired power plants are known to adversely affect the respiratory system (as well as have other effects), depending on the concentrations and the duration of exposure.

Several scientific studies in recent years have found a relationship between increased levels of air emissions from these types of sources and increased respiratory symptoms. This means that people with existing lung diseases such as asthma, bronchitis, emphysema, and other diseases could experience an increase in the severity and frequency of symptoms as a result of increased emissions. There is evidence in the scientific literature that increases in particulate matter levels can also cause morbidity and mortality as well. Infants and children breathe in more air per pound of body weight and are perhaps more susceptible due to developing immune and nervous systems and other factors related to growth. Children can also be more active and spend more time outdoors and experience increased exposure to outdoor air pollution as a result. In addition, mercury is emitted from coal-fired combustion. Mercury has been associated with neurological and other effects (here the main exposure route is through ingestion of fish).

In summary, there are numerous hazardous air pollutants released into the air from coal combustion. Past DNR analyses have evaluated the virgin fossil fuel exemption and found that, from the inhalation perspective, the risks resulting from well controlled facilities with tall stacks are low. Thus, a facility that meets applicable Wisconsin DNR requirements would not be likely to cause a significant inhalation risk. It is also true however, that as concentrations of air pollutants increase, even if they are below a federal or state standard, that there is a likelihood of increased respiratory symptoms and other adverse health effects occurring. For example, in the case of fine particulate matter ($PM_{2.5}$), when US EPA evaluated the available data on health effects vs. exposure, there was no clear threshold that defined a safe vs. unsafe level of exposure.

The area will continue to violate the National Ambient Air Quality Standards for ozone. The analysis supplied by Environ, a consultant for WEPCO, shows only minor effects from the addition of the ERGS facilities. However, on certain days, the NOx reductions at the Pleasant Prairie generating facility resulting from WEPCO's consent decree with EPA, result in a disbenefit or an increase in ozone concentration. In general, those local increases in concentration are offset by concentration reductions further downwind and on other days.

***Describe how EPA Clear Skies Report determined that 200 pre-mature deaths can be prevented by reduction of emissions.* - (R. Nemanich)**

The Clear Skies Initiative was introduced into Congress on behalf of President Bush. EPA conducted an analysis of the health benefits associated with the reduction in emissions resulting

from implementation of the proposal. EPA's most recent estimates of the health benefits of Clear Skies are included in the table below:

Benefit Category (2020)	Clear Skies Act 2002	Clear Skies Act 2003
Total health benefit ($1999) (Alternative estimate)	$93 billion ($11 billion)	$110 billion ($21 billion)
Premature mortality (Alternative estimate)	11,900 (7,000)	14,100 (8,400)
Chronic bronchitis	7,400	8,800
Hospitalization/ER visits	11,900	30,000
Non-fatal heart attacks	*not modeled*	23,000
Minor respiratory illness & symptoms	15 million days (includes 370,000 days with asthma attacks)	12.5 million days (includes 180,000 days with asthma attacks and 200,000 school loss days, a new benefits endpoint for 2003 analysis)

***Provide more information about the expected air emissions during the construction phase of the project.* – (Clean Wisconsin)**

Emissions from construction related diesel activities and construction related dirt and dust are considered to be secondary emissions. It is difficult to quantify the emissions for inclusion in a dispersion model due to the small size of the individual sources. In addition, the low-level nature of much of these emissions would prevent significant transport off the property. Control of these emissions is required under fugitive dust regulations and would be addressed through site-specific fugitive dust plans.

***Why are the emissions of the super-critical auxiliary boilers lower than those for the super-critical unit?* – (Jay Warner)**

The SCPC auxiliary boiler is rated at 242 mmBtu/hr and would be operated 2,000 hours per year. The SCPC coal fired boiler is rated at 615 MW and would operate 8,760. Thus, the expected emissions from the SCPC auxiliary boiler are much lower then from the SCPC coal-fired boiler.

***It is unclear if the "virgin fossil fuel exemption" would apply if landfilled ash is re-burned. Explain this issue further.* - (SC Johnson)**

Virgin fossil fuel is defined in s. NR 445.02(11), Wis. Adm. Code. "Virgin fossil fuel" means any solid, refined liquid or refined gaseous fossil fuel with a Btu content greater than 7,000 Btu/lb

which is not blended with reprocessed or recycled fuels. Group 2 virgin fossil fuels consist of coal and residual fuel oil.

The definition of "coal" is found in s. NR 400.02(22e), Wis. Adm. Code. "Coal" means all solid fuel classified as anthracite, bituminous, subbituminous, or lignite by ASTM designation D388-92, incorporated by reference in s. NR 484.10, Wis. Adm. Code.

The information on ash fuel was provided in the original air permit application to the DNR, dated December 2001.

WEPCO has indicated in the DNR's air permit application that the fly ash and bottom ash meet the definition of coal and are therefore exempt from the requirements of NR 445. The analyses include an evaluation of the Coal Rank in accordance with ASTM Method D388-92. The ash samples indicate coal ranks of lignite, bituminous, and anthracite coals.

The hazardous air pollutants (HAPs) emissions from combustion of virgin fossil fuel 2 vented from a stack which has downwash minimization stack height are exempt from the emission limits under NR 445.

A facility is a major source of federally regulated hazardous air pollutants if one or more federally regulated HAPs are emitted at greater than 10 tons per year or if emissions of one or more federally regulated HAPs exceed 25 tpy. The expected HAPs from the ERGS were reviewed in the draft EIS and for the final EIS. Table 7-17 in the final EIS summarizes the HAPs emissions expected from the different emission sources at the proposed ERGS. The proposed ERGS is a major source under 40 CFR Sec 63.41 and thus subject to case-by-case MACT requirements for HAPs. Table 7-18 summarizes the case-by-case MACT proposed by WEPCO.

Air quality impacts related to ash re-burning have not been disclosed. **– (Sierra Club, Andy Weber)**

See the response to the question directly above.

Even if hazardous air pollutants are exempt from NR 445, the potential health impacts of these pollutants, such as arsenic and chromium, must still be assessed and described. Use a risk assessment using standard EPA methodologies. The multi-pathway risk assessment should look at both cancer risks and non-cancer toxicity. **- (SC Johnson, Sierra Club, Clean Air Task Force)**

The DNR has examined the impacts of virgin fossil fuel combustion in great detail in the past and found that due to the presence of control devices and tall emission stacks, the impact from this industrial sector is well below a level of concern due to inhalation impacts, and thus is not a significant risk from an inhalation pathway. Arsenic, hexavalent chromium, and several other carcinogens are emitted from coal-fired combustion sources and the analyses in the past have shown that these carcinogenic chemicals are not expected to be in high enough concentrations to present a high risk (the DNR uses standard EPA methodologies when examining inhalation cancer risks).

With respect to pollutants that can bioccumulate in the food chain, it is possible to conduct a multi-pathway risk assessment. However, this type of analysis is very difficult to do, requires many assumptions to complete, and is very labor intensive. The DNR currently has no "in-house" capability to conduct this type of analysis. As a result, the DNR has, in the past, had to contract with outside consultants to conduct such an analysis. The only time such an analysis was completed was for a proposed medical waste incinerator (circa 1990). No multi-pathway analysis related to the ERGS facilities is planned at this time.

The discussion of $PM_{2.5}$ should be expanded and modified. Discuss the fact that $PM_{2.5}$ is caused by the reaction of gaseous pollutants in the atmosphere and by direct emissions from coal-fired power plants.

The principal comments of $PM_{2.5}$ are classified as elemental carbon, organic carbon, ammonium nitrate, ammonium sulfate, and crustal material. NOx and SOx emitted in a power plant plume react in the atmosphere to form ammonium nitrate and ammonium sulfate. Organic carbon in power plant plumes also reacts in the atmosphere to form a variety of organic particles. Elemental carbon is emitted directly from power plants.

$PM_{2.5}$ is a better indicator of human health impact than PM_{10}. NAAQS for $PM_{2.5}$ is 15 ug/m^3, what is the potential for exceeding this standard? **- (SC Johnson, Sierra Club, Clean Air Task Force, W. Stroesser)**

WEPCO submitted an analysis of the regional $PM_{2.5}$ impact that demonstrates ambient air quality standards would be attained and maintained. From the analysis supplied by Environ, a consultant for WEPCO, it appears that the $PM_{2.5}$ standard would not be violated as the result of the additional emissions at the ERGS facilities. The analysis indicates that the $PM_{2.5}$ effects would be minor. However, one should consider the $PM_{2.5}$ analysis to be preliminary at this point. When WEPCO's consent decree with EPA is considered, there would be a net decrease in $PM_{2.5}$ concentrations. Again, the change would be expected to be relatively minor.

Evaluate the proposal's adverse mercury impacts. How much would the proposed coal-fired units contribute to fish consumption advisories? How much mercury will be loaded into rivers and lakes? One teaspoon of mercury is enough to contaminate a lake. – **(Sharon Morgan, SC Johnson)**

In its ***Mercury Study Report to Congress*** issued in December 1997, US EPA found that "a plausible link exists between past and present, human-caused, atmospheric emissions of mercury in the U.S. and the increased concentrations of mercury that have been found in the environment and in freshwater fish". However, the report goes on to state that "an apportionment between mercury sources and mercury in environmental media and biota cannot be described in quantitative terms with the current scientific understanding of the environmental fate and transport" of mercury. Since our scientific understanding of the impact of mercury emissions on the environment is still developing, a specific answer to these questions is not possible.

We know that mercury in the environment is the result of both natural and anthropogenic (man-made) activities. In the atmosphere mercury exists in three basic forms - elemental mercury vapor, particle bound mercury, and reactive gaseous mercury. Depending on the form of mercury emitted, the type of emission source and the meteorological conditions, mercury air emissions from a specific source may be deposited back to the earth locally, regionally or on a global scale.

***What realistic percent reduction in mercury does WEPCO intend to reach? WEPCO told the DNR Citizen's Advisory Committee for Mercury Emission Reduction that the industry could not clean up mercury emissions by more than 10 percent in ten years, 40 percent in fifteen years, and nothing greater than 40 percent. The EPA and DNR target a 90 percent reduction in mercury.* – (Wayne Stroessner)**

WEPCO has 17 existing coal-fired boilers that are affected by the reduction requirements that would be imposed by the rules in ch. NR 446 Wis. Adm. Code adopted by the Natural Resources Board at their June 2003 meeting. These rules require that WEPCO achieve a 40 percent reduction in mercury emissions from coal combustion by January 1, 2010, and an 80 percent reduction by January 1, 2015. These 17 coal-fired boilers are capable of emitting approximately 1300 pounds of mercury annually based upon the mercury content of the fuel they use. Under the adopted rules WEPCO must limit mercury emissions from its existing boilers to approximately 780 pounds per year beginning in 2010. In 2015 mercury emissions would be limited to approximately 260 pounds per year. The DNR believes that these are realistic expectations based on the mercury control technology that currently appears most promising.

***Discuss the mercury content of bituminous vs. sub-bituminous coal and the ability of various technologies to capture mercury.* - (Sierra Club)**

Electric utility boilers are fired primarily by either bituminous or sub-bituminous coal. It was found that bituminous coal used in 1999 in utility boilers contained an average 8.65 +/- 0.08 (mean +/- 95 percent confidence interval) pounds of mercury per trillion BTU heating value. The sub-bituminous coal contained approximately one third less mercury at an average 5.77 +/- 0.08 pounds per trillion BTU. This data was compiled by the Electric Power Research Institute in it's analysis of the ICR fuel sampling data obtained for all U.S. electric generating units greater than 25 MW[16].

The ICR data also demonstrated that control of mercury is higher for bituminous coal due to a higher chlorine content than sub-bituminous coal. But within each class, the amount of mercury collected varies by the type of pollution control equipment. For units with only a fabric filter, the mercury removal was, on average, 90 percent for bituminous coal and 72 percent for sub-sub-bituminous coal.[17] Other tested units firing bituminous coal and with a fabric filter had additional control equipment, including two with a wet FGD system and three with a dry SDA system, with

[16] (Chu, 2000) "An Assessment of Mercury Emissions from U.S. Coal-fired Power Plants", Electric Power Research Institute, Palo Alto, Ca, TR-1000608, September 2000.

[17](Kilgroe, 2001) "Control of Mercury Emissions from Coal-Fired Electric Utility Boilers: Interim Report, US Environmental Protection Agency, Research Triangle Park, NC, EPA-600/R-01-109, December 2001.

both configurations demonstrating 98 percent mercury removal. Applying the demonstrated control efficiencies to the average mercury content of bituminous and sub-bituminous coal results in the following emission rates:

Fuel Class	Mercury Content (lbs/Tbtu)	APCD	% Capture	Emission Rate (lbs/Tbtu)
Bitum	8.65	FF	90%	0.87
		SDA / FF	98%	0.17
		FF / FGD	98%	0.17
Sub	5.77	FF	72%	1.62

***Additional information summarizing the proposed mercury rules.* – (Clean Wisconsin)**

There are four electric utilities in Wisconsin that are significant sources of atmospheric mercury each emitting 100 pounds or more of mercury annually, based on historic reporting of their emissions. These four "major" electric utilities include Alliant Energy (AE), Dairyland Power Cooperative (DPC), WEPCO (WE) and Wisconsin Public Service Corporation (WPSC). The following are the provisions of the rules adopted by the Natural Resources Board at their June 2003 meeting that require these major utilities to reduce mercury emissions from their 42 existing coal-fired boilers. These rules would be within ch. NR 446 Wis. Adm. Code. The objective of the proposed rule is to set limits on the emissions of mercury into the ambient air from electric utility sources as a means of reducing atmospheric mercury deposition to the environment and specifically to water bodies with fish consumption advisories.

Mercury Baseline – By October 1, 2005, major electric utilities would be required to submit a report to the DNR with the following information:

1. Average coal usage for the years 2002, 2003, and 2004.
2. Sample test results of the fuel mercury content from coal in 2004.
3. Results of emissions testing with the mercury capture efficiency of currently installed air pollution control equipment.

The results of coal usage and coal mercury content would be used to determine a mercury baseline for each major electric utility and will be the point from which mercury reductions will be required.

Mercury Emissions Cap – The emissions testing with current mercury control efficiency will be used along with the established mercury baseline to establish a mercury emissions cap for each major electric utility. Beginning January 1, 2008, major electric utilities would not be allowed to exceed their mercury emissions cap.

Compliance Plan - By October 1, 2007 and October 1, 2011, utilities would be required to submit a compliance plan to the Department with a proposal detailing how the utility intends to comply with the baseline emission reduction requirements in the rule.

Reduction Requirements – Major electric utilities would be required to achieve the following reductions in mercury emissions from baseline emissions by the following dates after rule promulgation:

1. By January 1, 2010 – 40 percent reduction.
2. By January 1, 2015 – 80 percent reduction.

Compliance – Major electric utilities would be allowed to achieve compliance using a combination of control technology, fuel switching, efficiency in boiler operation, boiler shutdown, or emissions trading between major electric utilities.

Multi-pollutant Option – Major electric utilities would be allowed to pursue a multi-pollutant reduction approach for mercury and other air pollutants.

Variances – In consultation with the PSC, the DNR would be allowed to grant variances to major electric utilities based on a demonstration that the technology or economic costs are not feasible.

Electric Reliability Waiver – A waiver from an annual mercury emission limitation may be approved if the cause of excess emissions is related to an issue of electric reliability. The PSC would be consulted and a 30-day public comment period with a hearing opportunity would be offered.

Evaluation Reports – The DNR would be required to prepare a rule assessment report to the Natural Resources Board by January 1, 2009, taking into consideration electric reliability, scientific and technology developments, multi-pollutant reduction approaches, and federal regulatory activity. The report would include an evaluation of the feasibility of achieving the seven- and twelve-year reduction requirements and recommendations for corrective actions and rule revisions. The DNR would be required to update the report by January 1, 2013. In addition to these evaluation reports, the DNR would be required to submit a report within six months of promulgation of federal regulations or enactment of a federal law that requires mercury reductions from sources affected by this rule.

New Sources – New sources with allowable mercury emissions of 10 pounds or more per year will be required to apply BACT (Best Available Control Technology).

Source Reporting – All sources with emissions of 10 pounds or more of mercury per year would be required to meet the measurement and reporting requirements of the rule.

Monetize mercury impacts. – **(Dorothy Bocciardi)**

Specific estimates of the costs of mercury contamination are difficult to do. The two most important impacts are public health and tourism.

The WDNR is concerned about mercury because the pollutant has unique properties that allow it to persist in the environment and bioaccumulate in terrestrial and aquatic system food chains. This bioaccumulation problem poses a human health risk for people that consume mercury-

contaminated fish. Mercury is a potent neurotoxin that crosses both the blood-brain and placental barriers. Children and developing fetuses are most at risk from the effects of mercury exposure. US EPA has determined that children born to women with blood concentrations above 5.8 parts per billion are at some increased risk of adverse health effects. About 8 percent of women of childbearing age had at least 5.8 parts per billion of mercury in their blood in 1999 – 2000. Mercury also affects both fish-eating birds and mammals.

In addition to the health risks caused by elevated levels of mercury in the environment, the WDNR is also concerned with the important economic consequences associated with a potential reduction of recreation and tourism activities. Each year the DNR sells approximately 1.5 million fishing licenses (1 million are residents) generating approximately $1.1 billion in expenditures to the state. Adding to license sales is the significant revenue provided by sales of food, lodging, gasoline, and sporting equipment related to fishing as an activity with a total yearly economic impact of approximately $2.1 billion statewide. The sport fishing industry accounts for approximately 30,500 jobs in the state each year. Based on data from the American Sportfishing Association, Wisconsin ranked 6th among states in 2001 in overall economic output (more than $2.3 billion) from fishing. Although there is no data to suggest a decrease in fishing license sales, the DNR is concerned that the continual listing of fish consumption advisories because of elevated levels of mercury could cause a corresponding decrease in recreation and tourism and have a direct economic impact on the state.

Will the mercury consumption advisory ever be lifted?

Currently, we cannot say with any certainty when fish consumption advisories for mercury will cease for any waterway. However, trends monitoring of mercury in fish tissue will continue to be performed by the WDNR so we can determine the effect of mercury reduction actions as well as determine when consumption advisories can be modified or eliminated.

***Discuss why a spill of a few drops of mercury require a fire department hazardous material response while coal-fired power plants can emit tons of mercury into the atmosphere.* – (Harvey Radke)**

Indirectly mercury air emissions lead to contamination of the environment. Mercury from natural and anthropogenic sources is released to the atmosphere, where it is transported and may be deposited in terrestrial and aquatic ecosystems. A small portion of this mercury is converted by bacterial action to a more toxic form, methylmercury, which can bioaccumulate in fish. Bioaccumulation is the build-up of a substance in an organism from the surrounding air or water, or through the consumption of contaminated food. Elevated methylmercury levels may lead to a decline in wildlife populations and may affect human health from the consumption of sufficient quantities of contaminated fish.

Direct mercury exposure at high levels can also cause health problems. Thus a mercury spill is of immediate concern and precautions must be taken to prevent exposure.

Mercury is a neurotoxin in most of its chemical forms. A neurotoxin can cause damage to the brain and central nervous system. Mercury also affects the kidneys and lungs. Methylmercury,

one of the most toxic forms of mercury, is known to affect learning ability and neurological development in children.

***Show that the proposed source will comply with the Lowest Acheivable Emission Rate (LAER) for VOC emissions. Do SCPC units meet LAER requirements if the SCPC technology has higher VOC emission that the IGCC technology that WEPCO has included in the proposal?* – (SC Johnson, Andy Georgoulis, Susan Jensen, Donald Paasch, Susan Greenfield, Wayne Strossner)**

Wisconsin DNR implements its New Source Review (NSR) program based on the federal air permit requirements of the Clean Air Act, federal regulations and USEPA guidance. In evaluating a project such as the Elm Road Generating Station under the federal NSR requirements, the resulting permit must require Best Available Control Technology (BACT) for air pollutants for which the area is in attainment with air quality standards, and technology that results in the Lowest Achievable Emission Rate (LAER) of air pollutants for which the area is not attaining air quality standards. Both BACT and LAER are evaluated using a top down approach set forth by EPA. The top down approach evaluates the emission control strategy that would result in the lowest emission rate to determine if the strategy is feasible. For BACT purposes, if this strategy is found to be infeasible, then the strategy that results in the next lowest emission rate is evaluated and so on until a feasible strategy is determined. While the top-down review does allow for the review of pollution control strategies, it does not specifically allow for consideration of different process technologies.

SCPC and IGCC are considered different process technologies. As such, emission control strategies are evaluated for BACT/LAER purposes by analyzing those strategies available to each under EPA's top down approach. The DNR in its review of the air permit application will establish appropriate BACT/LAER limits for the proposed emission units. Tables 7-11 to 7-22 in the draft EIS summarizes the BACT/LAER emission limits proposed by Wisconsin Electric for the SCPC boilers, auxiliary boilers, diesel engines, IGCC and material handling processes .

Also, in the review of the BACT analysis, the DNR does not evaluate the cost of future air pollution controls.

***Provide a description of the sources and analysis process used to generate the ambient air quality data.* – (Clean Air Task Force, SC Johnson)**

Every three years, the dispersion modeling team collects information from all monitoring sites for the previous five years. Monitors with less than three complete years of data are not considered further. The appropriate design value is selected from each year (second highest value for short-term standards) and the 3, 4, or 5 values per monitor are averaged. The team then assigns values to each county based on how the area around the monitor best represents the county. In addition, trends and previous monitoring weigh into the decision. Since most monitors are located near a source of pollution, it is challenging to obtain representative data. The values used in Milwaukee County are based on monitors located throughout the county including sites in downtown Milwaukee.

***Air quality monitoring stations used to establish background (ambient) concentrations of air pollutants are not appropriate*.** **(City of Oak Creek)**

See the response to the question directly above.

The final EIS should indicate if the Compliance Assurance Monitoring (CAM) rule applies to the SCPC units. **- (Clean Wisconsin)**

The proposed Elm Road Generating Station (ERGS) will be subject to the Compliance Assurance Monitoring (CAM) rule requirements established under 40 CFR Part 64 for the ERGS SCPC boilers for particulate matter, and for some material handling systems utilizing baghouses. The auxiliary boilers, emergency diesel equipment will not utilize control devices as defined in Section 64.1 of the CAM rule, and therefore CAM requirements will not apply to these units. The only IGCC control device that meets the relevant definition in the CAM rule is the diluent injection system used to control nitrogen oxide emissions. Since this unit will also have a 40 CFR Part 75 CEMS system for the measurement of nitrogen oxide emissions, thus this unit would not be subject to CAM requirements because of the acid rain program exemption. The facility will be required to submit a CAM plan as required under 40 CFR Part 64. The DNR will include the appropriate monitoring requirements in the operation permit.

The EIS fails to quantify the potential for significant air quality improvements if the new units are built and dispatched ahead of existing units. **(City of Oak Creek)**

The EIS does not attempt to quantify any potential air quality improvement from dispatching the new combustion units ahead of the existing units because WEPCO is not subject to any PSC or DNR requirement to dispatch and operate their combustion units on an air quality priority basis.

Discuss the inconsistencies between the pollutant levels being requested in the air permit, the pollution caps in agreements, and expected pollution levels WEPCO is touting to the public in its ads and public meetings. **(Sierra Club, Robert Keller)**

The emission levels that WEPCO has proposed its air permit application are those emission limits applicable to the three proposed combustion units to satisfy the statutory criteria for permit approvability (i.e., to meet LAER/BACT [Lowest Achievable Emission Rate/Best Available Control Technology] emission limits and to ensure that ambient air quality standards and air increments are protected).

Separate and distinct from the air permitting process for the ERGS project, WEPCO is subject to other air emission limits, based on:

- WEPCO's agreement with the city of Oak Creek to limit its total emissions of eight pollutants from the combined OCPP and ERGS facility to the total amount of those pollutants emitted in calendar year 2000, if PSC approves one or more of the proposed ERGS units;

- WEPCO's environmental cooperative agreement with DNR to reduce NO_x, SO_2 and mercury emissions from its coal burning power plants in Wisconsin;
- WEPCO's Consent Decree with US DOJ, US EPA and Michigan to reduce NOx, SO_2 and particulate emissions from its coal burning power plants in Wisconsin and Michigan.

While these other agreements/decrees impose additional requirements for air emission reductions on WEPCO, it is not incorporated into the air permit applications for the ERGS project.

***Provide information related to the effects of localized air pollutants at specific locations in the residential neighborhoods nearest to the plant*. – (SC Johnson)**

The dispersion modeling analysis submitted by WEPCO includes receptor locations around the facility and demonstrates that all applicable ambient air quality standards are attained and maintained at all points, including in the residential neighborhoods nearest the plant. This determination includes the impact of the facility and a regional background concentration that is calculated from a representative monitoring location.

***Provide information about the current status of the air permit applications for the ERGS*. – (SC Johnson, Carla Freeman, Andy Weber, Clean Wisconsin, town of Caledonia, Calpine)**

The air permit application was deemed not complete by the DNR at the time of the issuance of the draft EIS. The air quality analysis information in the draft EIS was based on information in the air permit application submitted by WEPCO. WEPCO has provided additional information on the air permit application between April 16, 2003 and June 27, 2003. The DNR is currently reviewing the additional information submitted and making a determination on the completeness of the air permit application. The DNR is also currently performing the air quality modeling analyses for all four of the operating scenarios as provided by WEPCO on June 2, 2003 and June 27, 2003. The DNR will provide updates of its air permit review including the modeling analyses in its testimony at the CPCN hearings.

***More discussion is needed regarding the "fumigation" effects (off-shore breezes) on localized air quality*. - (Sharon Worthy, SC Johnson, Rick Burt, William Guenther)**

Due to elevated release height of power plant plumes, it is not likely that shoreline fumigation or recirculation play a significant role in air pollutant concentrations.

WEPCO performed an analysis of inversion breakup events using the US EPA approved Shoreline Dispersion Model (SDM). The procedures followed in the analysis are consistent with both State and Federal dispersion modeling policy. The report submitted indicates that impacts of the facility during fumigation events will attain and maintain all applicable ambient air quality standards.

Will WEPCO be able to meet 2007 air quality standards? Will southeast Wisconsin ever be designated as an attainment area? How long will we have to use reformulated gasoline? **- Sarah Denoto-Kniesly**

Our attainment demonstration for the 1-hour ozone standard indicates that we will achieve attainment of the 1-hour ozone standard in 2007. However, it does not appear that building the Elm Road facilities has much bearing on the 2007 attainment date since the first unit is not scheduled to begin producing power until sometime in 2008.

EPA has begun implementing the new 8-hour ozone standard. One again southeastern Wisconsin will be designated as ozone attainment area. This will trigger another planning cycle. The DNR will work with neighboring states to further reduce ozone concentrations in the Lake Michigan Region. The federal Clean Air Act requires the use of reformulated gasoline in the Milwaukee area regardless of attainment status. Congress will need to revise the Clean Air Act to change the requirement.

Chapter 8 Water Resources

Discuss DNR permitting requirements that apply to the proposed wetland fill and evaluate if such filling (or associated impact) would be permissible under State wetland water quality standards.

The placement of fill in a wetland requires a Water Quality Certification from the DNR under s. 281.22 and s. 281.37, Wis. Stats. and NR 299, Wis. Adm. Code. Applicants must comply with the requirements under NR 103, Wis. Admin. Code requiring the applicant to submit a Practicable Alternatives Analysis which evaluates alternatives that would avoid or minimize wetland impacts taking into consideration cost, available technology and logistics in light of the overall project.'s purpose. The DNR will make a determination whether WEPCO has shown that no practicable alternative exists that would avoid or minimize impacts to the wetlands and whether the proposed activities will result in significant adverse impacts on wetland functional values.

The DNR staff will work with WEPCO during the permitting process to evaluate the functional values of all wetlands and will encourage WEPCO to avoid or minimize the wetland impacts where practicably possible.

Describe the WPDES permitting process.

Both federal (40 CFR Part 423) and state (Ch. NR 290, Wis. Admin. Code) regulations establish effluent limitations for power plants. Parameters typically limited for coal-fired power plants that utilize once-through cooling are: suspended solids, oil and grease, pH, and various metals. A WPDES wastewater discharge permit will limit the concentrations of potentially harmful constituents in the effluent, and will include all of the requirements of the federal and state regulations. In addition, to account for potentially synergistic affects of individual chemical-specific pollutants, the treated effluent will also be required to pass whole effluent toxicity tests.

Requirements for compliance with s. 316(b) of the Clean Water Act are also included in WPDES permits.

The DNR intends to reissue the existing WPDES permit for the OCPP based on the addition of the first SCPC unit. The permit would be modified as the additional two new units are brought on-line. The existing OCPP permit sets limitations on the **mass** (pounds per day) of suspended solids and oil and grease that can be discharged into Lake Michigan. This is in addition to **concentration** (mg/L) limitations. Ch. NR 207, Wis. Admin. Code, also known as Wisconsin's "anti-degradation" rule, is intended to prevent the lowering of water quality resulting from new or increased discharges.

WEPCO plans to install a new wastewater treatment system, which would treat the wastewater generated by both the existing units 5-8 and the two new SCPCs. WEPCO also plans to install a new wastewater treatment system, which would treat the wastewater generated by IGCC facility. Under the anti-degradation rule, anyone proposing a new or increased discharge of pollutants must demonstrate that the discharge does not result in a lowering of water quality, in this case Lake Michigan. WEPCO has confirmed its intention to design a treatment system to ensure that the combined OCPP and ERGS wastewater does not exceed the mass limits for oil and grease and suspended solids under the current OCPP permit (for Units 5-8). In a July 2, 2003 letter, WEPCO has advised the DNR that it is not requesting an increase in limits.

Ch. NR 108, Wis. Admin. Code, requires DNR review and approval of the treatment system before it can be put into operation. This is an added safeguard for ensuring that effluent limitations will be met. By meeting both federal and state water quality standards, adverse impacts to aquatic life are not expected from the intake or from the discharge of this treated wastewater.

Assess the effects of the proposed dredging.

Chapter 8 of the final EIS discusses the results of the sediment quality investigation and potential impacts of constructing the water intake and other harbor construction activities. See the additional discussion of waste management rules in Chapter 9, Solid and Hazardous Waste and Remediation, of the EIS.

***Use of the CORMIX model for assessing thermal impacts may be inappropriate due to the water temperatures of Lake Michigan. Describe the modeling assumptions and analysis used to analyze thermal impacts to Lake Michigan.* – (SC Johnson, Lake Michigan Federation)**

In its engineering report, WEPCO proposes to raise the temperature of the water it takes in from Lake Michigan to cool the condensers by 12^0F. WEPCO proposes an on-shore discharge of the heated cooling water.

The DNR is currently working with an advisory committee (which includes fisheries biologists, engineers, and members of the regulated community) to develop a thermal standards rule. Our latest projection is that the rule will be promulgated in the summer or fall of 2004. At the time the draft EIS was being prepared, the DNR did not have sub-lethal temperature criteria for all months, specific to southern Lake Michigan. Furthermore, there was still considerable debate

over the monthly acute and sub-lethal criteria. We now have the criteria for all months, and there is consensus within the committee as to the validity of the criteria.

Based on the anticipated maximum flow rate of 700 MGD for each of the three new units, a temperature rise of 12^0F above the ambient lake temperature, and the default mixing zone area of 3,125,000 ft^2 for an onshore discharge, the combined discharge of the three units would exceed the calculated daily maximum temperature limit for the months of July, August, and September. The discharge would also exceed the calculated average temperature limit for the months of May through November.

Providing a separate cooling water outfall structure for the IGCC unit would still result in daily maximum and average temperature limitations exceedances for the months indicated above; and the exceedances would occur for both the IGCC outfall and the combined SCPCs outfall. However, as pointed out in the draft EIS, the formula for calculating temperature limitations can be very conservative because only heat loss to the atmosphere is considered. Heat loss caused by entrainment and mixing of receiving water is not included.

In order to apply the most currently available criteria, and to include the effect of mixing due to naturally-occurring near-shore currents, WEPCO and its consultants are developing thermal models of the proposed discharge. EPA's CORMIX model will be used for the near-field region. The MIKE 21 two-dimensional hydrodynamics model, developed by the Danish Hydrologic Institute, will be used for the far-field region. Output from EPA's GLERL existing model of Lake Michigan currents will be used as input to both the CORMIX and MIKE 21 models.

Assuming the DNR validates the modeling results, the next step in the process of establishing temperature limitations for the discharge will be to look at the indigenous aquatic community in the proximity of the power plant and determine how the various species might be impacted. The DNR intends to reissue the OCPP WPDES discharge permit with temperature limitations that reflect the current status of the thermal standards rule. If WEPCO's proposed flow rate and temperature have the potential for causing criteria exceedances, then there is a suite of options open to WEPCO to comply with thermal standards including, but not limited to:

- Increasing the cooling water flow rate. This would allow a lower discharge temperature.
- Configure the discharge conveyance to effect more rapid mixing.
- Provide multi-port diffusers to effect a larger mixing zone
- Provide a 316(a) demonstration. Under s. 316(a) of the Clean Water Act, a person can demonstrate that effluent limits that might otherwise be applicable to a power plant are more stringent than necessary to protect aquatic life.

A concern has been raised regarding the applicability of the CORMIX model at low water temperatures due to buoyancy. The proposed discharge is occurring in less than ten feet of water depth. For this reason, vertical mixing does not need to be considered and the CORMIX model is appropriate. It should also be pointed out that between 39^0F and 32^0F, there is a 0.006 lbs/ft^3 density difference in water. In light of the shore discharge, with the thermal plume rapidly reaching both top and bottom of the water column, this density difference may be neglected.

As for the issue of cumulative impacts, the DNR has advised WEPCO that any thermal plume overlaps must be accounted for in the modeling.

***Identify the area of the mixing zone(s).* – (Lake Michigan Federation)**

Additional text has been added to the thermal discharge discussion in Chapter 8 of the final EIS.

***SCPC and IGCC discharge calculations were analyzed separately. There is no cumulative analysis of the total project effects and the effects of the existing thermal discharge plus the new ERGS facilities*. – (Sierra Club, SC Johnson)**

The analysis presented in the DEIS did not take into account potential overlaps of thermal plumes from the proposed SCPCs and IGCC cooling water discharge, and existing cooling water discharges. A more refined thermal impact analysis, discussed in Chapter 8 of the final EIS, takes into account potential overlaps.

***Details are lacking with respect to the design of the water intake and there is no discussion of possible mitigation strategies to minimize impingement and entrainment impacts.* – (Sierra Club, Lake Michigan Federation)**

The latest information indicates that WEPCO is favoring the construction of a tunnel, 32 feet in diameter, that would be approximately 200 feet below the bed of the lake. This design also includes intake cribs that would be placed over the intake shafts, intended to slow the intake velocity. The intake structure would be approximately 40 feet below the lake surface.

WEPCO continues to work with the DNR to determine the final location of the intake in order to minimize the structure's impact on aquatic species. In 2003, additional ichthyoplankton sampling will be focused on this proposed intake location. The data presented in this report, along with earlier data presented in 2002, would be used to help establish the appropriate location, design, and operational parameters for achieving compliance with applicable impingement and entrainment reduction criteria.

Discuss other possible alternatives to once-through cooling.

Once through cooling water and closed-cycle cooling are commonly used cooling alternatives. WEPCO has proposed to use once-through cooling water for the ERGS. The Clean Water Act does not prohibit the use of once-through cooling water, nor does it compel anyone to use closed-cycle cooling. DNR does not have the authority to require closed-cycle cooling for this project.

***Once-through cooling should be more thoroughly discussed, especially how once-through cooling can be deemed to be BTA. Other cooling alternatives should be discussed. WEPCO should demonstrate that once-through cooling is BTA*. – (Lake Michigan Federation, CUB, SC Johnson)**

EPA has promulgated regulations for cooling water intake structures for **new** facilities, and has **proposed** regulations for cooling water intake structures for **existing** facilities. Both the promulgated 316(b) regulations for new facilities and the proposed 316(b) regulations for existing facilities provide for site-specific alternatives to the use of a cooling tower. Currently, US EPA and the DNR disagree on which regulation is applicable to the ERGS facilities. It has been the DNR's position that the proposed "existing facility" regulation is applicable to the ERGS project. The EIS states that, regardless of the characterization of the proposed units as new or existing under the 316(b) requirements, the WPDES permit will require Best Technology Available (BTA).

If ultimately the DNR and EPA agree that the intake should be regulated under the promulgated "new facility" regulation, then WEPCO would request a site-specific determination of the BTA. At that juncture, the DNR would require the comparative impact analysis of closed versus open cycle cooling.

If ultimately the DNR and EPA agree that the intake should be regulated under the proposed "existing facility" regulation, then the DNR will require WEPCO to demonstrate that the location, design, and operation of the intake will reduce fish and shellfish impingement mortality by 80 to 95 percent and entrainment by 60 to 90 percent. Fish deterrent systems, barrier nets, modified Ristroph screens with fish return systems, aquatic filter barriers, variable speed pumps, fine mesh traveling screens, angled and modular inclined screens, and low pressure spray washes may be used.

Siting of the intake is also critical for minimizing impingement and entrainment. In general, the littoral zone of large lakes, such as Lake Michigan, serve as the principal spawning and nursery area for most species of freshwater fish, and is considered one of the most productive areas of the waterbody. The placement of the intake structure beyond the littoral zone should reduce impingement and entrainment. The 2002/2003 study that WEPCO is currently conducting is intended to be part of that demonstration.

If WEPCO is unsuccessful in demonstrating the percent reductions, it would seek a site-specific determination of BTA. At that juncture, the DNR would require the comparative impact analysis of closed- versus open-cycle cooling.

***Evaluate the cumulative regional effects of DNR's decision deeming the ERGS an "existing facility" under Section 316(b) of the CWA*. – (Lake Michigan Federation)**

Currently, US EPA and the DNR disagree on which regulation, "new facility" or "existing facility" is applicable to the ERGS. It has been the DNR's position that the proposed "existing facility" regulation is applicable to the ERGS project. The DNR cannot forecast the cumulative regional effects and precedence of this decision at this time. The EIS states that, regardless of the characterization of the proposed units as new or existing under the 316(b) requirements, the WPDES permit will require Best Technology Available (BTA). BTA requirements should minimize impingement and entrainment.

Additional analysis of long-term effects of the proposed water intake on fish (especially yellow perch) is needed based on the results of the 2003 study completed in February.

A second round of onshore and offshore ichthyoplankton collections are being taken in the months of May through September 2003. Additional ichthyoplankton sampling is to be focused more precisely at the proposed intake location, located approximately 9,000 feet offshore in 40 feet of water.

Describe the project's impacts on the sport fishing and tourism industries. **– (W. Guenther)**

See the discussion in Chapter 8 of the final EIS related to construction and operation of the proposed project.

Discuss any responsibility or jurisdiction of the Joint Commission on the Great Lakes with respect to this project. **- Vicky Mayer**

The International Joint Commission (IJC) is an independent bi-national organization established by the Boundary Waters Treaty of 1909. Its purpose is to help prevent and resolve disputes relating to the use and quality of boundary waters and to advise Canada and the United States on related questions. The IJC has six members. Three are appointed by the President of the United States, with the advice and approval of the Senate, and three are appointed by the Governor in Council of Canada, on the advice of the Prime Minister.

IJC approval is not needed for the project.

More information about the International Great Lakes Commission is available at http://www.ijc.org/ijcweb-e.html

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Chapter 9 Solid and Hazardous Waste

Waste disposal effects of ash re-burning should be more thoroughly discussed. **- (Sierra Club)**

WEPCO is planning for ash reburn at a maximum rate of 5 percent of the coal. The benefits of the reburn are discussed in Chapter 9 of the EIS. The only way for WEPCO to realize these benfits is to be able to market the by-products, however. It has been determined that on a pound to pound basis, five times more ash is produced by burning ash than coal. Most of the ash would be coming from the OCPP property. There are two closed landfills that are scheduled for excavation and reburn. Also four early ash disposal areas may have to be excavated due to construction or site remediation. WEPCO is eager to remove the ash from these sites and reburn it. However, the reburn would not begin until a sustainable ash beneficial use market is attained. Without a large ash beneficial use market the reburn would have adverse impact on the existing landfill capacity. If 5 percent ash is reburned from the beginning of operation for the two SCPC plants , the landfill capacity would be reduced by 35 percent. Additional landfill space may be needed sooner than expected.

***Provide more discussion about existing coal leaching problems at the closed Oak Creek North Landfill, efforts to address them, and the potential for additional coal leaching on page 236*. - (Andy Weber)**

Groundwater impacts in the vicinity of the Oak Creek North Landfill were addressed by WEPCO in 1999 and 2000. Cover soils were added in isolated areas to eliminate low spots and to increase cover thickness where deficient. Also, a drainage channel on top of the cover, where surface water was coming in contact with ash, was repaired. Groundwater quality appears to have improved since these remedial actions were completed.

The ERGS proposal includes short- and long-term improvements to the Oak Creek North Landfill to minimize future potential environmental impacts resulting from the landfilled ash at the Oak Creek North Landfill.

A component of the proposed ERGS construction process includes improvements to the slope and permeability characteristics of the landfill cover. These improvements are expected to minimize the generation of leachate due to infiltration of surface water. The fuel source for the three proposed ERGS power generation units will include up to five percent recovered ash. As much as 270,000 tons of ash could be recovered annually and reburned in the proposed units. The Oak Creek North Landfill is identified as the primary initial source of ash fuel for the ERGS units. Ash presently stored in the Oak Creek North Landfill would be completely removed, eliminating any future risk of groundwater impacts caused by the landfill. See the final EIS section on environmental monitoring for Oak Creek North.

***Discuss the potential adverse environmental impacts of ash disposal in landfills and early ash disposal areas, such as the formation of leachate and surface water runoff that could pollute groundwater and surface water, and the engineering features that are designed to prevent environmental impacts.* – (SC Johnson, Don Schantzen)**

Ash storage cells in the active Caledonia Ash Landfill are constructed with a compacted clay liner and leachate collection at the base of the cells. As ash reaches final grades in the cells, the cells are covered with an engineered cap consisting of compacted clay, rooting zone, topsoil and vegetation. The landfill perimeter is graded to route clean surface water away from the active cell(s) and to the site sedimentation basin. Leachate is routinely removed from the Caledonia Ash Landfill and trucked to a licensed treatment facility. Groundwater quality in the vicinity of the Caledonia Ash Landfill is monitored by a series of groundwater monitoring wells.

Ash stored in the closed landfills and early ash disposal areas on-site are covered with soil to prevent direct contact of surface water with the ash. Any leachate that migrates from the ash deposits into the surrounding soil is naturally attenuated by the thick clay layers underlying the site. Groundwater quality is monitored with a network of groundwater monitoring wells around closed landfills. Groundwater quality is not monitored around early ash disposal areas. However, these areas are targeted for remediation in near future.

***Monetize the cost of by-product disposal* – (Dorothy Bocciardi)**

WEPCO plans to utilize the by-products from ERGS and receive revenues from the sales of the coal combustion products. As the markets develop similar to its current ash utilization program, WEPCO expects that revenues from ash sales will eventually exceed the ash management expenses. In the event that WEPCO is unable to market some of the by-products, the material will either be stockpiled for later use in accordance with DNR rules or disposed in a licensed landfill. As stated in Volume 3 of the ERGS Environmental Report, WEPCO has landfill capacity at its Caledonia, Pleasant Prairie, and Highway 32 landfills, and there is capacity at other commercial landfills in southeastern Wisconsin. Unit costs for disposal in landfills owned by WEPCO depends on the quantities being landfilled and will vary due to economies of scale. The range of costs to dispose of coal ash in the Caledonia landfill is approximately $22.00/ton to $38.00/ton. Disposal in other landfills owned by WEPCO will be higher due to increased transportation costs and will be approximately $30.00/ton to $46.00/ton. Costs to dispose ash in commercial landfills (tipping fees plus hauling) are estimated to be in a similar range with comparable hauling distances.

***Identify the plans that are in place to address sulfur and slag if utilization does not reach 100% within 10 years?* – (Calpine)**

WEPCO has identified substantial landfill capacity at the Caledonia, Pleasant Prairie and Highway 32 Landfills. Landfill capacity has also been identified at other area commercial landfills. WEPCO coal combustion products marketing companies have indicated the ability to use 100 percent of the slag production within three years of unit commissioning (see Mineral Solutions letter dated 10/2/01 in Appendix Z, Volume 3 of the ERGS Environmental Report). Sulfuric acid is presently in short supply and imported to this region from Canada. Experience from existing IGCC plants indicates that commercial quality sulfuric acid production is being produced and utilized. (See Rowell Chemical Corporation letter dated 11/16/01 and Milport Enterprises Inc. letter dated 10/12/01 in Appendix Z, Volume 3 of the ERGS Environmental Report.)

***Will scrubber sludge be tested for mercury? Could the scrubber sludge be characterized as solid or hazardous waste?* – (Lake Michigan Federation)**

Yes, the scrubber sludge would be tested for mercury. Scrubber sludge would be characterized in accordance with solid and hazardous wastes guidelines. It is too early to speculate but it is more likely to be classified as solid waste based on its specific elemental and leaching characteristics. Wallboard manufacturing companies have approached WEPCO with an interest in obtaining synthetic gypsum from the scrubbers. (See National Gypsum Company letter dated 11/11/01 and Lafarge Gypsum letter dated 10/8/01 in Appendix Z, Volume 3 of the ERGS Environmental Report.)

***Would solid sulfur or sulfuric acid be characterized as "products" or "waste"?* – (Gasification Technologies Institute)**

WEPCO would need to characterize the waste and get DNR approval for use as a commercial product. The sulfuric acid is expected to be sold and meet commercial quality standards, and

therefore should be considered a "product." However, DNR has made no determination on this issue at this time.

***Identify the plans that are in place regarding sulfuric acid disposal if the acid can not be sold and is a waste.* - (Calpine)**

The typical way of disposing of sulfuric acid is neutralization with a base. For many systems, the neutralizing agent is sodium hydroxide which forms the salt, sodium sulfate. However, for large quantities, the neutralizing agent may be different to end up with a more marketable product. For instance, if lime were used calcium sulfate (gypsum) would be created which can be used in dry wall manufacturing which would be a compatible use with the synthetic gypsum already expected from the proposed unit scrubbers. If ammonia or ammonium hydroxide (aqueous ammonia) is used, ammonium sulfate is produced which can be potentially used for fertilizers.

Chapter 10 Land Resources

***The DEIS mentions the North Site grasslands harbor five of the state's seventeen grassland birds that depend on the area for most or all of their breeding cycles. Was this issue looked into any more by someone at the DNR? What are the effects of these birds no longer have anywhere to breed?* – (Tom Williams)**

The 2003 grassland bird survey was conducted about one week later in the season this year compared to 2002. The survey involved walking around the two landfills looking and listening for birds. The birds seen/heard were pretty much the same species from last year, except for the Dickcissel. Bird species included bobolink, savannah sparrow, meadowlark, yellowthroat, red-wing blackbird, willow flychatcher, goldfinch, barn swallow, and tree swallow. The landfill south of Elm Road had a large number of bobolinks. At one point, 21 male bobolinks were counted in one group. Of the species heard this year, the bobolink is the only one that is a species of concern for Partners in Flight, US Fish and Wildlife and the DNR.

Grassland habitat is scarce cover type in Wisconsin, and North America for that matter. Wisconsin only has about 0.1 percent (2,000 acres) of the original prairie acreage (2.1 million acres) left and so nesting habitat for these birds is at a premium. If the grassland cover is lost, these birds will be forced to relocate, which will be difficult due to the lack of grassland habitat in the landscape. As a result, if these areas are lost it is possible that many of these individuals will not find suitable breeding habitat.

Relocation to suitable habitat will not be an easy task. The search will put additional stress on the birds that could affect nesting success and bird survival. In searching for new sites they will expose themselves to a variety of dangers- predators, dogs, cats, cars, etc. And even if they do find suitable habitat they will still have to compete with resident grassland songbirds to stake out new territories.

Overcrowding of remaining grassland areas has the potential to impact resident birds on these areas. With overcrowding, there is an increase in territorial disputes among grassland songbirds.

An increase in the number of birds using the area puts additional strains on resources (e.g., cover, nesting areas, food, etc.) in the area. These impacts have the potential to affect the songbird's health and ability to successfully produce offspring.

***It is unclear what coordination has occurred with the EPA and FERC, and no reference to the Army Corps' role in complying with Section 106. More detail is needed to understand what has been done by federal agencies to comply with Section 106.* – (US Army Corps)**

***Section 106 and Tribal Coordination - It is unclear what, if any, coordination has occurred with any potentially interested Native American Tribes.* – (US Army Corps)**

From the beginning of its CPCN review, the PSC has requested continuous updating of the status of WEPCO's compliance with historic property protection laws. The documentation available indicates that, to the time of EIS preparation, the State Historic Preservation Officer (SHPO) has had no official notification of substantial federal interest and WEPCO has made no documented effort to work with federal agencies to begin the Section 106 process with the SHPO. Thus, as shown in Table 1-2, the CPCN historic properties review for the ERGS has been under the state law and not Section 106. There is text in Chapters 1 and 10 about Section 106 to account for the fact that the federal law might be invoked during the CPCN review.

In the meantime, the PSC, as a state agency, must comply with the state version of the National Historic Preservation Act, in Wis. Stat. § 44.40. The state process does not necessarily involve federal agencies or Native American Tribes. An attempt has been made to clarify the state process as well as its relationship with, and the status of, the Section 106 review in Chapter 10.

Table 1-1 (inVolume 1) shows that there is some federal interest in the ERGS project, but none of the interest could be applied to a Section 106 review as of the time the draft EIS was issued. In general, the EPA has abrogated its responsibilities under Section 106 in Wisconsin. The Wisconsin DNR is now working on an agreement with the SHPO to handle all formerly-considered EPA permits as state permits under the state preservation law (Wis. Stat. § 44.40, which is currently being applied to the case through the CPCN process). The FAA interest shown in Table 1-1 relates to clearance standards and hazard determinations, which historically have been difficult for the SHPO to apply to Section 106. In this case, there is still no visible FERC interest. The Army Corps has historically minimized its area of potential effect (APE) to the wetlands under its permit consideration, often leaving large portions of the proposed project before the Commission with no historic properties protection except the state law. It is often difficult in power plant and utility line projects to ascertain with the SHPO whether the Section 106 APE would cover the project before the Commission or not. Again, in this case, at the time the draft EIS was issued, the applicant and federal agency had not made it clear yet.

With the recent interest expressed by the Army Corps in the entire ERGS project, the PSC has notified the SHPO and WEPCO that there appears to be substantial federal interest in the project at the Army Corps, recommending that Section 106 be followed from here on. According to the WHS, which is also the SHPO for the state of Wisconsin, once Section 106 applies, its requirements for the applicant supersede the requirements of the state law. Staff believes that the Army Corps compliance with Section 106 will elucidate the coordination and work to be done by

federal agencies in compliance with the federal law, including appropriate coordination with potentially interested Native American Tribes.

Chapter 11 Community Impacts

***Impacts related to train traffic are not adequately discussed and there are numerous inaccuracies and omissions. Effects on Three Mile Road and the remainder of Racine County grade crossings should be analyzed.* – (SC Johnson, Town of Caledonia, CUB, Frank Michna)**

The Railroad section of Chapter 11 of the final EIS has been updated and expanded to include more information about new railroad facilities related to the ERGS and effects on traffic. Although staff recognizes that there would be additional delays at other grade crossings in Racine and Kenosha Counties due to the increase in train traffic, an evaluation of these delays or potential traffic congestion is beyond the scope of our expertise and could not be accomplished within the statutory review time limits.

Would the increased coal train traffic prevent the establishment of a Chicago-Racine-Milwaukee commuter rail?

No, commuter rail would still be an option. This is discussed in the final EIS

***The impacts of the proposed ERGS facilities on the land use plan of the town of Caledonia have not been assessed.* – (Town of Caledonia)**

Refer to the section on the Potential Conflicts with Land Use Plans in Chapter 11.

***Provide more information on how police, fire and medical staff would respond in case of a catastrophic accident.* - (Jo Sandin)**

That specific information is not yet available, but it will be, as explained in the EIS. "The conditional use permit (CUP), granted by the city of Oak Creek for the proposal, requires WEPCO to file two Fire Protection and Emergency Management Plans for the Property – one for the construction period, and one for the operations period. In addition, the CUP requires construction contractors to meet with the Police Chief to discuss security plans and procedures."

Both the city of Oak Creek and the town of Caledonia have the capability to respond to catastrophic accidents. The city of Oak Creek Fire Department has 39 full-time firefighters of which 26 are firefighter/EMTs and 13 are firefighter/paramedics. Capabilities include fire response, emergency medical services (EMS) and paramedic services, Hazmat -Level B, confined space and technical rescue, disaster planning and mutual aid from neighboring communities.

The town of Caledonia has 38 full-time firefighters of which 19 are firefighter/EMT and 19 are firefighter/paramedics. Capabilities include fire response, emergency medical services (EMS) and

paramedic services, recognition/operation in Hazmat, confined space and technical rescue, disaster planning and mutual aid from neighboring communities. In addition, there are resources available in nearby Racine and Milwaukee Counties, and WEPCO has on-site emergency and fire equipment and trained personnel.

***Ownership issues related to Four Mile Road need to be clarified*. – (Town of Caledonia)**

The EIS describes the current ownership of Four Mile Road. The County and the Town have evidently been discussing possible changes in the portions of road for which each have responsibility. The EIS mentions that as part of the description of the existing environment.

***Additional train traffic related to limestone transport (if not barged in) has not been included in the train impact discussions.* – (Town of Caledonia)**

WEPCO proposes to barge limestone to the site

***Health impacts related to idling diesel train engines should be discussed*. – (Town of Caledonia, Rick Burt)**

Emissions from locomotive idling are considered as a secondary emission. These emissions are not under the control of WEPCO and cannot be accounted for within the air permit. It is difficult to quantify these emissions due to the varying idling time.

***The rumble and vibration of trains causes windows to crack. These types of impacts should be discussed*. – (Mary Ann Hernke)**

Vibrations are an effect of low-frequency noise that can be associated with trains, large engine operation or other causes. Coal trains associated with the existing OCPP units and the new ERGS facilities account for only some of the train traffic passing through the area on a daily or weekly basis.

***The property value discussion should be revised.* - (Daniel Bach)**

The draft and final EIS review the current state of research regarding the relationship between power plants and property values. These studies illustrate the difficulty in drawing any statistically significant, quantifiable conclusions, much less applying a conclusion to different regions and facilities. What can be inferred from these studies is that individual preferences may outweigh obvious disamenities and that the value people place on property varies greatly from individual to individual.

Describe any measures that would be in place to reduce security concerns -- this will be the sixth largest coal-fired plant in the nation if all of the proposed units are built. It could be a terrorist target.

WEPCO's response to this issue is as follows: "The company recognizes the potential for terrorist attack on any of its facilities, whether power plant or of another type. In fact, power plant facilities are merely one class of potential target among many of the nation's critical infrastructures. The measures that the company may take to address the risk will be consistent with what we perceive to be the probability of attack and which would be cost-effective in mitigating that risk. In any case, the specific measures to be taken and their expected effectiveness cannot be revealed.

The company has met with the Marine Safety Office of the U.S. Coast Guard's Milwaukee station. These meetings were predicated on the newly signed Maritime Transportation Security Act, PL 107-295. We discussed the feasibility of establishment of security zones around critical structures and the application of certain intrusion detection systems and vessel barriers. The specific measures to be taken and their expected effectiveness cannot be revealed.

The company maintains a budget to support a variety of security measures which are applied across a number of company facilities including the existing OCPP. The completed ERGS site would likely have a larger security budget requirement than currently allocated to the site but the size of the budget and the types of measures to which the monies are proportioned cannot be revealed. The planned budgets would be sufficient to meet what we perceive to be the most credible threats."

***The employment discussion should be expanded to discuss more clearly the types of jobs available. Also, there will be a loss of jobs at the Port Washington Power Plant, thereby offsetting the new job numbers at ERGS.* – (Carla Beyerl)**

The employment section in Chapter 11 has been updated to provide more information.

Reproduced Comments of Parties and Organizations follow in alphabetical order

Comments on the Draft Environmental Impact Statement, submitted by ANR Pipeline Company

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June 12, 2003

Mr. Jeffery Kitsembel
Public Service Commission
P.O. Box 7854
Madison, WI 53707-7854
jeff.kitsembel@psc.state.wi.us

Re: Docket No. 05-CE-130

Dear Mr. Kitsembel:

ANR Pipeline Company ("ANR") is submitting these comments to correct a false impression created by certain statements in the Draft Environmental Impact Statement ("DEIS") for the Elm Road Generation Station in Docket No. 05-CE-130. In particular, the DEIS states that the use of natural gas causes an additional reliability concern because electric generators require that the natural gas be received at high pressures of 450 psig or above. According to the DEIS, since a local distribution company (LDC) only needs low pressures for reliable service, the high pressures needed by the electrical generator makes that electric generator, even one holding firm contracts, less reliable than the LDC. The DEIS then tries to validate this concern by referring to a January 23, 2003 situation on ANR where the pipeline had difficulty maintaining pressure on its system for a few hours.

There are two problems with these statements. First, the purported distinction between an electric generator and an LDC is in many cases false. The Public Service Commission of Wisconsin is aware that many LDCs require high pressure from interstate pipelines in order to provide reliable service. Indeed, ANR has contracts with local utilities in Wisconsin that require pressures that are above 500 psig. More importantly, a reference to a single unique situation hardly acts to validate that there is a legitimate concern about the reliability of natural gas pipelines to provide service at contracted levels of pressure for either an electric generator or an LDC.

Second, a one-time temporary difficulty does not mean that natural gas is not reliable. Due to a congruence of certain unique circumstances and unexpected equipment failures, there were certain pressure maintenance issues that occurred in the extremities of ANR's system on January 23, 2003. However, not only did these pressure issues affect all customers (not just

generators) but that situation was corrected in a matter of hours. Moreover, ANR has taken steps which will help to ensure that the same set of conditions will not reoccur. The simple fact is that it is hard for any other energy system to compete with the reliability of natural gas pipelines. Indeed, it is important to note that even in the unique circumstances of January 23, 2003, ANR's pressures in the area of the Elm Road Generation Station would have been more than sufficient to serve an electric power plant. ANR serves over 10,000 Mw of electric generation across its system and does so in a safe and reliable manner.

ANR requests that any statements concerning the lack of reliability of an electric generator due to the requirement of high pressures from natural gas pipeline be removed from the final EIS. ANR wants to emphasize that it is not opposing the Elm Road Generating Plant or making other comments. However, the statements described above, which could portray a misleading picture, act to cast doubts on the integrity of the EIS process. In order to ensure that the EIS is providing an accurate portrayal of the benefits and detriments of the proposed project, the statements concerning the reliability of electric generators based on the pressure necessary from natural gas pipelines should be removed from the EIS.

Respectfully submitted,

ANR PIPELINE COMPANY

/s/ Christopher D. Young

_____

Christopher D. Young
Senior Counsel

Comments on the Draft Environmental Impact Statement, submitted by the Army Corps of Engineers

PSCW EIS REVIEW COMMENTS
ELM ROAD GENERATING STATION
Army Corps of Engineers
7-3-03

The U.S. Army Corps of Engineers is involved in the proposed Oak Creek power plant expansion due to the requirement for a Clean Water Act Section 404 permit and a Rivers and Harbors Act Section 10 permit for work in wetlands and navigable waterways. The Corps will need to comply with the National Environmental Policy Act (NEPA) in processing the permit applications for the proposed project. The NEPA regulations require the Corps to become involved as early as possible in the state or local review process, to ensure that environmental factors are considered at an early stage, and to assist applicants by outlining the types of information required for the Corps permit evaluation. Consequently, the Corps is commenting on the content of the PSCW EIS and also identifying areas where additional information or analysis is necessary for the Corps permit evaluation process.

GENERAL COMMENTS

1. The EIS identifies substantial resource impacts based on the proposal as described in the EIS. However, the applicant has informed the Corps that the document does not represent the most current project proposal. In this situation, it is difficult for the Corps to provide meaningful comments. A meeting has been requested between the Corps, FWS, PSCW, and WDNR to discuss the EIS and potential additions or revisions. Comments on the EIS are provided for discussion at this meeting.
2. The EIS appears to be incomplete in several resource areas, and does not address mitigation in the majority of the resource areas. Consideration and incorporation of appropriate mitigation should be an integral part of the proposed project.
3. Based on recent changes to the proposal and numerous statements in the EIS regarding incomplete data or analysis, the Corps questions whether the PSCW has received a complete application. Therefore, we suggest that the PSCW modify, suspend, or somehow revise the official time limit for the CPCN decision, to allow for completion of project modifications, incorporation of appropriate mitigation measures, and submittal of complete data for use in the EIS.
4. It is unclear from the text what coordination has occurred with other state and federal agencies.
5. There are several references to less or no need for the 3rd power-generating unit. Also, the EGEAS discussion is hard to follow, but it appears to show that implementation of a coal unit may not be necessary until 2022. It is hard to determine from the document which alternatives discussed in the EIS would be practicable alternatives under Corps CWA Section 404 regulations. Additional information is needed regarding the alternatives analyzed in the EIS.
6. For resource areas impacted by the proposed project, analysis of the significance of the proposal's impacts, when added to impacts resulting from past, present, and

reasonably foreseeable actions in the project area, are necessary for the Corp permit evaluation.

SPECIFIC COMMENTS

7. Page xxvii - More information is needed with regard to earth moving activities, as noted in the EIS, to adequately identify the noise, fugitive dust, and diesel fumes during construction.
8. Page xxix – Has the location of the intake crib been refined to a more specific location offshore?
9. Page xxix – The statement about compliance with thermal standards seems more definite than the discussion on page 210 would lead the reader to believe.
10. Page xxix – Is the statement about the reduced possibility of harbor construction up to date?
11. Page xxxi - Air Quality - The state EIS uses applicant supplied data and model results, but indicates that WDNR air quality analysis is underway.
12. Page xxxi – Air Quality – It appears that the FAA required lower stack height, discussed on page 344, is not reflected in the analysis. The revised stack height and corresponding WDNR air quality analyses should be incorporated into the EIS.
13. Page xxxiii – road impacts – will the proposed road improvements constitute a commitment and what is the position of the local road authority on the suggested road modifications? Coordination with the local road authority should be referenced in the EIS.
14. Page xxxiii - What are the demographics of the group west of the tracks on seven mile road?
15. Page 2 - Shooting Range - What is the federal review or oversight involved in the transfer of the shooting range property from the military?
16. Chapter 4 – Alternatives, page 66 – Did the comparison of coal and natural gas costs include total cost comparison, that includes pollution control costs, environmental costs, etc?
17. Chapter 4 – Alternatives, page 69 – The EIS should be updated regarding the pending CPCN for the Calpine plant.
18. Page 102/103 – Is the discussion of 500 (feet?) of additional fill to the north of the existing dock part of the lake fill discussed on page 211?
19. Page 117 – Is the gypsum wallboard plant a connected action, in relation to the proposed project?
20. Page 164, 175 - What is the cumulative impact of approaching 100% of the NAAQS for TSP and SO_2?
21. Page 179 – what is the cumulative impact to the shoreline?
22. Page 196 & 222 – Wetlands - It is unclear from the EIS whether steps were taken to avoid, minimize, or compensate for potential wetland impacts resulting from the project.
23. Page 203 - Water Intake Structure. It is unclear what measures will be taken to minimize entrainment and impingement impacts resulting from the intake structure.

24. Page 210 – Cooling Water Discharge - It is hard to tell from the document, but it appears that the thermal discharge would not meet state acute criteria during certain parts of the year. This issue needs additional discussion.
25. Page 211 – Is the 7 acres of lake fill for the proposed breakwater part of the project proposal. Would the total lakebed fill be 14 acres?
26. Page 253 – Threatened/Endangered Species – what coordination has there been with the U.S. Fish and Wildlife Service?
27. Page 256 - Section 106 – It is unclear what coordination has occurred with the EPA and FERC, and no reference to the Army Corps' role in complying with Section 106. More detail is needed to understand what has been done by federal agencies to comply with Section 106.
28. Page 256 - Section 106 and Tribal Coordination - It is unclear what, if any, coordination has occurred with any potentially interested Native American Tribes.
29. Page 271 – There is no discussion regarding how the effect of the wetland loss on wildlife use could be minimized or mitigated.
30. Page 284 – demographics - To comply with the Executive Order on environmental justice, the Corps will need to address whether the proposal has disproportionately high and adverse impacts to any minority or low-income populations. Information is needed beyond the basic demographic information as to whether there are any low-income or minority groups that would potentially be affected by the project.
31. Page 310 – the potential impacts of increased transport of hazardous materials are not addressed.
32. Page 326 – Noise - It is unclear whether the aggregate noise level resulting from construction and operation of the plant is included in the noise analysis.
33. Page 348 – Is the proposed harbor expansion discussed in this section different from the proposed activities described on page 211?

Comments on the Draft Environmental Impact Statement, submitted by the town of Caledonia

June 11, 2003

Jeffery Kitsembel
Public Service Commission
P.O. Box 7854
Madison, WI 53707-7854

RE: Docket number 05-CE-130
Comment by Town of Caledonia, Racine County, Wisconsin
on Draft Environmental Impact Statement: Elm Road Generating Station

Submitted via e-mail, with signed original w/ attachments to follow

Dear Mr. Kitsembel:

As per page "i" the Town of Caledonia is providing you with its comments on the Draft Environmental Impact Statement for the Elm Road Generating Station (EIS). The Town understands that "the purpose of this EIS is to provide the decision makers, the public, and other stakeholders with an analysis of the social, cultural, and environmental impacts that could result from the construction of three new coal-fired power plants and their associated facilities." As such, the Town's comments will focus on issues germane to this stated purpose.

Comments on Railroad Proposals and Impacts (pages 347-361)

Errors of fact
The Town perceives a number of statements as errors of fact. A listing of those follows.

Number of Crossings: Page 347 indicates the railroad "crosses four roads in the town of Caledonia with at-grade crossings." This is not true. Three Mile Road is an important east-west corridor with substantial traffic. At the point of its crossing, Three Mile Road represents our boarder with the City of Racine and is very near the active commercial area along STH 32 (Douglas Avenue) approximately 650 feet to the east. In addition to correcting the factual error, the impacts upon Three Mile Road must be investigated and reported. As Three Mile Road is a primary east-west route for residents of the Village of North Bay, much of the Village of Wind Point, and residential sections of both the Town of Caledonia and the City of Racine, the impacts of train traffic on this crossing must not be ignored.

Trains Blocking Crossings: The Town believes there are factual errors within this section of the report (beginning p. 349) and with the consultants report referred to. The Town, however, only

has anecdotal and sample data relative to blocking crossings so will therefore present our concerns below in the "Concerns with Accuracy of Information as Reported" section. Nonetheless our information clearly suggests factual errors.

Trains During July 19 and August 12: Page 352 reports that "30 coal trains passed Four Mile Road traveling to and from the Oak Creek site." The train logs provided by We Energies to the Town, ATTACHMENT A, indicates 35 trains should have been identified.

Traffic Volume on Seven Mile Road: The EIS estimates current traffic volume at Seven Mile Road, per a We Energies' consultant, to be "200 vehicles per day". The Town using TimeMark Delta III traffic counting equipment recorded an average daily traffic volume of 320 vehicles with a maximum of 655 during the 29 day period of October 22 through November 19, 2002. 13.8 percent of the days exceeded 500 vehicles.

Maximum Average Daily Time Blocked: Table 11-31 (p. 353) uses this confusing phrase numerous times. A "maximum average..." would be the peak in a series of average times. The table, however, indicates that it is the intent to average a series of maximum times (see footnote *). The table, therefore, should refer to "Average maximum daily time blocked." The table itself is confusing enough without this minor oversight.

Concerns with Accuracy of Information as Reported

The Number of Coal Trains: The Town disagrees with the information presented as to the number of coal trains that are expected. The Town believes that conclusions reported by WE Energies and repeated within this EIS needs to be investigated further and that the EIS must identify, clarify, and reconcile discrepancies between information reported elsewhere by WE Energies as to the number of coal trains (including in documents submitted to the PSC) and that reported within the EIS. The Draft EIS should then be ammended to reflect these corrections.

The EIS table 11-28 (p. 347) and the Power the Future Application – Supplement No. 2 under "Motor Vehicle Travel" both indicate the current number of trains is about 5-6 trains per week. The Town accepts this number because it accurately reflects that approximately 75% of weeks during normal operations experience 5 or 6 trains, based upon train arrival schedules for 2001 and 2002 as provided to the Town by We Energies.

Specifically, however, the Town believes the information presented in Table 11-29 (p. 349) of the EIS is not accurate and needs to be investigated independently and corrected. First, Table 11-29 of the EIS appears to rely upon the mean average number of trains, approximately 5, and not the average as previously reported, 5-6. That sixth train, which appears to no longer be given any consideration within Table 11-29, represents a 20 percent increase in traffic compared to a 5-train week. The mean average is not representative of the routine number of trains impacting the community because the mean average is reduced by the annual two week shut-down period, during which no coal trains come through, and by the apparent occasional period of reduced activity (for example, a 7 week period of reduced train activity in February and March of 2002 brings the mean average down while not accurately reflecting the typical train activity during the other 22 months of that period).

The Town's second objection to Table 11-29 pertains to the third footnote (***). This footnote indicates the possibility for an "increase by about one train for each category." It does not clearly indicate whether this increase is to be one in total or in cumulative (in other words, one for each category totals three trains more after the IGCC unit is completed). More importantly, after the preceding point is clarified, this additional train should not be hidden in the footnote. It should be reflected as part of a range to be stated within the body of the table, for example "7" should be "7-8." This footnote, in effect, appears to further reduce the number of trains that will potentially impact our community.

The third, and most serious, objection to Table 11-29 is that it simply cannot be accurate based upon information previously submitted by We energies. The Power the Future Application – Supplement No. 2 under "Impact of Increased Rail Deliveries" states "With 135 car unit trains, the increase in the number of trains per week is 3 per generating unit." This is volume is clearly not being reflected in the EIS. The EIS, therefore, dramatically reduces the number of trains from that reported as necessary by We Energies, without any acknowledgement or justification. Although the Application identifies this number as the "upper bounds" it appears to do so in comparison to reducing train traffic through deliveries by water, which appears to no longer be a serious consideration. Therefore, the "3 (trains) per generating unit" should be reflected in the EIS and the "All rail" column of Table 11-29 should reflect at least "8-9," "11-12," and "14-15."

Alternatively, the EIS must reconcile the number of trains previously reported as necessary and the numbers reported in Table 11-29. The reconciliation should be performed independently from We Energies to ensure accuracy and should consider such factors as car capacity versus actual amounts loaded per car. Furthermore coal train volumes should be able to be cross-checked in relation to power generation. In other words, if 5-6 trains per week currently provides coal sufficient for "X" MW's, how many trains are needed for the proposed increased power capacity? Obviously, it may be necessary to provide a factor to adjust for any improved burning efficiency newer plants may provide.

Once the discrepancies in Table 11-29 are corrected, the "Table summary" can be corrected to accurately and more objectively reflect the increase in train activity. The summary currently states (p. 349) that "the number of coal trains entering the Oak Creek site would stay about the same for installation of one SCPCC unit." Despite We energies previously indicating 3 new trains would be needed, increasing from "5-6" to 7 is still a two-fifths (40%) or one-sixths (17%) increase in trains, not "about the same."

Seven Mile Road: The Town disagrees with the conclusions and recommendations portrayed in the EIS, does not accept the recommendations of the Benesch report, and recommends discarding the Benesch report. The Benesch report recommends closing Seven Mile Road and constructing cul-de-sacs. As stated above in "Factual Errors" the Benesch report estimated traffic volumes at less than two-thirds their current level based upon traffic counts performed by the Town of Caledonia. The Town was unable to locate or identify within the Benesch report the source for the under-reported traffic volume number. Furthermore, the Town was unable to locate or identify within the Benesch report where any consideration was given to future road volumes. The Town is actively pursuing a multi-year, $270,000 neighborhood planning process

and the land-use consultant has verbally indicated that Seven Mile Road will become an increasingly significant east-west corridor. Future traffic volumes during the life of the proposed OCPP must be determined and applied to the decision process for Seven Mile Road.

The EIS, in fact, suggests addressing loss of an access road for emergency vehicles and loss of an access road for residents. The EIS indicates

> "Although not in the applicant's current proposal, a means to allow both passage of emergency vehicles and direct access to STH 32 for those residents with driveways just east of the railroad crossing has been considered. A private access road could be constructed which would involve an arched tunnel under the railroad." (p. 355)

Considering the correct current traffic volumes and estimated future traffic volumes (to be determined), it would not appear to make sense to build a private access road to, presumably, lower construction standards. The Town agrees that access must be maintained, but it should be maintained to all users. The Town objects to consideration of closing the Seven Mile Road crossing and believes the Benesch report should be discarded due an apparent bias as reflected in its reliance upon incorrect estimates and it failure to consider future demand.

Six Mile Road: The EIS seems to indicate that a rail crossing at Six Mile Road is recommended but that its approval would come after the fact of approval of the OCPP plans (p. 350, "Process for altering railroads and ownership). This is unacceptable. The EIS is responsible to analyze "the social, cultural, and environmental impacts that could result from the construction of three new coal-fired power plants and their associated facilities."(p. "i") If a decision is made based upon the "level of impacts that could result" that decision must be able to enforce and require the steps necessary to match the decision and mitigate its impacts. Furthermore, all steps necessary to acquire and build the necessary overpass should be a responsibility of the applicant, not of the Town. The Town should not be put in a position to take the lead on imminent domain issues as a result of a power plant expansion that we oppose and is detrimental to our community. The EIS must be ammended to reflect that any overpass and all requirements and costs of that overpass need to be part of the OCPP plan and not subject to subsequent and future deliberations or determinations.

It should be noted that the Town can not support an overpass at Six Mile Road, because the Town does not support the OCPP plan. If the Town were to give any indication of support for an overpass, the applicant would likely misrepresent such indication as a willingness to support the Power the Future Plan. We Energies has consistently misrepresented any discussion it has had with the Town, and the Town does not wish to provide We Energies with any more opportunity to mislead the public into believing the Town of Caledonia, in any way, supports the OCPP plan as proposed.

Four Mile Road: The Town objects to the conclusions and statements regarding Four Mile Road and believes an independent analysis of traffic volumes and train speeds at this crossing needs to be completed before the EIS can accurately reflect impacts that could occur based upon the

OCPP if approved, as is required of the EIS. The Town has multiple objections to statements and conclusions in the EIS relative to Four Mile Road.

First, as previously stated, the Town does not accept the conclusions of the consultant, Innovative Systems, relative to train speeds and impacts at Four Mile Road. Innovative Systems' evaluation and report are inaccurate and incomplete and, therefore, cannot be relied upon. As indicated above in "Errors of Fact," Innovative System identified 30 coal trains during their study period while We Energies indicated 35 trains arrived and departed during this same period. This is a 17 percent error or variance in relation to Innovative System's train count. This is a significant difference given the small sample size and may indicate either a bias or incompetence in the completion of the study. Either way, the study should not be relied upon.

Second, the Town objects to the implication within the EIS that the train speeds indicated by Innovative Systems can be relied upon. Innovative Systems apparent inability to count the trains accurately casts severe doubt upon their ability to accurately record times of all the trains, especially given the fact that they did not record, or report, all the trains. On the other hand, the Town and nearly every resident living east of the tracks can tell you that Innovative Systems' conclusions are not supported by reality. Both anecdotal and empirical evidence suggests much longer train times are common. Unfortunately, the current empirical evidence available does not represent a statistically significant sample. It does, however, indicate that an unbiased evaluation needs to be performed. The Town, similarly, installed a Police Department surveillance camera along side the tracks at various intersections. Unfortunately, only a few readings were taken at Four Mile Road. The Town, however, recorded times in excess of 11 and 15 minutes. Further study should be completed to correlate closing times at Four Mile Road with Six Mile Road and Seven Mile Road and to identify factors that cause times significantly in excess of those reported by Innovative Systems and portrayed in the EIS as accurate. More detailed review needs to be done to ensure all coal trains are captured and data for those trains needs to be cross referenced with Railroad and We Energies records to ensure trains from other users are not being attributed to the OCPP. More evaluation, independent of We Energies, must be completed to make any clear determination. Furthermore, the implication that 8-minute road closures are the maximum must be eliminated or proven to be without bias or error.

A third objection relative to the Four Mile Road stems from the following statements in the EIS. The EIS states and concludes, "The town of Caledonia is concerned about the increased amount of time that the trains would block Four Mile Road. The rail crossing of Four Mile Road is west of STH 32. While activity at the OCPP/ERGS site affects the crossing times of coal trains at Seven Mile and Six Mile Road, this is not the case at Four Mile Road."

<u>The Town strongly objects to the implications of this misleading statement.</u> The implication of these statements is that any additional road closures at this crossing are acceptable provided some operational delay at the OCPP is not causing that delay. Additional trains, in and of themselves, cause road closures, and each road closure, in and of itself, has a social and cultural impact on the Town. As indicated, an accurate study needs to be done to determine the true impact of additional trains, and these impacts need to be reflected in the EIS.

The EIS makes no reference to traffic counts along Four Mile Road. The EIS makes no reference to the fact that Four Mile Road is the community's most critical east-west corridor. The EIS makes no reference to the fact that the track is only approximately 800 feet east of the intersection of Four Mile Road (also CTH "G") and STH 32. The EIS makes no reference to the fact this nearby intersection of Four Mile Road and STH 32 is the central intersection in the Town and is located at the middle of our business corridor. The EIS makes no reference to the fact that current traffic volumes require individual vehicles to seek alternate routes during crossing closures due to coal trains to avoid back-ups into the intersection of a state trunk highway! The EIS makes no reference to the fact that the traffic counts for this road are expected to experience significant and continued growth.

The EIS inappropriately and with disregard for its own stated purpose indicates, "Any additional train traffic, even if unrelated to the ERGS project, would affect Four Mile Road in the same manner as the coal trains." On this basis, the EIS then ignores its responsibility to analyze "the social, cultural, and environmental impacts that could result from the construction of three new coal-fired power plants and their associated facilities." No such analysis is performed at the most critical social and cultural intersection in the community.

Given increased train traffic, 8 to 15 minute delays (yet to be determined accurately) would become common place. Given daily traffic volumes estimated to be in excess of 10,000 crossings per day (based upon a small sample set of days recorded by a TimeMark III traffic counter), 200-250 vehicles could be impacted in one 15-minute period during peak hours. The dependability and reliability of commuting through the town's central intersection would be put at risk. More frequent road closures could have a significant impact on commerce, productivity, and quality of life, each of which clearly fall into the "social" and "cultural" impact category. All of which, however, has been ignored in the Draft EIS.

A fourth objection to the Draft EIS relative to the Four Mile Road is that no review of a grade separation feasibility study was reported. This is further evidence that the EIS failed to meet its responsibility with regard to the impacts at Four Mile Road. Such a study was performed for both Six Mile Road and Seven Mile Road, but the Town's most critical intersection was ignored.

Three Mile Road: The impact of added closures at Three Mile Road should also be incorporated into the EIS. As stated above in "Errors of Fact," the crossing at Three Mile Road should be included in the report as it is in Caledonia, although the City of Racine lists this crossing on their inventory as well because the road represents the City/Town boarder at that point. Many of the same impacts affect Three Mile Road as affect Four Mile Road. Three Mile Road is actually closer to STH 32 (only about 650 feet away) and can therefore handle fewer cars delayed due to road closings caused by trains.

Dumping Time, Air Testing of Brakes, and Removal of Bad Order Cars: Page 351 references dumping time, air testing of brakes, and removal of bad order cars as reasons for significant road closures at Seven Mile and Six Mile Roads. The report fails to clarify, however, if trains are just being added, why are not the existing trains already causing 240-minute closures and every departing train causing at least a 60 minute delay from air testing of brakes? Is some other

operational action or activity occurring that is causing trains to now have this significant impact? The EIS should clarify why these impacts will now occur with the added trains.

Current Rail Traffic: Table 11-28 (p. 347) does not indicate that the numbers related within the table represent round trips. Therefore, there are actually twice as many road closures as the number of trains indicated. This point should be clarified in the table otherwise the information presented on page 352 relative to the study performed by Innovative Systems appears to be wrong or appears to suggest table 11-28 is wrong. Page 352 indicates that 91 trains passed the intersection in a 25-day period. This exceeds the numbers in Table 11-28 unless all of the trains in Table 11-28 are round trip trains. It should be noted that, given the train traffic results stated on page 352, the statement "Coal delivery...now account for about half of existing rail traffic..." appears to be overstated. The actual results during the study period was less than one-third while the table data actually portrays between 35 and 43 percent.

Additionally, on page 326 the statement, "At full capacity... the proposed project would result in a roughly 40 percent increase in local train traffic" needs to be modified to reflect "in total local train traffic from all sources." As is, it is too easy for an individual to mistake the sentence as an indication of only a 40 percent increase in coal train traffic, since this is the section heading.

Table 11-31 Maximum Time Trains Entering and Leaving the OCPP Site Would Block Seven Mile, Six Mile, and Four Mile Roads (averaged over a 7-day week): The content and intent of this entire table needs to be revisited after all of the above issues are addressed. As indicated above, the road blockages indicated for Seven Mile, Six Mile, and Four Mile Roads are inconsistent with current activity. (See detailed descriptions above)

Table 11-20 & Table 11-21: The purpose for and intent of Table 11-20 and 11-21 needs to be explained or clarified. Does We Energies have some plan or intent to service numerous trains on a single day? Table 11-20 shows the impact at Seven Mile Road of 8 trains arriving and departing on a single day, and Table 11-21 shows the impact at Six Mile Road of 6 trains arriving and departing on a single day. Only 5 times during all of 2001 and 2002 did multiple trains arrive at OCPP on the same day, and in each instance one train arrived very close to midnight at either the start or end of the day. In fact, page 356 indicates the current 16 hours to unload one train would be reduced to about 5 hours. Therefore, unless We Energies intends to handle more than one train at a time, which has not been indicated, these tables present impossible scenarios. This being the case, these tables serve no realistic purpose except to misrepresent likely impacts.

Social and Cultural Impacts: The section on "Railroad Proposals and Impacts" (beginning page 347) completely fails to meaningfully address the impacts of added train traffic caused by the Power the Future plan. The Draft EIS states "the purpose of this EIS is to provide the decision makers, the public, and other stakeholders with an analysis of the social, cultural, and environmental impacts that could result from the construction of three new coal-fired power plants and their associated facilities."

This section merely repeats We Energies stated positions on the matter: We Energies will mitigate impacts at Six Mile Road and Seven Mile Road by building an overpass and closing the

road respectively. The social, cultural, and environmental impacts themselves are never discussed except for loss of an access road for emergency vehicles, loss of an access road for residents, and the potential conflict with future commuter train traffic. There are significant, real social and cultural impacts that have been ignored and, in light of the remaining crossings and our objections to the proposed mitigation at Six and Seven Mile Roads, must be discussed in the EIS.

Impacts such as quality of life concerns relative to the dependability of travel times through our community, for example, have been ignored. Families and individuals often plan travel times to work and school, for example, down to precise minutes. Nearly tripling the occurrence of trains (according to We Energies submissions indicating three trains per plant) will significantly affect this quality of life issue. Late arrivals to work and school are generally not acceptable.

The impacts on commerce and economic development also should not be ignored. These vehicles that are delayed are full of people who lose productivity for each train at which they are stopped. Employees are late; deliveries are late; suppliers are late. The economic engine of the Town of Caledonia sputters every time a train runs through our community. Impacts such as these two examples <u>are</u> the social and cultural impacts of the train proposal and should not be ignored, as is currently done within the Draft EIS.

Failure to State Effects on Impacts of the Delivery Methodology of Alternative Fuels (Natural Gas): Other sections of the EIS relate the impacts of the coal proposal relative to impacts of alternative fuel sources, for example natural gas. The same should be done for the "Railroad Proposals and Impacts" section. Nowhere does the Draft EIS state an important fact: all of the negative impacts of coal delivery train traffic go away if coal is not the fuel source. This comparative point should be made.

Diesel Emissions From Rail Engines: The Town objects to no reference to health concerns, particularly related to respiratory ailments, in this section (p. 357). To simply state that "no entity regulates diesel emissions from rail engines" and, therefore, conclude that it has no impact, is erroneous and is not consistent with the stated purpose of the EIS.

Potential Safety Issues Associated With Increased Rail Traffic: This section (p. 357) must be modified because the conclusion stated is unsubstantiated by the information provided. This section provides accident statistics based upon the number of miles and indicates the number of additional miles that will be traveled in Wisconsin. The section then concludes that by reducing the number of crossings "this would lower the potential for accidents between rails and vehicles in Wisconsin." No evidence or calculation is provided to support this statement. Accident rates are not provided "per crossing" and no calculation is provided to offset the reduction in crossings with the increase in trains. To the contrary, one could logically argue that a 7 percent reduction in crossings in Wisconsin or even the proposed forty percent reduction in crossings in Caledonia would be more than offset by a more than 100% increase in trains (at three new trains per power plant). The conclusion reached in this section, if even accurate, is clearly unsubstantiated by the information provided.

Table 11-34 Participants in Railroad Workshops: The Town objects to the inclusion of this table within the EIS. When this table is put in context with the text on page 358 relative to a new rail underpass on Six Mile Road, it gives the appearance that the Town of Caledonia (through the participation of the Town Engineer) supports the conclusion reached. The suggestion that an underpass be built on Six Mile Road is a recommendation by We Energies to try to draw attention away from the severe negative impacts train traffic would have upon Caledonia. To then give merit to We Energies proposal by attributing it to the unsuspecting attendees at the meeting is inappropriate, misleading, and unfair. The table should be stricken and the text on page 358 should be drafted to clearly indicate that this is a proposal by a consultant of We Energies and nothing more.

Limestone Transport and Storage: The EIS should more clearly address the impacts of limestone transport (p. 112). If transport is to be via rail, the details must be outlined in Chapter 11. As stated above, trains have impacts. The impact of any additional trains caused by the OCPP plan, whether carrying coal or limestone, needs to be identified. No information is given relative to train volumes, lengths, or numbers. As such, the Draft EIS is negligent in not addressing its potential impacts.

Comments on Air Quality Impacts

Total Quality: The expected degradation of air quality, as reported in the Draft EIS, must be emphasized more strongly in the final EIS. A focus on a healthy and healthful environment must be a key component of an EIS. If any plan puts the public at an increased risk of negative health impacts, those impacts must be more clearly and more adamantly emphasized.

Air Modeling: The final EIS should not be prepared or released until air modeling analysis in relation to lower stacks as required by the FAA has been completed, released, reviewed, and comments have been received. The Executive Summary indicates that new air modeling will be performed and the analyses will be presented in the final EIS and/or at the hearings for this project. Inclusion of the results in the final EIS without a public comment opportunity precludes the public from offering its comments on the results. Lowering the stacks could significantly degrade the regional area quality to the point where substantially greater public outcry is generated. The public must be allowed to weigh in on the conclusions prior to the completion of the Final EIS.

Public Health Impacts: The impact on public health is likely the most significant long-run impact of the decision on Power the Future. Although the Draft EIS (chapter 7) does identify some of the public health impacts of the pollution types identified, it is woefully negligent in emphasizing the effects of the identified pollution types. The release of pollutants, which is well documented in the Draft EIS, is the result of the OCPP plan. The impact of the pollutants, however, is the effects those pollutants have on the environment and people. This aspect of the impact of the added pollution is not sufficiently addressed in the Draft EIS. At a minimum Chapter 7 should include a table identifying the pollution type and the public health hazards associated with that pollutant.

Comments on Land Use

The EIS has failed to adequately address the issue of the impact of the proposed plans upon the land use plan of the Town of Caledonia. The Draft EIS acknowledges and briefly describes the Town's land use plan, but the social, cultural, and environmental impacts of the OCPP plan were supposed to be reviewed. The impacts upon the land use plan and its components were ignored by the Draft EIS. The land use plan is a central document to a community that shapes the community's development patterns, which, in turn, shapes your social and cultural structure and characteristics. It also significantly affects the environmental character (the look and feel) of the community. Issues such as development rates, housing stock types, land values, sense of community, road and traffic patterns, and access to Lake Michigan are all influence by land use. Nonetheless, this entire issue of the impact of the Power the Future Plan upon the land use plan and patterns in the Town of Caledonia has been, for the most part, ignored by the Draft EIS. This topic must be considered more thoroughly to meet the stated purpose of the EIS.

Comments on Costs

External Costs: The Town believes all external costs associated with use of coal as a fuel source must be incorporated into the final EIS cost estimates. Issues such as the cost of mitigating and addressing related negative public health impacts and the future cost of addressing increased pollution standards (such as revised mercury standards) must be included. The OCPP will have plant lives of 40-45 years; therefore, all the potential costs during those 40-45 years must be considered. Failure to do so builds a bias into the Final EIS.

Return on Capital Investments: Additionally, the Town believes that the EIS must clearly distinguish that the laws of the State of Wisconsin provide for a guaranteed return on capital investments to Utility Companies and, therefore, a project with higher capital costs is more likely to be preferred by a company with a profit motive. The Town recognizes that it is not an expert in utility financing, but understands that this return-on-capital provision is built into law. As such, this issue becomes strong motivation for a profit-based company to pursue a strategy that is capital intensive compared to other alternatives. Any factor that could so clearly and dramatically impact the decision making process must be considered an "impact" and, therefore, must be included in the EIS. Without such a statement, there is a de facto bias built into the EIS suggesting that the proposal is based only upon other cost and environmental factors.

For example, on page 93 under "Economic Issues" the statement "that choosing a coal facility carries its own significant economic risks" should clearly indicate that this is a risk to the consumer, not to the provider. In fact, given the lack of a "hold to" cost feature and a guaranteed return on capital investments, cost overruns are arguably beneficial to We Energies.

Future Pollution Standards: The Town believes that the EIS should reflect the potential costs of possible future pollution controls at least to the same extent that the EIS reflects the potential for dramatic variability in the cost of natural gas. The cost of natural gas has always fluctuated. Similarly, the United States and State of Wisconsin have always pursued higher environmental standards. Increases in pollution standards will occur just as surely gas prices will fluctuate. The EIS must adequately address these potential, or eventual, costs.

Comment on the Cost Impact of the Agreement Between WEPCO and the City of Oak Creek (p. 28-9 and p. 292)

The Town understands the logical conclusion that with an agreement with Oak Creek in place, the cost of the agreement becomes an apparent cost of the project. The Town, however, objects that the EIS does not identify related impacts on other neighboring communities and identify, estimate, and include those costs as a cost of the project as well. If the EIS accepts the Oak Creek agreement as an impact, those impacts should be estimated for each similarly affected community. If, however, the components of the Oak Creek deal are not related to social, cultural, or environmental impacts, the EIS should state as much and the cost of the Oak Creek Agreement should be referenced for information within the EIS but excluded from consideration in the final EIS evaluation.

If, for example, We Energies announced publicly (and placed a bond in trust) that it would voluntarily donate 50 million dollars to Wisconsin charities if the OCPP plan is approved, does that cost become a cost of the project? Just because the money is paid out does not make it a cost of the project. In this unusual example there is no relationship between the impact of the plan and cost paid out by the plan. The Oak Creek Agreement, realistically speaking, is such a voluntary agreement. The potential costs for all communities of the impacts addressed in the agreement should be included in the EIS or the EIS should state that this is not, in truth, a cost of the OCPP plan.

Comment on Pollution Emissions

Page 95 "Air emissions" must more expansively delineate the distinctions in the air emissions profile for coal-fired and natural gas-fired options. The impact upon public and environmental health must then be included as well. This section dramatically understates the true impact of the coal-fueled option. This forgone opportunity of cleaner air must be more clearly considered and addressed as a cost or impact of a coal-fueled power plant. Although Chapter 7 addresses air emissions (and should be referenced with Chapter 5 for easy referral), it does not adequately address the comparative air emissions patterns, costs, and impacts.

Comment on Community Impacts

Caledonia objects to being excluded from the list of "Communities closest" to the site (p. 277). The Town believes the impacts to which it will be subjected from the plan as proposed qualifies the Town according to the standards identified. If not, the standards need to be modified since part of the site is in Caledonia.

Miscellaneous Comments

Revenue Sharing: Table 11-6, p. 296, is not clear and should list estimated payments by year.

Existing Traffic Volume on Local Roads - Table 11-22: It appears that "Earle" should be "Erie." It appears that traffic on Seven Mile Road east of STH 32 is underestimated, as previously stated.

Future Plans for Four Mile Road: Page 317 indicates "Plans exist to exchange this ownership. When the County acquires Four Mile Road west of STH 32..." This language should be specific as to the "plan" in reference. As is, it implies the Town is part of the plan to exchange ownership. The Town currently has no such plan.

The Town of Caledonia respectfully requests consideration of the points addressed above and expects action will be taken on the above factual errors, comments, concerns and objections. We further request that the final Environmental Impact Statement reflect the necessary changes. Please contact Mark W. Luberda, Town Administrator, with any questions concerning this letter.

Sincerely,

Susan Greenfield
Chairman

Comments on the Draft Environmental Impact Statement, submitted by Calpine Corporation

05-CE-130

WISCONSIN PUBLIC SERVICE COMMISSION

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June 13, 2003

DELIVERED BY MESSENGER

Lynda L. Dorr
Secretary
Wisconsin Public Service Commission
610 North Whitney Way, 2nd Floor
Madison, WI 53705-2729

Dear Ms. Dorr:

Re: Draft Environmental Impact Statement
Elm Road Generating Station
Docket No. 05-CE-130

Enclosed for filing are the original and 21 copies of Calpine Corporation's comments to the Draft Environmental Impact Statement prepared for the Elm Road Generating Station.

If you have any questions concerning this matter, please feel free to contact me.

Yours very truly,

Peter L. Gardon

Peter L. Gardon

Madison\111443PLG:LT

Encs.

cc Mr. Joseph D. Condo (w/enc.)

MFC
CO-8
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CALPINE

June 12, 2003

Jeffery Kitsembel
Public Service Commission of Wisconsin
610 North Whitney Way
Madison, WI 53705

RE: Elm Road Generating Station, Docket No. 05-CE-130

Dear Mr. Kitsembel:

Calpine Corporation submits this letter in response to the invitation to comment on the Draft Environmental Impact Statement (DEIS) prepared for the Elm Road Generating Station (ERGS) that has been proposed by Wisconsin Electric Power Company (WEPCO) and affiliates. In light of the fact that Calpine has submitted an alternative proposal for the Commission to consider in this docket, Calpine very much appreciates the opportunity to provide comments to the DEIS. The references that follow are identified by chapter, page number, and paragraph in the DEIS.

One overarching concern of Calpine is the lack of certainty to the proposal, particularly related to the overall financial and environmental costs this proposal will impose upon Wisconsin citizens and ratepayers. In a myriad of ways, the ERGS proposal contains uncertainties that in other Certificate of Public Convenience and Necessity (CPCN) proceedings before the Commission have been resolved so as to avoid the potential situation where the Commission conceivably approves a project that is not permittable. These issues include, but are not limited to:

- Transmission interconnect costs and environmental impacts;
- Environmental impacts of interconnecting facilities, including Chapter 30 wetland impacts;
- Section 316(b) water quality issues, including intake and discharge structures and potential need for cooling tower facilities;
- Impact to air modeling analysis due to uncertainty over stack height;
- Impact to demand forecast due to potential retirement of older units due to WEPCO settlement with the U.S. Environmental Protection Agency (USEPA).

Despite the comprehensive analysis provided in the DEIS, the areas of uncertainty detailed below clearly indicate, at a minimum, that further analysis is needed to give the public an adequate opportunity to consider the potential impacts related to one of the most expensive pending electric generating projects in the United States. In addition, it is unclear whether an extensive Chapter 30 alternatives analysis will be required by the Department of Natural Resources for the site or the offsite facilities that impact wetlands. The DEIS indicates that there will be wetland impacts on the site and the rail corridor. To the extent that new or expanded transmission facilities are required, it is highly likely that

there will also be Chapter 30 wetland impacts associated with those facilities. This alternatives analysis is at least as extensive as the alternatives analysis required by the Commission.

In the proceeding related to Calpine's proposed Sherry Energy Center, the Wisconsin Department of Natural Resources (WDNR) took the position that Chapter 30 required a thorough review of alternatives, including alternative generating technologies and alternative projects that could be built or purchased, due to the wetland impacts of an associated water line and gas pipeline. The gas pipeline facilities associated with the Sherry Energy Center, like the ATC transmission facilities for the ERGS, were separate jurisdictional facilities for which no application was currently pending. WDNR, however, took the view that, since the plant could not be operated without the interconnecting facilities, the presumed impacts of the gas pipeline required the applicant to review and explain alternatives, including consideration of purchasing other previously approved projects. WDNR's stated position on this issue should be applied to the Elm Road proceeding as well.

Calpine believes that it would be prudent to delay the proceeding until further detail on these important issues becomes available. At the very least, Calpine recommends that a Final Environmental Impact Statement (FEIS) and CPCN for the ERGS proposal not be issued until (1) all applications directly related to the ERGS are submitted to WDNR and deemed complete by WDNR, (2) applications have been filed and reviewed by both the Commission and WDNR with respect to any necessary new and/or upgraded ATC transmission facilities, due to the sheer scope of that related project.

Calpine believes that the numerous environmental and economic uncertainties of the ERGS proposal should be weighted as material risk factors when considering alternate supply resources, such as Calpine's Fond du Lac and Fox facilities. This would help ensure that Calpine's competitive proposal is evaluated on a level playing field. Failure to take these important issues into consideration would discriminate against the merits of Calpine's proposal and would lead to a less-than-optimal result for Wisconsin's ratepayers and our environment.

In addition to these more general comments, Calpine's specific comments appear below:

Chapter 1, Page 3, third paragraph: Calpine wishes to note that not only must an affiliate agreement be reasonable and in the public interest, but also that the legislature, in its consideration of the leased generation statute, never intended for a leased generation proposal to be given any preference over any other proposal. This is in contrast to the specific statutory preference for natural gas over coal-fired generation. The law was passed simply to provide another option for construction of new generation.

Chapter 1, Page 15, third paragraph: Currently there is a disagreement between the WDNR and the USEPA over whether or not the ERGS proposal constitutes a "new source" under the requirements of Section 316(b) of the Clean Water Act. Based on recent discussions between US EPA and Wisconsin DNR about the classification of the

new structure under 316(b), there is some question about whether the 316(b) rules would apply to the new structure as a new (Phase I) or existing (Phase II) facility. Phase II facilities are currently not regulated because US EPA has not promulgated regulations detailing the specific best technology available (BTA) approach that will be required for Phase II-affected facilities. However, based on a review of correspondence between the agencies in question and discussions with WDNR, it appears that the classification of the new structure will have little impact on WEPCO's responsibility to meet the basic BTA requirements, namely that their facility will be required to do one of the following:

- limit approach velocity to less than 0.5 feet per second;
- demonstrate why an approach velocity of more than 0.5 feet per second would not have a significantly higher impact in impingement/entrainment than an approach velocity of less than 0.5 feet per second; or
- show that the cost of compliance to demonstrate an approach velocity of less than 0.5 feet per second is unreasonable.

Calpine believes that WEPCO's proposed once-through cooling system does not meet the BTA standards that will be required of a newly constructed intake structure under Section 316 (b), whether it is deemed to be an existing facility or a newly constructed facility. The information currently available is inadequate to determine if the proposed system is an environmentally feasible solution, and engineering and design changes necessary to meet the BTA requirements of 316(b) could make once-through cooling cost-prohibitive for ERGS. Accordingly, the Commission should require WEPCO to provide a revised submittal describing in greater detail how they propose to satisfy the BTA requirements of 316 (b), including the environmental and financial impacts associated with such an approach. This issue could lead to a major increase in the cost of the ERGS project.

Chapter 2, Page 28, final two paragraphs: The community impact payments to Oak Creek are a quantifiable, verifiable cost to the ERGS project and should be included in all analyses performed by the Commission.

Chapter 3, Page 38, last paragraph: The statement that the Fox Energy facility near Kaukauna is unlikely to built in the near future is inaccurate. Calpine recently purchased Fox Energy Company, LLC from MidAmerican Energy Holdings, and expects to commence construction on the facility in late summer 2003.

Chapter 3, Page 39, second paragraph: There are certain generalities in this paragraph that should be corrected. While it is true that many independent power providers (IPPs) face tight capital and credit markets as a result of the economic downturn and in the aftermath of the Enron scandal, Calpine has shown that it can finance and construct major new generating facilities as long as an economic power sales agreement is in place. Indeed, Calpine is currently building its Riverside facility in Beloit. These facilities have contracts with Wisconsin utilities that were not "reluctant" to enter into such contracts with Calpine. Numerous other Calpine projects with long-term contracts are also moving forward across the United States.

Chapter 3, Page 50, third and fourth paragraphs: These paragraphs conclude that approval of the ERGS proposal would not prevent the development of a competitive wholesale market in Wisconsin. Calpine strongly disagrees. If a utility is allowed to simply select itself to build any future generation project in Wisconsin, there will be no wholesale market to develop. Utility-owned, ratebase facilities essentially constitute long-term "take or pay" obligations to ratepayers that clearly impact the ongoing development of a competitive wholesale market. Additionally, in the 2002 Port Washington Generating Station (PWGS) proceeding, WEPCO stated that in fact, the 1,000 MW figure referred to by the Commission actually includes over 800 MW that were under contract to WEPCO prior to the PWGS proceeding (Abood testimony, pp. 708-09).

Calpine believes that if the ERGS is built as currently proposed in both timing and scope, it is highly unlikely WEPCO will consider any long-term contract with an IPP in the foreseeable future. As it is contemplated in the DEIS that Madison Gas & Electric Company and Wisconsin Public Power Incorporated will purchase power from the ERGS (see DEIS page 22), it is also highly unlikely that either of these utilities will enter into any long-term contracts with an IPP in the foreseeable future.

Moreover, the FEIS should recognize that the ownership and financing structure proposed for the ERGS represents an extraordinarily long-term obligation on the part of Wisconsin ratepayers compared with contracting for new generating supplies from third parties, such as IPPs. Most IPPs, including Calpine, would be willing to enter into "long-term" contracts of as little as 10 or 15 years. This inherently represents a much lower overall risk to ratepayers than locking in the high capital costs associated with the ERGS proposal for such an extended period. Indeed, Calpine recommends that the FEIS reflect at least one model run comparing the alternative sources for a period of no more than 15 years.

Chapter 4, Page 69, third paragraph: Calpine believes that it is never the case that a formal competitive process is unreasonable. WEPCO would appear to agree, as it conducted such a process for the construction of the ERGS facility (see DEIS page 15). WEPCO also has current requests for proposals (RFPs) in place for 200MW of wind and 100-400 MW of peaking power. Only the generation to be potentially filled by the ERGS project was deemed to be untenable for a competitive process. Calpine strongly agrees with the Commission's statement that "the use of competitive forces does foster cost discipline that ultimately benefits ratepayers", and is grateful that the Commission is engaged in an unbiased analysis of the proposals before it.

Chapter 4, Page 69, fourth paragraph: Note that the Commission has in fact granted the CPCN for the Fond Du Lac Energy Center. The final order was issued on May 5, 2003. The Fond du Lac Energy Center has received all permits, including those issued by WDNR, necessary to start construction.

Chapter 4, Page 71 et. seq. (general comment on EGEAS inputs): The Commission appears to have accepted the "full 30-year expansion plan" as the relevant

timeframe for various EGEAS scenarios. Calpine believes that the Commission should not simply accept the premise that a 30-year planning horizon is necessarily in the public interest.

Due in particular to the high capital costs of the ERGS, it clearly benefits the ERGS proposal to run the model over the longest timeframe possible in order to obtain an optimal level of amortization of these capital costs, especially when compared with lower capital cost projects such as Fond du Lac and Fox. Calpine believes the FEIS should include shorter model runs to determine how the optimal integrated resource portfolio changes based on time limits. Since longer planning horizons generally have more uncertainty and therefore more risk than shorter planning horizons, it is important to determine if ratepayers might, indeed, be better off under a 10- or 15-year expansion plan, rather than a full 30-year expansion plan.

Chapter 4, Page 78, first paragraph: Calpine believes that a $10 million materiality threshold is the correct one for the Commission to use. Given that ratepayers pay for WEPCO's proposal, Calpine would take the position that something even less that $10 million is in fact material. This is especially true in light of the fact that unlike the Port Washington proceeding, there are very serious environmental policy decisions in this docket that will impact Wisconsin for decades.

Chapter 4, Page 78, second paragraph: Calpine believes that failure to include the $266 million in transmission costs into the analysis leads to a materially inaccurate result. The fact that such costs may be part of a separate CPCN proceeding does not remove them from ratepayers' balance sheets. Calpine believes that the transmission cost figures for the ERGS proposal, as well as for Calpine's proposals, must be included in the EGEAS runs, in order for the analysis to have any true meaning. Calpine's proposal is more economic than WEPCO's even when several uncertainties are not included. If transmission costs, CO2 monetization and coal plant cost overruns not covered by WEPCO are included, such an EGEAS run would result in Calpine being the clear, unequivocal winner.

Moreover, the DEIS errs in suggesting that the existing American Transmission Company (ATC) interconnect study for the ERGS proposal may overstate expected interconnect costs. While such costs may, in fact, be higher or lower than the $266 million projected by ATC for a variety of currently unpredictable reasons, it is inappropriate to speculate on the level of those costs until an updated interconnect study is complete, which ATC has suggested will not occur until later this year. In lieu of an updated study, there is no choice but to use the existing published study, especially in comparison to Calpine's competitive alternative, which also has a complete interconnect study on file. This is the only way to ensure an "apples to apples" comparison that does not unfairly discriminate against Calpine's proposal.

Specifically, Calpine strongly recommends that the respective ATC projected interconnect costs for the ERGS should be included in the EGEAS runs reflected in the FEIS. In addition, Calpine believes that the FEIS should explore why the projected

interconnect costs for the ERGS proposal are so high and disproportionate to all other pending ATC interconnect requests. Absent further information, this suggests that the existing transmission system surrounding Oak Creek has little if any excess capacity and is not, therefore, an optimal location for significant new power generation. In any event, this is a significant, known potential cumulative impact that should be discussed thoroughly in the context of the pending proceeding.

Chapter 4, Page 79, third paragraph: Calpine has previously in these comments discussed the notion that the ERGS proposal has a number of major cost questions and other uncertainties surrounding it. Calpine agrees with the Commission's introduction of the notion that it is premature to issue permits now for facilities that will not begin operation until 2011, especially in light of such uncertainties.

Chapter 5, Page 83, first paragraph: Over 70 percent of the energy consumed by WEPCO customers is produced by coal (which is far above the national average of around 50 percent), and only three percent is produced by gas. Therefore, WEPCO's statements that fuel "balance" requires the construction of a massive coal-fired project are inconsistent. To the contrary, as Wisconsin becomes more dependent upon coal than other regions of the United States, it becomes more vulnerable than other states to future environmental liabilities such as stricter mercury rules or regulatory caps on carbon dioxide emissions.

Chapter 5, Page 85, third through fifth paragraphs: The DEIS poses the notion that while there is no real possibility that we will run out of natural gas in the foreseeable future, the natural gas used in the future will be more expensive. However, the DEIS also recognizes that higher gas prices will lead to increased exploration and new areas of production, and that the final result may be an expanding resource base at prices lower than what currently exist (page 87, second paragraph). Historically, the natural gas market has shown a great deal of resiliency in terms of matching supply and demand, and it is vital to avoid making long-term decisions based on short-term market behavior.

Additionally, the fact is that coal prices have shown volatility in the past as well. Between September 2000 and 2001, coal prices nearly doubled. Historically, coal prices lag the price volatility of natural gas but still have been highly correlated to gas price changes, as coal owners seek to extract economic advantage. Lastly, it is the general case that power generators' fuel costs are not necessarily correlated to the spot price of any fuel, because they have either signed long-team contracts for the fuel supply and/or have hedged against short-term volatility.

Chapter 5, Page 88: An extrapolation from the number of megawatts of gas-fired generation being added in the United States to reach conclusions about increases in gas consumption can be misleading. First, many of the reported megawatts represent simple cycle combustion turbines that will operate relatively few hours each year. Second, in many parts of the country, including the Northeast, Texas, and California, new combined-cycle generating facilities will displace power production from older steam plants that previously consumed large quantities of gas. In these situations, because the newer-

technology plants are able to produce the same electric output with roughly one-third less fuel, gas consumption for power generation can actually decrease when new gas-fired capacity is added. U.S. EIA currently predicts that U.S. gas demand will grow at an average annual rate of 1.8 percent through 2025, and that new electric generation will account for only about half of that growth.

Chapter 5, Page 89, fourth and fifth paragraphs: In today's market, power generators have a range of gas supply options. Firm and interruptible transportation contracts with pipelines are two of these options, but generators can also enter into capacity release agreements with existing holders of pipeline entitlements, or contract for gas supplies delivered directly to the plant. It is also becoming more common for power generators, local gas distribution companies and other end users to purchase gas supplies at regional market centers, such as the Chicago hub, instead of buying gas all the way back at the supply area in Oklahoma, Louisiana, or Alberta. Because market centers aggregate supplies from multiple pipelines and supply basins, and are often supported by underground gas storage facilities, this is generally a more cost-effective and reliable contracting approach than committing to gas supplies and pipeline transportation from a specific gas producing area.

Chapter 5, Page 90, first paragraph: It is standard practice in tolling arrangements for the buyer (generally the utility) to contract for a portion of firm gas supply. Also it is Calpine's practice to maintain adequate alternative fuel supplies at its facilities serving Wisconsin. The appropriate level of firm pipeline capacity will be different for each plant, and will evolve over time as generating requirements and gas supply and transportation conditions change.

Generators have strong incentives to maintain fuel arrangements that will allow them to reliably meet their contractual obligations to supply power. Although it may appear from a reliability perspective that having a gas-fired generator control more firm pipeline capacity should always be better than less, it is not in the public interest to require power generators to hold more pipeline capacity than is needed. Such a policy would create environmental costs associated with unnecessary pipeline construction, and would lead to higher power generation costs, which would be ultimately reflected in the prices consumers pay for electricity.

Chapter 5, Page 90, all paragraphs: Calpine agrees that pipeline service reliability is an important issue for all consumers of natural gas in Wisconsin. However, as more gas-fired generating facilities are constructed for baseload power supply, and the gas delivery infrastructure in the state is developed to satisfy these new requirements, the reliability of the gas pipeline system serving the state will increase. To discourage new gas-fired generation because the gas transmission facilities needed to serve these loads are not in place today is illogical, since it ignores the fact that natural gas pipelines can only be approved and constructed after there is a demonstrated need for the facilities. In fact, during 2002 more than 3,571 miles of pipeline and a record 12.8 billion cubic feet per day of natural gas pipeline capacity were added to the national pipeline network,

clearly demonstrating that the natural gas transportation industry remains able to quickly respond to changes in local and regional demand.

Moreover, pipeline improvements that are anchored entirely or primarily by power generation requirements, such as the ANR Westleg expansion that was recently approved by the Federal Energy Regulatory Commission, provide economic and reliability benefits to all gas users on the pipeline system. These reliability and efficiency benefits to the natural gas system should be taken into account evaluating new gas-fired generation against non-gas alternatives.

Chapter 5, Page 92, fifth and sixth paragraphs: Power generators generally maintain a portfolio of natural gas supply contracts with pricing terms that dampen the effects of short-term price volatility on power generation costs. Depending on the objectives of the power purchaser, fuel costs can be stabilized with fixed-price fuel contracts or financial hedges.

Chapter 5, Page 95, first through third paragraphs: The DEIS assumes that coal plants always use once-through cooling systems and natural gas plants always use cooling towers. This is not true. Natural gas plants proposed by Calpine in Wisconsin have been designed with cooling towers in order to minimize environmental impacts to the water source (ground or surface waters) and the receiving body. In certain instances, Calpine has sought to re-use water from private treatment facilities such as a paper mill in Wisconsin Rapids for the Sherry Project, so as to avoid the consumptive use issues associated with taking waters of the state. Similarly, Calpine's Fox Energy Center will utilize treated effluent from the Heart of the Valley wastewater treatment facility to provide cooling water for its Fox Energy Center, avoiding use of existing surface or underground sources of water. Due to the uncertainty involved in permitting its proposed water use facilities (the uncertainties have been described above), WEPCO should analyze the alternative of using cooling towers. This alternatives analysis should be made available for public review and comment.

Chapter 5, Page 96, fourth bullet point: The statement is made that reliability issues with power generation increase as the percentage of natural gas generation increases. Reliability involves many more issues than just fuel supply, and the DEIS has not provided a sufficient level of information that demonstrates natural gas supplies are less reliable than coal. Further, an analysis of reliability also should include operational reliability in addition to fuel reliability. Coal-fired plants, by the nature of their process, have significantly more events that result in unplanned outages than do gas-fired combined-cycle plants. For example, coal-fired plants often face steam boiler tube leaks and fuel handling problems that result in either reduced output or unit downtime required to accommodate repairs. The DEIS has made no effort to evaluate the impacts of such events on overall reliability, which calls into question whether the analysis fully evaluates all reasonable issues that may impact reliability.

Reliability is not just a function of fuel type, but is also a function of location and diversity of supply. Indeed, locating such a significant portion of Wisconsin's new energy

generation at one location, such as Oak Creek, presents reliability issues in and of itself. This is especially true given the extraordinarily high projected transmission interconnect costs, which suggest that the existing grid can support little, if any, new generating capability at that location.

Chapter 6, Page 98, sixth paragraph: The DEIS makes numerous references to negotiations that are underway for the purchase of a federally-owned parcel of land that is currently used as a shooting range. No information is provided on the status of those negotiations or the potential impacts to the ERGS project if the negotiations are not successful. By contrast, Calpine was required to show proof of ownership or rights to exercise ownership prior to a completeness determination for all its various projects in Wisconsin in order to meet the alternative site requirements in the CPCN guidelines. WEPCO should (i) identify the environmental condition of the land as it will likely assume all liabilities associated therewith, (ii) the land that WEPCO would sway for the 70-acre parcel, and (iii) a binding contract for the land, whether purchase agreement or option. In the event that WEPCO cannot show proof of rights to the land, alternate plans should be provided.

Chapter 6, Page 114, second paragraph: WEPCO proposes that each unit would require about 460,000 gallons per minute of cooling and service water into the system, or about 662 million gallons per day. This is about 189 times more water than would be required by a comparably sized gas-fired combined cycle plant. From another perspective, the water used by a combined cycle gas-fired generating facility like Calpine's Fond du Lac facility in an entire day would keep one of the ERGS units operating for about 8 minutes. Most of this water will be obtained by WEPCO through its intake structure; however, Table 6-3 indicates that nearly one million gallons per day would be obtained from the local city water supply. Such a substantial demand for water could place additional demands on the potable water supply and treatment capacity of the City of Caledonia, which could have an adverse impact on of local citizens, particularly during drought conditions. Furthermore, while the ERGS plant would increase the temperature of water discharged back to Lake Michigan by about 12 degrees Fahrenheit, the discharge from Calpine's Fond du Lac plant would be only be warmer than the receiving water at Lake Winnebago by about one degree in winter and two degrees in summer.

Chapter 6, Pages 115 and 125, Figures 6-7 and 6-10: The water balances detailing water flows of the proposed ERGS appears to be missing some data, i.e. total inflow from Lake Michigan at the lower left of the figure. The Commission should require that WEPCO provide all information on each component of the water balance diagram so that a clear and complete understanding of the water consumption of the proposed ERGS project can be had.

Chapter 6, Page 117, second from last paragraph: WEPCO states that its proposed IGCC unit is based on the Texaco Gasification Power System, and that information presented herein is preliminary. However, Texaco has developed and recently brought into operation two IGCC units in Italy that are roughly the same size as

that proposed for ERGS. If the Commission intends to authorize this unit, WEPCO should be required to provide significantly more information than what has been presented in this application before the FEIS can be completed or a CPCN can be issued. Alternatively, the IGCC should be dropped from the proposed CPCN due to a lack of credible information necessary to support a full and complete evaluation.

Chapter 6, Page 126, final paragraph: There is no basis cited for the proposition that within 10 years, the utilization of sulfur and slag will grow from zero to 100 percent. What landfill capacity plans are in place in the event this exponential growth does not in fact occur?

Chapter 7, Page 138, first paragraph: The DEIS refers to WDNR's State Implementation Plan (SIP) and its provisions that relate to efforts to attain the ozone standard. Currently, the Milwaukee area, which includes the proposed site of the ERGS, is classified as severe-17 nonattainment for the federal 1-hour ambient air quality standard for ozone. Provisions of Title I of the Clean Air Act Amendments of 1990 require that areas that are classified as nonattainment must make reasonable progress toward attainment by the applicable deadline. The progress demonstration includes an ongoing evaluation of existing emissions sources, new sources added to the airshed, and the impacts of emission reduction measures, among other factors.

With respect to ERGS, Calpine is concerned that an additional 5,200 tons per year of NOx emissions each year will place the attainment progress of the Milwaukee area in jeopardy. Currently, Milwaukee is covered by a Section 182(f) exemption from nonattainment provisions as they apply to NOx emissions, meaning that NOx reductions are not currently believed to be supportive of ozone attainment. However, it is not clear that WDNR has evaluated the impact of an additional 5,200 tons per year of NOx emissions on the airshed attainment model.

Furthermore, Calpine is concerned that such a substantial increase in emissions from existing levels will result in more areas being classified as nonattainment for the impending eight-hour ozone standard, which USEPA is preparing to establish in the next several years, and could result in loss of the 182(f) exemption for the Milwaukee nonattainment area. Withdrawal of the 182(f) exemption could result in significant emission reduction requirements in the area, which could result in new emission controls and requirements for emission sources not previously regulated such as on-road mobile sources, i.e., cars and trucks; off-road mobile sources like farm machinery and equipment, boats, snowmobiles and other recreational vehicles, in addition to large stationary industrial sources.

Chapter 7, Page 141, fourth paragraph: This paragraph states that WEPCO's PSD and NSR applications are not yet complete. In prior cases, the Commission stated that such air permit applications must be complete in order for the public to adequately consider the impacts of the proposed project.

Chapter 7, Page 148, final paragraph: In prior applications, the Commission has required Calpine to state specifically its onsite chemical storage plans, as well as a complete list of type and quantities of such chemicals, prior to being issued a completeness determination. WEPCO should be required to provide the same level and type of information for the ERGS proposal.

Chapter 7, Page 151, third paragraph: The DEIS notes that, due to the phased construction schedule proposed for the ERGS, WEPCO may be granted as much as 90 months (7.5 years) in which to complete construction of the proposed units. Calpine notes that, while WDNR has granted minor increases in timeframes to complete construction – and such accommodations can be considered reasonable based on specific circumstance, contemplation of a 90 month permit is markedly inconsistent with federal PSD regulations and common practice regarding NSR/PSD permits. Regulatory agencies typically include a deadline in permits so that sources cannot preserve current best available control technology (BACT) determinations and regulatory interpretations indefinitely. It is very likely that significant advancements in BACT, along with other area-specific air quality issues, e.g., loss of 182(f) exemption requiring nonattainment requirements for NOx, will change during the course of 90 months after permit issuance. Though WDNR is likely to require a BACT update 18 months before start of construction, this does not address other air quality issues that may be avoided through an excessive construction deadline, such as nonattainment requirements for LAER and emission offsets. Calpine believes that such a lax construction deadline represents an inappropriate action with respect to protection of air quality, as well as an example of preferential treatment that is afforded to WEPCO and not to other applicants.

Chapter 7, Pages 163 through167: There are several issues regarding the DEIS description of the air dispersion modeling analysis that is required for the ERGS project. It is noted on page 163 that the stack heights for the South and South-Exp sites must be reduced by approximately 200 feet to mitigate air navigation hazards to the John H. Batten Airport in Racine County. However, the DEIS also discusses how WEPCO has failed to complete its analysis of the impacts from the two southern sites. Calpine raises two objections to this situation.

First, it begs explanation as to how an adequate environmental impact analysis can be developed for a facility where no air dispersion modeling has been completed. The public and interested parties have no idea what the final impacts of the southern proposed sites, and cannot make an informed evaluation of the proposed facility. Given the thin margin of compliance with several NAAQS standards – especially that of particulate matter and SO2 – it seems nearly impossible that WEPCO could show compliance with these requirements considering stack heights that would be reduced by more than 30 percent. Additionally, this calls into question whether the South and South-Exp sites are legitimate alternative sites – a clear and specific requirement of state regulations and CPCN guidance.

Second, as stated previously on other issues, Calpine and other IPPs were not granted completeness determinations on CPCN applications until all air dispersion modeling

analyses were completed and the results were made available to the Commission for incorporation into the DEIS. The DIES statement that the revised modeling analysis will be made available as part of the FEIS is not sufficient to allow the public and interested parties a legitimate opportunity to effectively review and develop comments/testimony in response.

Calpine also has concerns regarding the modeling results associated with the North site, particularly with respect to several pollutants that are very close to the applicable NAAQS and Class II Increment limits. Table 7-24 provides data regarding multiple pollutants and ERGS contribution to consumption of the available Class II increment. However, the DEIS provides no discussion regarding the amount of Class II increment that is available, i.e. how does the proposed ERGS expansion relate to existing sources of pollution under these various parameters?

For example, ERGS is expected to contribute approximately 62.9 $\mu g/m^3$ toward the 24-hour standard of PM_{10}, and background contributions of PM_{10} constitute another 56 $\mu g/m^3$, which represents a total combined PM_{10} impact of about 120.9 $\mu g/m^3$. Under the increment analysis, however, approximately 28.1 $\mu g/m^3$ of the Class II increment (of a maximum of 30 $\mu g/m^3$) is consumed by the ERGS project alone. Table 7-24 and the surrounding discussion make no reference to the available Class II increment for PM_{10}, nor do they address the contribution of existing PM_{10} sources in the area that also may be consuming a portion of the Class II PM_{10} increment.

Presumably, if the ERGS project represents approximately half of the total contribution (in addition to other nearby sources) of PM_{10} regarding the 24-hour NAAQS, it follows that other contributing sources also consume Class II increment. This situation occurs for each of the six modeled pollutants, and in no case is a representation is made regarding existing available/consumed increment. What is most disturbing is that, in light of the substantial deficiencies noted above, the DEIS states that:

> "Judging from WEPCO's air modeling and PSD increment results, the ERGS would appear to quality for a DNR permit." (Chapter 7, page167)

The DEIS then states two sentences later that:

> "DNR analyses would also examine the cumulative impacts of each unit at each site so that the effects of adding each unit into the others can be seen."

Taken together, it appears that the DEIS recognizes that WEPCO's modeling submittal is substantially deficient, but makes the presumption that the project will satisfy all modeling-related concerns. Moreover, WEPCO has recently filed testimony in this proceeding indicating that yet another configuration of exhaust stacks – one involving a single common stack for both SCPC units – is being evaluated for ERGS. There is a clear question as to whether the public and interested parties will ever have an opportunity to fully evaluate WEPCO's proposal as it impacts ambient air quality in the context of this CPCN proceeding. Considering the relatively large impact on ambient air

quality shown even by the partial modeling results provided in the DEIS, Calpine believes that air dispersion modeling results for the ERGS project are inadequate and that the Commission must provide the public and interested parties a legitimate opportunity to fully evaluate and comment upon the complete modeling analysis.

Chapter 7, Page 169, second paragraph: The expanded ERGS project would result in new annual emissions of 9,785 tons per year and 5,245 tons per year of SO2 and NOx, respectively. The DEIS narrative indicates that this would result in less than one-half of one percent of statewide emissions of each of these pollutants. However, compared with total statewide emissions of 303,049 tons per year and 193,795 tons per year, respectively, ERGS would represent an increase in Wisconsin's total annual SO2 and NOx emissions of 3.2 percent and 2.7 percent, respectively.

Chapter 8, Pages 187 through 189: The DEIS provides data on entrainment and impingement studies obtained almost 30 years ago while at the same time noting on page 189 that major shifts in nutrient loading have occurred in the southern basin of Lake Michigan over the past several decades. Calpine's experience in Wisconsin with the CPCN process has been that updated studies for the specific areas of impact must be completed and made available for public review as part of the process. Other examples of studies that should be considered inadequate include to zooplankton tows conducted in Illinois (page 190), the thermal studies conducted in 1976 (page 194), the incomplete Lake Monitoring Study (page 206), and evaluations of historical properties (page 256).

Chapter 8, Pages 194 through 199: The DEIS discusses the water consumption and intake rates for both the existing Oak Creek Power Plant and the proposed ERGS addition. On pages 194 through 195, OCPP is stated to have a maximum water intake rate of approximately 1,165 million gallons per day (mgd) and an average rate of about 978 mgd, with a total consumptive use of about 68,000 gallons per day. Page 195 describes approximately 3.4 mgd of wastewater from several sources that is discharged back to Lake Michigan through a number of outfall structures. However, there is no discussion of the total discharged volume. In addition, page 198 begins a discussion of the proposed combined OCPP/ERGS water intake/discharge system, and specifies that OCPP currently takes in about 1,015 mgd from, and discharges about 988 mgd to, Lake Michigan, which indicates a total consumptive load of more than 27 mgd. Clearly, this is inconsistent with the statements made on page 194 regarding consumption use of water, which states that the rate of consumption is about 400 times less.

Also, the DEIS provides a water balance in Figure 8-5 (page 199) that features only a few discharge volume flow rates, and few/no intake or internal flows. Although some data is provided in tabular form on pages 200-201, it is very difficult understand the water balance based on what has been provided. Further, the inconsistency of water use data regarding the OCPP discussion calls into question whether the flows presented on pages 200-201 can be verified. Calpine requests that this information be provided to the public and interested parties before additional evaluation of the ERGS application can proceed.

Chapter 8, Page 203, first paragraph: Calpine has mentioned this issue previously in these comments. The USEPA has stated that it does not believe that the ERGS is an existing facility for purposes of the 316(b) regulations. If the ERGS is so deemed a new facility, the cost of the facility may rise by a dramatic amount. It is difficult to discern how the Commission can make a full and thorough analysis of this proposal given this serious uncertainty.

Chapter 8, Page 214, fourth paragraph: The DEIS notes that there are several options available to WEPCO for the disposal of dredge materials, but does not describe the impacts, including number of truck movements, truck routes, traffic management plans, description of the fuel oil facilities and expected usage thereof during the almost continuous excavation process, etc., of any one of the options. While it may be true that the specific option to be used will be decided prior to obtaining a Chapter 30 permit, assuming that WDNR deems the dredging and disposal of the material to be a permittable activity after its review of the impacts and alternatives to the proposed project, the impacts of all options should be described in the DEIS so that the public may review and comment upon them.

Chapter 9, Pages 232 through 234: The DEIS describes how the operation of the IGCC unit will produce approximately 60,000 tons per year, or 62,400 gallons per day of sulfuric acid as a byproduct. Although there is some discussion of sale of this material as a byproduct, there is no discussion of how WEPCO would handle and dispose of this hazardous material in lieu of sale. Calpine requests that the Commission and WDNR explore this issue further and force WEPCO to provide additional information on its plans for non-saleable hazardous products, such as sulfuric acid. This information should include, but not be limited to, cost impacts, potential disposal sites, and environmental impacts associated with hauling the materials.

Chapter 9, Page 234, fourth through seventh paragraphs: WEPCO's plans to excavate massive amounts of material to provide for the planned once-through cooling system will result in significant quantities of material that must be applied, backfilled, landfilled, or otherwise handled. One of the more troubling questions is the fate of unregulated material that was disposed of at OCPP before such material was regulated by WDNR. Based on WEPCO's site plans, it appears that approximately 2 million cubic yards of material will need to be landfilled off-site, some of this possibly at hazardous landfill sites. At this time, WEPCO has provided no information about the environmental conditions of the waste or how it proposes to handle this waste. Calpine believes that WEPCO must be required to thoroughly sample the materials expected to be excavated and make clear its plans for handling such a large quantity of unregulated waste material.

Chapter 10, Pages 250 through 253: The DEIS describes that the OCPP/ERGS site contains significant land resources that stand to be heavily impacted by the proposed ERGS project. Specifically, OCPP/ERGS is home to about 200 acres of primary environmental corridor (PEC), much of which is used as a migratory pathway for birds traveling along Lake Michigan, as well as a wintering habitat for some bird species. Much of this PEC would be impacted/destroyed regardless of the site that was chosen for

the ERGS project. In addition to habitat, the OCPP site also is home to several plant and animal species that are listed as either endangered, threatened or of special concern by WDNR. WEPCO's description of the ERGS site as a "brownfield" is contradicted by the immense impact on the PEC and other sensitive environmental areas. This is clearly an area where WDNR's alternatives analysis should be implicated.

Chapter 10, Pages 257 through 274: Depending on the site chosen, construction of ERGS would result in the loss of significant amounts of wetlands, woodlands, beachfront bluff and other important habitat. Specifically, construction of ERGS would result in:

- excavation and placement of between 7.3 and 10 million cubic yards of soil and other material, which would result in construction of several major berms and major alterations to site topography;
- destruction of between 9 and 21 acres of wetland isolated natural resource areas;
- removal of as much as 700 feet of Lake Michigan beachfront or as much as 1,900 feet of existing streambed;
- loss of nearly 2 acres of wooded critical species habitat near the rail loop; and
- elimination of between 75 and 87 acres of primary environmental corridor, which serves as a migratory pathway and wintering area for several bird species.

In addition, three sites of archaeological / historical interest are located within the proposed site development area, including two campsite/village sites and one projectile point discovery site.

By contrast, Calpine's proposed Fond du Lac project would impact:

- no archeological / historical sites;
- no critical species habitat areas;
- no threatened or endangered species;
- no isolated natural resource areas;
- minimal areas of shorelines of the Lake Winnebago and East Fond du Lac River during construction of the plant's water intake structure and associated pipeline, respectively, on a temporary basis; and
- one minor wetland area comprising approximately 0.3 acres that is currently part of an existing agricultural field and deemed to be of low quality.

Also of note, prior to the grant of a completeness determination for the Fond du Lac CPCN application, Calpine was required to re-route the water and gas pipeline routes leading to its proposed alternate site to avoid an area of remnant mesic prairie contained in the Oakfield Prairie Natural Resource Area. Calpine's original proposal included the installation of water and gas pipelines along an abandoned railroad line over a length of approximately ¼ mile through the Oakfield Prairie area. WDNR and the Commission expressed concern about invasive plant species that may become established as a result of construction of the pipelines, and Calpine was directed to find another route before

additional evaluation of the CPCN application would take place. In response, Calpine agreed to re-route the pipelines away from the Oakfield Prairie area.

Calpine urges the Commission to reevaluate wildlife and habitat impacts of the proposed ERGS and reconcile the treatment of this project with its recent actions and positions taken on other projects. It seems very clear that multiple acres of major habitat, vegetative and wildlife impacts associated with WEPCO's ERGS proposal should be deemed of material concern.

Chapter 10, Page 275, first paragraph: Construction of ERGS would result in new exhaust stacks of between 470 and 675 feet in height, depending on the site chosen. Because these structures will be constructed near the lakeshore and within the existing PEC, there is a strong possibility for additional injury and death to migratory birds that follow a path along the proposed ERGS site.

Chapter 11, Page 277, last paragraph: The DEIS states that the transmission upgrades necessitated by the ERGS will include construction of one new 345 kV line of about four miles. This is incorrect. In addition to this four-mile line, a new line from Pleasant Prairie to Libertyville, Illinois (23 miles) or a new line from Big Bend to Paddock (56 miles) will also need to be built. In addition, there may be little difference in terms of local environmental impact between a "new" and an "upgraded" 345kV transmission line, especially if the upgrades involve new poles, conductors and widened rights-of-way. The most important issue, however, is that these cost and impacts remain uncertain and unknown, until and unless a revised ATC interconnect study is complete and applications for the relevant jurisdictional facilities have been filed.

Chapter 11, Page 278, last paragraph: The statement that WEPCO has no plans to retire any of the existing Oak Creek units appears inaccurate, in light of the USEPA penalty, settlement and recent WEPCO public announcements.

Chapter 11, Page 292, fifth and sixth paragraphs: The DEIS notes that construction of the three proposed ERGS units will take at least four, six or eight years, depending on how many units are authorized. By contrast, Calpine plans to construct the Fond du Lac facility in approximately two years, resulting in a significantly shorter period during which construction-related environmental impacts would be present.

Chapter 11, Pages 321, 322: According to the labels on Figures 11-3 and 11-4, WEPCO's noise modeling analysis does not include the impacts associated with critical service equipment such as coal handling, coal trains, cooling fan tonal noise, etc.

Chapter 11, Page 324, first and second paragraphs: The DEIS states that the modeling of noise impacts from the proposed ERGS project was based on actual recorded values from WEPCO's Pleasant Prairie plant with addition of a 2 dBA "adder". Calpine notes that this approach is inconsistent with the Commission's guidance for modeling noise impacts from proposed facilities.

Calpine was directed by the Commission in the course of several power plant projects, most recently the Fond du Lac and Sherry facilities, that noise data must be provided for each significant source of noise energy and modeled discretely. Although the Commission allowed Calpine to use measured data from an adjacent power plant during evaluation of the Fond du Lac project, the noise estimates from Calpine's proposed facility all were based on vendor-provided information and were specific to the equipment being proposed. By contrast, the Pleasant Prairie facility is not even a SCPC facility, which contradicts any claim that the facilities are similar enough to follow a surrogate noise modeling protocol. Also, as noted on page 318, a 3 dBA increase in noise energy is "barely perceptible" to the human ear, so addition of this 2 dBA factor to provide a level of conservatism appears to have little meaningful benefit.

Additionally, the Commission and WDNR have not required WEPCO to provide noise data on the air separation unit (ASU) associated with the proposed IGCC unit. ASUs are a significant source of noise at IGCC plants, and the DEIS should include this source – as well as all of the other support sources – that have been omitted from the noise modeling analysis.

Moreover, the DEIS has not presented any information regarding impacts of noise on the dBC range, nor has it offered any information regarding octave band noise impacts. Both sets of information are required according to Wisconsin's noise modeling protocol guidance.

Finally, the DEIS has provided no information on location of nearby noise receptors, modeled noise impacts and cumulative sound levels in a tabular format. Although Figures 11-3 and 11-4 do provide some information regarding relative noise impacts superimposed on a map of the proposed site area, there is no accompanying data with which to further evaluate impacts to the nearby surroundings.

Chapter 11, Page 362, last paragraph: The DEIS notes that ATC has not yet applied for approval of any of the transmission work associated with the ERGS. It is therefore a very valid question as to whether or not it is prudent for the Commission to issue a CPCN for the ERGS in advance of such transmission approval. It is likely that, if the ERGS is approved, WEPCO will begin work on the ERGS, with the implication to the Commission being that failure to subsequently approve a transmission project of at least $266 million is no longer an option for the Commission.

General Comment: As a general matter, we note that there is no discussion or analysis of electromagnetic fields (EMF) that may result from the WEPCO proposal. We point out that Calpine, even though no new transmission lines would be constructed in connection with the Fond du Lac Energy Center, was required to perform an EMF analysis on the transmission line that would receive and transmit the power output from their facility. By contrast, no analysis or discussion of EMF impacts have been addressed for the WEPCO proposal despite the fact that nearly three times as much electric power will be transmitted away from the facility, and approximately 30 miles of new

transmission lines will need to be constructed.

Thank you for the opportunity to comment on this matter.

Sincerely,

Joseph Condo
Senior Counsel
Calpine Corporation

Comments on the Draft Environmental Impact Statement, submitted by Citizens for Responsible Power

PSC Comment Sheet

Proposed Elm Road Coal Units

May 19 and 20, 2003 Draft EIS Comment Meetings

PSC Docket 05-CE-130

FROM

Name Steve Bulik

Address 4661 Bluffside Dr.

Racine, WI 53404-7006

Phone 262-639-1260

E-mail sbulik@msn.com

Representing Citizens for Responsible Power

PLEASE DEPOSIT AT THE INFORMATION MEETING, OR...
To mail, fold this sheet (our address is on the back), or add additional sheets and put in an envelope, and send to:

Jeff Kitsembel
PUBLIC SERVICE COMMISSION
PO BOX 7854
MADISON WI 53707-7854

My comments on the draft EIS are:

See Attachment 1

Additional sheets are included: X Yes ___ No

JAK:jlt:G:\PTF-Elm\ERGS public meeting\DEIS comment form.doc

Citizens for Responsible Power would like to compliment the DNR and PSC for an objective and comprehensive Draft EIS. However we believe the following areas need to be addressed before the Final EIS is issued:

1.0 EGEAS analysis: the current analysis only includes up to 20% cost over run; additional EGEAS runs should include 30% and 50% cost overruns. Potential cost over runs of this magnitude are not unreasonable. There hasn't been a new coal plant built in Wisconsin since the mid-1980's and there are many unknown and ancillary costs unique to the PTF coal plants relative to the alternatives.

Some examples of unknown and ancillary costs include: unidentified plant/ pollution control complexity, transmission/ interconnection, rail upgrades, rail overpass, massive excavation of lake bluff, water intake, dredging, harbor reconstruction, environmental mitigation of wetlands, critical habitat and environmental corridors.

On page 21of the DEIS: "PSC engineering staff believe, at this time, that the cost overrun potential for the ERGS is about 10 percent for the SCPC units…" What basis is the PSC using for this belief? Wisconsin Energy has a history of cost overruns dating back to the Pleasant Prairie coal units, which were 30 to 40% over budget. In 1997 WEPCO mismanagement caused the lengthy shutdown of the Point Beach nuclear plant and generated over a $100-million repair cost overruns. More recently, WE's portion of the Guardian pipeline project has inflated to $97.5 million from the original estimate of $62 million.

2.0 Railroad/ Coal Trains: DEIS is deficient in this area drawing much of data from We Energies and WE's consultant Benesch (Grade Separation Feasibility Studies report).

First, We Energies does not plan to deliver coal via lake ship due to high cost and declining lake levels. Also the total number of trains stated in the DEIS doesn't make sense nor does it correspond to the numbers stated in WE' PTF application or Benesch report. The current plant at 1,100MW uses 5.5-trains/125 car /week and the DEIS states 11-trains/135 car /week at 2,930MW (with the 3 new PTF units). Under PTF this is a 270% increase in current generation; therefore the 14-trains/135-car/ week stated in WE's application and the Benesch report mathematically makes more sense than the DEIS.

The DEIS and Benesch only address 7-Mile, 6-Mile and to a lesser extent 4-Mile road. There's no mention of 5-Mile or 3-Mile road and the 19 at grade crossings in Racine. Benesch reported only minor impacts at 5-Mile and 4-Mile. Through out Racine and Caledonia the 9,000 ft long trains travel less than 30 mph and slow significantly as they approach the ERGS, sometime stopping as far back as 4-Mile road.

The Town of Caledonia has not agreed to close 7-Mile road because the traffic counts are running at 320 to 655 vehicles per day, which is much greater than 200 vehicles per day Benesch reported. Future development of this area must be accounted for since the area is zoned for residential at .7 to 2.2/acre. The area east of the tracks has 130 acres of developable land, this would allow for approximately 90-285 dwelling units.

3.0 Air Emissions: according to the DEIS concentrations of particulate matter, especially total suspended particulates (TSP 24-hour), PM10 (24-hour), and SO2 (both 3-hour and 24-hour) would increase substantially due to operation of the ERGS.

Since several of these pollutant concentrations are approaching 100 percent of the NAAQS, it's therefore it's imperative the DNR complete Shoreline Dispersion Modeling (SDM). SDM examines the inversion of the cool lake air breaking down in the warmer air over land and pollutants mixed down to the ground

The Draft EIS fails to address the severe adverse health impacts of PM2.5 fine particulates. According to DNR ambient monitoring data the Milwaukee area has annual average concentrations of PM2.5 that are very close to the applicable annual standard.

4.0 Interconnection/ Transmission costs: the DEIS discusses the projected $266 million in new and/or expanded high voltage electric transmission facilities that would be necessary to connect the proposed ERGS coal units. The alternate to the ERGS, a combined-cycle project in Fond du Lac, has an estimated connection cost of $26 million. The interconnection/ transmission costs are a substantial part of the overall cost of the project and therefore needs to be included when evaluating alternative proposals.

The size and location of all proposed ATC transmission lines should be shown on a detailed map. The maps ATC provided the PSC in DEIS (Figures Vol. 2-4 thru 2-7) only give rough idea of the transmission line routes.

Comments on the Draft Environmental Impact Statement, submitted by the Citizens' Utility Board

Comments of the Citizens' Utility Board on the
Draft Environmental Impact Statement for the Elm Road Generating Station
PSCW Docket No. 05-CE-130

The Citizens' Utility Board (CUB) would first like to express its appreciation to Commission and DNR Staff who within a far too limited time period have had to put together a coherent framework for a comprehensive analysis of a complex proposal. Our comments are focused on areas where CUB believes that increased analysis and discussion are necessary and appropriate to allow a reasoned decision of the various pivotal issues present in this case. We have not commented on certain areas of the DEIS because we were aware that other parties would be focusing comments on those areas which we would generally adopt.

Summary

CUB's comments primarily focus on what it believes are several key issues and areas for which additional or revised information and analysis is required for the FEIS. Those areas include: (1) clearer and additional estimations of and comparisons of the potential cost of the proposed ERGS project and ERGS project alternatives; (2) additional information on important factors affecting the type and timing of resource additions appropriate to ensure reasonable rates, reliability and acceptable environmental and social impacts; (3) the need for consideration of an integrated resource portfolio option (i.e. an enhanced energy efficiency/load management, renewable resource and generation alternative); (4) additional and better information relevant to the fuel choice issue; (5) the potential projects' impacts on transmission systems; (6) additional analysis of potential changes that could effect the background and cumulative air emissions for the proposed ERGS units; (7) the issue of the

viability and alternatives to once through cooling at ERGS and the implications if once through cooling is neither a legally available option nor the "least cost" option at ERGS; and (8) the need for additional analysis and information on the potential impacts of increased rail traffic on communities and areas outside of the immediate area of the proposed site.

CUB will present its comments by Chapter.

I. Chapter 2 PTF Costs & Financing Mechanism

(1) On page 21, the DEIS states that: "PSC engineering staff believe, at this time, that the cost overrun potential for the ERGS is about 10 percent from the SPC units and somewhat greater from the IGCC unit." It would be appropriate to explain the primary bases for this judgment in the FEIS.

(2) On pages 25 through 28, there is a discussion comparing the rate and cost impacts between the proposed facility leases as proposed by We-Energies and the use of a traditional ratebasing approach for the proposed ERGS units. We believe that two important additions should be made to this discussion.

First, information should be provided that shows the change in any present net value differences if key financial or economic parameters are modified. For example, if a change in ROE is made (e.g. from 12.9% to 12.7%) what percentage does that change cause in costs under a ratebase approach, under the lease approach and for the present value difference between those approaches. Providing these types of sensitivities would present important information in considering the impacts of these approaches under a range of possible outcomes in this case. A reasonable number of such permutations on key financial parameters (ROE and equity portion of capitalization) and economic parameters (e.g. a 40 versus a 30 year lease) would be valuable.

Second, it would be desirable to highlight which cost factors most affect the present cost difference between a ratebase and a lease approach even assuming the same financial and economic parameters. For example, deferred tax credits would be handled differently under the two options: (under the rate base approach these credits would be flowed back to ratepayers over time while under the lease approach it appears tax law would require these credits to stay with the unit owner).

In this same vein, the discount rate used to calculate present value is important to the result. For example using a higher discount rate (such as the pre-tax economic cost of capital for a utility) will tend to produce smaller absolute present value differences between the rate base and lease approaches while a lower discount rate will widen the absolute difference. The FEIS should explicitly state the discount rate used to calculate the present values to be compared and explain why that is an appropriate discount rate to use for such comparative purposes.

Finally, since We-Energies is also proposing an IGCC unit, it is appropriate to provide such comparisons for all three proposed units in addition to only the two SPC units. All cost calculations and runs should also include the proposed "community mitigation" payment to Oak Creek that We-Energies has agreed to make.

II. Chapter 3: Need for Baseload Capacity

(1) On page 39 and more specifically on page 43, there is discussion about transmission system constraints that limit transfers between northern Illinois and Wisconsin. It would be useful to have a discussion of the potential to "correct" this situation as well as the likely time frame in which to do so and the implications, if any, for the need to build the three proposed plants within an appropriate time frame if such a constraint did not exist. In effect, the FEIS

should address whether such an option is a viable or superior alternative to meet some or all the demand to be met by the proposed ERGS project.

(2) On page 43, under "Planned Capacity…", it appears that Oak Creek 5 rather than Oak Creek 1 was meant to be the unit referred to.

III. Chapter 4: Alternatives to the Proposed Project

(1) On page 65, it is stated that We-Energies' commitment to renewable energy development (i.e. through its collaborative) "is conditional upon approval of the entire PTF project, including the ERGS projects." While this may accurately reflect the statement of a specific witness, the agreement creating the Renewable Energy Collaborative (REC) explicitly states the opposite. CUB suggests that the REC agreement is controlling as to We-Energies efforts to achieve at least a 5% share of its power supply from renewable energy by a date certain.

(2) Additional EGEAS runs: There are three additional sets of EGEAS runs that CUB believes are very important to include in the FEIS.

(a) A set of runs using the cost for the proposed ERGS SPC units plus 10% would reflect the potential risk to ratepayers consistent with WE's proposed lease that allows the approved cost by the Commission and up to 10% for overruns etc. if approved by the Commission as the ultimate sum to be collected through the lease generation agreements. For the SPC units, a 10% adder would be appropriate. Such a run should also be done for all three proposed units (for the IGCC unit, a 15% adder would be appropriate to be consistent with the proposed lease terms submitted by the Applicants).

The approved costs plus potential cost overrun adder (at least for the two SPC units) ought to be treated as an "additional" base case for all the scenario runs performed in the DEIS and shown in Tables 4-4 through 4-8 (except for the high coal construction case)

(b) There should be a run(s) which incorporates both the Staff's ranges for both estimated energy efficiency and renewable savings. As is appropriately pointed out on page 55, energy efficiency and/or renewables may only substitute for part of a resource block needed, but could change the type and/or timing of capacity needed to meet the remaining block of supply need. A combined run of energy efficiency and renewables for the ranges estimated by Staff would help provide useful information on this issue (see also page 61 about the potential value of an integrated resource portfolio). Staff may have contemplated this type of run when it suggests in the DEIS that an "integrated resource" run would be included in the FEIS.

Finally, the FEIS should more fully discuss the potential additional load management opportunities available and the potential impacts on the proposed ERGS project (either to unit need, type and/or timing) alone or as part of an "integrated resource" alternative. There is nothing in the DEIS to justify a conclusion that all cost-effective load management opportunities are currently being captured by We-Energies.

(3) The EGEAS runs provide useful information as to the potential type and timing of future resource additions. However, as inferred in a number of places in the DEIS, there may be other important factors that effect the type and timing of resource additions including a balancing of the cost of accelerating certain resource blocks versus the potential benefits of moving a

resource acquisition forward (e.g. potentially increased operational flexibility, increased flexibility to address potential contingencies or increased reliability under a broader set of scenarios). (e.g. DEIS at pages 35-36, 78-79)

The FEIS should identify and discuss potential factors (and the parameters) that could positively effect changing the timing for the addition of resource units to something different than that indicated by EGEAS runs and their potential implications for what is an "optimal plan" considering all relevant factors (e.g. not limiting the acquisition of wind resources to allow further cost reduction through expanded market competition, the capture of economies of scale, and accelerating other potential technological and business organization improvements).

IV. Chapter 5: Fuel Diversity

There are several places in the DEIS which discuss the potential cost and supply reliability prospects for natural gas (e.g. page 36 and pages 84-93). It would be useful to coordinate these discussions especially in terms of: (1) presenting data about the current ability to transport natural gas into eastern Wisconsin and what available capacity is there given future expected needs: is there a limit given the existing infrastructure and how close are we to it? and (2) the implications, if any, of increased natural gas usage for electric generation, especially baseload generation, for both natural gas and electric customers in Wisconsin (e.g. what are the implications, if any, for storage, for potential gas transmission rates on natural gas user prices or other implications of substantial natural gas fired generation use in the winter as the DEIS suggests needs to be considered on page 36).

The DEIS discusses natural gas resource adequacy, price and price volatility, and gas delivery availability and reliability. While CUB does not necessarily concur with some of the inferences drawn in this discussion, the issue of gas delivery

ability needs far more information in the FEIS. How much more natural gas can Wisconsin import before there is a need for new inter or intrastate facilities and what effect do existing and currently approved plants have on when such expansion might be needed? What are the potential implications of this situation for this case? There is a need for solid information in the FEIS on these issues.

A similar need to more fully address potential coal plant reliability issues in the FEIS is appropriate. In particular, additional information about potential forced outage percentages for coal units should be provided.

V. Chapter 6: Overview of Proposed Sites

Chapter 6 addresses the potential projects' impacts on the transmission systems and the costs of such impacts on the total costs of various projects (e.g. ERGS w/o IGCC versus "Calpine").

The direct connection costs <u>to</u> the "ATC grid" for ERGS by unit and the "Calpine" option (at least for the Fond du Lac unit) are already included in the DEIS. However, the costs that would be created for the ATC grid from ERGS or "Calpine" (the costs of necessary improvements to move the power over the ATC system to customers) are not known, albeit for different reasons (i.e. ERGS cost estimates are based on outmoded load additions assumptions which may effect the result of prior calculations and there is no "Calpine" information available on such "ATC grid" impact costs).

While these latter costs would be included in ATC tariffs, there seem to be two important questions which the FEIS must address: (1) what are the costs created by ERGS or "Calpine" that would be recovered in the ATC tariffs and/or (2) to what extent are these "but for" costs? (i.e. would be incurred at some point anyway to "reinforce" the T&D system in southeast

Wisconsin but are accelerated by either of these projects). If the above information is not available, it is difficult to see how the Commission can address the question about comparative impacts of different alternative projects on the basis of total costs as that issue is raised on page 78 of the DEIS.

The issue of comparative transmission costs requires further additional discussion in the FEIS. If there will not be comparative costs for the alternative projects, then additional discussion about whether these are primarily "but for" costs could be very important. (e.g. see pages 363-364). It is CUB's understanding that because of the way in which ATC models new interconnections that (in addition to assumptions about what new units will come on line earlier in the queue) at some point a new addition (not necessarily a large unit) may tip the balance in requiring a substantial upgrade in the existing area T&D infrastructure. This cost is in effect "socialized" into ATC tariffs because the area upgrade costs could be of a sufficient magnitude to deter even an appropriate plant addition if all such costs were imposed directly on the specific project.

It therefore would seem important to understand whether "ATC grid" cost impacts are the unique consequence of a specific plant being accommodated into the system or due to a plant's timing which happens to be the final incremental load addition that tips the balance as noted above. While the DEIS recognizes these distinctions, the FEIS should be much clearer as to which categories of "ATC grid" cost impacts the ERGS and the "Calpine" projects seem to be, if no such area cost impact estimates are available for each project. The FEIS should also discuss the potential implications for determining how to calculate total costs to allow potential projects such as ERGS w/o IGCC to be compared to other projects such as "Calpine".

VI. Chapter 7: Air Emissions

It would appear necessary and appropriate for the FEIS to calculate the background emissions set forth in Chapter 7 based on the recent agreement between Oak Creek and We-Energies (and potentially the proposed Consent Decree pending between We-Energies and the federal Department of Justice) and to draw appropriate observations about the potential impact of ERGS on air quality if such actions as contemplated in these agreements were made. While judgment will certainly be needed in doing this, the adoption of either the Oak Creek agreement or the proposed Consent Decree (or whatever resulted in such actions being taken) clearly will seem to effect the cumulative impact resulting from adding some or all of the proposed ERGS units.

VII. Chapter 8: Water Resources

The issue of once through cooling needs far more discussion than presented in the DEIS. There are several reasons: (1) there still is an issue whether We-Energies can legally use once through cooling at ERGS (DEIS at page 203) and (2) there is no discussion of the potential alternatives to assess whether there are better alternatives when all economic and non-economic factors are considered or because it is determined that once through cooling cannot be used under any circumstances. The answers to these questions would certainly seem to have meaningful impacts on the proposed ERGS project including but not limited to the overall cost of the proposed ERGS project and potential project alternatives.

VIII. Chapter 11: Community Impacts

On page 277, the DEIS notes that train traffic along the entire rail corridor could have community impacts at some distance from the actual plant site. However, it is hard to find a focused discussion of the potential impact of increased rail traffic on communities along the Union Pacific line including noise, vibration, traffic

and land development the further one gets from the ERGS site (e.g. in Racine County). These potential impacts require increased discussion in the FEIS. Such analysis (as well as for the entire rail corridor) must consider rail traffic both going to and coming from the ERGS site in its assessment of potential impacts.

Conclusion

The information and analysis on the issues noted above need to be improved and augmented for the FEIS if the purposes of a FEIS are to be satisfied. In making these comments, CUB recognizes the limitations on available resources and time that hindered Commission and DNR Staff in identifying and/or presenting a full presentation on the issues in the DEIS. CUB appreciates the effort that has gone into preparing the DEIS which we know will result in an even better FEIS.

Dated this 12th day of June, 2003.

Respectfully submitted,

_____

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cc. PTF Phase II service list

Comments on the Draft Environmental Impact Statement, submitted by the Clean Air Task Force

CLEAN AIR TASK FORCE

Reply to: 231 W. Main, Suite 1E Carbondale, IL 62901 (618) 457-0137 (618) 457-0513/fax
Main Office: 77 Summer Street Boston, MA 02110 (617) 292-0234 (617) 292-4933/fax www.catf.us

June 12, 2003

Mr. Jeffery Kitsembel
Public Service Commission of Wisconsin
P.O. Box 7854
Madison, WI 53707-7854

Re: PSC docket number 05-CE-130, Comments on the Draft EIS

Dear Mr. Kitsembel:

The Clean Air Task Force is a national environmental organization that is headquartered in Boston and operates across the nation. Our mission is to maintain and restore healthy air. We accomplish this mission through research, advocacy and education. We have been a member of RESET since shortly after its founding.

We welcome the opportunity to comment on the Draft EIS (DEIS) for the of the Elm Road expansion. Because many of our concerns have been raised by other RESET member organizations in their DEIS comments, we will focus on only two issues. These issues are the failure of the DEIS to monetize the health damage associated with $PM_{2.5}$ and the failure of the DEIS to capture the full value of natural gas plants.

Monetizing $PM_{2.5}$ Health Damage

The DEIS makes only passing reference to the health damage associated with fine particles. These particles can be directly emitted by power plants, or they can form downwind of the stack as sulfur dioxide and nitrogen oxide are converted to sulfates and nitrates. The DEIS correctly links fine particles with health impacts such as premature deaths, asthma attacks, and other lung ailments. Scientists generally agree that the response to these pollutants is linear. Therefore, adverse impacts continue at ambient air concentrations that are below national air quality standards. The failure to quantify and monetize these impacts is a major shortcoming in DEIS.

There are several approaches that could be used to quantify the number of deaths and other health impacts associated with coal plant emissions. The approach most applicable to the Oak Creek expansion has been published in peer-reviewed articles by Harvard researchers Jon Levy and Jack Spengler.[1] In this approach, the PM

[1] See Levy, J. I., Spengler, J. D., et al. *Using CALPUFF to Evaluate the Impacts of Power Plant Emissions in Illinois: Model Sensitivity and Implications*. 36 Atmospheric

emissions of specific plants are modeled and a damage function is applied to estimate health endpoints such as premature deaths and asthma attacks. These impacts are monetized using standard EPA protocols. Abt Associates[2] and USEPA[3] used similar approaches to estimate impacts from larger groups of power plants.

Absent detailed modeling, the DEIS could apply a monetization approach used by the United Nations Development Programme[4]. In this approach, PM damage in the United States is estimated using data from the European Commission's ExternE Programme. The UN report identifies $5.3/MWH of PM damage associated with a conventional coal plants meeting BACT. For an IGCC plant, the damage is about $.53/MWH, and an NGCC plant has PM damage of $.37/MWH. Table 8.1 from the UN study that details these findings is attached to these comments.

The values from the UN study may need some adaptation for use in Wisconsin. First, these damage estimates are based upon the low economic valuations for European conditions. This choice places less value on human life and disease than is found in USEPA's valuation methodology. This very conservative choice may understate PM damage in $/MWH by a factor of three or more. Furthermore, BACT for conventional coal plants in the UN report assumed no SCR and a lower sulfur coal than is proposed at Elm Road. This has the effect of overstating the impact of nitrogen oxides and understating the impact of sulfur dioxide relative to Elm Road's SCPC units.

<u>The true economic value of natural gas plants is underestimated in the economic analysis found in the DEIS.</u>

Combined cycle natural gas plants, if properly designed and sited for the purpose, can later be converted to IGCC plants. This conversion might be desirable should the gap between natural gas prices and other fuels as coal or petroleum coke make this switch advantageous. This option has an economic value that is not captured by the DEIS. As a result, the DEIS undervalues natural gas plants. This may skew the EGEAS models away from building combined cycle natural gas plants and toward building SCPC units.

Environment 1063-1075 (2002). and Levy, J. I., Spengler, J.D., *Modeling the Benefits of Power Plant Emission Controls in Massachusetts,* v. 52, 5-18, J. Air & Waste Manage. Assoc., (2002).

[2] "Death, Disease and Dirty Power", available at http://www.catf.us/publications/index.php

[3] Clear Skies Act, Technical Support Package, September 2002, available at http://www.epa.gov/clearskies/technical.html

[4] "World Energy Assessment", United Nations Development Programme, Chapter 8, (September 2000) . This report is available on the web at http://www.undp.org/seed/eap/activities/wea/drafts-frame.html

This option value is no small matter. The problem with Power the Future is that it locks consumers into paying for capital-intensive coal plants. This is an irreversible decision. If WE Energies predictions about future regulations, gas prices, and construction costs are wrong, the cost of electricity under PTF will be much greater than the company predicts. Because a natural gas plant has the option value of using other fuels when converted to IGCC, consumer's financial risk due to changing conditions is reduced.

The DEIS needs to consider two changes: 1) Adding an option value to the natural gas plants that reflects their higher economic value, and/or 2) Modifying the inputs to the EGEAS modeling so that the model can build combined cycle gas plants and later convert them to IGCC plants.

A scenario with an "NGCC to IGCC" plant would likely have a higher NPV than a pure NGCC scenario or a pure IGCC scenario because the combination plant could generate revenue sooner than a pure IGCC plant and generate more revenue in later years than a pure NGCC plant. Furthermore, because the cost of conversion takes place in later years, the discounted costs for an "NGCC to IGCC" plant might be lower than a pure IGCC plant.

The key technical barriers to the conversion include:

- Using a site that has both rail access for coal and natural gas access.

- Designing from the beginning the natural gas plant so that the power block could later accommodate syngas. The cost of converting the turbine from natural gas to syngas is roughly $25/KW of installed capacity in today's dollars. The cost of expanding the HRSG is minor if enough space is reserved at the beginning to add additional cooling tubes.

The EGEAS modeling in the DEIS assumes availability of the IGCC plant of only 75%-85%. This availability assumption is too low for both the pure IGCC plant considered in DEIS and an "NGCC to IGCC" plant. The 75%-85% availability applies to today's IGCC plants that run on a single gasification train with no spare gasifier. This situation describes the Polk, Florida IGCC plant and the Wabash Plant in West Terre Haute, Indiana. WE Energies proposes a spare gasifier in their WDNR air permit. Gasification plants that have a spare gasifier (such as Eastman Chemicals acetic anhydride plant in Kingsport Tennessee) have availabilities of over 98%. The impact of the low availability assumption is to underestimate the NPV of both the pure IGCC plant and the "NGCC to IGCC" option. The DEIS did not consider the use of petroleum coke in the IGCC plant. Unlike SCPC units, IGCC plants can use this low cost fuel. The sensitivity analysis of the EGEAS modeling should examine the economic impact of this fuel.

Thank you in advance for your consideration. If you have questions or need clarifications, please contact me at (618) 457-0137 or jthompson@catf.us

Sincerely,

John Thompson
Advocacy Coordinator

TABLE 8.1. EMISSION RATES FOR AND ESTIMATED COSTS OF ENVIRONMENTAL DAMAGE FROM AIR POLLUTANT EMISSIONS OF FOSSIL FUEL POWER PLANT (LOW VALUATION FOR TYPICAL EUROPEAN CONDITIONS)

	Emission rate (grams per kilowatt-hour)			Low estimate of costs of environmental damages (dollars per thousand kilowatt-hours) a				Environmental damage costs relative to NGCC
Primary air pollutant	SO2	NOx	PM10	SO2	NOx	PM10	Total	Total
Average U.S. coal steam-electric plant, 1997	6.10b	3.47 b	0.16 c	15.9	13.9	0.7	30.5	82
New coal steam-electric plant with best available control technology d	0.46	0.87	0.15 c	1.2	3.5	0.6	5.3	14
Coal IGCC plant e	0.075	0.082	0.0025	0.2	0.33	0.01	0.54	1.5
NGCC plant f	—	0.092	—	—	0.37	—	0.37	1

a. Environmental damage costs from power plant air pollutant emissions are assumed to be 25 percent of the median estimates of Rabl and Spadaro (2000) for typical power plant sitings in Europe. (The Rabl and Spadaro calculations were carried out under the European Commission's ExternE Programme. Nearly all the estimated costs of environmental damages are associated with adverse health impacts; the economic values of health impacts were estimated on the basis of the principle of willingness to pay to avoid adverse health effects.) Rabl and Spadaro considered a wide range of pollutants, but the only significant damage costs were from SO2, NOx, and PM10, for which their median estimates of damage costs (in dollars per kilogram) were $10.44, $16.00, and $17.00. Damage costs at 25 percent of the median estimates of Rabl and Spadaro (equivalent to one standard deviation below the median) are assumed, to put a conservatism into the calculation to reflect the scientific uncertainty. b. Average emission rates in 1997 for U.S. coal plants, whose average efficiency was 33 percent (EIA, 1998b). c. In 1990 PM10 emissions from U.S. electric utility coal power plants amounted to 245,000 tonnes (Spengler and Wilson, 1996) when these plants consumed 17.1 exajoules of coal (EIA, 1998b), so the PM10 emission rate was 14.34 grams per gigajoule—the assumed emission rate for all steam-electric cases in this table. d. It is assumed that the new coal steam-electric plant is 35.5 percent efficient; that the coal contains 454 grams of sulphur per gigajoule (1.08 percent sulphur by weight), the average for U.S. coal power plants in 1997 (EIA, 1998b); that SO2 emissions are reduced 95 percent, a commercially feasible rate; and that the NOx emission rate is 86 grams per gigajoule—achievable with advanced low-NOx burners that will be commercially available shortly; e. It is assumed that the coal integrated gasifier combined cycle (IGCC) plant is 43.8 percent efficient, based on use of steam-cooled gas turbines (see table 8.4); that the emission rates equal the measured values for the Buggenum coal IGCC plant (Netherlands): 10.0 and 0.3 grams per gigajoule of coal for NOx and particulates, respectively, as well as 99 percent sulphur recovery (data presented by Co van Liere, KEMA, at the Gasification Technologies Conference in San Francisco, 17–20 October 1999); and that the coal contains 454 grams of sulphur per gigajoule. f. It is assumed that the natural gas combined cycle (NGCC) plant is 54.1 percent efficient, based on use of steam-cooled gas turbines (see table 8.4); and that the NOx emission rate is 9 parts per million on a dry volume basis (at 15 percent O2), corresponding to an emission rate of 0.092 grams per kilowatt-hour.

Comments on the Draft Environmental Impact Statement, submitted by Clean Wisconsin

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OF COUNSEL:
PETER E. McKEEVER

July 10, 2003

VIA EMAIL

Jeffrey Kitsembel
Public Service Commission
610 N. Whitney Way
Madison, WI 53705

Re: Application of Wisconsin Electric Power Company
Docket No. 05-CE-130

Dear Mr. Kitsembel:

Enclosed please find the Comments of Clean Wisconsin (f/k/a Wisconsin's Environmental Decade) on Draft Environmental Impact Statement in the above-referred-to matter.

By copy of this letter, a copy of the document has been delivered via email or U.S. Mail to all parties on the service list, as well as Michael Thompson of the DNR via email.

Thank you for your attention to this matter.

Sincerely,

GARVEY & STODDARD, S.C.

Pamela R. McGillivray

PRM:jf
Enclosure
cc: Service List

BEFORE THE
PUBLIC SERVICE COMMISSION OF WISCONSIN

Application of Wisconsin Electric Power Company; Wisconsin Energy Corporation; and W.E. Power, LLC; for a Certificate of Public Convenience and Necessity	**)** **)** **)** **)**	**05-CE-130**

COMMENTS OF CLEAN WISCONSIN (F/K/A WISCONSIN'S ENVIRONMENTAL DECADE) ON DRAFT ENVIRONMENTAL IMPACT STATEMENT

INTRODUCTION

Clean Wisconsin (formerly Wisconsin's Environmental Decade ("WED") respectfully submits the following comments to the Draft Environmental Impact Statement ("DEIS") prepared jointly by the Public Service Commission staff ("PSC Staff") and the Department of Natural Resources staff ("DNR staff").

Clean Wisconsin has approximately 5200 members statewide and approximately 2500 members in the greater Milwaukee area. For more than 30 years, Clean Wisconsin (as WED) has been a leading environmental group in the state of Wisconsin in identifying and addressing the environmental and public health impacts of the electric utility industry.

Clean Wisconsin recognizes that both PSC and DNR staff are constrained by resources and time and have provided much helpful information for the public to understand We Energies' ("WE") Elm Road

Generating Station ("ERGS") proposal and alternatives to that proposal. Nonetheless, as is repeatedly recognized in the text of the DEIS itself, numerous issues have been left unanalyzed or unfinished in the draft that need to be provided in the Final Environmental Impact Statement ("FEIS").

STANDARD OF ANALYSIS

The PSC must base its decision whether to grant a CPCN for a project on an EIS that satisfies the requirements of the Wisconsin Environmental Policy Act, Wis. Stat. § 1.11 ("WEPA"). Pursuant to WEPA, the EIS must set forth a detailed statement that adheres to the guidelines (referring to 40 C.F.R. Part 1500 et. seq. [hereinafter "NEPA Guidelines"]) established under the National Environmental Policy Act, 42 USCA § 4331 et seq. ("NEPA"). Moreover, the PSC must follow its own rules establishing criteria for preparing an EIS for a large electric power generating facility. *See* Wis. Admin. Code § PSC 4.30. Wisconsin courts have held that federal law construing NEPA is persuasive authority in construing WEPA. W*isconsin's Environmental Decade v. PSC*, 98 Wis.2d 682, 693, 298 N.W. 2d 205, 209 (Ct. App. 1980) (hereinafter "*WED IV*"); *see also Larsen v. Munz Corp.*, 167 Wis.2d 538, 482 N.W.2d 332, 342 (1992) (finding that courts may look to federal cases interpreting NEPA for guidance in interpreting Wis. Stat. § 1.11).

Under WEPA and NEPA, the EIS must "enable an agency to take a 'hard look' at the environmental consequences of its proposed action."

WED IV, 98 Wis.2d at 690, 298 N.W. 2d at 208. An EIS must "ensure that environmental information is available to public officials and decision-makers before decisions are made and before actions are taken. The information taken must be of high quality." 40 CFR § 1500.1. Therefore, pursuant to WEPA, the PSC's rules, and NEPA Guidelines, the EIS must contain adequate information to "evaluate reasonably foreseeable, significant effects to the human environment and significant socioeconomic effects of the proposal and its alternatives." Wis. Admin. Code § PSC 4.30(1)(b). The analysis must include an "evaluation of the positive and negative effects on the local and regional environments, including the proposed action's direct, indirect and cumulative effects." Wis. Admin. Code § PSC 4.30(3)(b)1. It must also provide an analysis of the mitigation techniques that will minimize impacts from the proposal. Wis. Admin Code § 4.30(3)(b)3.

The evaluation must be sufficiently detailed to allow the decision-maker to take a "hard look" at the environmental impacts on the local and regional level. The EIS prepared for this case failed to provide the requisite information to enable the PSC to take a hard look at the human and environmental impacts, particularly those created by emissions of pollutants from the proposed coal plants.

SUMMARY OF COMMENTS

Overall, Clean Wisconsin has concerns that the application from Wisconsin Energies ("WE") is a moving target. Throughout the DEIS,

there is language that suggests that the PSC and the DNR do not yet have the final information that the agencies need to assess the applications that have been filed with the respective agencies. It is Clean Wisconsin's position that an FEIS must be based on a complete proposal to meet the adequacy requirements of Wis. Stat. § 1.11 ("WEPA"). However, Clean Wisconsin is aware of the fact that staff is required to prepare the EIS within the expedited schedule set by statute once the Commission determines an application to be complete. Therefore, these comments based on the information provided in the DEIS are made without waiving Clean Wisconsin's completeness concerns.

CHAPTER 3: NEED

Demand forecast

p. 45: The DEIS states that "[t]he projections for future growth appear reasonable and are based on a growing economy. If the recent economic slowdown were to continue, the need for additional generation may not be forthcoming or simply delayed." Based on current trends, Clean Wisconsin urges Staff to provide analysis assuming that there is a continued economic slowdown into the planning period.

Energy Efficiency, Renewable Resources and IRP

p. 55: Clean Wisconsin supports the restatement of the Commission's duty under the Energy Priorities provisions[1] as stated on p. 55-56. However, to provide information from which the Commission may make its determination under the priorities law, the energy efficiency and renewable resources sections of the DEIS must be supplemented, and an integrated resources alternative must be added.

P. 58: PSC staff indicates the shortcomings of its energy efficiency potential analysis, namely changes in the energy efficiency market since the STEP study and Advance Plan 8 were completed. Moreover, PSC staff indicates that STEP did not adequately address industrial efficiency. Clean Wisconsin urges PSC staff to update this analysis and provide an up-to-date evaluation of efficiency measures available. As indicated by PSC staff, the efficiency review in the FEIS must ensure that the record contains a reasonable basis from which to judge available efficiency under the Energy Priorities law.

P. 59: Likewise, in analyzing the availability of wind capacity, the DEIS does not address off-shore wind development, indicating that such development would not be cost-effective. Yet, given the highest average

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[1] Wis. Stat. § 1.12(4): Priorities. In meeting energy demands, the policy of the state is that, to the extent cost-effective and technically feasible, options be considered based on the following priorities, in the order listed:
(a) Energy conservation and efficiency.
(b) Noncombustible renewable energy resources.
(c) Combustible renewable energy resources.
(d) Nonrenewable combustible energy resources, in the order listed:
1. Natural gas.
2. Oil or coal with a sulphur content of less than 1%.

wind speeds in the state are off-shore in Lake Michigan, and given the fact that wind power does not create air pollution, off-shore wind warrants further discussion. Moreover, the 20% credit to reserve margin for wind seems overly conservative. (DEIS, at 71.) Clean Wisconsin would suggest examining whether that number is conservative in practice.

Finally, Clean Wisconsin believes it is imperative that PSC staff develop an integrated resource approach as an alternative. As stated above, the Energy Priorities law requires the Commission to prioritize energy efficiency and renewables and then gas, and, only if none of those can cost effectively replace coal, then coal may be chosen. As staff explained the Commission's duty under the priorities, first the Commission must determine whether "energy efficiency exists to substitute for all or part of the energy demand" and, second, the Commission must determine what can provide the rest under the priorities. (DEIS, at 55.) To do this effectively, PSC staff must examine the correct mix of resources to meet the demand through an integrated planning alternative.

Staff's willingness to significantly rework these sections, and include an IRP alternative, is particularly critical given that Clean Wisconsin requested intervenor compensation to address DSM, renewable resources and integrated resource planning issues, but was

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3. All other carbon-based fuels.

denied funding by the Commission. During its open meeting, the Commissioners indicated that they were denying funding to Clean Wisconsin to review efficiency and renewables, in a large part, because the Commission felt that the PSC staff would adequately address these issues. Clean Wisconsin has been unable to retain an expert to address these issues, therefore, its members' interests are reliant on the work of the PSC staff.

EGEAS Summary

P. 78: The DEIS states: "[T]ransmission cost associated with the ERGS project are $266 million. . . . Comparative costs estimates for any necessary transmission system expansion elsewhere in the state to accommodate specific projects other than ERGS are not presently available." Clean Wisconsin urges Staff to provide comparison costs associated with interconnection to the proposed alternatives--optimal, Calpine, ERGS, and ERGS with no IGSS, as well as other proposed alternatives that may be proposed by other parties in their comments on the DEIS.

CHAPTER 7: AIR EMISSIONS

Generally, the air emissions chapter relies heavily on the information provided by WE in its air modeling permits. For example, on p. 146, the DEIS states that "[t]he air quality analysis information in the draft EIS is based on the air pollution control permit application information provide by WEPCO." Likewise, on p. 167, the DEIS

summarizes WE's air impact analysis under the PSD program and states that "[t]hese results remain to be confirmed by DNR analysis." Clean Wisconsin understands that there is a bit of a time problem in preparing the FEIS in that WE has not yet submitted complete permits applications to the DNR (DEIS, at 141), therefore, DNR staff have not been able to corroborate the results or independently analyze the inputs. The DEIS states that "it is expected that DNR's air modeling analysis will be mostly completed by the time of the final EIS is issued . . . . Testimony related to the completed analysis will be provided by the DNR at the time of the project hearings." (DEIS, at 133 (emphasis added).) Clean Wisconsin believes it is imperative that the FEIS is based upon the DNR's completed analysis for air modeling, rather than WE's. The lack of independent analysis is troubling considering that the DEIS concludes throughout that the SCPC and IGCC units would be in compliance with the various standards and impacts to the affected area are small. (See e.g., DEIS at 168-174.) It is certainly premature to make such conclusions before conducting independent analysis.

Comments of EH&E on behalf of Clean Wisconsin

Additionally, attached hereto are the comments to Chapter 7 prepared by Environmental Health and Engineering (EH&E) on behalf of Clean Wisconsin to be incorporated into these comments by reference. Please note that EH&E is preparing two damage function analyses that will yield estimates of external costs of the ERGS project and plans to

provide that data to PSC staff before intervenors' direct testimony is due so that PSC staff may incorporate those figures into its re-runs if they so choose.

Consent Decree

After the DEIS was issued in this case, on May 15, 2003, the consent decree between Wisconsin Energies and the Environmental Protection Agency was printed in the Federal Register, thereby allowing members of the public to comment on the proposed agreement before it is review by the district court. (See 68 Fed. Reg. 26354, May 15, 2003). Assuming that consent decree will be signed by the district court, Clean Wisconsin believes that the agreement should be taken into consideration in the FEIS. The consent decree allows WE options for limiting certain emissions within the next ten years. For example, by December 31, 2012, WE must take the following actions on units 5 and 6 at Oak Creek to reduce NO_x and SO_2: Install and operate appropriate emission controls or retire the units by December 31, 2012. Additionally, on units 7 and 8, WE must install FGD (flue gas desulfurization technology) by December 31, 2012. The FEIS should reflect the changes to dispatch assuming the close of those plants for each of the alternatives and should reflect the changes to dispatch if only modifications are made to the existing plants for each alternative (p. 73). In particular, Clean Wisconsin is interested in whether the addition of

the emission control options cited in the consent decree creates a net negative environmental impact (in terms of emissions).

Miscellaneous

p. 135: The DEIS states: "The goal of the second phase is to reduce emissions by over 2 million tons per year beginning in the year 2000. NOx emissions increased 9 percent between 1982 and 2001 and decreased 3 percent between 1992 and 2001." (Emphasis added.) Please verify that year and provide further description regarding the above statement.

p. 139: The proposed mercury rules are mentioned, it would be helpful to summarize those rules in the text.

p. 149: The DEIS states that "[i]t remains to be seen whether the [Compliance Assurance Monitoring ("CAM")] rule would apply to the SCPC units. WEPCO has indicated that it believes that the CAM rule would not apply to the IGCC unit . . . . The DNR is in the process of verifying this point." This information should be included in the FEIS.

p. 151: The DEIS states: "Currently, there are no regulatory requirements for individual projects such as the proposed ERGS to reduce or eliminate CO_2 emissions. At any rate, requirements to reduce emission from this facility may be counterproductive if those requirements restrict this facility's utilization, since this project would be more efficient than the existing coal-fired generation equipment that it would displace." (emphasis added.) Please explain this statement.

p. 163: Clean Wisconsin understands that new information on air modeling has been provided by the WE in April 2003 and on June 2, 2003 that alters the proposed stack height. The air quality impacts related to stack heights must be revised to reflect the actual proposal from WE regarding the North and South Sites. Moreover, the air modeling must reflect stack heights that are acceptable to the FAA. Clean Wisconsin predicts that air quality in the area will worsen with those reductions in stack heights.

p. 175: As stated in the chapter summary, the construction phase air impacts have not been assessed in the DEIS due to applicants' failure to provide that information. Clean Wisconsin urges the DNR to require that information from WE for the FEIS because of the substantial potential impact to quality from diesel equipment and air-borne dirt and dust associated with construction.

CONCLUSION

Clean Wisconsin and its experts at EH&E are available to answer any questions PSC or DNR staff may have about these comments so that they can be as efficiently as possible be addressed in the FEIS to ensure WEPA requirements are met.

Date: June 13, 2003.

ENVIRONMENTAL
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June 12, 2003

Pam McGillivray
Garvey and Stoddard
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Madison, WI 53703

RE: Comments on the Proposed Elm Road Generating Station Draft Environmental Impact Statement (EH&E 12808)

Dear Attorney McGillivray:

The purpose of this letter is to provide comments on the air quality impacts analysis contained in the Draft Environmental Impact Statement (DEIS) for the Elm Road Generating Station (ERGS). The Public Service Commission of Wisconsin and the Wisconsin Department of Natural Resources (DNR) prepared the DEIS based on the Wisconsin Electric Power Company (WEPCO) permit application for the ERGS. Environmental Health & Engineering, Inc. (EH&E) has reviewed the DEIS analysis with regard to impacts of projected air pollutant emissions from the ERGS.

The key limitations of the DEIS include: lack of any analysis of particulate matter less than 2.5 micrometers in aerodynamic diameter ($PM_{2.5}$), lack of consideration of secondary particulate information, omission of health impact estimates, and lack of consideration of uncertainty in the air modeling analysis. The limitations of the DEIS are described in detail in the sections that follow.

SUMMARY OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

The National Environmental Policy Act of 1969 requires that federal agencies prepare detailed analyses of any of their actions that significantly affect the quality of the environment. Environmental impact statements are the result of this requirement. The DEIS for the ERGS summarizes the projected impacts that the ERGS will have on the state of Wisconsin. The DEIS

describes environmental impacts, as well as cultural and social implications of the proposed station expansion.

The DEIS is an analysis of the permit application for the plan proposed by WEPCO to construct three electric generating stations adjacent to the existing 1,150 megawatt (MW) Oak Creek Power Plant (OCPP). Two of these units will be 615 MW supercritical pulverized coal boilers and are scheduled to go into service in 2007 and 2009. The third unit will consist of one 600 MW integrated gasification combined cycle unit scheduled to begin service in 2011.

The DEIS provides a description of the project, alternatives, environmental impacts to natural resources, costs, and other aspects of the ERGS proposal. The DEIS also includes a summary of the air quality modeling results provided by WEPCO and their analysis of the capacity of the local air shed to absorb the impacts of the proposed expansion with respect to National Ambient Air Quality Standards (NAAQS) and State of Wisconsin standards for total suspended particulate matter (TSP), particulate matter less than 10 micrometers in aerodynamic diameter (PM_{10}), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), and lead (Pb).

The air quality modeling results provided by WEPCO (pages 164 – 170) for the cumulative effect of the ERGS south-side facilities and background emissions state that the 24-hour concentration of TSP would be 99.8% of the Wisconsin secondary air quality standard. SO_2 emissions projected for the ERGS plus background levels of SO_2 in ambient air are estimated to yield three-hour and 24-hour average concentrations equivalent to 93.1% and 86.8% of the NAAQS respectively. Most of the prevention of significant deterioration (PSD) increment for 24-hour concentrations of SO_2 and PM_{10}, at 85% and 98.7%, respectively would be consumed by emissions from the proposed ERGS.

The potential for noteworthy air quality impacts associated with the ERGS is indicated by a consent decree filed by the United States government on behalf of the U.S. Environmental Protection Agency (EPA) against WEPCO for injunctive relief and the assessment of civil penalties for alleged violations of the prevention of significant deterioration, new source review provisions, and the federally-enforceable state implementation plans developed by the states of Michigan and Wisconsin.

Through the consent decree, the plaintiff (U.S. Government) alleges that WEPCO "failed to obtain necessary permits and install the controls necessary under the Act to reduce its sulfur dioxide, nitrogen oxide and/or particulate matter (PM) emissions and that such emissions can damage human health and the environment." The consent decree references the proposed ERGS specifically in addition to other WEPCO generating stations.

LIMITATIONS OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

The Wisconsin Department of Natural Resources and the Public Service Commission of Wisconsin have identified a number of factors within the DEIS that need further examination, such as the analyses of the air modeling. Their opinion, as stated in the DEIS, is that the WEPCO permit application remains to be completed and the subsequent Department of Natural Resources analyses remain to be completed before a preliminary permit judgment can be made. EH&E adopts the opinions of the DNR with respect to the limitations of the DEIS and also has identified further limitations of the DEIS as follows:

Incomplete Assessment of Potential Air Quality Impacts

The DEIS contains comparisons of projected concentrations of air pollutants emitted from the ERGS with federal and state standards on common pollutants of coal burning power plants. As indicated in the DEIS, hazardous substances emitted from coal-fired power plants include metals, organic compounds, acid gases, sulfur, nitrogen, carbon dioxide, and PM. State and federal regulations impose limits on emissions and concentrations of many of these pollutants in ambient air. On the federal level, NAAQS set limits for time-weighted average concentrations of six criteria pollutants: CO, NO_2, ozone, Pb, PM_{10}, $PM_{2.5}$, and SO_2. State air standards also regulate ambient air concentrations of these and other pollutants.

The DEIS describes that, even if a facility meets the existing standards, questions remain regarding the potential for health impacts to sensitive individuals, such as children and the elderly. To elaborate on that point, elderly individuals typically suffer from one or several of a variety of respiratory and cardiovascular conditions, including chronic obstructive pulmonary disease, emphysema, asthma,[1] and heart disease. Cytokine interferon gamma (IFN-y) is

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1 Weiss KB, Gergen PJ, Wagener DK. 1993. Breathing better or wheezing worse—the changing epidemiology of asthma morbidity and mortality. *Annual Review of Public Health* 14:491-513.

essential in defending against viruses and intracellular pathogens.[2] The decreased production of IFN-y that comes with age combined with respiratory and cardiovascular conditions may make the elderly particularly susceptible to environmental pollutants.[3] The EPA estimates that 4.8 million children under the age of 18 have asthma and that children have a special vulnerability to certain toxic substances, such as Pb.

The increase in air pollution levels may cause adverse impacts to respiratory symptoms of these sensitive individuals. Further studies examine health conditions or symptoms associated with sensitive populations and symptoms associated with PM_{10}, $PM_{2.5}$, NO_2, and SO_2. Comprehensive analyses of the potential for adverse effects of the proposed ERGS is not included in the DEIS. Inputs on how impact and toxicity information on pollutants from the Wisconsin emissions reporting data were determined.

Model Uncertainty

The DEIS does not appear to consider uncertainty associated with air dispersion modeling with respect to the potential for air pollutant emissions from the ERGS to exceed relevant air quality guidelines or standards. WEPCO used the Industrial Source Complex Short-Term 3 (ISCST3) model to evaluate air quality impacts of the ERGS. Air pollutant concentrations predicted using ISCST3 are typically considered to be accurate to within a factor of two (i.e., plus or minus 100%). Model uncertainty alone is sufficient to lead to exceedances of PM_{10} for the PSD increment. The lack of consideration of model uncertainty and the potential for conclusions of the DEIS to be altered is a significant limitation to the analysis.

Ambient Air Quality Data

The air quality data for Milwaukee and Racine counties was provided by WEPCO and presented in summary form in the DEIS. The source and accuracy of the data is critical for the completeness and accuracy of the proposed expansion analysis and its impacts on the PSD increment and attainment of NAAQS standards. Evaluation of NAAQS requires measurement and calculation of time-weighted average air pollutant concentrations in accordance with strict

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2 Ouyang Q, Cicek G, Westendorp RGJ, Cools HJM, Van Der Klis RJ, Remarque EJ (Reprint). 2000. Reduced ifn-gamma production in elderly people following in vitro stimulation with influenza vaccine and endotoxin. *Mechanisms of Ageing and Development* 121(1-3):131-7.

3 Ouyang, et al. 2000.

protocols promulgated by the EPA.[4] The DEIS does contain sufficient information for a reviewer to determine the extent to which the summary data presented are valid or appropriate for evaluation of the potential for compliance with the NAAQS. The Final Environmental Impact Statement should include an explicit description of the sources and analysis process used to generate the ambient air quality data presented in the DEIS.

Hazardous Air Pollutants

There are no risk assessments contained in the DEIS for mercury or other hazardous air pollutants (HAPs). Given the potential for HAPs to adversely impact human and ecological health, the possibility of effects from these pollutants should be considered as a part of the environmental impacts of the ERGS. According to the EPA, mercury emissions from coal-fired utility boilers account for approximately one-third of all anthropogenic emissions, the single largest anthropogenic source of mercury emissions to air.[5]

Arsenic is also emitted from coal-fired electric utility boilers. The EPA analyzed arsenic emissions from a set of hypothetical coal-fired electric generating stations and concluded that excess lifetime cancer risks could be as high as 1 in 10,000 for a pica child and 1 in 100,000 for a subsistence farmer residing near the facility.[6]

This comment letter is by no means an exhaustive summary of HAPs emitted from coal-fired power plants. The EPA reports footnoted above can provide the DNR and PSC with detailed guidance on approaches for evaluating the potential for negative health effects emitted from the ERGS and OCPP.

$PM_{2.5}$

Health evidence indicates that $PM_{2.5}$ is the fraction causally associated with adverse health effects. According to the EPA, exposure to PM can result in aggravation of respiratory conditions such as asthma, decreased lung function, increased hospital emissions, increased

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4 See for example, Federal Register 40 CFR Part 50 National Ambient Air Quality Standards for Particulate Matter, Final Rule, Vol. 62, No. 138, July 18, 1997

5 EPA 1997. Mercury Report to Congress. p. 3-5.

6 EPA 1998. *Study of Hazardous Air Pollutant Emissions from Electric Utility Steam Generating Units—Final Report to Congress, Volume 1*. EPA-453/R-98-004a.

respiratory symptoms and diseases, and in some instances, death.[7] Most epidemiological evidence points to $PM_{2.5}$ as a stronger causal agent for mortality and morbidity than gaseous SO_2 or NO_X.[8]

Primary PM is composed of two components: filterable PM and condensable PM. Filterable PM includes particles directly emitted by a source as a solid or liquid at stack or release conditions and captured on the filter of a stack test train. Condensable PM is material that is in vapor phase at stack conditions, but which condenses and/or reacts upon cooling and dilution in the ambient air to form solid or liquid PM immediately after discharge from the stack. The EPA typically assumes that all condensable PM is in the $PM_{2.5}$ size fraction.[9]

EH&E has obtained $PM_{2.5}$ monitoring data for 1998 – 2002 in the state of Wisconsin. Three-year annual average $PM_{2.5}$ concentrations in portions of Southeast Wisconsin are approximately 13.5 micrograms per cubic meter ($\mu g/m^3$) and range as high as 14.1 $\mu g/m^3$. According to emission factors published by the EPA, $PM_{2.5}$ accounts for approximately 90% of the PM emissions from coal-fired electric utilities. Thus, $PM_{2.5}$ emissions to the Southeast Wisconsin airshed from the ERGS may contribute to exceedances of the 15 $\mu g/m^3$ NAAQS for annual $PM_{2.5}$ levels. Given this potential, the Final Environmental Impact Statement for the ERGS should include a comprehensive analysis of background $PM_{2.5}$ concentrations and contributions from the ERGS.

Formation of Secondary PM: Secondary PM generally dominates the PM impacts from power plants and contributes to a large fraction of ambient PM in many locations. Nitrate, sulfate, and ammonium are often a majority of ambient $PM_{2.5}$. Secondary PM formed by SO_2 and NO_X was not included in the analysis.

Air quality models such as the ISCST3 by WEPCO and described in the DEIS do not address secondary PM. The omission of secondary PM can and should be addressed by the DNR and

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7 U.S. Environmental Protection Agency Office of Air and Radiation. *Explanation of Data Handling Requirements and Forms of the National Ambient Air Quality Standards for Particulate Matter.* Available on-line at: www.epa.gov/ttn/oarpg/naaqsfin.

8 Levy JI, Spengler JD, Hlinka D, Sullivan D, Moon D. 2002. Using CALPUFF to evaluate the impacts of power plant emissions in Ilinois: model sensitivity and implications. *Atmospheric Environment* 36:1063-1075.

9 EPA. 1998. *Compilation of Air Pollutant Emission Factors*, AP-42, Fifth Edition, Volume 1. Stationary Point and Area Sources. Available on-line at http://www.epa.gov/ttn/chief/ap42/index.html.

PSC using more sophisticated models such as the CALPUFF model and the associated atmospheric chemistry and post processing routines. The CALPUFF model is available from the EPA Support Center for Regulatory Air Modeling web site. Approaches to applying CALPUFF for modeling secondary formation of PM are described in the scientific literature, for example, Levy, et al. 2002.[10]

Incidence and Cost of Human Health Impacts: The analysis in the DEIS does not include estimates of the incidence or costs of adverse human health effects potentially arising from the proposed ERGS. Appropriate methodologies exist to conduct both epidemiological and quantitative risk assessments of potential mortality and morbidity associated with emissions from the ERGS. Levy et al. (1999) described a damage function model for power plants that has been used to evaluate negative externalities associated with emissions of PM and other pollutants from electric generating stations.[11] At a minimum, the ERGS Final Environmental Impacts Statement should note that analyses such as these are possible to conduct, but have been omitted.

If you have any questions regarding the limitations in the DEIS identified in this letter, please feel free to contact either of us at 1-800-TALK EHE (1-800-825-5343).

Sincerely,

Jennifer L. Somers, M.P.Aff.
Associate/Project Manager

David L. MacIntosh, Sc.D.
Senior Associate/Project Director

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10 Levy, et al. 2002.

11 Levy JI, Hammitt JK, Yanagisawa Y, Spengler, JD. 1999. Development of a new damage function model for power plants: methodology and applications. *Environmental Science and Technology* 33:4364-4372.

Comments on the Draft Environmental Impact Statement, submitted by the Gasification Technologies Council

05-CE-130

Gasification Technologies Council

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June 11, 2003

Jeffrey Kitsembel
Public Service Commission
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Madison, WI 53707-7854
jeff.kitsembel@psc.state.wi.us
Reference: PSC Docket Number 05-CE-130

Dear Mr. Kitsembel:

The Gasification Technologies Council (GTC) is comprised of companies that provide technologies, equipment and services, or own and operate plants that account for more than ninety-five percent of the gasification and Integrated Gasification Combined Cycle (IGCC) capacity worldwide. The GTC was formed to promote the widespread use of gasification to utilize coal, petroleum coke, and heavy oils in an environmentally superior manner for the production of power, clean fuels and chemicals. The GTC does this by identifying the major issues affecting the use of gasification technologies, disseminating the opinions and positions of its members, collecting and analyzing information and data concerning gasification, and conducting educational activities concerning gasification technologies. A list of the GTC's membership is attached.

The GTC members have reviewed the subject draft environmental impact statement (DEIS), "Elm Road Generating Station", April 2003 and wish to provide comments on certain parts related to the proposed IGCC unit. Specifically, the GTC members feel strongly - based on their in-depth and first-hand expertise - that the DEIS does not accurately reflect either the current or future state of gasification/IGCC technology. The GTC takes particular exception to the conclusion in the DEIS that: "The IGCC unit, which is the third unit in the ERGS proposal, is not cost-effective under any scenario" (DEIS Executive Summary, page xxvii). The GTC offers these comments with the hope that the final EIS will contain a more thorough analysis and accurate conclusions with respect to the proposed IGCC unit.

Capital Cost and Performance

A number of examples of IGCC cost and performance data from various sources are contained in the public domain reports and technical papers which are submitted with these comments. The cost data in the attachments are lower than the cost estimates in the DEIS and more accurately reflect current conditions and experience in the gasification industry. The same holds true for the performance data in these reports, which is more current that that used as the basis for the DEIS. During the 2011 time frame of the plant

*Cover only
*MFC
*C/8
*ALJ
*OGC/2
Elec - CD to Jeff

described in the DEIS these costs are expected to be even lower and efficiencies are expected to be even higher.

It is the understanding of the GTC that WEPCO has not yet picked a supplier of gasification technology and that the application for the proposed IGCC unit may have been based on an out-of-date and/or overly conservative generic design. As such, there is considerable potential to reduce the capital costs from those published in the DEIS. Also, it is very likely that a final, optimized design would have a significantly better energy efficiency than what was used in the original application. The IGCC cost and performance figures in the Final EIS should be adjusted to reflect this.

Operating Cost and Flexibility

The DEIS describes Pittsburgh #8 as being the design coal. While gasification can certainly use this feedstock, the technology has the flexibility also to produce synthesis gas cleanly and efficiently from lower cost coals and carbon-based feedstocks such as petroleum coke or materials that would otherwise be disposed as waste. Again, the attached documents provide information and examples of gasification/IGCC's feedstock flexibility and how it can reduce operating costs. The Final EIS should recognize this and address it in the economic assessment of IGCC.

Plant Availability

The DEIS portrays IGCC's availability as being less than that of PC-boilers. In fact, an IGCC plant of the size described in the DEIS should be able to achieve comparable availability to that of a PC-boiler by either (a) running the combined cycle unit on backup fuel (natural gas or distillate oil) at times when syngas is not available, or (b) by employing multiple gasifiers, including a spare gasifier (an approach which Eastman Chemical uses to achieve 98-99% syngas availability as described in the attached Eastman presentation). In fact, by doing either (a) or (b), a 2011 IGCC should achieve availability that is at least comparable to PC-boilers. Again, the attached documents provide information and examples of IGCC's availability. The Final EIS should recognize this and evaluate IGCC's economics using at least the same availability assumption as for PC-boilers, if not a higher availability assumption.

With consideration of these more up to date and accurate input assumptions for IGCC's capital cost, efficiency, operating cost and availability, the GTC feels an IGCC unit will prove to be cost-effective under a number of the Final EIS scenarios.

Environmental Performance

The data tables in the DEIS appear to accurately quantify superior environmental performance of the IGCC unit compared to the super critical pulverized coal (SCPC) units. However the prose in the DEIS makes no recognition of this superior performance. It merely notes that IGCC meets New Source Performance Standards, rather than that it far surpasses those standards. Likewise, there is no economic benefit given for this

superior environmental performance; whereas the GTC feels that a fair comparison would (a) recognize in the prose of the EIS that IGCC provides superior environmental performance and (b) include in the IGCC economics discussion an appropriate credit for this performance. As air emissions standards become more strict, the environmental performance of IGCC will take on added economic benefits because the technology can achieve greater emissions reductions at lower cost than other coal-based technologies. This should be reflected in the Final EIS.

In addition, the DEIS incorrectly implies that IGCC causes potential environmental problems by removing sulfur from the syngas prior to combustion. It refers to the solid sulfur or sulfuric acid products as potential hazardous waste. They are, in fact, saleable products, as has been demonstrated many times over at existing gasification facilities.

Scale Up

The DEIS says "IGCC cost estimates are less certain because IGCC plants in the 500+ MW range have not yet been built anywhere in the world" (Executive Summary, page xx). This is true of coal IGCC, but not heavy oil IGCC. Also, the proposed 500+ MW designs are multiple train units and the individual trains are consistent with what is currently built for coal, so scale up is not as significant an issue as the DEIS implies.

The fact that IGCC units are cost effective is proven by the commercial success of the two plants currently running in the U.S. in Indiana and Florida. Along with the fact that few coal fired plants of any type have been built in the US in recent years, there may be a particular hesitation in the electric utility industry to build the next generation of IGCC units. It should be noted, though that such hesitation has not been the case for other industries (like chemicals and refining) who have enthusiastically embraced gasification and IGCC. The attached documents describe this in detail, in particular the many refinery IGCC's (based on pet coke or refinery bottoms as feed) which have been built or are being built today.

The GTC feels that once additional new coal based IGCC units are being built and shown to be commercially successful and environmentally superior, the standard for coal-based electric generating plant will be IGCC. All of the benefits of clean, coal-based electric generation will be realized. Any future requirements for CO_2 capture/sequestration and movement to a hydrogen economy will also be supported by the capabilities of gasification technology.

As previously mentioned, to provide up-to-date information on gasification technologies, recently published papers, reports and conference presentations from the U.S. Department of Energy and GTC members are enclosed. These provide a basis for the contention that IGCC technology is already competitive and will become more so in the future.

GTC and its member companies would be pleased to discuss or amplify on any of these matters with the Wisconsin Public Service Commission or Department of Natural Resources.

Sincerely,

James M. Childress
Executive Director

Attachments (all forwarded in both paper and electronic versions)

GTC Membership List

Clean Coal Technology Evaluation Guide (Executive Summary), U.S. Department of Energy, December 1999

Major Environment Aspects of Gasification-Based Power Generation Technologies, U.S. Department of Energy, December 2002

Clean Coal Technology Options – A Comparison of IGCC vs. Pulverized Coal Boilers, O'Keefe & Sturm, ChevronTexaco Worldwide Power and Gasification, October 2002

Comparative IGCC Cost and Performance for Domestic Coals, P. Amick, D. Breton, Global Energy, October 28, 2002

Eastman Gasification Services, Gasification Overview Presentation, D. Denton, Eastman Chemical Company, June 6, 2003

IGCC Gas Turbines for Refinery Applications, R. Jones, N. Shilling GE Power Systems, May 2003

IGCC – Leadership in Clean Power from Solid Fuels, R. Jones, N. Shilling, GE Power Systems, November 2002

Members of Gasification Technologies Council

Air Liquide America*
Air Products and Chemicals, Inc.*
Aramco Services Company*
Bechtel Corporation*
BOC Gases*
ChevronTexaco*
The Dow Chemical Company*
Eastman Chemical Company
Emery Energy Company
Fluor Corporation*
Foster Wheeler Energy International Inc.*
General Electric Company*
Global Energy, Inc.*
Kentucky Center for Applied Energy Research
Linde AG
MG Lurgi Engineering
MITRETEK Systems, Inc.
Parsons Energy & Chemicals Group Inc.*
Praxair, Inc.*
Sasol Technology
Shell Global Solutions B.V.*
Siemens Westinghouse Power Corporation*
Snamprogetti S.p.A.
Tennessee Valley Authority*
Uhde*
UOP
Waste Management & Processors, Inc.*
We Power*

*Member of the Board of Directors

Comments on the Draft Environmental Impact Statement, submitted by the Lake Michigan Federation

LAKE MICHIGAN FEDERATION

June 13, 2003

Jefferey Kitsembel
Public Service Commission
P.O. Box 7854
Madison, WI 53707-7854

Dear Mr. Kitsembel:

The Lake Michigan Federation ("Federation") welcomes the opportunity to submit these comments on the Draft Environmental Impact Statement (DEIS) for the proposed Elm Road Generating Station. The Federation is the oldest citizens' group dedicated to protecting the health and beauty of Lake Michigan through a combination of law, policy, education, research and economics. We have serious concerns about the impacts of this proposal on Lake Michigan, and the failure of the document to describe them in adequate detail. The document it is so grossly deficient that a *revised draft EIS* should be released prior to completion of the final EIS. It is a well known fact that once a selected alternative is presented in the final EIS, it is very difficult for the public to effectuate reevaluation of the selected alternative or otherwise make changes in the plan.

Cooling Water Intake Structure

The portion of the DEIS that addresses the cooling water intake structure is seriously deficient because it lacks basic data necessary for the public to effectively review the decisions of state and federal agencies. Cooling water intake structures have direct impacts on the lake both because of the thermal discharge associated with them and because of the potential impingement and entrainment of adult, juvenile and larval fish, and fish eggs. The DEIS fails to address either of these in sufficient detail, to such an extent that it appears the DEIS was issued prematurely. We will address each of our concerns in more detail below.

<u>The Section 316(b) Determination is Contrary to the Weight of the Evidence.</u>

Section 316(b) of the Clean Water Act (CWA) states that, "the location, design, construction and capacity of cooling water intake structures [shall] reflect the best available technology for minimizing adverse environmental impacts." The level of technology that will be required under the regulations is dependent upon whether the facility is considered a "new" or "existing" structure. According to Appendix C of the

DEIS, the Wisconsin Department of Natural Resources (WDNR) has determined the facility should be considered an "existing" facility and therefore subject to less stringent technology requirements. This decision appears contrary to the overwhelming weight of the evidence which suggests that the facility should be considered a "new facility," especially when compared to the criteria set forth under the applicable federal regulations.

It appears that the facility which is the subject of the DEIS should be considered a "new" facility because the weight of the evidence suggests it is a "substantially independent" and separate facility. According to U.S. EPA, "in those situations where there is new construction but less than total replacement of an existing facility, the classification decision should be based on the degree to which the constructed facility functions independently of the existing source." (55 Fed. Reg. 40501). In other words, the relevant question that should be asked is, "to what extent is the new facility integrated with the old?" According to WDNR, the new units will only share a few facilities with the existing older units, including the cooling water intake structure, the electrical switchyard and the coal delivery system. Arguably the intake structure is the most significant, but, according to official comments issued by the U.S. EPA in conjunction with NPDES regulations, "if the only connection between the new and old facility is that they are supplied with steam, electricity or cooling water from the same source…. then the new facility will be a new source." (53 Fed Reg. 40601) Therefore, the fact that an existing facility may share cooling water intakes with a new facility is not a sufficient basis on which to determine a facility should be considered "existing.". Additional factors also weigh in favor of finding that this proposed facility represents a significant enough addition to warrant being considered a "new" and independent facility. The footprint created as a result of the new construction will be substantially larger than the current facility footprint. In fact, all three proposed units will be built on virgin or "greenfield" territory. The new capacity will represent an additional 150% of capacity and the amount of cooling water utilized will increase by more than 100%. Even the ownership of the facility is different. All of these factors together suggest that in fact this facility is an entirely separate and independent entity. When compared to the numerous and significant other factors establishing the separateness of this facility, the "shared" facilities between the old and proposed new units would be insignificant by comparison.

<u>The Specific Intake Design Should Be Fully Described in the DEIS.</u>

Regardless of whether the facility is considered a "new" facility or an "existing facility", the current intake design does not rise to the level of the "best available technology." Rather than velocity caps, the facility should be required to implement a number of additional mitigating measures to meet this standard. First, and foremost, they should install wedge wire screens to exclude fish eggs and adult, juvenile and larval fish from being drawn in (or willfully swimming into) the intake system, and appropriate mesh size of the screening must be taken into consideration. Additional mitigation measures would include, but are not limited to, a low intake velocity of about .5 feet per second. The last open cycle power plant constructed on the Great Lakes was the Campbell Plant built in Michigan in 1981. Even at that time, over twenty years ago, the consensus was that

wedge wire screens, not velocity caps, should be and were installed to prevent fish impingement and entrainment.

The DEIS's Proposed Intake Design Will Result In Substantial Fish Impingement and Entrainment Rates.

The DEIS gives no consideration to the impacts on local pollutions of fisheries, including yellow perch which would potentially be the most impacted fish population. The DEIS suggests, without supporting evidence, that by extending the intake crib further out into Lake Michigan, fish populations will not be impacted. This is not a credible conclusion, and is in fact refuted by several recent reports. According to a recently produced study by Wisconsin Electric Power Company (WEPCO), the abundance of yellow perch larva is just as high at the proposed 40 foot depth contour as it is at a near shore location. ("Oak Creek Power Plant and Proposed Elm Road Station Cooling water Intake and Lake Monitoring Study," prepared for WE Energies by EA Engineering, Science and Technology, February 2003). In addition, Wisconsin yellow perch populations are particularly vulnerable to impacts from this facility. According to a report produced last year by the Lake Michigan Technical Committee, Wisconsin yellow perch levels are currently at significantly low levels, only 3% of 1980 levels. ("Status of Yellow Perch in Lake Michigan and Yellow Perch Task Group Progress Report", Report of the Lake Michigan Technical Committee) At a minimum, the DEIS should cite to these and other relevant studies of impacts to Great Lakes fish populations, to give the reviewer some sense of the potential this facility might have.

It appears that the practical result of the DNR's decision to adopt an open cycle design, with technology that does not qualify as BTA, will be significantly high fish mortality rates. According to a study undertaken from July 1991 to July 1993 at the Zion Nuclear Power Plant in Zion, Illinois, about 30 miles south of the proposed facility, mortality rates for yellow perch at a power plant with roughly half the volume of this proposed facility would be 40%. ("Impingement and Entrainment Study at Zion Nuclear Generating Station, July 1991-July 1993, produced by Lawler, Matusky and Skelly Engineers for Commonwealth Edison). Doubling that figure to reach the same level of volume as the proposed facility results in an estimated mortality rate of nearly 80%. The DEIS must be redrafted to at least make some projected estimates of fish mortality rates.

The DNR's Decision On the Intake Design Has the Potential to Create Cumulative Impacts around the Great Lakes

The weakness of this section is particularly troublesome because of the potential regional impacts that this single decision may ultimately have on Lake Michigan and its aquatic life. If this facility is built as an open cycle facility it will constitute the single largest intake of lake water on Lake Michigan. Further underscoring the significance of the decision is the fact that this facility would represent the first open cycle design for a power plant on the Great Lakes to be constructed in over twenty years. Open cycle designs are significantly cheaper to construct than close cycles because they do not require the construction of cooling towers like closed cycle. Open cycle designs are also illegal in Indiana and Illinois. If the Public Service Commission permits this facility as

an open cycle design it will open the door to a potentially massive expansion of power plants around the Great Lakes without regard to impacts on fisheries.

Impacts from Thermal Pollution are Inadequately Addressed.

Finally, the DEIS fails to even address the issue of thermal pollution. There is no apparent indication that the applicants are going to comply with water quality standards, and there has been no attempt to identify a mixing zone, for instance. This complete lack of analysis is contrary to federal requirements. The decision of the Wisconsin State Supreme Court issued in 1970, which, among other things, found thermal limits to be unconstitutional, rested its conclusion on the outdated determination that state regulations cannot be more restrictive than federal regulations; this finding is clearly contrary to the current federal regulatory scheme. According to federal regulations for "establishing limitations, standards, and other permit conditions applicable to state NPDES programs," a facility cannot obtain a National Pollution Discharge Elimination System (NPDES) permit without complying with applicable water quality standards." (40 C.F.R. 122.44(d)(1)) Therefore, at a minimum, the WDNR needs to develop a thermal standard that will be applicable to this facility, through the WPDES program. This standard should be discussed in the EIS. The public should not have to depend on interacting in the WPDES system to get a chance to review the proposed thermal standards.

Water Withdrawal

Coal burning power plants of this magnitude could cause large quantities of water to evaporate through cooling, and be lost to the Great Lakes system. In fact, the DEIS states that slightly more than 3 mgd of Lake Michigan water will be consumed as a cumulative total of the new and existing units. This is a fairly substantial net loss of a limited resource. The state of Wisconsin, which is participating in efforts to develop standards to protect the Great Lakes against such consumptive loss, must ensure that this project is not rushed through before it can be evaluated against such standards.

Mercury & Scrubber Sludge Reusal

The DEIS states that the scrubber sludge will be recycled and incorporated into wallboard which will be manufactured on site. This proposal is troubling for two reasons. First, it appears that there will be no requirement to test the sludge for mercury. Why not? Second, how will the mercury be prevented from leaching out of the wallboard? Neither of these very significant issues are discussed in the DEIS.

* * *

The Lake Michigan Federation submits these comments on behalf of its many members that love and enjoy the lake. These comments were submitted in consultation with Jim Fossum, a former fisheries biologist at the United States Fish and Wildlife Service, with an expertise in the impacts of hydroelectric power on fish populations. Should you have any additional questions please do not hesitate to contact me at 312-939-0838, ex. 3 or losullivan@lakemichigan.org

Sincerely,

Laurel O'Sullivan
Staff Counsel

Comments on the Draft Environmental Impact Statement, submitted by the city of Oak Creek

Oak Creek

CITY
ADMINISTRATOR

June 10, 2003

Mr. Jeff Kitsembel
Case Coordinator
Public Service Commission of Wisconsin
P.O. Box 7854
Madison, WI 53707-7854

Subject: Response to Draft Environmental Impact Statement
Elm Road Generating Station (Docket No. 05-CE-130)

Dear Mr. Kitsembel:

On behalf of the City of Oak Creek, RMT has reviewed the April 2003 Draft Environmental Impact Statement (DEIS) prepared by the Public Service Commission staff for the Wisconsin Energy Corporation's (WEC) Certificate of Public Convenience and Necessity (CPCN) application for construction of three large electric generating facilities to be located within, and adjacent to, the City of Oak Creek (PSC Docket No. 05-CE-130, the "Elm Road Project").

Your staff and the Department of Natural Resources (DNR) staff should be commended for digesting and clearly presenting the details of such a complex development.

Our comments to that document are attached in a separate document. They include input provided by Kamperman and Associates on noise issues, and Christensen Associates on financial issues. In general, our comments focus on the issues in common with the Conditional Use Permit (CUP) approved by the Oak Creek Common Council on June 3, 2003 (attached) and the Development Agreement signed by the City and WEC on April 3, 2003. Other issues are also presented for your consideration.

The City requests that the PSC consider each of the items outlined above for consideration in preparation of the final EIS. Ultimately, the City wants the CUP and April 3, 2003 Development Agreement with WEC included in the CPCN as conditions, if the Oak Creek site is selected for development.

Sincerely,

Robert L. Kufrin
City Administrator

8640 S. HOWELL AVE.
OAK CREEK, WI 53154
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Revision Number: 7

BEFORE THE
PUBLIC SERVICE COMMISSION OF WISCONSIN

Application of Wisconsin Electric Power Company; Wisconsin Energy Corporation; and W.E. Power, LLC; for a Certificate of Public Convenience and Necessity for Construction of Three Large Electric Generation Facilities, the Elm Road Generating Station, and Associated High Voltage Transmission Interconnection Facilities to be Located in Milwaukee and Racine Counties	05-CE-130

COMMENTS OF CITY OF OAK CREEK ON DRAFT ENVIRONMENTAL IMPACT STATEMENT ON ELM ROAD GENERATING STATION

The City of Oak Creek, Wisconsin is the community in which We Energies' (a subsidiary of Wisconsin Energy Corporation (WEC)) existing 1,100 megawatt (MW) Oak Creek Power Plant (OCPP) is located and in which it is proposed that the new facility, the Elm Road Generating Station (ERGS) would be constructed. The ERGS would consist of two super-critical pulverized coal (SCPC) units and one integrated gasification combined-cycle (IGCC) unit.

The City of Oak Creek (City) has about 30,000 residents. It is located in southeastern Milwaukee County on Lake Michigan. In addition to the existing OCPP, the City includes large residential areas and retail, commercial and other industrial facilities.

The City, after extensive negotiations, entered into an Agreement dated April 3, 2003 with WEC. A copy of the Agreement has been submitted and received by the Commission as part of the CPCN application process. In addition, WEC has applied for rezoning of a portion of the Oak Creek property and a Conditional Use Permit (CUP). After meetings and negotiations with WEC's and City's representatives, a meeting with the Plan Commission and public meetings to elicit public concerns and comments, the rezoning and a CUP were unanimously

approved by the Plan Commission on May 13, 2003 and unanimously approved by the City Council on June 3, 2003. A copy of the Agreement and the ordinances approving the rezoning and CUP are attached.

The City's comments relate primarily to air emissions (including total emission limitation standards, enforcement mechanisms, air monitoring and reporting requirements), environmental and economic impacts (caused by the construction and operation of the proposed ERGS and community mitigation payments to partially offset or reduce these impacts), other community impacts (including inter alia plan approvals, grading, fire protection, security, emergency medical services, noise, traffic and other matters covered by the City's CUP), and technical concerns.

I. AIR EMISSIONS

A. General Comments on the Air Quality Impact Analysis

The Air Quality Impact Analysis is based upon the overly conservative methods used to account for (or in effect double count) existing background concentrations and for the total lack of consideration of We Energies Multi-Plant Environmental Cooperative Agreement, the conditions in the City's April 3, 2003 Agreement with WEC, and the proposed EPA Consent Decree. The air quality impact analysis in the Draft Environmental Impact Statement (DEIS) fails to quantify the potential for significant improvements in air quality in southeast Wisconsin that may result from the proposed project and the above related initiatives, particularly if the new units are approved and dispatched ahead of the existing units.

B. Impact of Agreements

On September 30, 2002, We Energies and the DNR signed a Multi-Plant Environmental Cooperative Agreement, tied to other approvals for this project, that would require We Energies to make system-wide emission reductions at its then-existing coal fired plants of over 50 percent.

Then, on March 31, 2003, the Oak Creek Common Council approved an Agreement with WEC, which was fully executed on April 3, 2003, that will limit total emissions from the combination of new and existing generating units to calendar year 2000 levels (38,400 tons per year) beginning immediately for the following selected air pollutants: sulfur dioxide, nitrogen oxides, particulate matter, mercury, volatile organic compounds, hydrogen fluoride, hydrogen chloride, and sulfuric acid mist. This list represents the air pollutants of primary concern with respect to potential health impacts. Finally, in its proposed Consent Decree with We Energies (April 29, 2003), the EPA has included this same provision, only starting at a later date. The proposed Consent Decree will require We Energies to make further emission reductions beginning in 2013.

Even without these agreements, air quality improvements are probable if the project is approved and if the new units are dispatched ahead of the existing units (dependent of course on the total output from the Oak Creek and Elm Road stations). It is certain that emission reductions and air quality improvements will be realized if the new units displace generation currently provided by existing units because the emission rates per Megawatt-hour of electrical energy provided by the proposed units will be lower than emissions rates for the existing units.

The Environmental Impact Statement does not, but should, contain an evaluation of the impacts of potential scenarios based on the Agreement with the City, the proposed Consent Decree, and potential dispatch of new units ahead of the existing units. To illustrate the potential for improved air quality if the project is approved, the following table compares the emission rates from the generating units contained in the air quality impact analysis discussed in the DEIS, emission rates required under the Oak Creek Agreement, and emission that would result under the proposed EPA Consent Decree.

Pollutant	DEIS [1] (Tons/Yr)	Oak Creek Agreement [2] (Tons/Yr)	EPA Consent Decree (Proposed) [3] (Tons/Yr)
Sulfur dioxide	162,169	24,900	14,540
Nitrogen oxides	20,530	12,000	9,022
Particulate Matter	7,088	770	2,603

Footnotes:

(1) Of these figures, emissions from existing units are 152,340 tons (93.9%) of sulfur dioxide, 15,173 tons (73.9%) of nitrogen oxides, and 5,905 tons (83.3%) of particulate matter.

(2) The Agreement limits total emissions to 38,400 tons per year as stated above. The figures in the table are based upon calendar year 2000 Actual Emission Rates.

(3) Assumes 100% Capacity Factors

Based on the annual limitations in the Oak Creek Agreement and the proposed EPA Consent Decree, if one assumes the hourly emission rates used in the air quality analysis for the DEIS, the facility could only operate for 1,170 hours per year or 680 hours per year, respectively. Clearly, for a base-load power plant these would be an unrealistic operating schedule.

C. Inaccuracies in the Impact Assessment

We believe the general description of the processes used to assess impacts to existing air quality to be misleading. The presumed existing air quality in the region is based upon ambient air monitoring conducted at significant distances from the proposed project site, in environments very different than found in Oak Creek and Caledonia. For example, the agencies rely upon data collected at the following monitoring sites to characterize the existing ambient air quality:

Pollutant	Monitoring Site Used to Characterize Milwaukee County	Monitoring Site Used to Characterize Racine County	Distance to the Proposed Elm Road Generating Station
SO_2	MATC downtown 739 West Juneau Milwaukee	Green Bay East H.S. 1415 East Walnut Brown County	15 miles to MATC; 135 miles to Green Bay
TSP	Franklin Pumping Station 5800 West Alwood Franklin	Franklin Pumping Station 5800 West Alwood, Franklin	9 miles

PM_{10}	Great Lakes Water Institute 600 East Greenfield Milwaukee	Great Lakes Water Institute 600 East Greenfield, Milwaukee	13 miles
NO_x	UWM 2114 East Kenwood Milwaukee	Harrington Beach 531 Highway D, Ozaukee County	16 miles to UWM; 44 miles to Harrington Beach
CO	MATC downtown 739 West Juneau Milwaukee	MATC downtown 739 West Juneau Milwaukee	15 miles

The MATC downtown site, used to establish the existing air quality in Milwaukee County for sulfur dioxide and carbon monoxide, and Racine County for carbon monoxide, is heavily influenced by vehicle traffic and its high-density urban characteristics. Likewise, the UWM site used to establish existing conditions in Milwaukee County for nitrogen oxides (NO_x) is influenced by its intra-urban setting and local vehicle traffic. The Franklin Pumping Station site used to establish existing conditions for total suspended particulate matter is influenced by nearby quarrying operations. The monitoring site at the Great Lakes Water Institute used to establish existing conditions for inhalable particulate matter (PM_{10}), is heavily influenced by its intra-urban location and activities associated with the port of Milwaukee. For these reasons, the monitoring stations used to characterize the existing air quality are not appropriate for the proposed project site. At the very least, the background concentrations from these stations likely overestimate the true background concentration in the proposed projects worst-case impact areas. At worst, they grossly mischaracterize and invalidate the air quality assessment.

The agencies further characterize existing regional concentrations of air pollutants based on a five-year arithmetic average (in this case for the 5-year period of 1995-1999) of the second highest values occurring each year, to compute a background concentration for pollutants with short term (3-hour, 8-hour, 24-hour) National Ambient Air Quality Standards (NAAQS). This

background concentration is then assumed to occur all of the time, without regard to wind direction. For pollutants with annual standards, the five-year average of the annual concentrations are assumed to characterize existing conditions. This method biases the resulting background concentration on the high side. In this particular case, it leads to a conclusion that future air quality will approach unacceptable levels. While such an analysis may be appropriate for the DNR's regulatory purposes, such a conservative analysis should be made clear to the general public. It should also be made clear to the general public that this conclusion (regarding potential air quality approaching unacceptable levels) is the result, not of expected emissions from the proposed units, but because of the emission rates assumed for the existing units, which in lieu of the aforementioned agreements, are unrealistically high.

The method for evaluating worst-case air quality impacts due to proposed and (especially) existing emission sources is too conservative in that the procedure can double-count the impact of the existing sources at the existing OCPP by first having them directly in the model as an emission source (and assuming them to be operated at continuous 100% load conditions) and, secondly, by assuming that emissions from the existing sources contributed nothing to the presumed existing background concentrations.

Specifically, in the air quality analysis, existing OCPP units 5 through 9 have been assigned a total emission rate in excess of 152,340 tons per year. Actual emissions from the existing units, as reported in the EPA's Clean Air Markets web site, were only 24,887.5 tons in calendar year 2000, less than one-sixth of the emission rate used in the air quality impact analysis. Further, the proposed "new" units were assumed to add approximately 9,832 tons of sulfur dioxide emissions per year, just 6.1 percent of the emissions contained in the modeling study.

A statement is made in the DEIS that the concentrations of sulfur dioxide (3-hour and 8-hour) would "increase dramatically" if the new units were approved. Such a statement is inaccurate as it fails to recognize that the majority of the modeled impacts are due to the assumed and unrealistically high emission rates from the existing units, not the proposed new units, coupled with the assumption that the existing units do not contribute to background concentrations.

In reality, if all agreements and restrictions regarding the existing units were taken into account, an analysis could be presented in the DEIS that, realistically, leads to a conclusion that if the new units are approved and dispatched ahead of the existing units, substantial improvements in air quality would result.

It is also important to note that for most pollutants and averaging times, the highest concentrations reportedly occur when winds are off Lake Michigan. Even under these conditions, a background concentration is added to the modeled result, even though there are no upwind sources for over 75 miles. This practice again biases the reported results to a higher concentration than can reasonably be predicted given the proposed project location.

D. Minimization of Particulate Impacts

The PM_{10} (24-hour) and TSP (24-hour) impacts as determined by the modeling studies, approach the limits of acceptability at nearly 100 percent of health and welfare based standards. These impacts are highly dependent on location of the various fugitive dust sources, including coal storage piles, roadways, etc. These impacts can be reduced by strategic placement of such features, away from site boundaries, toward the interior of the site. It is appropriate to minimize human exposure to these air contaminants even though other environmental impacts may increase. This is why the City's CUP has required that the coal storage and handling facilities be moved within the rail spur loop, approximately 2,000 feet southeast of the intersection of Elm

Road and the railroad tracks. This revision to the site layout will mitigate potential impacts to the residents of the Oakview #3 and Barton Oaks subdivisions as demonstrated by revised air quality modeling. Moving the coal storage inside the rail loop results in nearly a 10 percent reduction in predicted TSP impacts.

E. Enforcement Mechanism

The Oak Creek Agreement provides for specific enforcement provisions (see Agreement ¶ 1.D). In addition, the incorporation of the total air emission limitation standards in the proposed U.S. v. WEPCO consent decree, upon approval by the U.S. District Court for the Eastern District of Wisconsin, also makes federal enforcement available including civil penalties, injunctive and contempt relief.

F. Air Monitoring and Reporting Requirements

In addition to the generally applicable federal and state emission discharge reporting requirements, the Oak Creek Agreement requires the installation and operation of two critical air monitoring stations at the Elm Road Monitoring Site and at the Carrollton Monitoring site in the community which, based on air modeling, will measure emissions in the community (and not at points 9 to 135 miles away and subject to potential other sources.) (See Agreement at ¶ 1.E. 1.&2.). The Agreement also requires that the air emission monitoring results be reported to the City of Oak Creek as well as DNR. (See Agreement at ¶ 1.E.3).

Further, the proposed WEPCO consent decree will require air emission monitoring and reporting (See Consent Decree, § § V.E., VI.E.,VII.C. and XII.)

G. Air Summary

Finally, it should be noted that the air quality impacts are the most important of all environmental issues related to this project. They have the greatest potential to impact public health and welfare, as well as public opinion regarding the entire development. It is in the best

interest of all parties involved that the presentation of the air impacts reflect, as accurately as possible, the existing and expected conditions at the site. We suggest that the PSC and DNR take a closer look at the information presented in the DEIS; review the latest DNR, City, and EPA agreements; and make a more realistic presentation of these conditions in the final EIS.

II. ENVIRONMENTAL AND ECONOMIC IMPACTS

A. Scope of ERGS Project

The proposed ERGS project will result in the construction and operation of the sixth largest electric generating facility in North America in the Oak Creek community of about 30,000 residents. The construction project will take 8 years from 2004 to 2011 including construction 24 hours per day, 7 days a week. It is estimated that over 10 million cubic yards of soil will be excavated and graded. It is further estimated that this will be the largest construction project in Wisconsin dwarfing the construction of Miller Park or the Milwaukee freeway system. At peak, there will be about 1,200 workers employed in the construction and there will be about 2,780 vehicle trips per day into and out of the site. In addition, there will be numerous rail and barge deliveries to the site during the construction period.

The new and existing facilities will be located on prime high value lake front property. The presence and size of the facility impacts planned redevelopment activity in the eastern portion of the City and stints local property tax base growth in a prime area of the City. There will be substantial impacts on the City's services including among others, it's firefighting, paramedics, emergency medical services, police, water, sewerage treatment, engineering and building inspection, traffic, roads, public works maintenance and service. City residents during the 8 years of construction will be subjected to substantial traffic and noise impacts.

Unlike all other residential and business property owners in Oak Creek, WEC's OCPP and ERGS, are exempt from real estate property taxes that fund the costs of City government

and services. Even though WEC follows current law, it cannot pay a fair and equitable share of local real estate property taxes under current law. The compensation to the City of Oak Creek under the public utility distribution of shared revenue for an additional 1,830 MW of new coal power will increase only $6,000 annually from current payments to the City to the maximum of $750,000. This amount can only be seen as miniscule when viewed in light of the overall impact to the community. The $750,000 payment represents only about:

- 0.07% of the revenues We Energies may earn from the proposed power plants,
- 0.4% of the return on equity that may be earned by We Power,
- 2.6% of the revenue that may be collected by the State of Wisconsin, and
- 5.3% of the value of property tax revenues that might be collected if the proposed power plants were not exempt from property taxes.

The compensation provided by current state law to a municipality hosting a power plant is extremely low when compared to revenue streams captured by others. The level of compensation is also low when considering the impacts of construction and operation borne by the host community. A more equitable compensation for host communities would be to provide revenues similar to what any other industrial facility would provide for an equivalent development.

In the case of Oak Creek, tax revenues for an equivalent industrial facility to that proposed would conservatively generate $14,000,000 annually, including the standard manufacturers and equipment exemptions in Wisconsin tax code M-P and M-R. Of this $14,000,000 in property taxes annually, about $10,000,000 would be for local purposes including municipal government, water and sewer and local schools. The Agreement between the City and WEC provides a maximum payment of $2,500,000 annually, if all three new units are built. Adding this to the expected $750,000 from shared revenues provides a total compensation of $3,250,000 annually, if all three proposed units are built. Even taken together,

this compensation to the City represents only about one-third of the foregone property tax revenues. Furthermore, a payment of $2,500,000 to the City would impact a 400 kWh residential rate-payer by adding only about $0.48 annually in electric costs. For keeping the largest construction project ever in the state, and the 6th largest power plant in North America out of other rate-payers "back yards", this level of compensation more than passes any reasonableness test.

The inadequacy of payments to host communities has been under review by many interested parties for the past few years. The current legislature is considering changes to the shared revenues formulas that recognize the disparity between what payments the host community receives and the impacts felt by hosting a large power pant. The City has been following this legislation closely and would like to highlight some notable differences between payments to the host community in the form of utility payments under the shared revenue formulas and payments to the host community under the Agreement between the City and We Energies. In particular, the City would like to stress the long-term nature of any decision to build the proposed power plants. If the proposed plants are built, the City will experience the impacts of these plants for at least the next 40 years and perhaps longer. In this context, it is important to understand that that the outcome of any changes to utility shared revenue is uncertain at this time and any changes that might occur will continue only at the discretion of the legislature and the governor. As a result, even if new legislation does provide additional compensation from shared revenues to host communities, this compensation could be reduced by future legislatures. Thus, the size of future payments under shared revenue formulas are subject to much uncertainty. While the City believes that this additional compensation does not represent unreasonable compensation for agreeing to live with the proposed plants for at least the next forty years, it is

not at all certain at what level this compensation will occur or even that it will continue for the life of the proposed plant. Finally, the City would note that because the proposed legislation does not change the gross revenues tax on electricity production, any additional payments arising from the proposed changes to shared revenue are unlikely to affect We Energies' rate payers.

This massive base load electric generating facility will provide electrical power to WEC's more than one million customers,[1] as well as providing power to other utility customers outside the WEC service territory. Residents and business customers in Oak Creek will use about 3% of the electric power generated,[2] but the City, its residents and businesses will suffer the construction impacts and the impacts during the more than 40 years of operation of the facility.

Most significantly, all of WEC's rate payers will benefit from the enormous capital and operations savings from the sitting of the plant in Oak Creek as compared to other sites such as in Pleasant Prairie, Haven or Milwaukee.

B. Property Values

The DEIS (at p. 296-98) briefly discusses impacts on property values in the City of Oak Creek and the Town of Caledonia and the author's opinions of several hedonic studies. The City respectfully disagrees. With respect to this strawman argument, first, it must be noted that impacts on property values are only one of the substantial impacts sustained by the City. Second, the City respectfully disagrees with the authors' opinions and interpretations of the economic studies.

C. Mitigation Payment

Subject to Commission approval, the Oak Creek Agreement provides that WEC will make an annual payment to the City if one unit is approved of $1,500,000; an additional

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1 From WEC's website.

2 Estimate based on 30,000 residents = 10,000 residences and 5kW required per household, including all home, and business uses of those households.

$750,000 if a second unit is approved; and an additional payment of $250,000 if a third unit is approved. (See Agreement ¶ 3). If approved by the Commission, this amount of the mitigation payment is independent of any increase or decrease in the public utility distribution of shared revenues.

The DEIS suggests (page 29) that "Whether these payments should be recovered and what is an appropriate level may be key issues at hearing in the case". The City suggests that there should be no doubt that these mitigation payments should be recovered and that they are at least appropriate in this case because of the magnitude of the impact to the community and insignificance of the amount affecting the rate-payer.

III. OTHER COMMUNITY IMPACTS

A. Rezoning and CUP Process

As noted above, WEC applied to the City of Oak Creek for rezoning and a CUP. After review by City staff and meetings and negotiations between WEC and City representatives, a meeting and presentation to the Plan Commission, public meetings and a public hearing to elicit community concerns and impacts, the Plan Commission and the Common Council on behalf of the City, exercising its municipal police powers unanimously approved the rezoning and a CUP on June 3, 2003. A copy of the rezoning and CUP ordinances are attached hereto.

B. Matters Covered by Rezoning and the CUP.

The rezoning allows the property to be used for power plant development. CUP seeks to address City responsibilities under statutes or ordinances, community concerns, and seeks to lessen, or reduce, where possible, impacts on the community. Among other things the CUP addresses land use, plan approvals, fire protection, security, emergency medical services, grading, buildings and set backs, construction hours, water, sewer, signage, traffic and

roadways, noise during operation and construction, inspections, lighting, and coal storage and handling.

C. Noise During Operations.

Besides air emission impacts, the most significant environmental impact issue for the City is noise. Kamperman and Associates and Hessler and Associates provided substantial input to the City and WEC, respectively, on this issue. Many discussions on this topic primarily centered on whether or not industrial or residential standards should be used during the operations period. Standards are set in the CUP.

D. Noises During Construction

The DEIS acknowledged that the Commission staff did not evaluate noise impacts during construction because WEC did not present sufficient data on the topic in its application. The City recognized this shortcoming and addressed this with WEC as part of the CUP. Setting noise levels during construction projects is not typical. However, the magnitude and duration of this project necessitate some responsible and reasonable regulation in this regard. The CUP addresses this by requiring noise monitoring stations consisting of automatic data recorders at strategic locations to measure noise levels on a continuous basis, and setting noise levels for construction periods that are protective of the Barton Oaks and Oakview #3 residents, yet allow flexibility for construction of the site.

The key issue during construction is limiting the areas of construction, times of construction, and setting noise limits before and after the screening berms are constructed. The CUP establishes limits, where appropriate, to protect the residents during the most sensitive times of the day and year and days of the week, while providing WEC the flexibility to construct the screening berms as quickly as possible to minimize noise impacts during the majority of the

construction period. Standards become more restrictive as the project progresses and the major earthwork ends.

The data recording requirements, compliance protocols, and penalties for non-compliance are established to provide the City daily access to noise level measurements for quick detection, response, and resolution of noise exceedances, if they occur.

IV. TECHNICAL CONCERNS

In addition, there are a number of specific technical concerns with the DEIS.

A. Specific Comments

On page 28, the text reads:

> 5. WEPCO will work with the city on a conditional use permit basis to minimize noise and traffic issues.

The CUP was never limited to noise and traffic issues. The text should be modified to reflect that the CUP is used to address all City concerns, not just noise and traffic.

On page 35, it appears in the paragraph following figure 3-5 that the agency is attributing the reduction in kWh production in 1997, for WEPCO generating units built after 1960, to the extended outage at the Kewaunee nuclear plant. The statements should be clarified to indicate that the state-wide reduction that occurred in 1997 is attributable to the extended outages at the Point Beach and Kewaunee nuclear plants.

On page 43, (Planned capacity retirements and nuclear relicensing) it should be noted that Oak Creek Units 1 through 4 have already been retired. The final EIS should identify the unit that commission staff assumed to be retired in 2019. Additional considerations should be made for the potential that Units 5 and 6 may be retired before 2013, a possibility in light of the proposed EPA Consent Decree. Commission staff further speculated that Units 1 and 2 at the Point Beach Nuclear Power Plant would be successfully re-licensed. These assumptions have

significant impacts on the Needs analysis and should be re-examined. All potential options, the retirement of one or both of OCPP Units 5 or 6, along with the potential that one or both of Point Beach units are retired before 2013, should be considered, and a strategy should be formulated to address each of these options.

On page 60, the text fails to mention that gas-fired power plants also emit sulfur dioxide, volatile organic compounds, heavy metals (including mercury), and organic hazardous air pollutants including formaldehyde.

On page 94, it should be noted that natural gas transmission and distribution also relies on compression provided by fossil fuel fired engines.

On page 95, it should be noted that the City of Oak Creek considers cooling towers to be unacceptable due to the visual impact. Cooling towers would further adversely impact the heat rate of the plant, resulting in even greater emission rates assuming the net output remains constant.

On page 95, under Air Emissions, the following statement is made:

Mercury is not a pollutant emitted by natural gas combustion.

This statement contradicts information published by the EPA and statements made elsewhere in the DEIS. In its publication, Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources, (Table 1.4-4), the EPA reports that natural gas combustion emits 2.6×10^{-4} pounds of mercury per million cubic feet of natural gas combusted. Using this emission factor, a natural gas fired combined cycle plant with a heat rate of 7,800 Btu per kW-hr, generating 1,830 MW, could emit over 32 pounds of mercury per year.

Pages 117 and 239, and others refer to a wallboard plant. The final EIS should reflect that the wallboard facility is not considered part of the power generating facilities and, if located

in the City, will therefore require separate approvals and be taxed by the City like any other industrial or commercial operation.

Beginning on page 134, there are discussions of potential health impacts due to exposure to air contaminants emitted by coal fired power plants. These same air contaminants are emitted by virtually all combustion processes, including combustion of petroleum products (fuel oil and gasoline) as well as combustion of natural gas. Several additional points should be made in these sections:

- For the physical responses described, there must be exposure to unhealthy concentrations of the air contaminants.
- For particulate matter, it should be noted that all of Wisconsin has been tentatively classified as meeting the $PM_{2.5}$ standard.
- For nitrogen oxides, the national ambient air quality standard of 100 micrograms per cubic meter of air (annual average) should be mentioned.
- For nitrogen oxides, a figure of 0.1 ppm of air is mentioned as causing lung irritations and measurable decreases in lung function in asthmatics. However, no mention of whether such concentrations are expected as a result of the ERGS project could be found.
- For sulfur dioxide, no mention of the sulfur content in natural gas or commercial grades of propane was provided, as it was for coal and oil. Natural gas, after sweetening, contains as much as 20 grains of sulfur per 100 standard cubic feet.
- For sulfur dioxide, various health impacts are discussed, but no concentrations are provided that are correlated with these health impacts, and no mention is made of whether such concentrations are expected as a result of the ERGS project.

For greenhouse gases, it is important to identify the other sources of greenhouse gas emissions in Wisconsin. If electric utilities generate 33 percent of the greenhouse gases emitted in Wisconsin, what are the sources of the remaining 67 percent?

There is no mention of the system-wide reductions in emissions of mercury, sulfur dioxide, and nitrogen oxides, of over 50 percent from calendar year 2000 levels from the coal fired plants in the We Energies system that will be required under the Multi-Plant Environmental

Cooperative Agreement between We Energies and the DNR, if the PSC approves the ERGS proposal.

On page 148, a possible interpretation of the text is that the IGCC unit will not be subject to Section 112(g) of the Clean Air Act because such units are not identified by EPA as a source category that will be regulated under Section 112(c). Such an interpretation would appear to contradict guidance from EPA as found on its web site http://www.epa.gov/ttn/atw/112g/qanda12g.html) as presented below:

> Q1 Is this rule applicable only to sources in the source category list developed under 112(c)?
>
> A1 No. This rule applies to all new major sources of HAP (hazardous air pollutants) even if they are not yet on the source category list. This list contains the source categories for which EPA is to promulgate MACT standards. (The Clean Air Act requires EPA to list all categories of major sources of HAP. If it is brought to the EPA's attention that a category has not yet been listed, the EPA must then list it, unless the category is regulated under section 129 (see also #3 below)). The exception to this are source categories that were deleted from the list pursuant to 112(c)(9). See 40 CFR 63.40(e) or 61 FR 68399.

On page 153, under the Existing Air Quality section, the following statement appears: "Both counties (Milwaukee and Racine) are classified as moderate non-attainment for ozone." This statement is incorrect. Both counties are classified as severe non-attainment for ozone.

In Table 7-6 (page 153) the background concentration for SO_2 (24-hour) is stated as 7.8 micrograms per cubic meter. The correct figure is 57.8.

In Table 7-11 (page 157) there is no limit under the column for "Proposed Limit" for sulfuric acid mist, only units of Lb/mmBtu with a reference to a 12-month rolling average. An appropriate figure should be provided.

Also in Table 7-11, for VOC, there is reference to Note 4, which indicates this limit is based on a 96 percent reduction in the emission rate of the design bituminous coal. Does this note belong here or with sulfur dioxide?

In Tables 7-11 through 7-15, the term "LAER" appears in the table heading in the column "Proposed Limit (LAER)". Are these intended as LAER requirements?

On page 169 (Federal Acid Rain Program), the following statement appears:

> In order to operate, the ERGS would be required to buy allowances from another power plant that has reduced its emissions below the allowances allocated.

The OCPP currently has allocations totaling 30,506 allowances, more than enough allowances for its existing generating units and the ERGS units under the Agreement with the City of Oak Creek and the proposed EPA Consent Decree.

On page 170, further explanation of the NR 445 exemption for fuel ash should be provided. Should the reference to section NR 400.02(22e) instead be to NR 400.02(40)? The exemption in NR 445 applies only to "virgin fossil fuels" further defined as having a heat value of greater than 7,000 Btu per pound, which is not blended with reprocessed or recycled fuels. Does the fuel ash have a heat content of greater than 7,000 Btu per pound? Is the fuel ash a reprocessed or recycled fuel?

In Table 7-33, mercury emissions are erroneously stated as 0.962 tons from SCPC Units 1 and 2. The correct figure is 0.062 tons for each unit.

On page 175, under "Chapter Summary," the conclusions fail to recognize that fabric filtration is also effective to control particulate matter, including the PM_{10} fraction. Also, the following statement is made:

> Under WEPCO's modeling analysis, concentrations of particulate matter, especially total suspended particulates (TSP 24-hour), PM_{10} (24-hour), and SO_2 (both 3-hour and 24-hour) would increase substantially due to operation of the

> ERGS. Several of these pollutant concentrations are approaching 100 percent of the National Ambient Air Quality standard for the region.

This statement is inaccurate as it fails to differentiate between impacts due to the existing units and impacts due to the proposed ERGS project, treating impacts from both as if they result only from the ERGS project.

On page 175, the DNR cites ACGIH (2001) as the reference for determining an acceptable concentration in ambient air. The applicable provisions of NR 445 cite the threshold limit values and biological exposure indices for 1987 – 1988, which were published by the American Conference of Governmental Industrial Hygienists. The correct version should be referenced in making a comparison to acceptable concentrations in air. Additionally, in NR 445, ammonia is not identified as having a ceiling limit, and therefore, comparison of a one-hour average concentration in ambient air to ten percent of the ACGIH value is not appropriate.

On page 256, the topographic changes to the North Site should be modified to include the requirements in the CUP for the berms listed in the CUP. Figure Vol. 2-12, and possibly others, should be edited to reflect the configuration of the berms outlined in the CUP.

Starting on page 277, Chapter 11 - Community Impacts, fails to mention anything about the loss of taxable property that a power plant takes from the host municipality. This is a real impact to the community that should be discussed. As noted in the example above, the value of the lost tax revenue to the City if the proposed plant was a similarity priced industrial facility would be millions of dollars annually.

On page 285, under "Land Use Plans" it should be noted that on June 3, 2003, the Oak Creek Common Council approved a CUP for the property in Oak Creek.

The "Zoning" section beginning on page 290 should be updated to reflect that on June 3, 2003, the Oak Creek portion of the WEC property was rezoned and a CUP approved to allow power plant development. (See attached zoning ordinance.)

Page 293 should be updated to include a reference to the CUP indicating the water and sewer use have been agreed to for construction and operation of the plant in Oak Creek. If the ERGS is approved for the Town of Caledonia location, another source of water and sewer is needed.

On page 294, (Fire protection and emergency medical service), it is incorrect to imply that the Oak Creek Fire Department would serve any units as a first responder for any incidents occurring outside the borders of the City. The City will provide first response services only to facilities located within the City. If the new facilities are located in the Town of Caledonia, it and Racine County will receive shared revenues under current law, and should be expected to provide such services.

On Page 295, the $117.3 million figure incorrectly referenced the "net book value of the OCPP." The $117.3 million figure actually includes:

1) Production plant assets valued at $99,175,541;

2) Substation assets valued at $17,908,476;

3) General structures valued at $126,474.

For a total of $117,210,491. Thus, the value of the OCPP for shared revenue purposes is overvalued by $18.1 million.

On page 296, it should be noted that a 30-year depreciation schedule as compared to a 40-year schedule has significant negative financial impacts on local residents under the current

shared revenue program. It should be further noted that the current shared revenue program has a questionable future, and payments to local communities in lieu of taxes cannot be assured.

Also on page 296, the City takes issue with the statement that the property value advantages cited in the DEIS ("natural visual buffers and a feeling of space" and "a recreational trail") are real or even perceived advantages given that the trade-off is a location adjacent to a power plant. Potential buyers and sellers are aware of the proximity to the existing plant based on inquiries that the City has received, and these potential buyers and sellers have expressed concerns about the proposed development. The statements made here suggest that with all else being equal, given the choice of locations, that people will choose to live in this location. Unless this statement can be substantiated, the statement should be removed from the final document. Further, while one may be proposed, no recreational trail currently exists on the site.

On page 300 under "Fugitive Dust," the City's concerns with the potential for fugitive dust sources during construction and operation have resulted in the City's Agreement with WEC including a requirement for WEC to operate an ambient air quality monitoring station in the vicinity of Elm Road and Haas Park. This station is currently under development and will contain sampling equipment to monitor total suspended particulate matter (TSP) on a daily basis, and continuously monitor PM_{10} and $PM_{2.5}$. Corrective actions and possible enforcement will be taken if exceedances resulting from operations conducted by WEC are indicated.

Starting on page 303, "Reserve Coal Pile" should be amended to address the City requirement in the CUP to move the pile south, within the rail spur loop.

Starting on page 306, the "Traffic" section needs to be updated to reflect the changes in the CUP if the North Site is selected.

On page 319, it should be noted that Oak Creek does have an existing noise ordinance with a specific noise level threshold for industrial sources (Section 17.0810 of the Zoning Code), setting a limit of 62 dbA at the boundaries of Business Districts, and 58 dbA at the boundaries of Residential Districts. The recently adopted CUP sets additional restrictions on noise levels from the property and requires monitoring to demonstrate compliance with those limits. It also regulates all noise from the property, not just construction traffic impacts.

On page 328, the "Earth Moving" section should be updated to reflect the changes in the grading and berms outlined in the CUP which are to be developed if the North Site is selected for the ERGS plant.

The "Recreation" section on page 329 should be amended to include a discussion of the impact of increased barge traffic on the recreational use of Lake Michigan. The CUP includes a requirement to provide the City a report on this issue and work with the City to mitigate any impacts.

V. CONCLUSION

The City of Oak Creek respectfully requests that the PSC and DNR staff consider each of the items outlined above for consideration and inclusion in the final EIS.

If you have any questions regarding the details discussed above, please contact the City's legal and/or technical consultants.

Comments on the Draft Environmental Impact Statement, submitted by the Oshkosh Commercial Development Corporation

OSHKOSH CHAMBER OF COMMERCE

ADVOCACY COMMUNITY DEVELOPMENT LEADERSHIP

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Electric Division

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WISCONSIN PUBLIC SERVICE COMMISSION

June 13, 2003

Jeffery Kitsembel
Public Service Commission of Wisconsin
610 North Whitney Way
Madison, WI 53705

RE: Elm Road Generating Station, docket no. 05-CE-130

Dear Mr. Kitsembel:

I am writing on behalf of the Oshkosh Commercial Development Corporation (OCDC) and appreciate the opportunity to comment on the Draft Environmental Impact Statement issued by the Public Service Commission and the Department of Natural Resources. OCDC is a private non-profit economic development corporation designed to foster economic growth in the Oshkosh area.

Cost, reliability and impact on the environment should all be key questions when Wisconsin makes long-term decisions related to power generation. Our belief is that the Calpine proposals in Fond du Lac and Kaukauna are sound choices not just for Wisconsin business, but for everyone in Wisconsin. We believe that the DEIS confirms our opinion.

Unquestionably, the Calpine proposal would result in less air pollution. Currently, air pollution from Southeastern Wisconsin makes its way up Lake Michigan to our region of the state. While this is not the only source of pollution in the Fox Valley, it is certainly one of the reasons that several area counties have been proposed for the non-attainment list for ozone. Fortunately, there is a clean and affordable source of electricity that the PSC should include as part of the answer to the energy needs identified in this proceeding.

The draft Environmental Impact Statement makes it clear that the Fond du Lac power plant proposed by Calpine is not only clean but affordable – in fact far less expensive than the Oak Creek proposal when all of the cost impacts are considered. Certainly, as customers served by WE Energies and/or American Transmission Company, we appreciate that.

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Lastly, the Fox Valley is one of the states major economic hubs that requires reliable energy service. Building at least a portion of the proposed capacity additions in the Fox Valley, as opposed to siting nearly 2,000 new megawatts of power at an already transmission-constrained single location, would help to ensure reliability for all Wisconsin customers.

In summary, we believe that the both the Fond du Lac project and Calpine's similar new Fox Energy project in Kaukauna deserve to be in the final mix of projects that the PSC chooses to meet our power needs.

Sincerely,

Rob P. Kleman

Rob P. Kleman
Executive Director
Oshkosh Commercial Development Corporation (OCDC)

CC: Jeff Thorkildsen, President, OCDC

Comments on the Draft Environmental Impact Statement, submitted by Robert J. Owen, Jr., P.E.

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June 12, 2003

Ms. Kathleen Zuelsdorff
WEPA Coordinator
Public Service o mission of Wisconsin
P.O. Box 7854
Madison, WI 53707-7854

Re: ERGS DEIS Comments—General, CO_2, Fuel Diversity, and Energy Efficiency

Dear Ms. Zuelsdorff:

Before addressing some specifics, permit me to offer a general objection to the PSC's approach to doing an EIS in this case. This effort was started too late, and consequently there has not been enough time for the public to address the DEIS in this case. The lack of time is compounded in some cases, such as the case of carbon dioxide, by misleading information in the DEIS.

These are my comments on the ERGS DEIS as to CO_2, fuel diversity, and energy efficiency, three important topics to which the DEIS did not do full justice.

Carbon Dioxide

Carbon dioxide is a topic which utilities and their regulatory marionettes such as your managers do not much like to discuss. However, it is a subject which the ERGS FEIS must discuss much more conscientiously than it was discussed in the DEIS.

I am told that the greenhouse gas emissions section of the DEIS on page 170 was reviewed by someone at DNR. Was the reviewer awake at the time?

Of the four CO_2 emissions figures prominently presented in the DEIS at page 170, two are erroneous, and none are adequately explained. The three last figures, for example, are taken from an early 90's DNR-sponsored study estimating year 2000 emissions. Nowhere does the DEIS mention this. The second-last figure inaccurately reports the study estimate. It was actually 46,300,000 tpy for transportation.

Most significantly, the ERGS figure <u>understates actual potential ERGS CO_2 emissions by at least a factor of 11, assuming 80% ERGS capacity factor.</u> This kind of error is appalling and indicates an inappropriately flip attitude toward a serious environmental problem, particularly in the context of a supposedly reviewed document issued by a supposedly expert agency.

Worse yet, this DNR and PSC-sponsored document had no input whatever from the DNR's climate-change specialist, Eric Mosher, who had directed the study the DEIS took figures from. He would undoubtedly have caught the error in ERGS emissions if given the chance to review or contribute to this DEIS. Why was he not given that chance?

A few days ago, you informed me in your inimitably imperious tone that you and your illustrious colleagues were too busy to discuss the DEIS further.

Could it be that the learned management of your august agency is and was not interested in discussing the potentially disastrous effects of continually increasing CO_2 emissions and atmospheric concentrations on the complex earth-atmosphere-ocean system on which human life on this planet depends and thus decided to exclude the one state employee most qualified to expound on this subject from the DEIS effort altogether?

Is this why Mr. Mosher first heard of the ERGS DEIS from me on June 5 when I asked him about the prior DNR study misquoted in the DEIS?

Given an opportunity to participate in the FEIS process, I am confident that Mr. Mosher would be able to assist you in improving the quality of your carbon dioxide work product by several orders of magnitude.

In the meantime, permit me to mention a few of the concerns scientists have about unchecked carbon dioxide emissions:

(1) they may heat the earth's atmosphere significantly, creating vast climate changes and displacing plant species by hundreds or even thousands of miles in a few decades;
(2) they may wreak havoc with agricultural and silvicultural systems which developed in a very different climate regime, imperiling the food supplies and livelihoods of billions;
(3) they may flood low-lying areas on the coasts and low-lying oceanic islands;
(4) they may create sudden climate shifts to colder climates in some regions, including Northeast North America and Northwest Europe, if they trigger shifts in major oceanic currents;
(5) they may cause a serious reduction of lake levels in the Great Lakes;
(6) they may increase the probability and severity of storms;
(7) they may increase the frequency of killer heat waves and ozone episodes;
(8) they may continue to curtail the x-country ski season here; and
(9) they may promote tropical diseases (e.g., west Nile virus) in areas like Wisconsin formerly free of such scourges.

Some of these possible effects are controversial among scientists. Even more so, most are controversial or even dismissed entirely by conservative ideologues.

However, most real atmospheric scientists of all political shades and stripes <u>are</u> concerned about global climate change. There is no dispute that carbon dioxide concentrations <u>have</u> increased drastically in the last 150 years and continue to rapidly increase. There is no dispute that much

of the world has seen a trend toward increasing mean temperatures in recent decades. There is very broad agreement that carbon dioxide is a major driver of the changes seen to date. There is broad concern about just where we may be headed among scientists even if there is none at all among agency marionettes and utility puppeteers at 610 Whitney Way in Madison.

The scientific concerns include concerns that CO_2 concentration increases may indirectly damage human health. Indeed, three states have commenced a lawsuit against EPA this very month contending that carbon dioxide emissions should be regulated as criteria pollutants under the Clean Air Act.

In putting carbon dioxide in context, it is important to consider the differing time scales on which a coal plant may be used as compared to another carbon dioxide-emitting appliance. WE proposes to operate its coal plants for about 60 years. This is about twice as long as a wind farm operates, three or four times as long as a furnace operates, and about six times as long as a car or truck operates. All of the other carbon dioxide-emitting devices will be replaced by newer, presumably cleaner, devices several times before the black elephant coal plants proposed in this case stop spewing carbon dioxide into the heavens. Indeed, our descendants may mostly be driving fuel cell vehicles powered by wind-generated hydrogen and living in off-grid homes powered by on-site hydrogen-fueled fuel cells well before these monstrous facilities are retired. WE is asking for the right to spew massive quantities of carbon dioxide well beyond the lifetimes of most of the readers of the FEIS.

You must disclose the scientific concerns about global climate change in the FEIS. Although you did not do so in the DEIS and are presently in violation of Wisconsin law, you can admit and correct your mistakes, fully disclose the scientific concerns, stop misleading and stonewalling the public, and write a much improved FEIS which treats CO_2 emissions as a real scientific concern, not an ideological diversion.

You must also disclose that carbon dioxide emissions may be taxed in the future, adding further economic insult to the injury to Wisconsin's economy associated with additional multi-billion-dollar purchases of out-of-state energy.

Please note that the European Union proposed penalty for carbon dioxide emissions above the cap level for which an emitter has allowances is 40 Euros/metric ton ($42.65/ton) for 2005 to 2008. Currently, forward contracts for carbon-dioxide emission allowances are trading at 5-7 Euros/metric ton ($5.33-$7.46/ton) in Europe. The WE "carbon tax" of $3/ton is a joke. Any real tax would be substantially higher than the market price of allowances.

After addressing the numerous deficiencies of the DEIS, you can resume dancing to the tune set by your WEPCo sycophant managers, "I'm your puppet," while quaffing some highly-carbonated beverage.

Fuel Diversity

The fuel diversity discussion in the DEIS is inadequate because it does not address how in-

creased use of renewable energy in Wisconsin could improve the diversity of the electric system and address some of the economic risks of excessive dependence on natural gas.

I believe part of the current difficulty with natural gas prices is a short-term problem likely to be resolved long before any ERGS coal unit can be brought on line. This problem may be associated with inadequate financing being made available to natural gas drillers, a side-effect of recent financial scandals in the energy industry. I believe it is highly probable that Congress will move aggressively to solve this problem before the year is over in the wake of recent statements of Alan Greenspan and that natural gas shortages will disappear by 2005 as drilling activity increases. The DEIS should focus on longer-term issues.

Longer term, adding renewable energy to our electric supply portfolio is a very effective way to dampen natural gas price spikes. While at present, natural gas mostly substitutes for oil and vice versa, in the long run wind energy could play a larger role in displacing both oil and gas, and this would likely have a beneficial influence on fuel prices. The FEIS should address this effect.

The DEIS mentions but gives insufficient emphasis to the economic characteristics of CT and CC gas-fired generation, especially versus wind generation in the next decade or two and solar generation as well in the longer term. Wind is low in operating cost (negative with tax credits), hence would readily displace natural gas in any utility's economic dispatch when available. Solar is also low in operating cost and would displace gas-fired generation.

Both wind and solar would reduce natural gas consumption to support the electric grid. This would tend to dampen upward pressure on gas prices. The FEIS should acknowledge this.

In addition, wind would tend to shift the mix of thermal generation toward lower-capital-cost, smaller, CT instead of CC or coal plants. These smaller plants could be integrated into the grid in a more distributed fashion, tending to generate transmission cost savings as compared to larger scale thermal generation plants. Solar P.V. installations would also have grid benefits in most of Wisconsin. PSC analyses reflected in the DEIS do not consider distributed grid benefits. With multi-billion-dollar transmission investments on the table in Wisconsin, it is high time to pay much closer attention to grid savings and costs of different generation sources.

Energy Efficiency

The DEIS makes an effort to deal with energy efficiency, but could be significantly improved with even minimal support from PSC management.

The shortcomings in this area are in no way the responsibility of the gritty half-time public servant who continues to do her darnedest to serve Wisconsin's citizens while her marionette managers systematically deprive her of the resources necessary to properly do her job. I salute Carol Stemrich, an example of courageous and conscientious dedication to public service! Carol's dedication and effort shine like a ray of sunlight through even the cloudy DEIS lens created in the cesspool of mismanagement and regulatory cooptation which is today's PSC.

What also shows through, however, is that PSC management refuses to implement Wisconsin's energy priority law, Wis. Stat. § 1.12(4), which unequivocally states that cost-effective energy efficiency measures are to be implemented first.

Instead of putting efficiency first, the commission appears to have adopted a policy of eliminating energy efficiency expertise first as it downsized its staff in recent years. We are now reaping the fruits of this grotesque misallocation of resources in the ERGS proceeding. There are huge gaps in knowledge as to the potential for additional cost-effective energy efficiency measures, and they are reflected in the DEIS. These are related to the fact that the PSC now has a single half-time employee, albeit an able one, Carol Stemrich, dealing with this subject matter.

They are related to the absence of energy efficiency studies in the last eight years.

They are also related to the fact that inept PSC Electric Division management, abetted by the "three wise monkeys" in charge (See No Evil, Hear No Evil, and Speak No Evil), has effectively absolved WE of its obligation to submit reasonable energy efficiency data in support of its "application" for ERGS. The responsibility for this misfeasance goes right to the top, where the AB/B duet/trio is apparently too busy serenading WEPCo with endless renditions of "I'm your puppet" to discharge its statutory responsibility.

It is time to change the music to a new tune more consistent with Wisconsin law and the clear economic interest of Wisconsin citizens in greater energy efficiency.

To this end, I propose that the Commission demand that WE forthwith provide sufficient data to permit determination of its additional cost-effective energy efficiency potential, and if WE does not do so, summarily dismiss the ERGS application before the hearing.

The legal justification for this is simple. Energy efficiency is Wisconsin's top priority resource. Wis. Stat. § 1.12(4)(a). The burden is on WE to prove that ERGS "satisfies the reasonable needs of the public for an adequate supply of electric energy." Wis. Stat. § 196.491(3)(d)2. This burden cannot be met if WE cannot disprove the hypothesis that energy efficiency can meet the postulated need. WE has pre-filed its case in chief, and it does not disprove the hypothesis.

The DEIS has some shortcomings, but it amply refutes WE's case in chief on energy efficiency.

What WE's case on energy efficiency does prove is that WE has contempt for the law and the applicable rule, PSC 111.53(d)1 & 2, and, by extension, the citizens of Wisconsin who would have to pay for its bad choice to prefer Pennsylvania coal over homegrown energy efficiency.

As the DEIS points out at page 54, almost "every dollar spent on coal . . . leaves Wisconsin and our economy," while "energy efficiency can . . . improve the state's economy in general."

WE is using the same consulting firm in the ERGS Case which self-destructed on cross-examination in the PWGS Case last year in the face of staff warning that this outfit is unable to supply

the information the PSC staff needs to make the requisite careful analysis of energy efficiency.

That the sleepy "regulators" at 610 Whitney Way have let the ERGS farce get this far is ample testament to the need for new blood to invigorate the penthouse level of the agency. To let it go any further would raise new questions about misfeasance in high places and whether something more sinister than poor management and garden-valley ineptitude is driving the forlorn derelict SS PSC, only recently provisionally rescued from shipwreck on transmission CPCN shoals, as it sputters, with no one to be seen at the helm, toward another generation CPCN ice berg or judicial review torpedo.

As to the substantive focus of the FEIS energy efficiency discussion, I have three additional comments.

First, the FEIS should recognize that studies based solely on avoided generation cost seriously understate the economic potential of energy efficiency. Efficiency avoids generator operation and construction, but it also avoids transmission and distribution construction. The resulting potential savings in T&D are large and are not accounted for in the STEP study, as I understand it. Consequently, the STEP study understates the real value of energy efficiency by at least $.02/kWh, even more in some cases. This means that the real economic potential for efficiency was much larger than the STEP study identified in 1995.

Second, the DEIS does make the point that energy efficiency has decreased in cost in many cases since 1995. The FEIS should also make the companion point that the cost of generation, typified by the likely total cost of ERGS in the range of $.05 per kWh, has increased since 1995. Again, this increases the real economic potential for energy efficiency.

Third, while the main focus of the DEIS is appropriately placed on energy efficiency potential for WEPCo, attention should be given in the FEIS also to the energy efficiency potential of other utilities or entities like MGE, WPPI and DPC which may share in ERGS ownership or control if this black elephant is built. They too have the obligation to capture reasonable energy efficiency savings before imposing this monstrosity on their customers. The universe of customers whose efficiency savings could avoid the need for the proposed ERGS plants is substantially bigger than WEPCo customers alone.

Very truly yours,

Robert H. Owen, Jr.
cc: Ms. Carol Stemrich
Mr. Ken Rineer
Mr. Eric Mosher
Mr. Jeff Kitsembel

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May 27, 2003

Mr. Paul Helgeson
Renewable Energy Engineer
Public Service Commission of Wisconsin
P.O. Box 7854
Madison, WI 53707-7854

Re: ERGS DEIS Comments on Renewable Energy Sources

Dear Mr. Helgeson:

These are my comments on the renewable energy portions of the ERGS DEIS at pages 59-66.

I view this section of the DEIS as very important, because several categories of renewable energy have the technical and economic potential to replace the proposed ERGS facility entirely. This point needs to be expressed more expansively in the FEIS.

An EIS is supposed to offer alternative visions. This one needs to offer a considerable expansion in vision. Renewable energy has a very exciting story to tell. Please tell it.

Wind

You identify wind as a renewable option for Wisconsin. It is a much bigger option than you acknowledge.

There are some minor errors in your wind discussion, which I understand you plan to correct in the FEIS.

I will discuss some more significant issues here, including (1) our state's wind power potential and (2) wind power productivity.

1. Wisconsin Wind Potential

The Commission staff continues in the DEIS to misuse the 1991 Battelle PNL "Windy Land" study in somewhat the same manner it was misused in the Port Washington Case last year. This study was written in an era when 100-200 kW wind turbines were commonly being installed on 30-35-meter towers. It must be used with caution today when 1.5-2.0-MW wind turbines are typically being installed on 70-80-meter towers, and when some turbines will soon be available with 100-meter towers.

The study is being misused in two ways. First, it is being used without regard to the actual increase in wind potential per square mile being achieved by today's larger-scale wind turbines. Second, it is being used by uninformed people to understate Wisconsin's usable wind resource.

As to the first point, I view 12 MW per square mile as a significant understatement of what is actually achievable with today's MW-scale technology. I believe an average of 15 MW per mile is closer to the current reality, and this is likely to increase further after 2003.

As to the second point, any analysis that does not examine increasing tower height is likely to seriously underestimate Wisconsin's economically available wind resource. Wind speed at inland Wisconsin sites increases rapidly with height above ground level. At most potential wind sites away from the Great Lakes, annual average wind shear exponents are at least .19 or .20 below 100 meters.

As a practical matter, any site identified as a Class 3 Site by the Battelle PNL study (i.e., 14.3 mph or higher at 50 meters), would have a Class 4 or higher wind resource (15.66 mph or higher) at 80 meters if it had even a .19 wind shear exponent. Thus, what the Battelle Study actually tells us, considering today's taller tower realities, is that Wisconsin has 3500 square miles of Class 4 or greater inland wind resource (mean 15.66 mph or higher) at 80 meters.

According to this height-corrected approach, assuming 15 MW per square mile, Wisconsin has an inland potential of 52,500 MW at <u>Class 4 or better wind resource sites</u> with today's commercial technology. With next year's or 2005's technology, this potential will be even higher.

While not all of this potential could be realized for various land-use-related reasons, enough could be realized to displace the entire energy production potential of ERGS.

It is completely indefensible to maintain that Wisconsin has only 2040 MW of Class 4 wind resource, as the DEIS suggests. Wisconsin has more than this in <u>Class 5</u> potential inland.

Wisconsin also has substantial offshore potential in the Great Lakes, especially in Lake Michigan. This potential includes hundreds of square miles of depth of less than 100' in S.E. Wisconsin, especially off S. Milwaukee, Racine and Kenosha Counties. It also includes hundreds of square miles further offshore E. of Milwaukee in somewhat deeper water on the mid-lake ridge between Milwaukee and Muskegon. This potential is all Class 4 (most of it Class 5) or higher, with today's technology and would support about 20 MW per square mile with an extremely modest footprint of much less than one acre of surface affected per square mile. The Wisconsin waters of Lake Michigan could support thousands to tens of thousands of MW of wind development. The FEIS needs to acknowledge this potential rather than ignore it.

The DEIS is extremely unrealistic in its installation and operation cost estimates for offshore wind. Offshore wind in Southern Lake Michigan is likely to be significantly less costly to install and operate than projects in salt water. Lake Michigan has a considerably more benign installation, corrosion, and operation climate than the locales developed offshore in

Europe to date. Furthermore, Wisconsin's potential near-shore sites in Lake Michigan are ideally situated to tie into the ATC 138-kV transmission system in S.E. Wisconsin, so they would not be nearly as expensive as most offshore sites elsewhere to connect to the existing grid.

I believe that the DEIS installed cost estimate for offshore wind is at least $300 per kW too high for sites close to shore in S.E. Wisconsin, and even this cost will decline as offshore technology is further developed.

I also believe that the O&M cost of offshore wind in Lake Michigan will ultimately be only slightly higher than for inland sites. Lake Michigan's more benign climate as compared to the oceans of Northwest Europe is a significant factor in tempering O&M costs. There will be far fewer days when weather precludes maintenance on Lake Michigan. In addition, it appears that there will be no site lease costs for offshore sites in the lake, unlike inland.

The discussion in the DEIS suggests, incorrectly, that Wisconsin would need to develop low Class 3 Sites to produce large amounts of wind energy. This is simply not true with today's taller tower wind technology. Nor are Class 3 Sites as unproductive as the DEIS suggests.

2. Wisconsin Wind Power Productivity

Wisconsin has at least three sites at which apparent Class 3 wind resources have been developed for wind farm purposes. In each case, the wind farm has produced at over a .20 capacity factor, despite using smaller than optimal rotor diameters. Examples include the Montfort, Lincoln, and Rosiere Wind Farms.

In the case of Montfort, where FPL Energy is operating 20 ENRON Wind 1.5-MW turbines (70.5 meter rotor version) on 65-meter towers, the Badger Windpower entry on WEPCo's 2002 FERC Form 1 Report (p. 326) suggests that that project operated at a .24 capacity factor (including losses) in 2002 with regard to WEPCo's 25.5-MW share. This site was not expected to have a mean wind speed at hub height in excess of 15 mph.

At the Rosiere Site, MGE has operated 17 Vestas V-47/660-kW turbines on 65-meter towers since July 1999, achieving an average capacity factor of .23 for calendar year 2000 through 2002 (including losses). MGE's wind measurements at 65 meters at Tamarack and Eagle Roads averaged 15.1 mph for this three-year period. However, these measurements are made at a site which is somewhat windier than the average for the turbines in the Rosiere Wind Farm. I estimate that the mean for the average Rosiere wind turbine is significantly under 15 mph at hub height.

At the Lincoln Site, WPS has operated 14 Vestas V-47's on 65-meter towers since July 1999, achieving an average capacity factor of .21 for calendar year 2000 through 2002 (including losses). WPS has not measured wind speed at this site, but I measured the wind speed there at 10 meters for several years. I estimate that the mean for the average Lincoln turbine at hub height is about 14.5 mph. The cramped spacing of turbines at this site increases array losses.

The experience to date at these well-maintained wind farm sites indicates very clearly that well-planned Wisconsin Class 3 wind resource sites produce considerably better than .20 capacity factors. The use of a .20 capacity factor for Class 3 in economic modeling would be inconsistent with this state's growing experience with producing more wind energy at such sites.

Part of the reason for this greater-than-.20 capacity factor experience is that Wisconsin has lower mean temperatures and higher mean air densities on a sea-level-adjusted basis than are assumed in standard wind turbine ratings.

Also of interest is the experience of Wisconsin Electric at its Byron Wind Farm Site to date. From 2000 through 2002, the two Vestas V-47's on 65-meter towers at this site produced 9345 MWh, indicating an average capacity factor of .27, including losses. I also measured within about 100 meters of this site using a 10-meter tower for several years. This site is windier than the previous three sites, with a mean wind speed of about 15.8 mph at hub height, I estimate. This is a low Class 4 wind resource (at 65 meters), but this site is maintained by a Rosiere-Lincoln-based (Vestas) maintenance team, which has to travel at least two hours one way to get there; thus, it may have larger availability losses than a locally-maintained wind farm.

As you may be aware, the Vestas turbine is not optimized for Wisconsin wind conditions. It has a smaller rotor relative to generator size than such turbines as the GEWE 1.5 (77-meter) and NM82 (1.65 MW) wind turbines, which are machines more optimized for a Wisconsin-type wind regime and are both now available with 80-meter towers.

Wisconsin has not yet developed wind resources at mid-to-high Class 4 wind resource sites, although it soon will at such sites and Class 5 sites as new taller tower technology is employed. We can safely predict higher capacity factors as such higher-wind-speed sites are developed using turbines like the GEWE 1.5 (77-meter) and NM82 (1.65-MW).

Even at a 16-mph site (low-to-moderate Class 4) with 15% overall losses (including array losses), these machines would produce at .30 and .31 capacity factors, respectively, according to the manufacturer's power curve.

With the tower heights now available for MW-scale machines, Wisconsin has some 17-mph in-land sites and many potential 17-mph-or-higher offshore sites, and the number of both will grow as tower heights increase. These would have higher capacity factors, up to about .34 or .35. Offshore sites in some cases could reach .40.

Capacity factors would tend to increase by about .01 for individually-sited turbines distant from neighboring turbines due to an absence of significant array losses in such cases.

I believe Wisconsin has many hundreds, possibly more than 1000, sites suitable for individual wind turbines. Our land-use and topography patterns in some parts of the state favor individual turbines distant from others. This kind of distributed development can be extremely efficient, minimizing array losses, electrical losses, and grid-connection investment.

I would suggest that modeling use a capacity factor of .35 (including losses) for Class 5, .32 for Class 4, and .27 for Class 3 wind farm installations, limiting the last category to no more than 20% of all wind installations, with about 20% of inland installations in Class 5 by 2005. I would model offshore installations as 80% Class 5, the rest Class 4 initially, and all Class 5 by 2010. If individually-sited turbines are modeled, they should be modeled at .01 higher capacity factors to reflect the absence of array losses in such cases. With the new large rotor, tall tower, technology now starting to come on line, Wisconsin will very seldom develop less-than-15-mph sites in the future. Most new wind installations will have more than a 15.66 mph (Class 4) wind resource, and virtually all will use large-rotor technology which will out-produce the Vestas V-47 at Wisconsin wind sites. Capacity factors used in modeling should reflect current commercial and near-future wind realities relevant to Wisconsin, not obsolete technology or technology optimized for different wind regimes which wind developers will not use here.

Wind is an increasingly competitive technology because it has not stood still since 1991. PSCW wind economic analyses need to be updated to 21st Century realities. Due to larger rotors and taller towers developed over the last 12 years, wind is now the most economic technology available to produce electric energy in Wisconsin, but PSCW models and some of your colleagues appear to be stuck in an early 1990's time warp which has not quite caught up to the new reality.

Now is the time to catch up!

Wind could displace <u>every single kWh</u> proposed to be produced by ERGS, and Wisconsin's economy, Great Lakes fishery, and environment would be all big winners from the substitution of clean Wisconsin wind for unclean Pennsylvania coal.

<u>Biomass</u>

Biomass could also displace <u>every kWh and every kW</u> proposed to be produced by ERGS.

Biomass potential from on-farm digesters may be as much as an order of magnitude higher than the 30 MW you identify. While much of this potential is on large dairy farms, there may also be some potential at large poultry and hog operations, with the latter potential increasing as global warming progresses and Wisconsin grows more corn and soybeans. There does appear to be a strong trend toward increasing herd or animal waste unit size in all three industries. The 30 MW figure is probably about right for current potential, but current potential does not begin to capture the rapid trend toward increasing animal unit size and farm consolidation.

I suspect that your cost numbers are also too high for biogas technology. This is a relatively new technology (like wind 20 years ago). Costs will drop significantly. Biogas generation will be economical, certainly more economical than ERGS, before 2010. Also, it is worth noting that biogas generation is a base load resource.

I believe that your costs are too high for other biomass technologies as for biogas. If your costs were realistic, biomass would begin to significantly penetrate the generation mix by about 2010.

Like biogas technology, other biomass technologies are at a relatively primitive stage of development. They will be more economical after future technological development. The development of biomass gasification and liquid fuel technologies is particularly promising for future efficient use of biomass feed stocks. Current biomass combustion technologies are not very efficient, but future technologies could be much more so. This not only improves future economics but also increases the amount of the potential to supply kW from a given biomass feed stock or land base.

The retirement of aging coal and perhaps nuclear plants will give impetus to greater efforts to develop biomass technologies in this decade or soon thereafter. As a state importing more than 95 percent of its primary energy at an annual cost of billions of dollars, an economically inhibiting dependence WE proposes to increase with the construction of ERGS, Wisconsin stands to benefit economically from finding ways to efficiently use its biomass resources as local energy resources instead.

The economic benefits of biomass development to rural counties are especially significant. This realization will give impetus to greater efforts to develop local biomass energy sources as current budget crises ease in a few years.

Also, biomass, like wind, is an inflation-resistant alternative to high-priced natural gas.

I think the FEIS would be enhanced significantly if it incorporated an expanded discussion on how biomass could play an important role in a more energy-self-reliant Wisconsin economy. I would like to see some real vision of an alternative future in this area.

There are a lot of people in all counties of this state who would rather pay Wisconsin farmers than Pennsylvania coal miners and intervening railroads for their energy. I certainly would.

Photovoltaic Cells

I see solar too as working its way into the electric grid a decade or two hence.

Right now, p.v. power is very expensive compared to base load energy. But when p.v. installed costs get down somewhere near $1000 per kW, perhaps by around 2020, I think p.v. will begin to be integrated into the grid on a large scale as a summer-peak capacity resource, offsetting by-then-very-expensive-to-run-gas-fired CT's and substation and distribution line upgrades.

P.v. will be more valuable than its avoided energy cost, because it will also avoid distribution and transmission and summer peak generation capacity costs. In some places, p.v. may make inroads into the grid as a distributed generation resource much earlier than this.

If the EGEAS model does not allow you to factor the d.g. benefits of p.v. into your alternative analysis, you need to find a better method for doing the analysis. This is a substantial benefit of

this technology.

Eventually, roof-mounted p.v. cells will be major producers of grid electricity. This will happen well before the ERGS black elephant is mothballed. The FEIS should acknowledge this very broadly shared vision.

I suggest you figure out a way to estimate when p.v. will drop to $1000/kW and then figure out a method to work it into the generation mix. Solar is a future generation resource circa 2057. Coal is not. If you are going to entertain proposals to build 50-year-life coal-fired pollution factories, you need to think well past the next 12 months in terms of the cost and role of potential alternatives. Solar is an example of one that may take more than a decade to begin to assume its future major role, but it will drop in cost, and it will assume that role in a time frame relevant to the ERGS proposal. P.v. costs have been declining, albeit slowly, for decades.

You need to figure out a way to model solar reasonably so that it can compete in the capacity and energy mix in the relevant time frame. Using some MGE inflated capital cost for a historical p.v. project as a fixed cost for p.v. into the next several decades is unacceptable. Ignoring p.v.'s peak and d.g. benefits is also unacceptable.

You must treat p.v. as a real alternative to ERGS. You may not punt on this. Solar, like wind and biomass, is a higher priority energy resource than high-sulfur coal, and it will be very big in Wisconsin's electric energy mix some day.

Remember, 20 years ago, wind cost 30 or 40 cents per kWh too. Now, wind energy sells for less than 3 cents per kWh in some cases. Something similar will likely happen with solar in the next 15 years. Any realistic model must treat solar installed costs as dropping over time.

Fuel Cells and Hydrogen

Again, you must treat fuel cells as a real alternative, dropping in installed cost over time. Even if they are fueled with natural gas, due to their high efficiency, they may be preferable to ERGS. With the auto industry committed to developing fuel cells as auto power plants, the advent of affordable fuel cells right down to household scale is inevitable, probably by about 2010.

You should lay greater emphasis on the likelihood that fuel cells will ultimately be fueled with hydrogen derived from renewable energy sources like wind or solar which have a variable output determined by the natural flow of wind or light photons at the moment. This natural variability, so troublesome to some linear-thinking engineers of limited imagination, including a few authors of the DEIS, is actually an advantage if the wind or p.v. generation is allowed to supply either electrons to the grid or hydrogen to storage, depending on the relationship of the current natural energy stream to current electric demand.

Ultimately, wind generation is likely to produce hydrogen at lower cost than natural gas.

With fuel cells in the generation mix, wind, biomass, and solar p.v. could run the electric grid

without combustion of any fossil fuels or production of any net CO_2 or nuclear waste. The grid could utilize surplus wind (mostly) or solar energy to electrolise hydrogen from water, store it, and use the hydrogen in fuel cells later to meet grid needs when the wind and solar flows were insufficient. The entire electric system could be virtually pollution free. Indeed, it could produce surplus hydrogen to fuel transport, homes, industry and commerce too.

Fuel cells exist. They are getting cheaper. They will ultimately be major players in supplying electricity. They will be much cleaner and more efficient than most current generation systems burning fossil fuels. They may ultimately play a major role in our vehicles and homes. They may even ultimately give us a chance to get rid of significant parts of our electric/water grids.

Consider the possibilities. Perhaps one day we will have the option to replace We (Filthy) Energies at our houses with we ourselves, our clean home fuel cell, and our hydrogen purchased from Offshore Environmental Energies, our friendly Lake Michigan wind-hydrogen producer, a company which will not disgorge mercury to the lake, CO_2 to the atmosphere, and slush funds to every self-absorbed legislative leader in Madison in need of an extended term in a state institution with bars on the windows.

I would like to read much more about such visionary possibilities in the FEIS.

Staff Analysis of Renewables

I think the DEIS correctly appraises the prospects for the federal wind energy production tax credit.

However, in the wind capacity credit area, I believe 20 percent is too conservative. I would use a figure of about 80 percent of the expected wind capacity factor to represent its summer peak capacity value. For a mean future installation wind capacity factor of .32, I would expect wind summer peak capacity value to average about .25, with big year-to-year fluctuations.

Conclusion

An important difference between people who lead change and people who resist it is the ability of the former to visualize how the future can be different from the present. Be visionary as you make your key contribution to the ERGS FEIS.

The emerging story of progress in renewable energy technology is engaging and exciting. Let the reader share the vision of a brighter, cleaner, energy and economic future for Wisconsin!

Very truly yours,

Robert H. Owen, Jr.
cc: Kathleen Zuelsdorff

Comments on the Draft Environmental Impact Statement, submitted by S.C. Johnson & Son, Inc.

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June 12, 2003

VIA HAND-DELIVERY AND E-MAIL

Mr. Jeffrey Kitsembel
Public Service Commission
P.O. Box 7854
Madison, WI 53707-2854

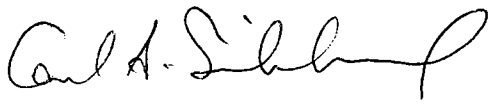
Re: Comments on Draft Environmental Impact Statement
Elm Road Generating Station
Docket 05-CE-130

Dear Mr. Kitsembel:

Enclosed please find the Comments of S.C. Johnson & Son, Inc., on the Draft Environmental Impact Statement for the Elm Road Generating Station. We are also sending a copy of these comments by e-mail to Mr. Michael Thompson, DNR's EIS coordinator for the project.

Sincerely,

WICKWIRE GAVIN, P.C.



Carl A. Sinderbrand

Enclosure
cc: Mr. Michael Thompson
S.C. Johnson & Son, Inc.
Service List (via e-mail)

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COMMENTS OF S. C. JOHNSON & SON, INC. ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE ELM ROAD GENERATING STATION PSC DOCKET NO. 05-CE-130

S. C. Johnson & Son, Inc. ("SC Johnson") respectfully submits these comments to the Public Service Commission of Wisconsin ("PSC") and the Department of Natural Resources ("DNR") on their draft environmental impact statement for the proposed Elm Road Generating Station ("ERGS") dated April 2003 (the "DEIS").

SC Johnson is a family-owned and managed Wisconsin corporation whose principal place of business is located at 1525 Howe Street, Racine, Wisconsin. The company has been a Racine-based business since it was founded in 1886 and has grown to be one of the world's leading manufacturers of household cleaning products and products for home storage, personal care and insect control. The company has made a substantial investment in the area that would be directly affected by the ERGS and has a demonstrated historical interest and commitment to the environmental, social and economic health of the affected area.

SUMMARY OF COMMENTS

Wisconsin Electric Power Company and its affiliates (collectively, "WEPCO") have proposed to burden electric ratepayers with a $4.1 billion capital project that will have significant adverse economic and environmental impacts. The DEIS discloses many of the adverse impacts of WEPCO's proposal but requires substantial revision as a result of its heavy reliance on WEPCO's permit applications, which fail to identify many additional adverse impacts of the ERGS proposal. SC Johnson believes that the revisions that need to be made to the document are so numerous and important, and the gaps in the information provided by WEPCO so material and substantial, that the agencies should allow for a new period of public comment on a revised DEIS prior to publishing the final document. It is also apparent from WEPCO's testimony in the PSC proceeding that WEPCO is changing, or at least considering

changing, particular aspects of its proposal that would affect the assessment of environmental impacts. Such changes provide an additional reason why the agencies should make a revised DEIS, reflecting WEPCO's changes, available for another round of public review and comment.

The chapters of the DEIS that discuss the economics of the proposal examine a number of supply-side and demand-side issues in addressing the need for baseload capacity in Southeastern Wisconsin, and more specifically the reasonableness of the ERGS proposal. While the DEIS analysis is sound in many respects, there are a number of issues that are not sufficiently addressed that could significantly affect the ultimate determination of the need for and reasonableness of the ERGS project. The analyses undertaken in these parts of the DEIS reflect serious efforts to initiate a hard look at the proposal, but still stop short in a number of critical respects from truly exposing the overly optimistic, and often unrealistic, approach taken by WEPCO. In particular, the DEIS base case EGEAS analysis of the ERGS project fails to adjust for a number of unreasonable assumptions developed by WEPCO that serve to bias the study results in favor of the ERGS proposal. In several instances, the DEIS even notes that WEPCO's assumptions are unreasonable, but continues to incorporate such assumptions in the base case analysis instead of substituting more realistic figures. It is important to note that, notwithstanding these deficiencies in the DEIS analysis, the DEIS concludes that the proposed ERGS project is more costly than other alternatives in virtually all of the cases considered.

At minimum, the DEIS base case EGEAS analysis should be updated to reflect more reasonable assumptions for the items that are identified below. When such changes are made, the DEIS-projected significant economic advantage of other supply alternatives over the ERGS proposal will increase and will further support the conclusion that ERGS is neither a least-cost nor cost-effective proposal.

The DEIS's discussion of the environmental impacts of the ERGS is fatally flawed because, like WEPCO's submissions, it fails to analyze the health impacts of the project's high levels of air pollutant emissions. Public health issues cannot be ignored. The DEIS erroneously concludes that the project will meet the National Ambient Air Quality Standard (NAAQS) for particulate matter (PM) because WEPCO's modeling shows no exceedance of the PM_{10} NAAQS. In 1997, however, the U.S. Environmental Protection Agency determined that the PM_{10} standard was inadequate to protect the public against the adverse health impacts of $PM_{2.5}$ and, accordingly, supplemented the PM_{10} standard with a $PM_{2.5}$ standard. The DEIS fails to consider whether the project will cause or contribute to a contravention of the $PM_{2.5}$ NAAQS. The DEIS should be amended to disclose whether and to what extent the project will result in $PM_{2.5}$ impacts in excess of this health-based standard. The DEIS also fails to evaluate the health impacts of the project's hazardous air pollutants, which should be analyzed in a risk assessment using standard EPA methodologies.

The Clean Water Act requires that WEPCO use the Best Technology Available to limit the adverse impacts of the project's non-contact cooling water on Lake Michigan. The ERGS design presumes that WEPCO can use once through cooling for the project and, as a result, intake, heat and discharge approximately 2 billion gallons of Lake Michigan water a day. There has been no comparative demonstration by WEPCO, however, that the largely abandoned technology of once through cooling is the Best Technology Available for this project. The DEIS also fails to evaluate this technology choice against other available, and increasingly preferred, technologies. No discussion is presented as to alternative cooling technologies or whether they would be available to serve the proposed project. The DEIS also fails to adequately assess the

environmental impacts of using and heating 2 billion gallons of lake water per day for the project.

Another adverse impact of the project proposal is the doubling of coal train traffic in Racine County. The DEIS identifies this issue but fails to take the necessary hard look at the adverse local impacts of the coal trains.

COMMENTS ON CHAPTER 2 – COSTS AND FINANCING MECHANISM

The DEIS correctly notes that the leasing arrangements that WEPCO has proposed are more costly to electric customers than a traditional rate-making approach. The DEIS concludes that a traditional rate-making approach would cost ratepayers about 14% less on a present value basis than the WEPCO-proposed leasing mechanism. DEIS at 27. Even this estimate, however, understates the burden that WEPCO's self-serving leasing arrangements would place on electric customers, because the DEIS assumes that, under a traditional rate-making approach, WEPCO should receive a 13.7% after-tax rate of return on its invested capital in the project. DEIS at 26. This is an exceptionally high figure, especially since, under traditional rate-making, the utility bears little financial risk, since all prudently incurred costs are passed along to ratepayers. Considering our economy today, or even over the last decade, it would be difficult to find other opportunities for low-risk investments with an expected after tax rate of return of 13.7%. Additionally, the DEIS recognizes, at page 25, that WEPCO currently receives 12.2% on rate-based recovery on its existing owned generating units, further demonstrating that the DEIS's assumed 13.7% return for the traditional rate-making alternative, against which the leasing arrangements are compared, is too high. Were a lower return-on-equity number used for the traditional rate-making alternative, the advantage to customers of

traditional ownership and rate-making treatment over the leasing arrangements that WEPCO has proposed would be even more apparent.

COMMENTS ON CHAPTER 3 – NEED FOR BASELOAD CAPACITY

The title of this chapter – "Need for Baseload Capacity" – inadvertently places the emphasis on the wrong issue. The question is not so much whether there will ever be a need for new baseload generating units in Wisconsin (at some point, there will be, under any forecasting scenario) but when it would be prudent to make such investments. If optimal planning calls for the construction of peaking units or wind turbines and the implementation of additional energy efficiency measures for the next decade, as the DEIS EGEAS-modeling runs plainly indicate, then the ERGS plan, which frontloads the construction of a $4.1 billion investment in coal-fired generating units, is imprudent and should not be certificated.

A key factor influencing the need, timing and economic benefits of WEPCO's proposed ERGS project is the projected growth in peak demand on the Company's system over the next ten years. While the DEIS notes that WEPCO's peak demand has increased at a rate of approximately 2.5% per year since 1997, and concludes that WEPCO's peak demand growth forecast of 2.8% to 3.0% per year over the 2002-2010 period "may be on the high side," DEIS at 51, the DEIS ultimately uses the Company's demand forecast for its base case EGEAS economic analysis of the ERGS project. The use of WEPCO's peak demand growth forecast, rather than a more reasonable forecast that reflects historical growth levels in the demands on WEPCO's system, unduly favors the ERGS project. The DEIS wisely considered a peak demand sensitivity case that evaluated the impact of using a peak demand growth rate of 2.3% to 2.5% per year over the 2002-2010 period. DEIS at 47. While the lower demand forecast used in the DEIS more closely resembles the recent historical demand growth on WEPCO's system and therefore

represents a more reasonable growth assumption for the base case analysis of the ERGS, it is important to note that WEPCO's 2002 SEC 10-K states that its system peak demand was lower in 2002 than it was in 2001. The 10-K also states that total energy sales from the WEPCO electric system were lower in 2002 than they were in 2001 and lower in 2001 than they were in 2000. WEPCO has not provided any rational basis for concluding that the demand and energy sales growth on its system over the next ten years will exceed the growth experienced during the economic boom of the late 1990's, particularly when it has experienced decreases in energy and demand growth more recently. The DEIS base case analysis should be modified to replace WEPCO's peak demand and energy growth forecasts with a forecast that more reasonably reflects the historical demand and energy growth of the system.

The discussion of projected increases in WEPCO's peak load (DEIS at 46-48) should be clarified. These projections, even if accurate, have little relevance to determining whether the ERGS is needed or would be cost-effective. Peak demand, which may occur on the one hundred hottest hours of the summer, can be met with relatively inexpensive alternatives such as demand-side management (DSM) or by installing off-the-shelf single cycle combustion turbines that may not be suitable for base load generation but can be a cost-effective way of producing electricity for a few hundred hours a year. The enormously capital-intensive coal-fired plants that have been proposed here can be justified only by secular increases in electricity demand within WEPCO's service territory that require more base load generation. They cannot be justified to meet projected increases in peak load that are highly questionable in light of recent experience and which may occur in only a few hours each year. The discussion of peak load in Chapter 3 should be rewritten to make this clear.

The PSC-certificated Badger Gen project is omitted from Table 3-3 on the theory that it, like certain other independent power product projects, has "been placed on hold because they have been unable to sign contracts with Wisconsin electricity providers and the widespread financial difficulties in the IPP markets." DEIS at 38 n.32. It should be noted, however, that WEPCO has purchased the land on which this project was to be sited and could seek to pursue it if it chose to do so.

Chapter 3 also suggests that more baseload generating units are needed because such units are prone to frequent and prolonged outages. DEIS at 50-51. We submit that a different inference should be drawn from this premise. First, since large baseload units are prone to frequent and prolonged outages due to the failure of their high pressure boiler components, the analysis of their costs should realistically reflect the lower reliability of such units and the cost of such replacement power when the units are out of service. More realistic consideration of this factor would greatly increase the costs of operating the type of large coal-fired units that comprise the ERGS, making them even less economic than they are portrayed in the DEIS. Second, the frequent outages at large coal-fired units illustrate the unrealistic reliability assumptions that WEPCO and the DEIS have used to analyze the ERGS units. While the DEIS accepts the Company's forecast that the annual forced outage rate for the ERGS units will be only 2%, history has shown that such units typically operate with forced outage rates of nearly 7% per year. The EGEAS runs should be redone using a more realistic 6% forced outage rate for the ERGS units rather than the unjustifiably low 2% forced outage rate that WEPCO and the DEIS have used to analyze the economics of these units. Using more realistic performance assumptions for the ERGS units in the EGEAS runs will show that these units are even less economic than the DEIS suggests that they would be.

COMMENTS ON CHAPTER 4 – ALTERNATIVES TO THE PROPOSED PROJECT

The DEIS notes that the EGEAS model does not pick a coal unit until 2022 if CO_2 costs are monetized. DEIS at 81. This conclusion illustrates the uneconomic nature of the ERGS proposal, particularly since CO_2 monetization falls well short of a full consideration of all of the social and economic costs resulting from coal-fired generation. On June 5, 2003, WEPCO publicly committed itself to monetizing CO_2 costs, endorsing an important proposal to that effect that CERES – a leading U.S. coalition of environmental, investor, and advocacy groups – has announced and is promoting. See CERES, Electric Power, Investors and Climate Change (June 2003) (www.ceres.org/pdf/ceres_electric_recs.pdf). Since WEPCO has itself endorsed the principle that utilities should be required to monetize CO_2 costs, these costs should be added to the EGEAS base case analysis. The data presented in the DEIS establish that doing so would result in a finding that the ERGS proposal is not cost-effective and cannot be certificated.

A. Energy Efficiency Alternatives

The DEIS recognizes that Wisconsin law requires that energy conservation is to be given the highest priority when evaluating options to supply future electricity needs. DEIS at 53. Although WEPCO's application claims that cost-effective energy efficiency measures cannot obviate the need for the ERGS, the DEIS correctly concludes that WEPCO has failed to substantiate its contention because: (i) there is no basis to verify WEPCO's claim that virtually all cost-effective energy measures are already included in WEPCO's future demand forecasts, and (ii) WEPCO limited its analysis exclusively to the residential sector. DEIS at 56-57. The DEIS concludes that "[a]s a result of these shortcomings, it is likely that the applicant underestimated the availability of additional cost-effective energy efficiency." DEIS at 57.

The DEIS also presents the PSC staff's analysis of energy efficiency alternatives. Significantly, the DEIS notes that – using the 85% market penetration rate that WEPCO itself assumed to be reasonable in its application, see DEIS at 56 – the staff's analysis identifies "an additional 1,000 MW of cost-effective savings by 2011." DEIS at 58. The DEIS characterizes this analysis as the "Staff's most aggressive scenario" but it does not seem overly aggressive since it merely uses the same market penetration rate that WEPCO itself assumes to be reasonable in its application. Moreover, the DEIS states that there are "several shortcomings" in the Staff's analysis that "likely underestimate the energy efficiency potential." DEIS at 58. The shortcomings include the failure to consider new technologies and the application of energy efficiency measures in the industrial sector. See DEIS at 58. Accordingly, it is reasonable to consider the 1,000 MW figure as a reasonable estimate of the minimum peak load reduction that could be achieved by 2011 through pursuit of cost-effective energy efficiency measures. This demand reduction must be incorporated in the demand forecast in Chapter 3.

Notwithstanding the DEIS's important finding that WEPCO did not fully consider the potential demand reduction impacts of energy conservation in its peak demand forecast, the DEIS does not include any energy efficiency peak reduction impacts in its base case analysis of the ERGS project. The DEIS base case analysis of the ERGS project should be updated to include a reasonable level of additional energy and demand reduction impacts available from cost-effective energy conservation and load management options.

B. Wind and Natural Gas Alternatives

The EGEAS model runs presented in the DEIS show that wind turbines and natural gas combustion turbines are complementary and, in combination, deliver reliable electricity at a lower economic cost than the coal-fired units that WEPCO has proposed. DEIS at

74. Even with the 250 MW and 1,250 MW wind power limitations placed on the EGEAS model runs, the DEIS concludes that "wind power could be a significant component of an integrated resource alternative that could substitute for all or a portion of the ERGS." DEIS at 61. This conclusion is highly significant, particularly in light of the statutory preference for the use of renewable resources over fossil fuels. Sec. 1.12, Stats.

Even the DEIS analysis, however, short-changes the advantages of the integrated wind and gas alternative to the ERGS because it (i) assumes that only 20% of the capacity of a wind turbine can be credited towards the reserve margin, see DEIS at 71; (ii) arbitrarily caps the wind turbines at 250 MW or 1,250 MW, see DEIS at 72, 76; (iii) fails to consider the social and economic costs of coal-powered generation, including the adverse land use impacts of the coal trains and the premature mortality and increased morbidity from the air pollution generated by this highly polluting fuel; and (iv) fails to consider hundreds of millions of dollars of costs specific to the ERGS proposal, including $266 million in electric transmission reinforcement costs, railroad line modifications, potential bluff removal, extension of the intake water structures, the potential capital and operating costs of an alternative to once through cooling, and payments to the local municipality.

The EGEAS model should be re-run relaxing the limitations that discourage wind power. Thus, the model should be run assuming a 25% or, alternatively, a 30% capacity credit for wind power and eliminating the artificial caps on wind power. Additionally, the DEIS assumes no water-based wind power generation on the basis of cost assumptions that are poorly documented and poorly explained. See DEIS at 60. No similar cost data are presented for competing technologies, making it difficult to evaluate the cost data presented on page 60, which also appear to be stated using inapplicable or misstated units of measurement. Water-based wind

power generation, using accurate and realistic cost assumptions, should be added to the options that the EGEAS model may consider, and the cost figures for this technology should be documented and explained. (As a precedent for a water-based wind farm, it should be noted that the Long Island Power Authority has proposed to construct such a facility in the Atlantic Ocean near Long Island. See www.lipower.org/papers/RFP/wind_rfp.html.)

To put the 250 MW and 1,250 MW ceilings on wind power in perspective, it should be noted that wind power has become a mainstream business. A record 6,868 MW of new wind power capacity was installed worldwide in 2002, increasing generating capacity by 28%. See American Wind Energy Association press release March 3, 2003 (available at www.awea.org). Global wind power capacity has quadrupled over the last five years, growing from 7,600 MW at the end of 1997 to more than 31,000 MW at the end of 2002. Id. Installed generating capacity has increased by an average of 32% annually for the last five years (1998-2002). Id. Were this rate of increase to be sustained, worldwide capacity would be 375,000 MW by 2011. The maturation of the industry is illustrated by General Electric Corporation's recent purchase of Enron's wind turbine business. GE expects the operation to generate more than $1 billion in revenue during 2003 and expand about 20% annually. See "GE's Wind-Power Play May Be Turning Point for Clean Energy," The Courier-Journal, Louisville, KY (May 15, 2003) (AP news story) (available at www.courier-journal.com). A significant increase in global reliance on wind power in the coming years is likely in light of the economics of this resource, which, as the EGEAS model runs presented in the DEIS indicate, is cheaper than coal-fired generation and, when combined with natural gas backup power, supplies a reliable, cleaner and lower cost alternative to coal-fired options.

C. Natural Gas Price Volatility

Electricity customers, such as SC Johnson, have an interest in the price that a utility pays for natural gas to run its generating units because that cost is passed through to the customer. One of the principal arguments marshaled in the DEIS against using natural gas as an alternative to coal is the variability in natural gas prices. See DEIS at 67. The DEIS makes this point by using a simplistic statistical model that purports to show that it is nearly impossible to predict future gas prices because of the historic variability in natural gas prices on the spot market. See id. What principally matters to electric customers, however, is not the extent to which gas prices vary from day-to-day or from season-to-season but the average dollar that the utility pays per Btu over the course of several years, because it is these long-term averages that are relevant to predicting whether fueling new units with natural gas rather than coal will be economically advantageous or disadvantageous over the several decades in which a new unit will be in service.

The DEIS discussion at pages 67-68 appears to exaggerate the importance of the statistical model that is used there. Natural gas prices can be forecasted into the future notwithstanding their season-to-season variability, because long-term trend lines establish a basis for such forecasting. Much of the variation from the general year-to-year trend of U.S. natural gas use (and the resulting variation in natural gas prices) can be attributed to variations in average winter temperatures. For example, the larger than average increase in gas use from 1999 to 2000 was primarily the result of a change from the particularly warm winter weather of 1999-2000 (3,351 heating degree-days or 457 fewer heating degree-days than normal) to the particularly cold winter of 2000-2001 (4,048 heating degree-days or 240 more heating degree-days than normal). The fact that natural gas prices change with the turning of the seasons and

annual variations in temperatures merely establishes that, in using historic price data to predict future prices, the forecaster must consider additional variables that the DEIS has omitted from its statistical model. Price variability per se does not establish, as the discussion in the DEIS would appear to indicate, that it is impossible to forecast long term natural gas price trends or that natural gas is an uneconomic fuel. Historic trends have shown that periods of rapid increases in natural gas prices have inevitably been followed by periods of similarly rapid decreases in prices as the market responds to short-term imbalances between supply and demand for natural gas.

D. Firm Power Purchases

The DEIS concludes that WEPCO has increased its firm power purchases to a level that is near the limit that can be reliably considered, thereby suggesting that additional power purchases are not a viable alternative to supply the capacity need that WEPCO plans to serve from its proposed ERGS units. DEIS at 50. In support of this conclusion, the DEIS provides information on the growth in the level of WEPCO's firm power purchases from approximately 400 MW in 1998 to a forecasted level of slightly over 1600 MW in 2004. DEIS, Figure 3-2, at 33. Yet a closer examination of WEPCO's supply-side plan shows that the Company is forecasting that its firm purchases will decrease sharply from approximately 1,600 MW in 2004 to less than 980 MW by 2008, the year after the first ERGS unit is planned to come on line. See WEPCO Original Application, Enclosure 1, Table 1-4. While there certainly may be reasonable limits on the level of purchased power that WEPCO should consider, the DEIS base case analysis should not simply adopt WEPCO's forecasted sharp decrease in firm purchases that coincidentally correspond with the timing of the forecasted need for the ERGS units. This sharp drop in firm purchase alternatives is particularly questionable given the Company's failure to seek competitive bids for purchased power as an alternative to the

proposed ERGS projects. The DEIS base case EGEAS analysis should be updated to maintain future firm purchases at the 2004 level for at least the first ten years of the analysis. This revision could significantly alter the forecasted base case analysis of the need for and benefits of the ERGS units.

In addition, the DEIS appears to adopt WEPCO's proposal to treat capacity supplied by firm purchases in the same manner as it treats capacity supplied from a generating unit. However, firm purchased power contracts are frequently backed by reserves provided by the seller. Accordingly, WEPCO's analysis of its system capacity requirements may be overstated by ignoring the capacity reserves that are supplied with such firm purchase contracts. The DEIS base case EGEAS analysis should be updated to specifically address this issue in order to ensure that WEPCO has not overstated its reserve requirements and thereby overstated its need for new capacity.

E. Projected Firm Power Sales

The DEIS base case EGEAS analysis incorporates without adjustment WEPCO's firm power sales forecast that includes approximately 500 MW of off-system sales that presently are not under contract. It is unreasonably speculative and improper to include such uncommitted off-system power sales in the base case analysis of the ERGS project, since no such contracts may come into existence and WEPCO's native system retail customers ultimately will be held responsible for the entire investment in the ERGS if such sales do not materialize. Moreover, it appears that WEPCO's firm sales forecast that is used for the DEIS base case analysis includes "options" that have been negotiated by WPPI and certain other publicly owned utilities to purchase firm capacity from the ERGS project. This treatment of unexercised purchase options as firm demand obligations of the WEPCO system is not only overly speculative, but it also

appears to overstate WEPCO's peak demand by including such capacity sales options as an increase in WEPCO's peak demand obligation and as a 100 MW per unit reduction in the generating capacity of the ERGS project. WEPCO's assumptions, as reflected in the DEIS analysis, appear to double count 100 MW per ERGS unit, because they add the additional 100 MW that would be generated by these units to WEPCO's peak load forecast but assume that 100 MW from each unit will not be available to meet that peak load, thereby necessitating construction of yet more reserve capacity on the WEPCO system. The DEIS base case EGEAS analysis should be modified to address this apparent double counting of ERGS capacity options, to remove the speculative off-system sales options included in WEPCO's peak demand forecast, and to remove reserves included for any existing capacity sales that do not provide for reserves.

F. Construction Cost Assumptions for ERGS and Gas-fired Alternatives

The DEIS recognizes that, under WEPCO's proposal, the risk of construction cost over-runs for the ERGS project would be placed on the ratepayers. The DEIS further notes that the Company admits that "because few coal-based facilities have been built recently, the risk that actual costs may deviate from estimated costs is greater for the ERGS facility . . . ." DEIS at 14. Notwithstanding these warnings of the risks of construction cost over-runs for the ERGS proposal, the DEIS base case EGEAS analysis uses the Company's base construction cost estimate for the ERGS project. Conversely, the DEIS base case analysis also uses WEPCO's construction cost estimate for natural gas-fired combustion turbine alternatives, even though there have been significant recent reductions in combustion turbine equipment prices due to the downturn in the merchant power industry.

The DEIS base case analysis should be modified to reflect a minimum 10% increase in WEPCO's base construction cost estimate for the ERGS project and to include lower

natural gas combustion turbine equipment costs that reflect current market conditions. A 10% increase in WEPCO's base construction cost estimates would be modest indeed since it is our understanding that WEPCO's contractor (Bechtel) will not even provide a firm cost estimate until the construction is 30% complete, and the proposed leases have WEPCO-drafted exceptions to the porous cost "cap" they incorporate as to make their 10% limit on cost escalation a meaningless façade.

G. ERGS Performance Assumptions

The DEIS base case EGEAS analysis incorporates WEPCO's unreasonably optimistic and unsupported assumptions regarding the operating availability and efficiency of the ERGS units. These optimistic assumptions bias the EGEAS results in favor of the ERGS project. For example, the DEIS does not address the reasonableness of WEPCO's forecasted equivalent availability factor (EAF) (over 90%) and forced outage factor (only 2%) for the ERGS project. These assumptions are extremely optimistic; in comparison the national average forced outage factor for similarly sized coal-fired units is more than 6%. Moreover, the DEIS adopts WEPCO's heat rate (efficiency) assumptions for the ERGS project that are also highly optimistic and unsupported. While the most recent heat rate information published by the Utility Data Institute for existing coal-fired units indicates that no units achieve a heat rate better than 9,035 Btu/kWh, the DEIS base case analysis has used WEPCO's heat rate forecast of 8,850 Btu/kWh for the ERGS project. It is not appropriate to justify $4.1 billion in investments based on highly optimistic, unrealistic performance assumptions that have not been achieved by any other similar generating unit. The DEIS base case analysis should be modified to incorporate more reasonable availability and efficiency assumptions for the ERGS based on demonstrated performance of similar coal-fired generating units.

H. ERGS Emissions Costs

While the DEIS recognizes that the proposed ERGS units will emit considerable amounts of SO_2, NO_x, mercury and other air pollutants, only the current cost of SO_2 allowances is monetized, and then not even in the base case analysis. Clean air legislation already proposed by both major political parties would impute a market value upon NO_x and mercury and increase the value (determined by anticipated compliance costs) of SO_2 allowances. Due to the fact that emissions from the ERGS would be much higher than gas-fired alternatives, and with the prospect that new legislation could soon be passed that would significantly increase future emissions allowance costs, the DEIS base case analysis of the ERGS should be updated to more reasonably reflect the costs of SO_2, NOx and mercury emissions.

Monetization of these additional allowance costs, although appropriate, would not fully reflect the social and economic costs of the coal-fired generating units that WEPCO has proposed to build. Even with the additional allowance costs factored into the analysis, the DEIS would continue to understate the true cost of the ERGS proposal, because the allowance costs do not include the social and economic cost of the morbidity and premature mortality associated with the ERGS emissions, the costs associated with the adverse aquatic impacts to Lake Michigan resulting from the ERGS' once through cooling water system, or the costs associated with the adverse land use impacts of the coal trains. These issues are addressed in further detail below.

I. EGEAS Runs

The EGEAS data presented in Table 4-7 of the DEIS demonstrate the uneconomic nature of the ERGS proposal. The PSC staff base case, which contains a number of unrealistic assumptions that, as explained above, appear to bias the analysis in favor of the ERGS, calls for

constructing only one ERGS unit through 2011. The EGEAS runs using the "high gas [price]" scenario, which favors coal-fired generation, also call for constructing only a single ERGS unit through 2011. An increase of coal capital costs by 20% results in the EGEAS model selecting no ERGS units through 2011. CO_2 monetization results in constructing no ERGS units through 2022. DEIS at 81. The final EIS should contain a similar table setting forth the results of the additional EGEAS runs that SC Johnson and other commentators have suggested. Specifically, based on the information that it has been provided to date, SC Johnson requests that the PSC staff include the results of the additional EGEAS runs identified below in the final EIS for the project.

The additional EGEAS scenarios are intended to be conducted as changes to WEPCO's base case EGEAS runs supporting WEPCO's direct testimony as filed on May 27, 2003. EGEAS should be run for two cases – (i) ERGS without IGCC and (ii) EGEAS Optimized (with timing and type of capacity additions selected by EGEAS) – for each of the following scenarios. For each scenario, except for modifications specified, all assumptions should reflect WEPCO's base case EGEAS analysis, as filed on May 27, 2003, in order to maintain comparability of results.

Scenario 1: Demand and Supply-Side Modifications

a. Peak Demand Obligation

- Demand Growth – midpoint between WEPCO's 5/27 base case and low case forecasts, per Table 1 below.

b. Supply Side Resources

- Assume wind generation tax credit eligibility extended through 2006
- Assign 20% capacity credit for wind generation
- Increase capital cost of SCPC units by 10%

- Increase forecasted heat rates for SCPC units by 3% at all load levels

- Increase forced outage rate for SCPC units to 6%

- Reduce forecasted heat rates for gas-fired combined cycle alternative to reflect 6,820 average heat rate and assumed values at all load levels as reflected in the original application

Scenario 2: Emissions Cost Sensitivity

a. Model SCPC Emissions at the following rates and based on allowance costs reflected in Table 2 below:

   SO_2 Emission Rate: 0.16 lb/MMBtu (1-SCJ-012)

   NOx Emission Rate: 0.07 lb/MMBtu (1-SCJ-14)

   Mercury Emission Rate: 2.3×10^{-6} lb/MMBtu (1-SCJ-023)

b. Model gas-fired combined cycle combustion turbine emissions at the following rates and based on allowance costs reflected in Table 2 below:

   SO_2 Emission Rate: 0.0006 lb/MMBtu (Original Table 1-8)

   NOx Emission Rate: 0.013 lb/MMBtu (Original Table 1-8)

   Mercury Emission Rate: 2.3×10^{-6} lb/MMBtu (1-SCJ-023)

c. Model gas-fired simple cycle combustion turbine emissions at the following rates and based on allowance costs reflected in Table 2 below:

   SO_2 Emission Rate: 0.0006 lb/MMBtu (Original Table 1-8)

   NOx Emission Rate: 0.037 lb/MMBtu (Original Table 1-8)

   Mercury Emission Rate: 2.3×10^{-6} lb/MMBtu (1-SCJ-023)

d. Incorporate all other changes and revised assumptions as reflected in Scenario 1.

Scenario 3: Sensitivity as to Changing Assumptions as to Retirements of Existing Units

a. Assume Oak Creek Units 5 and 6 retire after 60 years of operation (instead of in 2012) as reflected in original application.

b. Incorporate all other changes and revised assumptions as reflected in Scenario 2.

Scenario 4: Low Demand and Energy Growth Sensitivity

a. Use WEPCO's 5/27 low case peak demand and energy forecasts

b. Incorporate all other changes and revised assumptions as reflected in Scenario 1.

Scenario 5: Enhanced DSM, Energy Efficiency and Renewable Energy Sensitivity

a. Use WEPCO's low case peak demand and energy forecasts to reflect enhanced energy efficiency and DSM potential.

b. Increase capacity credit for Wind Generation to 20%, remove all caps on level of wind generation option and extend production tax credit for Wind Generation through study period.

c. Incorporate all other changes and revised assumptions as reflected in Scenario 1.

Scenario 6: Gas-fired Combustion Turbine Sensitivity

a. Reduce WEPCO's forecasts of installed capital costs for gas-fired combined cycle and simple cycle combustion turbines by $75/kW.

b. Decrease annual forced outage rate assumptions for gas-fired combined cycle and simple cycle combustion turbines to 3%.

c. Reduce Scenario 1's heat rate estimates for gas-fired combined cycle and simple cycle alternatives by 3%.

d. Incorporate all other changes and revised assumptions as reflected in Scenario 1.

Scenario 7: High Coal Price Sensitivity

a. Use WEPCO's high coal price sensitivity

b. Incorporate all other changes and revised assumptions as reflected in Scenario 1.

Table 1

Scenario 1 Peak Demand and Energy Forecast

Year	Peak Demand (MW)	Growth	Annual Energy (GWh)	Growth
2003	5,912		31,771	
2004	6,115	3.4%	32,694	2.9%
2005	6,232	1.9%	33,163	1.4%
2006	6,376	2.3%	33,782	1.9%
2007	6,567	3.0%	34,511	2.2%
2008	6,734	2.6%	35,438	2.7%
2009	6,970	3.5%	36,397	2.7%
2010	7,126	2.2%	37,284	2.4%
2011	7,299	2.4%	37,979	1.9%
2012	7,446	2.0%	38,825	2.2%
2013	7,602	2.1%	39,499	1.7%
2014	7,763	2.1%	40,187	1.7%
2015	7,928	2.1%	40,888	1.7%
2016	8,096	2.1%	41,604	1.7%
2017	8,268	2.1%	42,333	1.8%
2018	8,444	2.1%	43,078	1.8%
2019	8,624	2.1%	43,837	1.8%
2020	8,808	2.1%	44,612	1.8%
2021	8,976	1.9%	43,207	-3.1%
2022	9,168	2.1%	44,013	1.9%
2023	9,364	2.1%	44,836	1.9%
2024	9,564	2.1%	45,675	1.9%
2025	9,770	2.2%	46,530	1.9%
2026	9,980	2.1%	45,783	-1.6%
2027	9,894	-0.9%	46,673	1.9%
2028	10,113	2.2%	47,597	2.0%
2029	10,338	2.2%	48,508	1.9%
2030	10,567	2.2%	49,454	1.9%
2031	10,802	2.2%	50,419	2.0%
2003-2011		2.7%		2.3%
2003-2020		2.4%		2.0%
2003-2031		2.2%		1.7%

Table 2

Scenario 2 Emissions Allowance Cost Estimates
Source: http://www.epa.gov/air/clearskies/tech_sectionc.pdf

	SO2 $/ton	Nox $/ton	Mercury $/ounce
2002	$200		
2003	$200		
2004	$200		
2005	$200		
2006	$200		
2007	$200		
2008	$200		
2009	$200		
2010	$700	$1,425	$550
2011	$740	$1,417	$580
2012	$780	$1,409	$610
2013	$820	$1,400	$640
2014	$860	$1,388	$670
2015	$900	$1,375	$700
2016	$960	$1,488	$740
2017	$1,020	$1,600	$780
2018	$1,080	$1,658	$820
2019	$1,140	$1,716	$860
2020	$1,200	$1,775	$900
2021	$1,280	$1,820	$950
2022	$1,360	$1,865	$1,000
2023	$1,440	$1,910	$1,050
2024	$1,520	$1,955	$1,100
2025	$1,600	$2,000	$1,150
2026	$1,700	$2,045	$1,210
2027	$1,800	$2,090	$1,270
2028	$1,900	$2,135	$1,330
2029	$2,000	$2,180	$1,390
2030	$2,100	$2,225	$1,450
2031	$2,220	$2,270	$1,520
2032	$2,340	$2,315	$1,590
2033	$2,460	$2,360	$1,660
2034	$2,580	$2,405	$1,730
2035	$2,700	$2,450	$1,800

COMMENTS ON CHAPTER 5 – FUEL DIVERSITY PERSPECTIVES

The DEIS discloses that 69% of the energy consumed by WEPCO's electricity customers is produced by coal-fired generation. DEIS at 34, Figure 3-4. Nuclear energy supplies another 27.5%. Id. Natural gas is used to generate only 3.3% of the electricity that WEPCO sells, and renewable energy is used to generate only 0.1% of WEPCO's electricity. Id. It is these statistics that need to be kept in mind when considering whether the proposal to build more coal-fired power plants in Wisconsin would contribute to the "fuel diversity" that WEPCO has said that it wants to promote.

The first sentence in the section of the DEIS discussing the "reliability" of natural gas states that "Wisconsin has no indigenous supplies of natural gas." DEIS at 84. A similar comment could be made about coal, as well, since WEPCO has proposed to power the ERGS by burning out-of-state Pennsylvania coal. Although the DEIS focuses on the fact that natural gas must be imported to Wisconsin, the equally pertinent facts as to the extent to which the ERGS must rely upon out-of-state coal are omitted. There is potential for disruptions in the supply of coal due to transportation problems, strikes and other factors, just as there is potential for a reduction in the supply of natural gas. If reliance upon out-of-state fossil fuels is undesirable, as the DEIS implies, the logical conclusion is not to use coal instead of natural gas but to rely upon renewable energies such as wind and energy efficiency measures to reduce electricity demand.

The discussion on page 88 mixes data on new gas-fired electric generation nameplate capacity with statements about increased use of natural gas for electricity generation. The discussion could be improved by noting that coal-fired units typically have much higher annual capacity factors (i.e., utilization levels) than single cycle gas-fired combustion turbines, which are often used as peaking units. Moreoever, new gas-fired combined cycle generating units are approximately 30% more efficient than existing gas-fired generation that these units

displace and, therefore, consume less fuel per megawatt-hour produced. Accordingly, future energy consumption trends for coal and gas will not match the tend line that would be established simply by comparing the nameplate generating capacity data for 2000 and 2003 presented in Figures 5-3 and 5-4. For example, according to data published by the Energy Information Administration, less natural gas was consumed for electricity generation in the United States in 2001 than in 2000. See EIS Annual Energy Review 2001 Table 8.3a (www.eia.doe.gov/emeu/aer). Energy use data for 2002 are not yet available.

The discussion on pages 89-90 of the DEIS suggests that gas-fired electric generating units are less reliable than coal-fired units because gas-fired units must cease operating in the event of an interruption in gas availability, if the gas-fired unit is relying on interruptible interstate transmission capacity. No data are presented, however, as to how often gas-fired units are taken off-line as a result of an interruption in gas supply availability. Moreover, the DEIS provides no discussion of the reduction in supply curtailments that can be achieved for gas-fired power plants by adding fuel oil backup capability. Nor are any data presented as to forced outages at coal-fired power plants. Published historical outage data for coal-fired and combustion turbine gas-fired units indicate that combustion turbine gas-fired units are at least as reliable, if not more reliable, than coal-fired units. Historic forced outage data for gas-fired and coal-fired units should be presented in the final EIS before any conclusion is reached that gas-fired units are less reliable than their coal-fired counterparts.

COMMENTS ON CHAPTER 6 – OVERVIEW OF PROPOSED SITES AND TECHNOLOGIES

A. Alternatives Analysis

The DEIS – no doubt accurately – describes the site selection criteria that WEPCO used to arrive at a proposed site for the ERGS. DEIS at 97. According to the DEIS,

WEPCO's siting criteria required the site to have access to the massive amounts of cooling water needed for once through cooling and screened out sites that are not well suited for the delivery of coal. DEIS at 97-98.

Notably, WEPCO did not use siting criteria aimed at minimizing the adverse environmental impacts of the project. No sites suitable for natural gas units were considered. No sites suitable for cooling water technology that would have less adverse impacts on Lake Michigan were considered. No effort was made to seek to locate the new plant outside of Wisconsin's severe ozone nonattainment area. Nor was consideration given to the fact that the neighborhoods near the existing Oak Creek Power Plant are already burdened by the very high emissions of WEPCO's existing coal-fired generating units at that site. No thought was given to seeking to choose a site that might involve less earth moving or wetland filling than the Oak Creek site. WEPCO also did not consider any sites that might be suitable for two SCPC units without the IGCC.

The DEIS telescopes the site selection process so as to leave the reader with the impression that WEPCO's siting criteria led it to propose multiple locations for the proposed ERGS units on the grounds of the Oak Creek Power Plant site. The contrary is true. WEPCO's idea of proposing as "alternatives" different configurations of the coal-fired ERGS units at the Oak Creek Power Plant site was a mere afterthought on WEPCO's part as a result of the Commission's determination that WEPCO's initial application was incomplete due to its failure to comply with the legal requirement that it consider more than one site. Instead of coming up with a bona fide alternative to its preferred site for the project, WEPCO merely rearranged the location of the ERGS units within the existing Oak Creek Power Plant site and deemed these new configurations "alternatives."

The inadequate alternatives analysis in the DEIS falls short of the alternatives analysis that is required for the PSC to certificate the project. In order to grant a Certificate of Public Convenience and Necessity, the statute requires a determination that, among other things, "[t]he design and location [of the proposed facility] is in the public interest considering alternative sources [of fuel] supply, alternative locations . . . engineering, economic, safety, reliability and environmental factors . . . ." Sec. 196.491(3)(d)3, Stats. The PSC regulations provide that an application for a large electric generating facility cannot be deemed complete unless and until it contains detailed information about, among other things the "alternative sources of [fuel] supply considered, including . . . any alternative whose energy source has a higher priority ranking under the [State Energy Policy] than the fuel proposed to [be] used for the facility . . . [and] at least two proposed sites for the proposed facility . . . ." § PSC 111.53(1)(d) & (e), Wis. Admin. Code.

The alternatives analysis in the DEIS also falls short of the evaluation required by the Wisconsin Environmental Policy Act ("WEPA"). According to DNR's WEPA regulations, an EIS shall include "[a]n evaluation of the alternatives to the proposal, including a rigorous exploration and objective evaluation of the environmental impacts of <u>all reasonable alternatives</u>, particularly those that might avoid all of some of the adverse environmental effects of the proposed action." § NR 150.22(2)(e), Wis. Admin. Code (emphasis added). The term "alternatives" is defined as "other actions or activities which may be reasonably available to achieve the same or altered purpose of the proposed action including the alternative of no action." § NR 150.02(2), Wis. Admin. Code. The PSC's WEPA regulations similarly require that the EIS include an "evaluation of the reasonable alternatives to the proposed action and significant environmental consequences of the alternatives, including those alternatives that

could avoid some or all of the proposed action's adverse environmental effects and the alternative of taking no action." § PSC 4.30(3)(c), Wis. Admin. Code.

Here, instead of requiring WEPCO to submit detailed information on at least one additional location somewhere in its service area where it might meet its projected increased generation needs, the agencies have prepared a DEIS that limits its analysis of alternative locations to a single site. The various "alternative" locations within that site are no more than a fig leaf to hide the fact that WEPCO, and the DEIS, have only considered one site. Indeed, the caption of DEIS Figure 6-2, on page 100 of the DEIS, correctly demarcates the area that encompasses the alternative configurations of the project units as the "existing OCPP site."

The "alternatives" are all nearly identical to each other, since they would use the same rail line to transport coal to the site and the major coal pile required for both "alternatives" would be in the same location at the site. The "alternatives" would use the same transmission line interconnects, and would use either the same breakwater structures and expanded electrical switchyard facilities or simply move these to a different part of the site. The "alternatives" presented in the application would burden the same area with the same significant air emissions from the coal-fired units and would have the same adverse aquatic impacts on Lake Michigan, since each "alternative" would withdraw the same volume of water from the Lake and discharge the same volume of water from the site.

The rationale for the decision to limit the analysis to a single site is the agency's deference to WEPCO's siting criteria, which excluded all sites that are not suitable to coal or a technology other than once through cooling. WEPCO's self-serving siting criteria, however, are not the priorities that should govern the preparation of the DEIS for WEPCO's project. The State Energy Policy enacted by the Legislature and codified by statute into Wisconsin law

establishes "priorities" that place WEPCO's choice of fuel – high sulfur bituminous coal – dead last in the hierarchy of options for generating energy in Wisconsin. The Policy enjoins all state agencies to design all new energy projects in accordance with the Legislature's statutory priorities to the "greatest extent cost-effective and technically feasible." Sec. 1.12(5)(b), Stats. By allowing WEPCO to first select coal as the preferred fuel for its project (and allowing WEPCO to rule out sites that cannot accommodate each of the three coal-fired units, the last of which would not even be built for ten years) and then presenting in the DEIS only those "alternatives" that WEPCO believes to be appropriate for three coal-fired units, the PSC has erroneously allowed WEPCO's fuel preference – rather than the Legislature's fuel preference codified into law – to dictate the range of site alternatives that should be considered in the DEIS. The agencies have, in effect, delegated the choice of the location, size and fuel type of WEPCO's project to WEPCO itself, by allowing WEPCO to circumscribe the range of considered alternatives to different configurations of coal-fired units at the site of the existing Oak Creek Power Plant.

Even if the DEIS were to be limited only to sites that are suitable to coal-fired generation, the DEIS does not identify or analyze any other site other than the Oak Creek Power Plant site. The impacts at a different site could be substantially different, because there are particular characteristics of the Oak Creek Power Plant site that make it poorly suited to the ERGS project. The Oak Creek Power Plant site is located in a severe nonattainment area and adjacent to neighborhoods that are already burdened by the adverse air quality impacts of WEPCO's existing coal-fired generating units at the site. The Oak Creek Power Plant site also suffers from peculiarities of topography that have caused WEPCO to propose what may well be the largest earth moving project ever conceived of in the State. The site is on Lake Michigan,

resulting in adverse ecological impacts from the construction work that WEPCO has proposed and the use of lake water for the units' cooling water system. Alternative sites might suffer from fewer of these disadvantages, or use different rail lines, and thus have less adverse train-related impacts. Since the DEIS does not present information about any alternative sites, however, the data that should have been gathered to allow the agencies to determine whether the Oak Creek Power Plant site is the best location for the project simply are not available. This is a key deficiency in the DEIS.

An analysis of alternative sites is important for the additional reason that locating the ERGS at the Oak Creek Power Plant site burdens the project with more than $266 million in incremental transmission costs – costs that the DEIS has excluded from the EGEAS modeling runs altogether. DEIS at 18, 129-31. The DEIS is deficient in not presenting any information as to whether using an alternative site could have avoided these costs.

B. Synergy with the Oak Creek Power Plant

There is a suggestion in the DEIS that the ERGS would share the same "coal-handling equipment" as the Oak Creek Power Plant. DEIS at 98. This statement appears to be inaccurate. Since the ERGS is expected to use bituminous coal from Pennsylvania and the existing Oak Creek Power Plant units use Powder River Basin coal, the two plants are expected to have separate coal piles and use different coal-handling equipment. The site plan drawings that WEPCO has submitted with its application confirm that this is the case. Accordingly, locating the ERGS at the Oak Creek Power Plant site does not result in significant savings. This conclusion is consistent with the earlier discussion as to the significant ($266 million) incremental transmission costs associated with siting the ERGS units at Oak Creek.

C. Commercial Wallboard Plant

The DEIS mentions WEPCO's aspiration to bring a commercial wallboard plant to the Oak Creek Power Plant site. DEIS at 117. The DEIS neither analyzes the potential environmental impacts of such a plant or the commercial feasibility of the proposal. No credible evidence exists that the project will ever come to fruition. It appears to have been forwarded by WEPCO simply to divert attention from the massive amount of solid waste that the ERGS will produce as a result of the use of coal, which is a high ash fuel.

COMMENTS ON CHAPTER 7 – AIR EMISSIONS

The DEIS states that "the DNR must still conduct its own air quality modeling analysis in order to determine if the project is permittable, and if so, under what circumstances and conditions." DEIS at 133. SC Johnson strongly agrees with this statement. We nevertheless present below a number of criticisms of the air quality modeling, and other air-related issues, in the DEIS, and request that these issues be addressed in the final EIS and in the analysis that the DNR must complete to evaluate WEPCO's application for air permits. In virtually all cases, the deficiencies in the DEIS on air-related issues can be traced directly to the deficiencies in WEPCO's air permit and CPCN applications.

The WEPCO air permit application is flawed in a very fundamental way because it fails to analyze the health impacts of the air pollution from the new coal-fired units. To our knowledge, neither the PSC nor DNR has requested this extremely important information as part of the CPCN or other permit applications, or to assist in their preparation of the EIS. By failing to evaluate whether WEPCO's project would endanger public health, the DEIS does not provide the public and the agencies with essential information about the project's impacts that must be considered prior to issuing any project-related permits or approvals.

PSC and DNR should require WEPCO to provide the necessary additional data and information so that the DEIS can be supplemented with an analysis of the health impacts of the new coal-fired generating units that WEPCO proposes to build at the Oak Creek Power Plant site. The health analysis should consider both (i) the impacts of the new units on a stand alone basis and (ii) the cumulative health impacts of the new units and the air pollution from the existing coal-fired units at the Oak Creek Power Plant.

If WEPCO's project proposal were to be approved, the residential neighborhoods near the Power Plant would be subjected to the cumulative air pollution from the existing and new coal-fired units. If these cumulative impacts exceed health-based standards, WEPCO must be required to locate its proposed new units elsewhere, use a less polluting fuel, or implement substantially more effective pollution reduction and control measures.

WEPCO has failed to provide the necessary underlying information to allow the draft EIS to evaluate health impacts of the ERGS' air emissions. It is essential that the information be obtained and that the DEIS be revised and then subjected to another round of public comment after the supplemental analyses are performed and prior to finalization of the final EIS. This is necessary to give the public the opportunity, to which it is legally entitled, to comment on the agencies' full analysis of health impacts for the proposed project.

A. Fine Particulates ($PM_{2.5}$)

Of particular concern is the failure of WEPCO (and thus the DEIS) to even address the severe adverse health impacts of fine particulates – known as $PM_{2.5}$ – from the proposed new coal-fired units. EPA promulgated a NAAQS for $PM_{2.5}$ six years ago, in 1997. In setting the standard, EPA concluded that exposure to $PM_{2.5}$ at the ambient concentrations that presently exist in some areas of the country – including those in compliance with the NAAQS for

PM_{10} – can result in serious health consequences, including premature mortality, exacerbation of respiratory and cardiovascular disease, decreased lung function, increased respiratory symptoms from pre-existing pulmonary disease, and aggravation of symptoms associated with asthma. See EPA, National Ambient Air Quality Standards for Particulate Matter, 62 Fed. Reg. 38652, 38656 (July 18, 1997). More recent studies published in peer-reviewed scientific journals, including the Journal of the American Medical Association, confirm these findings and conclude that exposure to combustion-related $PM_{2.5}$ air pollution is also an important environmental risk factor for cardiopulmonary and lung cancer mortality. See Pope, *et al.*, "Lung Cancer, Cardiopulmonary Mortality, and Long-term Exposure to Fine Particulate Air Pollution," J. Am. Med. Assoc. 287:1132-41 (March 6, 2002). This pollutant cannot be ignored by either WEPCO or the draft EIS.

DNR's $PM_{2.5}$ monitoring network has been operating statewide since 1999. DEIS at 135. None of these data is presented in the DEIS. Nor is there any information as to whether the cumulative impact of the ERGS and the existing Oak Creek Power Plant generating units will result in exceedances of the $PM_{2.5}$ NAAQS in light of these background data. This is a critical flaw in the DEIS that must be corrected.

WEPCO has inexplicably failed to provide any analysis of the $PM_{2.5}$ emissions of the proposed new coal-fired units or the existing units at the Oak Creek Power Plant. Consequently, the DEIS does not address this major concern. The DEIS must be supplemented so that it will analyze (i) the local and regional impacts of the new coal-fired units on ambient $PM_{2.5}$ levels; (ii) whether these impacts will cause or contribute to a contravention of the National Ambient Air Quality Standard for $PM_{2.5}$; and (iii) the cumulative health impact of the

$PM_{2.5}$ emissions from the new coal-fired units and the existing units at the Oak Creek Power Plant.

Instead of considering $PM_{2.5}$ impacts, the DEIS addresses the only particulate matter analysis that WEPCO has provided to date and presents the ambient air quality impacts of the PM_{10} emissions from the new coal-fired units and compares them to the National Ambient Air Quality Standard for PM_{10}. This approach is inadequate because the reason that EPA set the more stringent standard for fine particulates six years ago was that it determined that the PM_{10} standard does not adequately protect human health from the mortality and morbidity impacts of $PM_{2.5}$. Since the EPA has concluded that the PM_{10} standard is inadequate to protect human health, the draft EIS will remain deficient if it perpetuates WEPCO's shortcoming by relying upon the PM_{10} standard as the only point of reference for analyzing the project's particulate matter impacts.

The DEIS also errs in implying that $PM_{2.5}$ is caused exclusively by the reaction of gaseous pollutants in the atmosphere. DEIS at 134. These types of reactions are indeed a significant source of ambient $PM_{2.5}$. In addition, however, coal-fired power plants such as the ERGS emit substantial quantities of $PM_{2.5}$ directly. Due to the filter fabric used to reduce the ERGS' particulate matter emissions, most of the ERGS' PM_{10} emissions are condensable particulates that fall within the $PM_{2.5}$ particle size. Accordingly, the ERGS is likely to directly emit more than 1000 tons of $PM_{2.5}$ per year into the local atmosphere, not including the type of additional atmospheric formation of $PM_{2.5}$ to which the DEIS alludes. See DEIS Table 7-9.

B. Hazardous Air Pollutants

The draft EIS, at page 173, reveals that the new coal-fired units will spew into the air, each year, more than 203 tons – more than 406,000 lbs – of a suite of metals and other

chemicals, including mercury, chromium and arsenic, that are regulated as Hazardous Air Pollutants. The draft EIS does not provide any assessment of the risks that emissions of these pollutants may present to the health of those who live in the neighborhoods surrounding the plant, or in the region. As with $PM_{2.5}$, it is critically important that the draft EIS be supplemented to assess the health risks of these pollutants and the cumulative impacts of the existing coal-fired generating units at the Oak Creek Power Plant.

The multi-pathway risk assessment that needs to be undertaken here should look at both cancer risks and non-cancer toxicity. In addition to examining the inhalation risks imposed on those who live near the power plant, the risk assessment should examine the health risks from the deposition of these pollutants on the ground and in Lake Michigan and other local water bodies.

The single largest source of human-made mercury pollution in America is coal-fired power plants. People are exposed to mercury primarily through eating fish that have been contaminated when mercury from power plants and other sources is deposited to water bodies. Once mercury enters water, biological processes can transform it into methylmercury, a highly toxic form of mercury that builds up in animal and human tissues. Additional exposure pathways include direct inhalation and the consumption of crops, milk and meat that have been contaminated by mercury that falls on farmland. Exposure to mercury has been associated with both neurological and developmental damage in humans. The developing fetus is highly sensitive to mercury's effects, which include damage to nervous system development.

The Oak Creek Power Plant is already one of the largest sources of mercury emissions in the State of Wisconsin. The ERGS would more than double the mercury emissions at Oak Creek, and the final EIS must carefully evaluate the ERGS' adverse mercury impacts.

The seriousness of the issue is illustrated by the EPA's finding, on December 14, 2000, that mercury emissions from coal-fired power plants pose significant hazards to public health and must be reduced. See 65 Fed. Reg. 79825 (Dec. 20, 2000). Instead of reducing mercury emissions in Wisconsin, the ERGS would increase them.

In addition to evaluating mercury impacts, the DEIS should also examine the project's other toxic air pollutants, including arsenic and chromium. Although the DEIS makes reference to the "virgin fossil fuel" exemption in the State's air toxics regulations, see DEIS at 150, the ERGS units will not be able to take advantage of this exemption because WEPCO plans to burn previously landfilled ash, as well as coal, and reclaimed ash is not a virgin fossil fuel. More fundamentally, the health issues created by the ERGS' emission of large quantities of hazardous air pollutants must be examined irrespective of whether the units fall under the cited exemption.

C. Coal Dust

Another significant gap in the information provided by WEPCO and a flaw perpetuated in the draft EIS is its failure to identify and evaluate the impacts of the coal dust that will be generated by the massive coal-handling operations associated with the new coal-fired units, which are expected to burn more than 10,000 tons of coal daily. It is unclear whether the DEIS includes any modeling of the adverse impact of the coal dust on local air quality or considers the impact of the dust on WEPCO's employees or local residents. These impacts could be very significant. The DEIS (at page 300) identifies this issue but fails to take the requisite hard look at it.

D. Nonattainment New Source Review Requirements

The very brief discussion of nonattainment new source review requirements on page 142 of the DEIS purports to summarize these requirements. The DEIS summary, however, is materially deficient in ways that illustrate the importance of the health issues that the DEIS fails to analyze.

Oak Creek is located in a severe nonattainment area for ozone that is comprised of six counties in southeastern Wisconsin (Kenosha, Milwaukee, Ozaukee, Racine, Washington and Waukesha). Exposure to ozone, one of the principal components of smog, can reduce lung function, cause asthma attacks, and, with frequent exposure, cause permanent lung damage. The proposed coal-fired units would emit volatile organic compounds (VOC) above the severe nonattainment area significance threshold of 25 tons per year. See § NR 408.02(21)(a)1.d, Wis. Admin. Code. Because WEPCO has proposed to locate a significant new source of VOC emissions in a nonattainment area, it is required to obtain a permit from the DNR under section 173 of the Clean Air Act.

Although the DEIS purports to summarize the requirements of a section 173 permit, it omits any mention of the three permit requirements outlined below.

1. WEPCO Must Present an Alternatives Analysis that Demonstrates That The Benefits of the ERGS "Significantly Outweigh" the Environmental and Social Costs Imposed as a Result of its Location.

Section 173(a)(5) of the Clean Air Act requires the permitting agency to determine that "an analysis of alternative sites, sizes, production processes, and environmental control techniques for such proposed source demonstrates that benefits of the proposed source significantly outweigh the environmental and social costs imposed as a result of its location, construction, or modification." Although the Wisconsin air regulations contain the same

requirement, see § NR 408.08(2), Wis. Admin. Code, the DEIS omits any mention of the provision.

This permitting requirement mandates an assessment of the "environmental and social costs" of the ERGS proposal, including (i) the mortality and morbidity burden associated with WEPCO's proposed use of supercritical pulverized coal (SCPC) technology and resulting changes in ambient concentrations of $PM_{2.5}$ and other air pollutants and (ii) the traffic and other adverse impacts of the increase in the number of coal trains that will traverse Racine County to deliver coal to the new generating units. The DEIS – like WEPCO's air permit application – is deficient in not assessing these environmental and social costs.

This permitting requirement also mandates "an analysis of alternative sites, sizes, production processes, and environmental control techniques for such proposed source." As explained above, there is no bona fide analysis of "alternative sites" in the DEIS, or in WEPCO's air permit application. Moving the three coal-fired units around the Oak Creek Power Plant site does not meet the requirement to consider "alternative sites" under the Clean Air Act. Nor does the DEIS consider in an adequate way alternative "sizes, production processes, . . . [or] environmental control techniques" to the ERGS proposal, as there is little in the way of an environmental assessment of the relative air quality advantages of the numerous feasible alternatives to the ERGS project.

Finally, this requirement mandates that WEPCO demonstrate through the foregoing (omitted) alternatives analysis that the benefits of the proposed project "significantly outweigh" its environmental and social costs. Since the air permit application and the DEIS contain neither an adequate alternatives analysis nor an assessment of the environmental and

social costs of the ERGS, there is no basis to make this finding on the information that WEPCO has provided to date.

2. To Obtain the Nonattainment Permit, WEPCO Is Also Required To Demonstrate That Its Wisconsin Facilities Are In Compliance, Or Are On a Schedule to Come Into Compliance, With All Applicable Clean Air Act Emission Limitations and Standards.

Section 173(a)(3) of the Clean Air Act states that "the owner or operator of the proposed new or modified source [must] . . . demonstrate[] that all major stationary sources owned or operated by such person (or by any entity controlling, controlled by, or under common control with such person) in such State are subject to emission limitations and are in compliance, or on a schedule for compliance with all applicable emission limitations and standards under [the Clean Air Act]." The Wisconsin regulations contain a similar requirement, but add that the applicant must also establish that all of its sources are in compliance with Wisconsin's air regulations. See § NR 408.08(1), Wis. Admin. Code. The DEIS discussion of nonattainment new source review permitting neglects to mention these requirements.

On April 29, 2003, the United States Attorney's Office, on behalf of EPA, commenced a civil action in the U.S. District Court for the Eastern District of Wisconsin alleging that the Oak Creek Power Plant and WEPCO's other major power plants in the State are operating in violation of numerous Clean Air Act requirements and, as a result, are unlawfully emitting tens of thousands of tons of pollutants each year into the air. In light of this civil action, WEPCO's unsubstantiated assertion that its power plants are in compliance, contained in a pro forma statement in its air permit application, cannot be credited. Indeed, WEPCO has not even attempted to demonstrate that its existing plants are in compliance with the Clean Air Act in any document that has been made available to the parties to this proceeding or the public.

It should be noted that WEPCO has negotiated a proposed consent decree with the EPA, and this document has been lodged with the federal court. The EPA, however, has reserved any final decision as to whether it will request the court to enter the proposed consent decree, pending its consideration of the public comments that it has solicited on the proposed settlement by notice published in the Federal Register on May 15, 2003. See 68 Fed. Reg. 26,354. Even if the EPA were to decide to request that the court approve and enter the propose consent decree, there is no guarantee that the court would do so. Accordingly, we believe that, at least at this time, there is no basis to conclude that WEPCO's in-State power plants are "on a schedule for compliance with all applicable emission limitations and standards" of the Clean Air Act as implemented in Wisconsin by the DNR, as no such enforceable schedule with DNR concurrence exists at this time to resolve the serious allegations made in the EPA's federal court action. Until this matter is fully resolved at all levels, WEPCO's air permit application cannot be considered complete.

3. To Obtain the Nonattainment New Source Review Permit, WEPCO Is Also Required To Demonstrate That The ERGS Will Comply With The Lowest Achievable Emission Rate (LAER) for VOC Emissions.

WEPCO must show that the proposed source will comply with the LAER requirement for the project's VOC emissions. The SCPC units do not meet LAER requirements because this technology for producing electricity from coal has higher VOC emissions than the IGCC technology that WEPCO has included in the ERGS proposal. See DEIS Table 7-9 at page 155. WEPCO cannot claim that the lower emissions associated with the IGCC technology are not "achievable" in light of WEPCO's determination to apply for a Certificate of Public Convenience and Necessity for the IGCC unit as part of this project.

E. State Air Permitting Regulations

The DEIS also summarizes the State's air permitting regulations. See DEIS at 168. The discussion is deficient because it omits applicable regulations that WEPCO also failed to address in its air permit application.

According to DNR's regulations, "[n]o person may cause, allow or permit particulate matter to be emitted into the ambient air which substantially contributes to exceeding of an air standard, or creates air pollution." § NR 415.03, Wis. Admin. Code. Similarly, "[n]o person may cause, allow or permit emission of sulfur or sulfur compounds into the ambient air which substantially contribute to the exceeding of an air standard or cause air pollution." § NR 417.03, Wis. Admin. Code. Identical language is used for NO_x (§ NR 428.03) and organic compounds (§ NR 419.03(1)). The regulations define "air pollution" as "the presence in the atmosphere of one or more air contaminants in such quantities and of such duration as is or tends to be injurious to human health or welfare, animal or plant life, or property, or would unreasonably interfere with the enjoyment of life or property." § NR 400.02(16), Wis. Admin. Code.

Accordingly, it is clear that Wisconsin's air permitting regulations prohibit "air pollution," a term that is defined by reference to adverse health impacts. As noted above, however, the DEIS, like WEPCO's air permit application, fails to address the mortality or morbidity impacts of the new coal-fired units. As previously noted, there is no discussion of the $PM_{2.5}$ impacts of the units and no risk assessment of the impacts of the units' hazardous air pollutants. These deficiencies in WEPCO's air permit application and the DEIS must be corrected before any approvals are given to the ERGS.

F. Modeling Results

The DEIS presents modeling results that are stated to be based on WEPCO's modeling work. These data are presented in DEIS Tables 7-23, 7-24, 7-25, 7-26, 7-27, and 7-28. Like the WEPCO documents from which the data are drawn, however, this modeling effort is inadequately documented, limiting its value for public comment on the modeling work. For example, no information is provided as to the emission rates used for the modeling, or how these rates were derived, either for the ERGS units or the existing units at the Oak Creek Power Plant. Nor is information presented as to the impacts at the specific locations of the residential neighborhoods that are nearest to the Plant. And, as noted above, the modeling fails to include either $PM_{2.5}$ or HAPs such as mercury, chromium or arsenic. No information is presented as to how the ambient background data were calculated from the State's network of monitoring sites. This type of undocumented presentation is conclusory and does not provide an adequate basis for public comment and analysis. An additional flaw in the modeling work is that it fails to consider impacts to local and regional $PM_{2.5}$ levels, including the secondary formation of $PM_{2.5}$ in the atmosphere as a result of the ERGS' gaseous emissions.

Finally, the impact of plant emissions on short-term air quality, in particular compliance with the 3-hour SO_2 air quality standard, during Lake Michigan inversion breakup fumigation events has not been assessed. This is an important issue because the modeling that WEPCO has done shows that the Oak Creek plant will, even without considering fumigation, be perilously close to the 3-hour SO_2 standard. It is our understanding that the modeling presented in the DEIS is based on the ISC-PRIME model. This model is appropriate for many applications but may underestimate impacts from the ERGS during certain local meteorological conditions. As stated in the December 2, 2002 letter of Mr. Robert B. Miller, Chief, USEPA Region 5

Permits and Grants Section, which was copied to DNR, fumigation may occur with pollutants near a shoreline that are emitted into a cool, stable layer of air coming off of the water. This stable layer can break down in the warmer boundary layer over the land, resulting in the pollutant being mixed down to the ground and causing higher concentrations than those shown in the ISC-PRIME model that WEPCO and the DEIS are relying upon for this project. The USEPA letter states that: "Given the location of the Wisconsin Energies Oak Creek power plant relative to Lake Michigan, fumigation of the power plant emissions should be examined." We agree with this recommendation, which appears to have been ignored in preparing the DEIS. This issue should be studied further, along the lines that the USEPA suggests in its December 2, 2002 letter.

Additionally, the modeling that WEPCO has done is sensitive to the number, height and location of the stacks. The recently filed direct testimony of WEPCO's witnesses suggests that the stacks for the SCPC may be combined, moved and reduced in height. These changes may be necessary to comply with federal aviation requirements as well, at least for the two southern configurations. DNR and PSC should require that WEPCO resubmit its modeling and the underlying data so that DNR can re-evaluate anticipated emission impacts. Since air emissions are among the most significant potential environmental, health and cost impacts from this project, DNR and PSC should reissue the DEIS, including the underlying emissions assumptions, calculations, and supporting data, for further public review and comment.

Notwithstanding the deficiencies in WEPCO's modeling, the results, as presented in the DEIS, indicate that the project will consume very large percentages of the available SO_2 and PM_{10} air resources in the vicinity of the plant. The additional projected emissions of NO_x will also exacerbate the existing severe ozone nonattainment problem, and the project will

require a large number of VOC emission offsets that would no longer be available to support future industrial growth in the region.

G. Construction-Related Air Emissions

The DEIS, very properly, discloses that the construction work required to build the ERGS project at the Oak Creek Power Plant site will result in a potential for "localized diesel emissions" that could be "very high." DEIS at 176. The DEIS is deficient, however, in not providing any modeling results for these emissions and thereby failing to provide the data needed to assess whether the emissions will result in a contravention of NAAQS (including the $PM_{2.5}$ NAAQS). Nor does the DEIS discuss or analyze the means by which such adverse impacts could be avoided. For example, potential mitigation measures include a requirement that the construction vehicles use low sulfur diesel fuel. More fundamentally, WEPCO should be required to select an alternative location for the project that would not require the massive earth moving that WEPCO has proposed.

COMMENTS ON CHAPTER 8 – WATER RESOURCES

A. Adverse Impacts of Once Through Cooling

WEPCO has proposed to use once through cooling for the ERGS units – a primitive technology that uses massive amounts of water and thereby results in maximum impacts to the aquatic environment. The new units are projected to use approximately two billion gallons of water per day, every day, for the next 50 years.

Cooling water intake structures cause adverse environmental impacts by pulling large numbers of fish and shellfish or their eggs into a power plant's cooling system, a phenomenon called "entrainment." There, the organisms are killed or injured by heat, physical stress, and by the chemicals used to clean the cooling system. Larger organisms are killed or

injured when they are trapped against screens at the front of an intake structure, a phenomenon called "impingement."

The magnitude of fish deaths is directly related to intake volume. The more water WEPCO uses, the more organisms they will kill. As a result of WEPCO's plans to use once through cooling, it can be expected that the new generating units will kill tens of millions of aquatic organisms – including adult and juvenile fish, shellfish, larvae, eggs and other organisms – annually. The draft EIS (at pages 206-07) identifies the problem but reflects WEPCO's failure to provide any comprehensive analysis or evaluation of the ecological significance of these impacts to our environment. The DEIS does not provide a basic description of the current baseline aquatic environment that will be impacted by the intake or a description of the anticipated impact on that aquatic environment. As a result, the DEIS can make no meaningful statements about the ecological significance of the impact of this massive intake volume.

There are a series of well-recognized steps required for the adequate assessment of the impingement and entrainment impacts caused by cooling water intakes. These can be summarized as follows:

1. Identify the species that are living in the area and which will be likely to be impacted.
2. Identify the presence of rare and important species and assess their vulnerability to direct and indirect impacts.
3. Quantify impingement and entrainment using relevant past data and ecological surveys.

4. Assess seasonal patterns of entrainment and impingement to determine if there are particular periods of the year when mortalities of fish and other organisms will be particularly great.
5. Assess the impact on the local populations using the quantitative estimates of the number of fish and other animals killed.
6. Assess the impact on other water users such as fishermen and potential long-term impacts over the 40-50 year lifetime of the plant.

The DEIS is substantially deficient because it does not undertake the above steps adequately. The agencies need to require WEPCO to provide all of the necessary data and information, and then take a closer look at these impacts and the mitigating measures that can be imposed to prevent them.

The DEIS does not discuss any alternatives to the once through cooling proposal. Nor does it discuss what can or will actually be done to minimize impacts. To our knowledge, WEPCO has not even begun a study of the distribution of fish eggs and larvae to determine the best locality of the intake; at any rate, the DEIS does not contain the information that is needed on this score. This information should have been included in WEPCO's initial CPCN application so that it could be considered in the DEIS. This is yet another unfortunate consequence of the PSC's hasty decision to certify WEPCO's CPCN application as complete last November.

The DEIS fails to provide any useful data on the number of organisms that will be killed by the project. Data collected in the 1970s indicates that large numbers of fish and crustaceans were being killed at that time by the existing coal-fired units at the Oak Creek Power Plant. DEIS at 188. No estimates are provided, however, as to the number of organisms that the

ERGS will kill in the current, very different Lake Michigan environment, and there is no assessment of the ecological significance of the killings.

There have been major changes in the aquatic life of the lake since the 1970s. The extent of these changes is such that using 1970s impingement and entrainment data for the ERGS is inadequate. Many species have declined as zebra mussel populations, which deprive the water of essential nutrients, have increased. A strong case can be made that the present situation is not healthy. To assume that all is well and WEPCO can kill even more fish and other organisms in Lake Michigan is inappropriate in the absence of a detailed assessment of the issue, which has not been undertaken.

The DEIS also fails to assess adequately the impacts of the construction of the intake and outfall structures. There are still considerable uncertainties about the construction methods and the impacts on the environment. Large scale dredging work will be undertaken that will have an impact on fish and invertebrates. Yet no benthic survey has been carried out to assess the communities that will be impacted.

The DEIS makes vague comments about the fact that best practices will be used but it does not explain what they will be. WEPCO has failed to demonstrate that the technology that it has proposed is the "best technology available," as section 316(b) of the Clean Water Act requires. The DEIS does not discuss in any detail the alternatives to the primitive technology that WEPCO has proposed or assess whether better technology is, in fact, available for this project.

The use of once-through cooling for such a large plant with an offshore intake will make it very difficult to minimize impingement and entrainment mortality and preclude a finding that WEPCO is proposing to use the best technology available. In an attempt to avoid an

analysis describing the cooling water intake impact, the DEIS states that cooling water intake structure rules require "that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact." DEIS at 201. The DEIS, however, contains not the slightest hint of what will actually be done to minimize impacts. Technologies for reducing impingement and entrainment mortality do exist and are most effective for smaller volumes of water than would be extracted by the proposal. Thus, they would be far more feasible if indirect cooling was proposed. It is essential that protective technologies are designed into the intake and outfall configuration from the outset, since it has frequently been found that post-commissioning alterations are both expensive and of reduced effectiveness.

Technologies that might be applied to reduce entrainment and impingement include fish deterrent systems, barrier nets, modified Ristroph screens with fish return systems, aquatic filter barriers, wedge wire screens and variable speed pumps. Most of these cannot be applied to an offshore intake of the size proposed. Even if they could be installed, in most cases their effectiveness in such an application is unknown.

Given the massive volume of cooling water that WEPCO has proposed, which would appear to preclude adequate measures to mitigate adverse environmental impacts, WEPCO should be required to use closed cycle cooling. Closed cycle cooling would reduce the volume of intake water, and the resulting impingement and entrainment of fish and other aquatic organisms, by 97% or more. WEPCO should be required to provide all of the necessary information and analyses so that the EIS can evaluate closed cycle cooling technology as an option or compare the impacts of closed cycle cooling to the once through cooling method. This

is a significant deficiency in WEPCO's analysis and in the draft EIS that must be corrected through a supplemental analysis.

B. Thermal Discharge Impacts

Thermal pollution refers to the discharge of heated water to lakes and streams. The sudden increase in water temperatures in the area of the discharge kills aquatic organisms that are unable to adjust to quickly changing water temperatures, reduces dissolved oxygen in the water, and has other adverse impacts on aquatic ecology. WEPCO's proposal to use once through cooling at the Oak Creek Power Plant would place a significant thermal load on the area of Lake Michigan adjacent to the Plant.

The DEIS mentions the issue of thermal discharges (at pages 208-10) and presents an analysis that purports to show – by using a mathematical mixing model (CORMIX) that is less conservative than the one that DNR generally recommends – that the discharges from the new coal-fired units will meet DNR's standards. It appears, however, that there are deficiencies in the CORMIX modeling upon which the DEIS relies.

The DEIS acknowledges that "using the proposed NR 106 default mixing zone formula for lakes, the thermal discharge is predicted to nearly meet the proposed chronic temperature criteria." DEIS at 208. In other words, using DNR's standard default assumptions, the ERGS does not meet these chronic temperature criteria.

The DEIS attempts to dismiss this major problem by introducing CORMIX model results that purport to show that there will be no problem. The CORMIX model, however, can only be used for temperatures above 4° C (39.2° F) because water at lower temperatures becomes buoyant and the model will not work. Since minimum Lake Michigan winter water temperatures

are 34° F, see DEIS at 209, the agencies are relying on a model that cannot be applied at these temperatures.

Contrary to what is stated in the DEIS, there are potential thermal pollution issues because the discharges may not meet chronic temperature criteria. Furthermore, all of the modeling appears to be for the new discharges alone. Since the existing coal-fired units will continue in operation, the thermal load of the existing units should have been included in the calculations, but the discussion in the DEIS suggests that they were not. Although the DEIS discussion is vague, it also appears that the calculations do not simultaneously consider the impact of the SCPC units and IGCC units together, since separate results are given for each and no mention is made of a cumulative impacts analysis. These are substantial deficiencies in the DEIS that must be corrected.

C. Harbor Construction Activities

If WEPCO were proposing only to construct the harbor expansions associated with the ERGS, that action alone would warrant a detailed environmental impact statement. Since this major harbor expansion is coupled with the ERGS, however, it appears to have been given short shrift in the DEIS. Again, this is due to the agencies' failure to require WEPCO to provide the necessary data in its application.

The harbor expansion will involve considerable dredging and construction work. Yet little ecological survey work is reported. Dredging can have a range of adverse effects including release of toxic chemicals from the sediments and reduction in lake oxygen levels. There is no evidence that these possibilities have been properly assessed.

D. Wetlands

The ERGS will destroy more than 15 acres of wetlands. See DEIS at Table 8-10. The DEIS notes that "[i]ncluded in the mix of wetland types are some high-quality wetlands in terms of their functional values" and that "many of these high-quality wetlands will be either partially filled in or directly adjacent to berms with a constructed height of 50 or more feet. Wetlands adjacent to these new topographic highs will most likely be impacted by sediment-laden stormwater runoff and erosion." DEIS at 222. Additional, unspecified acreage of wetlands would also be filled or destroyed in connection with railroad corridor modifications. DEIS at 223-24. The DEIS also acknowledges significant other secondary impacts.

The DEIS is deficient in not assessing alternatives to this fill activity or discussing other mitigating measures, such as changing WEPCO's proposed layout to avoid wetlands. It should also be noted that much of this wetlands destruction is a direct result of WEPCO's plan to fuel the new units with coal, which has a much larger footprint due to the need for coal piles, coal-handling equipment, and ash landfills. The DEIS also fails to discuss the permitting requirements that apply to the filling of these wetlands, or even to evaluate whether such filling would be permissible under State wetland water quality standards.

COMMENTS ON CHAPTER 9 – SOLID AND HAZARDOUS WASTE

The type of fuel that is used to produce electricity has a direct and significant impact on the amount of solid waste that is generated by the power plant. The benefits of natural gas over coal are enormous in this respect, since natural gas produces virtually no ash while coal generates tens of thousands of tons of ash per year. The two new SCPC units that WEPCO has proposed to construct at Oak Creek are expected to generate more than 200,000 tons of ash each and every year.

The DEIS (at page 232) acknowledges that WEPCO does not yet have sufficient data to show that it will be able to sell or use of any of this ash or determine how much will have to be dumped in a landfill. Although the draft EIS discusses the landfills that might be used to dispose of this ash in Southeastern Wisconsin, it fails to discuss the potential adverse environmental impacts of these disposal activities, such as the formation of toxic leachate and surface water runoff that could pollute groundwater and surface water in the vicinity of the landfills, or the engineering features of these landfills that are designed to prevent these problems.

According to the DEIS (at page 229), it is contemplated that the ash will be hauled to the landfill by truck. No analysis is presented, however, of the adverse impacts of this truck traffic – and other vehicular traffic that will be associated with the new units – on local air quality and traffic congestion. Instead, the draft EIS merely estimates the number of vehicular movements associated with the new plant without modeling or otherwise evaluating their impact on local air quality or the level of transportation services provided by the existing road network.

COMMENTS ON CHAPTER 11 – COMMUNITY IMPACTS

The DEIS discloses many of the adverse community impacts of the ERGS. These include noise, construction-related impacts, increased traffic, and the adverse impacts of the coal trains. The projected 100% increase in coal train traffic, see DEIS at 349, is of particular concern, since this is an impact that the community will need to live with for decades to come. Although of shorter duration and more localized in nature, the construction-related impacts are also very significant due to the massive earth moving activities that WEPCO has proposed.

The DEIS limits its rail impact analysis to potential blockages at three crossings. However, there are numerous impacts that arise from increased coal trains, including noise, train-

related pollution, land use decisions, and a variety of quality of life impacts. These are given scant or literally no attention.

More importantly, the DEIS artificially limits its evaluation to three discrete crossings. The coal trains necessarily will pass through Racine, a densely populated urban area with numerous crossings.

Rail-related adverse impacts in Racine will include traffic congestion at crossings, as well as interference with residential and business activities. Increased coal train traffic will discourage in-fill development and redevelopment of the inner city; it will also encourage residents and businesses to move further out of the city, thereby exacerbating urban sprawl. These are some of the most significant impacts of WEPCO's proposal, and the DEIS is deficient for its complete lack of any analysis or even acknowledgement of these impacts.

For those few impacts that are discussed, the discussion is incomplete and inaccurate. For example, DEIS Table 11-31 on page 353 presents data as to the amount of time that Four Mile Road would be blocked by coal trains, but there are errors in this table that need to be corrected. The DEIS discloses that, after the ERGS is constructed, an average of 11 coal trains will enter the Oak Creek Power Plant site weekly. See DEIS Table 11-29 & 11-31. Because each train must return south on the same track, it can be assumed that there will be an average of 22 train crossings per week across Four Mile Road. Rounding downward to 21 trips per week, instead of 22, the result is an average of 3 coal trains crossing Four Mile Road each day. The average time it takes a train to cross Four Mile Road is approximately 4 minutes. DEIS at 353. So, at Four Mile Road, that should work out to a daily average of 12 minutes per day of road blockage due to the coal trains (3 x 4 = 12). Since 12 minutes represents a daily

average, DEIS Table 11-31 should not identify 13 minutes as the "maximum average daily time blocked." The concept of "maximum average" is confusing and should not be used.

DEIS Table 11-31 also errs in stating that the "total maximum average weekly time blocked" will be 56 minutes. Since the daily average will be 12 minutes, it follows that the weekly average will be 84 minutes (12 x 7 = 84). The table's reference to 56 minutes as the "maximum average" is incorrect.

It is apparent that the "maximum" time the coal trains would block Four Mile Road on any given day – or even an "average" day where only 3 trains pass the road – is greater than 13 minutes, as Table 11-31 would suggest. In fact, about once in 30 times, a coal train takes 9 minutes to cross Four Mile Road. DEIS at 352. Thus, every 10 days, on average, one of the coal trains will block Four Mile Road for 9 minutes. If the other two trains on that day block Four Mile Road for the average time of 4 minutes each, that would result in a total blockage for that day of 17 minutes. Of course, it is possible that more than 3 trains might traverse Four Mile Road on that particular day, or that the two trains – other than the 9 minute train – would block the road for an above average time period. Thus, in the course of a month, it would appear to be likely that there will be one or more days when Four Mile Road will be blocked for 20 minutes or more by coal trains, although the data presented in the DEIS are insufficient to prepare a simple probabilistic analysis.

The DEIS does not adequately assess this impact. The vehicular traffic on Four Mile Road at the railroad track crossing averages 11,300 trips per day, see DEIS Table 11-22, or an average of 8 vehicular trips per minute, each minute of the day, 24 hours a day. (Traffic is likely to be much greater than 8 trips per minute during rush hour and other peak time periods during the day, and much less than 8 trips per minute in the late evenings and early mornings.) It

is apparent that the queueing and delay when a 9 minute blockage occurs every 10 days can be substantial, especially when the blockage occurs during the periods when traffic on Four Mile Road exceeds the hourly average of 8 vehicular trips per minute.

The intersection with Four Mile Road, although significant, is but one of the numerous at grade crossings affected by the increased coal train traffic. The DEIS is deficient in omitting any evaluation of the impacts at these other crossings. Significant adverse impacts will occur all along the rail corridor south of the Oak Creek Power Plant, since the entire corridor will suffer from the 100% increase in daily coal trains. The DEIS does not take the required hard look at these impacts.

The DEIS discloses, at page 357, that the diesel engines that pull the coal trains sometimes idle near the homes south of the plant for more than 24 hours at a time. It is highly likely that a simple modeling analysis would reveal that this practice of idling diesel train engines is resulting in exceedances of the 24-hour PM_{10} and 24-hour $PM_{2.5}$ NAAQS at these locations, and this modeling should be performed for the final EIS. This is an unacceptable threat to the health of these residents. The practice should be prohibited. The increase in localized adverse impacts from the coal trains represents yet another adverse impact of WEPCO's proposal to use coal to fuel this project.

CONCLUSION

SC Johnson appreciates and respects the very significant efforts that the PSC and DNR made to develop this draft EIS. Notwithstanding the deficiencies in WEPCO's permit applications, the agencies seek to present information about the economic and environmental impacts of WEPCO's proposal to spend $4.1 billion of ratepayer-backed money on another massive coal-fired power plant. The draft EIS is nevertheless deficient in a number of important

respects, as noted above. SC Johnson remains concerned that the project has not been subject to adequate analysis and, if constructed, would impose significant environmental, social and economic costs on the residents and businesses in Southeastern Wisconsin for decades to come. Accordingly, SC Johnson calls upon the PSC to: (i) determine that the WEPCO application in this proceeding is incomplete for failing to provide the necessary information to conduct a thorough and sufficient EIS; (ii) reverse its determination of completeness; and (iii) require WEPCO to resubmit its application to provide the missing information and analyses. At a minimum, a revised DEIS that corrects the existing deficiencies identified in these comments and the comments of others should be prepared and published for public review and comment before PSC and DNR proceed to the preparation and publication of the final EIS.

Dated: June 12, 2003

Comments on the Draft Environmental Impact Statement, submitted by the Sierra Club, Southeast Gateway Group

LAW OFFICE OF **DENNIS M. GRZEZINSKI** ENVIRONMENTAL LAW AND CIVIL LITIGATION

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Jeffery Kitsembel
Public Service Commission
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Madison, WI 53707-7854

Public Service Commission Docket: 05-CE-130

Dear Mr. Kitsembel:

The following comments on the Draft Environmental Impact Statement (DEIS) for the Elm Road Generating Station (ERGS) are submitted on behalf of the Sierra Club, Southeast Gateway Group (SCSSG). SCSSG has 726 active members in Racine and Kenosha Counties; the Sierra Club's Great Waters Group, which includes Milwaukee and Waukesha Counties has 3,107 active members. These members are in the service area for WEEnergy (WE), and will bear the capital costs for construction and the rate-payer costs for operation of the proposed facilities, and they are in the emission plume shadow from WE facilities, meaning their families' health will be impacted from the emissions from the proposed facilities.

SCSSG's most basic comment on the DEIS is that it is inadequate and should be redone and published for public comment, before a FEIS is prepared. At the most fundamental level, the DEIS is inadequate because WE's application is deficient and fails to provide the data, information and analyses that are necessary to support what is legally required under the Wisconsin Environmental Policy Act (WEPA): a reasonably complete evaluation of the impacts of the proposed project on the environment, and of reasonable alternatives to the proposed project.

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SCSSG has reached the conclusion that the DEIS is inadequate and must be redone for the following reasons. The DEIS:

1. explicitly acknowledges that consideration of a number of important subjects are being deferred to the FEIS, or to other proceedings, or are incomplete and will need to be supplemented (e.g., the feasibility of moving the amount of soil required in the construction timeframe proposed and the impacts of soil excavation and hauling, p. xxviii, 175-176; leases for units subsequent to the first unit, p. 14; a number of specific items that could impact WE's original cost estimate, p. 15; air quality analysis and air modeling using actual stack heights, p. 133, 146, 163, 164, 167; estimated hazardous air pollutants, p. 172-175; analysis of an integrated resource alternative, p. 83; design of the offshore water intake structure, p. 203-206; design of the water discharge structure, p. 207),
2. fails to consider alternative sites, and
3. fails to reasonably consider alternative fuel sources.

INADEQUACY OF THE ALTERNATIVES ANALYSIS

FAILURE TO DISCUSS ALTERNATIVE SITES

Reflecting the fundamental inadequacy of WE's CPCN application, the DEIS fails to identify or discuss alternative sites. This contradicts the Commission's legal requirements for conducting siting reviews and violates WEPA as well. The Commission has long held that alternative sites or routes must be considered that differ significantly in the type of resources impacted and the degree of impact. That is necessary to properly balance the impacts on the human environment against economic considerations.

The significance of the agency's failure to comply with the legal requirement to consider alternatives sites is illustrated by the severe drawbacks of the Oak Creek Power Plant site. Among these drawbacks are:

X Wisconsin Energies already operates four large coal-fired generating units at this site. As a result, the neighborhoods surrounding the site are already burdened with poor air quality from the existing power plant. Locating new generating units at the site exacerbates this problem and will result in unacceptable air quality in the area.

Alternative sites not burdened with the adverse impacts of existing coal-fired generating units would not suffer this problem.

X The Oak Creek Site is located in a severe ozone nonattainment area that encompasses the major population centers in the State. Locating the new source in this area maximizes the number of people who will be exposed to project-related emissions and inappropriately concentrates emissions in an area of the State that already has poor air quality.

X The Oak Creek Site will require enormous transmission reinforcement costs. At this point, the most recent available information is that expanding the transmission system to connect the new generating units to the power grid will cost about a quarter of a billion dollars. Some or all of that cost may be avoided if the new generating units were sited elsewhere. It is appropriate and <u>necessary</u> to evaluate the full cost of WE's proposal, including the required transmission expansion, <u>and to compare that to alternatives, including alternative sites</u>. The DEIS does not present this analysis.

X The economics of any proposal for a new power plant vary with the site location and characteristics. The DEIS recognizes the environmental mitigation cost uncertainties in its bulleted list on page 15. The Oak Creek Site is burdened with the need – which may be entirely unnecessary at an alternative site – to remove a portion of the bluff, tunnel the water intake through as much as 9,000 feet of bedrock, and construct an underpass on a local road. It is also relatively remote from the nearest interstate natural gas pipeline.

> These adverse environmental and cost impacts could be avoided at alternative sites, and the DEIS needs to undertake that analysis. To recognize the site-related uncertainties and that site related costs will vary with the site, but not consider alternatives to the proposed site is inconsistent and inappropriate from both an economic and environmental point of view.

Given the impact that site location has on the cost and feasibility of the facility (e.g., environmental mitigation), cost and feasibility of alternatives (e.g., wind farm wouldn't work at Elm Road site), cost and feasibility of the project (e.g., transmission requirements to interconnect), and the types and magnitude of environmental impacts, a DEIS that does not meaningfully address viable alternative sites is not adequate. It is also inconsistent with the long-ago established Commission principle that all sites must be equally viable – that is, sufficient data must have been developed on the alternative sites to allow any of them to be licensed and implemented within the date needed. This requirement arose when the Commission rightly became concerned that the utilities were preparing dummy alternatives to meet filing requirements, but that were not licensable. Staff's comment that the "cost estimates for any necessary transmission system expansion elsewhere in the state to accommodate specific projects other than ERGS are presently not available" (DEIS page 78) is evidence that the Commission has violated its own principle.

It is important to emphasize that the failure to include an alternative site analysis in the DEIS is not merely a technical violation of WEPA requirements. It is a fundamental defect that makes it impossible for the agencies to perform the careful environmental review that this project requires, because the agencies do not have the data they need to evaluate the relative environmental, social and economic costs of locating the new electric generation that is purportedly needed at the Oak Creek site rather than at

other sites in the State that are available for this facility. This gaping hole in the DEIS stems largely from WE's failure to include a proper alternatives analysis in its application for a Certificate of Public Convenience and Necessity. Accordingly, the Commission should reconsider its earlier decision to certify WE's application as complete and instruct the company to submit a new application that complies with the legal requirement to present a discussion of alternative sites. A new draft EIS should then be prepared that corrects the deficiencies in the current draft of that document.

On page 97 the DEIS indicated that "the ability to locate all three proposed units at one site" was an important consideration in WE's final site selection. Why should that be important, especially to the extent of eliminating potentially viable sites as indicated on page 98? Putting three large units on a single site concentrates the power generation making it more susceptible to terrorist activity and concentrates the environmental burden. Requiring all three units to be located on one site might allow facilities to be shared, thus reducing cost. According to the DEIS, shared facilities in the third unit cost $31 million (DEIS, page 14). However, the incremental cost of transmission system expansion required by adding the third unit 3 is $102 million (DEIS, page 18) or $151 million (DEIS, page 131). On the basis of transmission system expansion alone, the economics of adding the third unit are unfavorable relative to splitting up the units among two sites. The DEIS indicates that WE eliminated at least one site because of its criterion that the sites could accommodate three units. That criterion appears unjustified, and inappropriately rejects not only viable but likely less expensive and less environmentally damaging sites.

Similarly, on page 95, the DEIS indicates that WE rejected the Haven site because it cooling towers would be required due to its distance (0.25 miles) away from Lake Michigan cooling water. This is an inadequate basis for rejecting the site for two reasons. First, it has not yet been determined whether once through cooling will be

approved at the proposed ERGS site. Second, the distance of 0.25 miles is rather trivial compared to the "water intake being tunneled 3,500 to 9,000 feet into bedrock" at the ERGS (DEIS, page 15). The fact that ERGS might require a 1.7 mile water intake and still use once through cooling is inconsistent with rejecting the Haven site because it could not use once through cooling because it is a quarter mile inland. Again, it appears that arbitrary reasons were used to eliminate potentially viable and preferable sites. Is that in the public interest, and can the Commission make the statutory findings required to approve the project?

INADEQUATE ANALYSIS OF ENERGY EFFICIENCY ALTERNATIVES

The DEIS discusses conservation and energy efficiency as an alternative at pages 54-58. Review of this discussion demonstrates that the DEIS does not adequate address this important issue, which the Legislature has designated in Section 196.025 and Section 1.12(4), Stats., as the State's highest priority for achieving energy needs. All that can be learned from the DEIS is that the potential role of conservation and energy efficiency in meeting the energy needs identified in the DEIS is great, but that the analyses by both the applicant and staff are likely to underestimate the potential savings. The applicant considered only residential efficiency opportunities. Staff's analysis is outdated, and does not reflect changes in the market, in technologies, and in applicable laws since 1995; and it did not adequately address industrial energy efficiency potential. As a result, on its face, the DEIS fails to provide the Commission, the public, or other interested parties any reasonable basis on which to evaluate the extent to which conservation and energy efficiency can and should substitute for the proposed project.

INADEQUATE DISCUSSION OF RENEWABLES ALTERNATIVES

It is noteworthy that staff's EGEAS analyses demonstrate the cost-effectiveness of wind generation, even with an extremely conservative 20% credit to reserve margin. The analyses should be redone using more representative margins, such as those actually experienced in Minnesota (21-29%), as indicated on page 66.

NO ANALYSIS OF INTEGRATED RESOURCE ALTERNATIVE

On page 83, the DEIS promises that the FEIS will include an integrated resource alternative which includes renewables, energy efficiency, electric transmission improvements, and possibly other smaller fossil-fueled facilities. This analysis should have been presented in the DEIS, and subjected to public comment, prior to preparation of an FEIS. This is another reason the DEIS should be redone and republished for public comment, before an FEIS is issued. The analysis of integrated resource alternatives should consider the potential impact on natural gas availability and pricing of the proposed Alaska north slope gas pipeline.

MORE SPECIFIC COMMENTS ON THE DEIS

AIR EMISSIONS

The DEIS devotes some 43 pages to a discussion of the air emissions of the proposed project. The DEIS reports WEPCO's analysis and estimates of air emissions. It also indicates that the DNR has yet to do its own analysis. Thus the DEIS appears to merely reflect utility assertions, which may or may not prove to be consistent with the results of the yet-to-be-completed DNR analysis. As such, the DEIS does not provide an independent disclosure of the impacts of the ERGS on air quality.

Moreover, the DEIS fails to disclose the potential impacts of the plant on the public. It provides no way for the reader to correlate the air emissions to impacts on human health, mortality, materials damage, vegetation damage, and so on. A reader unfamiliar with the impacts of a pollutant (e.g., SO2 or beryllium) on humans, materials,

flora and fauna cannot determine from the DEIS the likely impacts of the proposed project. Discussions of the impacts of air pollutants (including HAPS) must be included in the EIS to satisfy the requirement that the EIS fully disclose the potential impacts to the human environment. We note, for example, that the U.S. EPA has done studies which estimate the health and mortality impacts of power plants. Advocacy groups have also done such studies. An Environmental Impact Study should not do less.

The DEIS should be redone and republished, including an evaluation and analysis of the health impacts of the air pollution from the proposed coal-fired plants (on a stand-alone basis, and on a cumulative basis in addition to emissions from the existing Oak Creek coal-fired units). If the cumulative impacts exceed health-based standards, WEPCO should be required to locate its proposed new units elsewhere, use a less polluting fuel, or implement considerably more effective pollution reduction and control measures. And, regardless of whether those standards are met, the Commission, the public, and other interested parties should be informed regarding these impacts in a new DEIS.

A new DEIS should include analysis on the significant impact area (SIA) of the proposed project, and should include modeling of an interactive source analysis with overlapping plants' SIAs, especially in the case of southerly winds, and northerly winds, when emission plumes from all of the plants sited on or near the Lake Michigan lakefront line up and overlap.

In addition, there is a complete failure in the DEIS to address the severe adverse health impacts of fine particulates ($PM_{2.5}$), for which National Ambient Air Quality Standards were set in 1997. $PM_{2.5}$ causes premature death, exacerbation of respiratory and cardiovascular disease, decreased lung function, increased respiratory symptoms from preexisting pulmonary disease, and aggravation of symptoms associated with asthma, and cardiopulmonary and lung cancer mortality. The DEIS analyzes only

compliance with the PM_{10} standard, which EPA concluded in 1997 was inadequate to protect human health. The DEIS ought to have modeled whether the proposed project, together with the existing coal-fired plants would comply with the $PM_{2.5}$ standards.

Nor does the DEIS contain any assessment of the adverse health impacts of the more than 203 tons of hazardous air pollutants per year that will be emitted from the proposed plants, according to page 173. What is the cumulative impact of these emissions, together with those emitted by the existing units, in terms of both cancer and noncancer impacts?

On page 170, the DEIS indicates that the emissions of hazardous air pollutants from the ERGS are exempt from DNR requirements because coal is a virgin fuel. This does not satisfy the requirement that an EIS fully disclose the environmental impacts of a proposed action. In fact, the emission rates of a number of hazardous air pollutants exceed the emission levels of significance specified in Chapter NR 445. Thus, while the quantities emitted are significant enough to be of concern to the environment, they are exempted from regulation because of a definition. That does not exempt the EIS from disclosing their potential impacts.

Table 7-29 on page 150 shows WEPCO's estimates of the HAP emissions. First, is the method of calculation of the HAP emissions acceptable to the air regulatory agencies? The method of estimation yields different results from the EPA AP-42 estimation method. In most cases, the application of AP-42 yields higher estimates of HAP emissions. Second, it would be useful to add Chapter 445 thresholds of significance information for each pollutant (assuming that it was not exempted as a virgin fuel). That would provide much-needed context as to how much the public should be concerned with emissions of a few to several thousand pounds of specific HAPS. Third, it should be clarified whether these HAP emission levels will be permit criteria, enforceable limits, or just expected emissions.

Mercury Removal Efficiency

Table 7-2 on page 140 is misleading. It discusses the differences in mercury removal efficiency between bituminous and sub-bituminous coals, but does not reflect the fact that bituminous coal starts out with significantly more mercury than sub-bituminous coals. On average, Pennsylvania bituminous coal contains approximately four times the mercury that Wyoming sub-bituminous coal does. In fact, this difference between bituminous and sub-bituminous coals is never mentioned in the DEIS. Since one of the reasons given for selecting bituminous coal is the higher mercury removal efficiency, it is misleading not to also include the additional facts of the comparative mercury content.

Also, Table 7-2 has some figures in it which do not seem to make sense in light of the text right below the table. The table shows a mercury collection efficiency for sub-bituminous coal of 72% for a fabric filter baghouse, but only 25% for a combination of dry FGD scrubber and fabric filter baghouse. Since the text states that FGD reduces the gas temperature and leads to better opportunities to collect mercury, it would seem that the FGD/baghouse combination should have better collection efficiency than the baghouse alone, not worse. The source of the information contained in Table 7-2 should be indicated. Are the mercury control efficiencies accepted by EPA and/or DNR?

Inconsistency in Expected Project Emissions

On page 155 Table 7-9 lists maximum emissions from the various parts of the Elm Road plant. A number of the potential emissions shown in this table are not consistent with other numbers which We Energies has released. For example, the SO2 emissions shown for the two SCPC units are not consistent with the SO2 emission rate and plant heat rate which the Company has been touting. Also, the potential emissions shown in Table 7-9 are significantly higher than what We Energies has been touting to

the public. If, in fact, the emissions shown in Table 7-9 are those which the plant will be legally held to, it would be informative to the public for the staff to make clear that the numbers being touted by the Company are not those for which they are asking permit approval.

Recent Consent Decree with US EPA

While we cannot expect the DEIS to reflect the recent Consent Decree between WE and the U.S. EPA (since it came out about the same time as the DEIS), we hope that the staff will compare the emissions from the proposed new Elm Road plants, touted by the company as the ultimate in emission control technologies, with the emission rates which the Company has agreed to meet at its existing units at Oak Creek and Pleasant Prairie. It would be useful to point out to the public that the emission rates at the new plants will be significantly higher than the emissions rates at the older plants.

Greenhouse Gases

On page 170, the DEIS discusses greenhouse gases. There seems to be a serious problem with the calculations of CO2 equivalent emissions from Elm Road. The DEIS says that the CO2 equivalent emissions of greenhouse gases from Elm Road will be 1,060,000 tons per year at maximum utilization. This seems too low by more than an order of magnitude. The Elm Road plant will be 1,830 MW. At full utilization it would generate (1830 MW) times (8760 hours per year) = 16 million MWH per year. Coal-fired power plants emit approximately 200 lbs of CO2 per million BTUs. With a heat rate of 8,800 BTUs per kWh, the CO2 emission rate is about 1,760 lbs per MWH, or 0.88 tons per MWH. At 0.88 tons per MWH and 16 million MWH per year, the CO2 emissions would be 14 million tons per year, over 13 times the amount given in the DEIS. This means that the increase in CO2, rather than being 1.9% of the existing utility CO2 emissions, would be a 26% increase.

Coal Dust

The DEIS contains no analysis or modeling of the impacts of coal dust on local air quality or on employees or local residents, resulting from the cumulative impact of the proposed units and the existing coal-fired plants. This should be done.

WATER RESOURCE IMPACTS

Once Through Cooling

Cooling water intake structures cause adverse environmental impacts by pulling large numbers of fish and shellfish or their eggs into a power plant's cooling system. There, the organisms are killed or injured by heat, physical stress, and by the chemicals used to clean the cooling system, a phenomenon called "entrainment." Larger organisms are killed or injured when they are trapped against screens at the front of an intake structure, a phenomenon called "impingement." WE proposes to use once through cooling for the three new electric generating units it is seeking to build at the Oak Creek Power Plant. The result is that the new units are projected to use approximately two billion gallons of water per day, every day, for the next 50 years.

It can be expected that, as a result, the new generating units will kill tens of millions of aquatic organisms – including adult and juvenile fish, shellfish, larvae, eggs and other organisms – annually. The DEIS identifies the problem [at pages 206-07] but reflects WE's failure to provide any comprehensive analysis or evaluation of the ecological significance of these impacts to our environment. Instead, the agencies need to go back to the drawing board, require WE to provide all of the necessary data and information, and then take a closer look in an EIS at these impacts and the mitigating measures that can be imposed to prevent them.

The magnitude of fish deaths is directly related to intake volume. The more water WE uses, the more organisms they will kill. WE has proposed to use once

through cooling for its new units – a primitive technology that uses massive amounts of water and thereby wreaks maximum devastation on the aquatic environment.

In contrast, all power plants built in the last twenty years in this area of the country have used closed cycle cooling. In fact, since the passage of the Clean Water Act Amendments of 1972 only one unit at one power plant was proposed (in the early 1980s) with once through cooling. If the new units are built with the primitive once through cooling technology that WE has proposed, Oak Creek would be the largest once through cooling plant in the region.

Instead of once through cooling, WE should be required to use closed cycle cooling. Closed cycle cooling would reduce the amount of intake water, and the resulting impingement and entrainment of fish and other aquatic organisms, by 97% or more. WE should be required to provide all of the necessary information and analyses so that the EIS can evaluate closed cycle cooling technology as an option or compare the impacts of closed cycle cooling to the primitive once through cooling method. This is a significant deficiency in WEPCO's analysis and in the draft EIS that must be corrected through a supplemental analysis. In addition, the DEIS has not addressed in any detail proposed standards for "existing plants".

The DEIS considers only the once through cooling system proposed by WE for the ERGS. It is not at all clear that a once through cooling system will be approved by EPA. On page 94-95 the DEIS states that a coal-fired power plant will have more water flowing through it than a natural gas-fired plant, but that consumptive water use is greater for the gas-fired plant. This is dependent on the coal-fired plant using once-through cooling. While We Energies has applied to build a once-through cooled plant, the decision on whether or not this will be allowed will come from the Wisconsin DNR <u>and</u> the U.S. EPA. Have the agency staffs estimated the likelihood of once-through cooling being approved?

The alternative of a cooling tower must be considered to allow decision makers to make an informed decision between cooling towers and once through cooling. The DEIS must contain information about the alternative of using cooling towers. The purpose of the DEIS, to fully disclose environmental impacts and inform the public regarding the proposal and its alternatives, cannot be achieved without an analysis of the alternative of cooling towers.

Inadequate detail on water intake design

Moreover, another deficiency in the DEIS is that it lacks detail on the design of the water intake system. The proper design of the intake system is a critical component of the proposed project in avoiding or minimizing entrainment and impingement of Lake Michigan adult, juvenile, and larval fish, and fish eggs. The DEIS includes minimal information about the intake system. As currently described, it would consist of a timber crib or velocity caps and an intake channel. As stated, the future intake configuration would be dependent on the applicability of existing or proposed federal regulations.

There are many factors that must be included in the design of a high water volume intake system to avoid or minimize adverse impacts to the fish community due to entrainment and impingement. Mitigating measures include, but are not limited to, a low intake velocity of about 0.5 feet per second, use of wedgewire screening to exclude fish eggs and adult, juvenile and larval fish from being drawn in (or willfully swimming into) the intake system, and appropriate mesh size of the screening. In addition, intake siting considerations are necessary to determine appropriate depth and lake bed location to avoid a sensitive fish spawning area or other biologically sensitive area. Currently, the DEIS only states that the offshore intake system is proposed to extend into the lake 3,500 to 9,000 feet and that the depth of water at this location varies between 30 and 40 feet.

The final site will not be selected until the results of a two year environmental monitoring study are completed (September 2004).

The specific intake design and intake channel proposed should be fully described in the DEIS such that it can be reviewed by the resource agencies, non-governmental organizations, and the general public. The public should not have to depend on interacting in the WPDES system to get a chance to review the intake system details to insure that impacts to Lake Michigan fish are minimized. Currently, there is not enough information included in the DEIS for a credible review and it appears that the draft was released prematurely. Since, as stated, further decisions on applicable federal and state regulations are necessary before intake design details can be developed and disclosed, then a **revised DEIS** should be released prior to completion of the final EIS. This is further supported by the well known fact that once a selected alternative is presented in the final EIS, it is very difficult for the public to effectuate reevaluation of the selected alternative or otherwise make changes in the plan.

Thermal Discharge Impacts

Thermal pollution refers to the discharge of heated water to lakes and streams. The sudden increase in water temperatures in the area of the discharge kills aquatic organisms that are unable to adjust to quickly changing water temperatures, reduces dissolved oxygen in the water, and has other adverse impacts on aquatic ecology. Due to WE's proposal to use once through cooling, the Oak Creek Power Plant would place a significant thermal load on the area of Lake Michigan adjacent to the Plant.

The DEIS mentions the issue of thermal discharges [at pages 208-10] and presents an analysis that purports to show – by using a mixing model that is less conservative than the one that DNR generally recommends – that the thermal discharges from the new coal-fired units will meet DNR's thermal discharge standards. The analysis in the DEIS, however, does not take into account the cumulative impact of the thermal

discharge from the three new generating units and the thermal discharge from the existing generating units at Oak Creek. Instead, the DEIS discusses the thermal discharge from the proposed new SPCC units and separately discusses the thermal discharge from the proposed new IGCC unit. The DEIS does not analyze the cumulative impact of all three new units and the existing coal-fired generating units that are presently operating at the Oak Creek Power Plant. Thus, the analysis reflected in the DEIS is not even minimally adequate because it does not look at the cumulative impact of all the units on the thermal load imposed on this area of Lake Michigan.

Nor does the DEIS address the fact that the Wisconsin DNR is currently working on draft thermal discharge standards which would be applicable to the proposed units. In the absence of final state standards, the DEIS ought to at least discuss compliance with federal Clean Water Act thermal discharge standards.

SOLID WASTE ISSUES

The type of fuel that is used to produce electricity has a direct and significant impact on the amount of solid waste that is generated by the power plant. The benefits of natural gas over coal are enormous in this respect, since natural gas produces virtually no ash while coal generates tens of thousands of tons of ash per year The two new SCPC units that WE has proposed to construct at Oak Creek are expected to generate more than 200,000 tons of ash each and every year.

The DEIS acknowledges [at page 232] that WE does not yet have sufficient data to show that it will be able to sell or use of any of this ash or determine whether, as is likely, it will all have to be dumped in a landfill. Although the DEIS discusses the landfills that might be used to dispose of this ash in Southeastern Wisconsin, it fails to discuss the adverse environmental impacts of these disposal activities, such as the formation of toxic leachate and surface water runoff that will pollute groundwater and surface water in the vicinity of the landfills.

According to the DEIS [at page 229], it is contemplated that the ash will be hauled to the landfill by truck. No analysis is presented, however, of the adverse impacts of this truck traffic – and other vehicular traffic that will be associated with the new units – on local air quality and traffic congestion. Instead, the DEIS merely estimates the number of vehicular movements associated with the new plant without modeling their impact on local air quality or the level of transportation services provided by the existing road network.

Reburning flyash

The DEIS on page 230 indicates that by reburning existing flyash landfills, WE has gained additional space in the landfills. Where did the excavated material go to create the additional space? Flyash typically contains only a small amount of burnable fuel, typically around 300 BTU per pound. If the flyash is reburned, the volume combusted would be quite small, meaning that regained volumes would be quite small. If there are noticeable gains in space, that suggests the volume returned after reburning is significantly less than the volume excavated to be reburned. Where did that additional material (flyash) that was not returned to the landfill go? Did it escape through the stack (because the ash content per BTU of heat input increases substantially when flyash is blended into the fuel stream for reburning, but the particulate removal efficiency is the same)? The DEIS makes reburning flyash sound like a good thing, but doesn't address the effect doing so may have on air emissions and air related impacts.

CONCLUSION

Largely as a result of gaps and deficiencies in WE's application, SCSGG believes for the reasons stated above that the DEIS prepared by agency staff is inadequate, and needs to be redone and republished for public comment. In addition,

SCSGG has presented a number of comments regarding inadequacies, inconsistencies, and questions raised by the DEIS, which need to be addressed.

Very truly yours,

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Comments on the Draft Environmental Impact Statement, submitted by the Wisconsin Electric Cooperative Association

05-CE-130

Comments of David Jenkins
Wisconsin Electric Cooperative Association
Draft EIS PTF-II Project
June 13, 2003

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Wisconsin's electric cooperatives serve 216,000 rural electric consumers in the state, and operate one-third of the state's electric distribution lines. We strongly support the PTF-II project and urge the Commission to consider the following issues in its preparation of a final EIS on the project:

Long-term Rising Prices of Natural Gas

Our members have a very serious concern about the increasingly limited choices of fuel for generating electric power. Currently, some groups (including many that are opposed to this project) are committed to eliminating coal as a generating fuel for electric power.

This would be extremely costly for Wisconsin's consumers and would affect not only the price but the reliability of our state's electric supply.

Two days ago, on June 10, the Chairman of the Federal Reserve Board of Governors testified to the House of Representatives about the looming, serious threat to this nation's economy of long-term increases in the price of natural gas. (Dr. Greenspan's testimony is attached).

In his testimony, Chairman Greenspan indicated that "the long-term equilibrium price for natural gas in the United States has risen persistenly during the past six years from approximately $2/MM Btu to more than $4.50."

This week NYMEX gas futures hit $6.31.

If the Commission consults authorities such as the Federal Reserve, Cambridge Energy Research Associates, and publicly available data, it must conclude that the trend of rising natural gas prices exhibits the characteristics that resemble a long-term structural (not just temporary) upward ratcheting of prices.

Why do rural electric consumers care about whether a southeastern Wisconsin utility has high fuel costs, now and in the future?

MFC
CO-8
AW
OGC-2
ELE-10

Because the cost and resulting price of energy that WE Energies sends into the wholesale marketplace has (because of its sheer size in this market) impact on the price that all electric power provides must pay on the wholesale market. High gas prices will result in high energy costs and make it more expensive for every utility and cooperative seeking power in the wholesale market to purchase that power at a reasonable price.

Volatility of Natural Gas Prices

All fuels (except most renewables) fluctuate in price. However, a fair examination of the price fluctuations in natural gas indicate that it is a far more volatile commodity with respect to price than coal or uranium (the other major fuels used to power Wisconsin's utility boilers). This volatility requires that electric power providers, if they increase their dependence on gas as a fuel, would almost certainly be making more frequent fuel cost adjustments in their rates, causing more irritation for consumers, and more expense for electric power providers.

Consumers like stable, predictable electric bills. They DO NOT like frequent changes in rates. Especially if they are increases.

We believe increasing dependence on gas, as the opponents of this project advocate, will lead to higher and more frequently changing electric bills. Our members do not welcome that.

Competition for Fuel Supplies With Residential, Commercial and Industrial Customers

The Commission should be mindful of the long-term consequences of moving to a generating fuel decision which creates substantially more pressure on gas supplies to the detriment of ordinary citizens, business and industry. How is a consumer well-served by having to compete with electric utilities for natural gas? Shouldn't the Commission consider what is going to happen to a consumer's natural gas bill if and when more and more scare natural gas is consumed to make electricity? Coal is no longer a residential heating fuel. There is no substitution in this market. Thus there is no pressure on home heating fuel costs from a decision to use coal as a generating fuel.

Low-income and elderly consumers would be especially hard hit by such a move away from non-substitutable fuels. They would not be better off as a result of a decision to pay a little more for the capital costs of a coal plant, as measured against years and years of pressure on supplies (and resulting cost increases) of natural gas to heat their homes. The same is true of commercial and industrial users.

PTF-II Makes Historic Commitment to Renewables

PTF-II makes the largest commitment to the expansion of renewable generating resources ever.made by a utility in this state. One that far surpasses that which is required of WE Energies.

We believe this commitment ought to be given some weight and credit in the EIS.

Adding 200 Mw of renewables is an enormously significant step. WE Energies actions in this regard have won the company praise from organizations like RENEW Wisconsin.

We ask the Commission to bear in mind the efforts of WE Energies in this EIS because these activities and the company's manure digester project in Wrightsown are all a part of a package of generation resources under the PTF-II undertaking.

It is saddening to us, that WE Energies is the subject of daily hostile television ads which completely ignore the company's efforts in the renewables area. Such a state of affairs clearly demonstrates the anti-coal (not pro-consumer) agenda of most opponents of the project.

The Commission Should Expand, Not Narrow, Fuel Options for Electric Generation

Having eliminated new nuclear resources as an option and, through DNR pressure, having made it very difficult to re-license existing hydro (and essentially banning new small hydro), the state of Wisconsin may be on its way to eliminating coal as a generating fuel option.

Such a long-term policy result will leave us with two options: gas and renewables.

We strongly caution against moving in this direction.

This EIS and this case is important because it will determine the direction the state intends to take in respect to what fuels electric generators are allowed to use to make electricity. Many opponents of this project want to end the use of coal today.

In terms of the price of electricity and reliability, this would be a disaster for Wisconsin consumers.

If anything, the electric power industry needs more--not fewer--options for generating power. More options will certainly lower the risk simply by virtue of the operation of portfolio theory principles.

More available **types** of fuels will also enhance competition between fuels. Narrowing fuel choices will give the remaining fuels much greater resistance or immunity against competitive pressure, resulting in higher than normal prices.

We thank the Commission for its consideration.

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The Federal Reserve Board

Testimony of Chairman Alan Greenspan

Natural gas supply and demand issues
Before the Committee on Energy and Commerce, U.S. House of Representatives
June 10, 2003

In recent months, in response to very tight supplies, prices of natural gas have increased sharply. Working gas in storage is currently at very low levels relative to its seasonal norm because of a colder than average winter and a seeming inability of increased gas well drilling to significantly augment net marketed production. Canada, our major source of imported natural gas, has had little room to expand shipments to the United States, and our limited capacity to import liquefied natural gas (LNG) effectively restricts our access to the world's abundant supplies of gas.

Our inability to increase imports to close a modest gap between North American demand and production (a gap we can almost always close in oil) is largely responsible for the marked rise in natural gas prices over the past year. Such price pressures are not evident elsewhere. Competitive crude oil prices, after wide gyrations related to the war in Iraq, are now only slightly elevated from a year ago, and where spot markets for natural gas exist, such as in Great Britain, prices exhibit little change from a year ago. In the United States, rising demand for natural gas, especially as a clean-burning source of electric power, is pressing against a supply essentially restricted to North American production.

Given the current infrastructure, the U.S. market for natural gas is mainly regional, is characterized by relatively longer term contracts, and is still regulated, but less so than in the past. As a result, residential and commercial prices of natural gas respond sluggishly to movements in the spot price. Thus, to the extent that natural gas consumption must adjust to limited supplies, most of the reduction must come from the industrial sector and, to a lesser extent, utilities.

Yesterday the price of gas for delivery in July closed at $6.31 per million Btu. That contract sold for as low as $2.55 in July 2000 and for $3.65 a year ago. Futures markets project further price increases through the summer cooling season to the peak of the heating season next January. Indeed, market expectations reflected in option prices imply a 25 percent probability that the peak price will exceed $7.50 per million Btu.

Today's tight natural gas markets have been a long time in coming, and futures prices suggest that we are not apt to return to earlier periods of relative abundance and low prices anytime soon. It was little more than a half-century ago that drillers seeking valuable crude oil bemoaned the discovery of natural gas. Given the lack of

adequate transportation, wells had to be capped or the gas flared. As the economy expanded after World War II, the development of a vast interstate transmission system facilitated widespread consumption of natural gas in our homes and business establishments. On a heat-equivalent basis, natural gas consumption by 1970 had risen to three-fourths of that of oil. But natural gas consumption lagged in the following decade because of competitive incursions from coal and nuclear power. Since 1985, natural gas has gradually increased its share of total energy use and is projected by the Energy Information Administration to gain share over the next quarter century, owing to its status as a clean-burning fuel.

* * * * *

Recent years' dramatic changes in technology are making existing energy reserves stretch further while keeping long-term energy costs lower than they otherwise would have been. Seismic techniques and satellite imaging, which are facilitating the discovery of promising new natural gas reservoirs, have nearly doubled the success rate of new-field wildcat wells in the United States during the past decade. New techniques allow far deeper drilling of promising fields, especially offshore. The newer recovery innovations reportedly have raised the average proportion of gas reserves eventually brought to the surface. Technologies are facilitating Rocky Mountain production of tight sands gas and coalbed methane. Marketed production in Wyoming, for example, has risen from 3.4 percent of total U.S. output in 1996 to 7.1 percent last year.

One might expect that the dramatic shift away from hit-or-miss methods toward more advanced technologies would have lowered the cost of developing new fields and, hence, the long-term marginal costs of new gas. Indeed, those costs have declined, but by less than might have been the case because much of the innovation in oil and gas development outside of OPEC has been directed at overcoming an increasingly inhospitable and costly exploratory physical environment.

Moreover, improving technologies have also increased the depletion rate of newly discovered gas reservoirs, placing a strain on supply that has required increasingly larger gross additions from drilling to maintain any given level of dry gas production. Depletion rates are estimated to have reached 27 percent last year, compared with 21 percent as recently as five years ago. The rise has been even more pronounced for conventionally produced gas because tight sands gas, which comprises an increasing share of new gas finds, exhibits a slower depletion rate than conventional wells.

Improved technologies, however, have been unable to prevent the underlying long-term price of natural gas in the United States from rising. This is most readily observed in markets for natural gas where contract delivery is sufficiently distant to allow new supply to be developed and brought to market. That price has risen gradually from $2 per million Btu in 1997 for delivery in 2000, and presumably well beyond, to more than $4.50 for delivery in 2009, the crude oil heating equivalent of rising from less than $12 per barrel to $26 per barrel. Over the same period, the distant futures price of light sweet crude oil has edged up only $4 per barrel and is selling at a historically rare discount to comparably dated natural gas.

Because gas is particularly challenging to transport in its cryogenic form as a liquid, imports of LNG have been negligible. Environmental and safety concerns and cost have limited the number of LNG terminals and imports of LNG. In 2001, LNG imports accounted for only 1 percent of U.S. gas supply. Canada, which has recently supplied a sixth of our consumption, has little capacity to significantly expand its exports, in part because of the role that Canadian gas plays in supporting growing oil production from tar sands.

Given notable cost reductions for both liquefaction and transportation of LNG, significant global trade is developing. And high gas prices projected in the American distant futures market have made us a potential very large importer. Worldwide imports of natural gas in 2000 were only 26 percent of world consumption, compared to 50 percent for oil.

Even with markedly less geopolitical instability confronting world gas than world oil in recent years, spot gas prices have been far more volatile than those for oil, doubtless reflecting, in part, less-developed global trade. The updrift and volatility of the spot price for gas have put significant segments of the North American gas-using industry in a weakened competitive position. Unless this competitive weakness is addressed, new investment in these technologies will flag.

Increased marginal supplies from abroad, while likely to notably damp the levels and volatility of American natural gas prices, would expose us to possibly insecure sources of foreign supply, as it has for oil. But natural gas reserves are somewhat more widely dispersed than those of oil, for which three-fifths of proved world reserves reside in the Middle East. Nearly two-fifths of world natural gas reserves are in Russia and its former satellites, and one-third are in the Middle East.

Creating a price-pressure safety valve through larger import capacity of LNG need not unduly expose us to potentially unstable sources of imports. There are still numerous unexploited sources of gas production in the United States. We have been struggling to reach an agreeable tradeoff between environmental and energy concerns for decades. I do not doubt we will continue to fine-tune our areas of consensus. But it is essential that our policies be consistent. For example, we cannot, on the one hand, encourage the use of environmentally desirable natural gas in this country while being conflicted on larger imports of LNG. Such contradictions are resolved only by debilitating spikes in price.

* * * * *

In summary, the long-term equilibrium price for natural gas in the United States has risen persistently during the past six years from approximately $2 per million Btu to more than $4.50. The perceived tightening of long-term demand-supply balances is beginning to price some industrial demand out of the market. It is not clear whether these losses are temporary, pending a fall in price, or permanent.

Such pressures do not arise in the U.S. market for crude oil. American refiners have unlimited access to world supplies, as was demonstrated most recently when Venezuelan oil production shut down. Refiners were able to replace lost oil with supplies from Europe, Asia, and the Middle East. If North American natural gas markets are to function with the flexibility exhibited by oil, unlimited access to the vast world reserves of gas is required. Markets need to be able to effectively adjust to unexpected shortfalls in domestic supply. Access to world natural gas supplies will require a major expansion of LNG terminal import capacity. Without the flexibility such facilities will impart, imbalances in supply and demand must inevitably engender price volatility.

As the technology of LNG liquefaction and shipping has improved, and as safety considerations have lessened, a major expansion of U.S. import capability appears to be under way. These movements bode well for widespread natural gas availability in North America in the years ahead.

▲ Return to top

Comments on the Draft Environmental Impact Statement, submitted by Wisconsin Electric Power Company, W.E. Power, and Wisconsin Energy Corporation

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June 13, 2003

via MESSENGER

Jeffery Kitsembel
Public Service Commission
P.O. Box 7854
610 North Whitney Way
Madison, WI 53707-7854

RE: Power The Future – Phase II
PSC Docket No. 05-CE-130

Dear Mr. Kitsembel:

Attached are the comments of Wisconsin Electric Power Company, W.E. Power, LLC, and Wisconsin Energy Corporation (the companies) on the Draft Environmental Impact Statement in the above docket, issued by the Commission on April 28, 2003.

It is important to note that the companies are extremely cognizant of the tremendous amount of investigation and review required by the state agencies involved in this process, the Public Service Commission of Wisconsin and the Department of Natural Resources. Both agencies participated in public meetings to gather additional comments. The Public Service Commission staff had the responsibility of gathering, organizing and issuing the Draft Environmental Impact Statement ("DEIS"), incorporating the wide range of impacts of this significant and important project. We believe that the DEIS fully and comprehensively considers the environmental impacts of the proposed action consistent with the requirements of §1.11, Stats. The companies appreciate those efforts and believe the record in this case will be enhanced because of them.

The comments enclosed fall into several categories. First, some comments address facts or calculations which may have been misstated. Second, there are comments which address interpretations of data or information. Third, we have provided certain information related to the accommodations identified as a result of input from various stakeholder groups and detailed in the testimony filed on May 27, 2003. Finally, certain information has been provided regarding other planned projects, particularly at the Oak Creek Power Plant, which may have impacts over the entire system or at the Elm Road site.

Even though additional information has been provided regarding the impact on the aggregate emissions of Wisconsin Electric's fossil generation fleet from future pollution control efforts at its existing generation, the company is not requesting approval for any projects other than the 1800 MW proposal for Elm Road Generating Station. Further, our comments do not indicate any request for approval of a scope of work other than that identified in the Company's original request for the Elm Road project. These comments are provided for the Commission's convenience and information, not as a requirement for the DEIS. However, we believe the impacts of the emission reductions, which will be addressed at the hearing, are important to the Commission's decision-making in the proceeding.

Copies of these comments will be served on all parties in accordance with the procedures directed by the Law Judge.

Thank you for the opportunity to comment on this important document, and for your consideration of those comments.

Very truly yours,

R. A. Draba
Vice President-State Regulatory Affairs

encls.
/rmr

cc: Service List (w/encls)

ERGS DEIS Applicants' Comments – Enclosure A

Executive Summary (p xix)
Under the leased generation approach, WEPCO would enter into a long-term facility lease with its non-affiliate company known as WE Power. WE Power would construct and own the facilities, but lease the generating units to WEPCO and other interested utilities at economic terms and conditions reviewed, regulated, and approved by the PSC. WEPCO would operate the coal facilities at the ERGS. Operation would include staffing, maintenance, and fuel procurement.
Comment: It would be more accurate to state this as follows:.
Under the leased generation approach, WEPCO would enter into ~~a~~ long-term facility leases with wholly owned subsidiaries of its non-affiliate company ~~known as~~ WE Power. WE Power's subsidiaries (ERGS SC LLC and ERGS IGCC LLC) would construct and have the ownership interest in the facilities, but would lease the generating units to WEPCO ~~and other interested utilities~~ at economic terms and conditions reviewed, regulated, and approved by the PSC. Other interested utilities might have ownership interests in the facilities as well, but the WE Power companies will ultimately own no less than 83% of each of the new units. WEPCO would operate the coal facilities at the ERGS. Operation would include staffing, maintenance, and fuel procurement.

(p xx) Suggested change: IGCC cost estimates are less certain because coal-based IGCC plants in the 500+ MW range have not been built anywhere in the world.
Comment: This is only true for coal based IGCC plants. Two heavy oil IGCC plants in Italy (ISAB 520 MW, SARAS 550MW) entered commercial service in 2001. This information was included in 1-SUP-166.

(p xxii) Executive Summary
On March 25, 2003, the city of Oak Creek and WEPCO entered into an agreement by which WEPCO agrees to annually pay the city of Oak Creek $1.5 million at the start-up of ERGS unit 1…The first annual payment of $1.5 million would increase the cost of the facility lease for the first SCPC unit by about 1.5 percent based on an annual estimated lease payment of nearly $107 million.
Comment: $1.5 million divided by $106.9 million = 1.4 percent, not 1.5 percent. Further, the impact of $2.25 million divided by $214 million for the first two plants combined is less than 1.1 percent.

(pxxiii), first par., last sentence. Comment: WEPCO reserve margin 20.56% per MAIN audit.

(p xxvii) Comment: Please consider the following correction.
The primary soil stockpile locations described in the application include:
• an area east of STH 32 south of the existing transmission line corridor;
• an area north of Elm Road across the railroad tracks from the Barton Oaks subdivision that is currently old field, ~~and~~ wetlands, and the North Ash Landfill;
• a large area immediately south of Haas Park that currently supports the Oak Creek ~~North~~ South Landfill;

(p xxx) **Solid Waste**
Comment: Change quantities because of the updated bituminous coal characteristics (Washed Pittsburgh #8) as follows for the SCPC units:
165,200 tons per year of fly ash changes to 206,300 tons per year
38,600 tons per year of bottom ash changes to 51,600 tons per year
137,666 cubic yards per year of fly ash changes to 171,900 cubic yards per year
32,166 cubic yards per year of bottom ash changes to 43,000 cubic yards per year
169,832 cubic yards per year of total volume changes to 214,900 cubic yards per year

Change quantities for the IGCC units based on more detailed information as follows:
18,000 tons per year of elemental sulfur changes to 33,200 tons per year
60,000 tons per year of sulfuric acid changes to 109,200 tons per year
62,400 gallons per day of sulfuric acid changes to 50,700 gallons per day
200,000 gallons of on site storage remains the unchanged.

(p xxxviii) primary stockpile locations. Correction: The second bullet should read …that is currently old field, wetlands, and the North Ash Landfill. Third bullet should read….supports the Oak Creek South Landfill.

(pp 1, 6 & 31) **Description of the Proposed Project.** Comment: Suggest correcting typo in last paragraph as follows.
In order to meet this need, plus an 18 percent reserve margin, it has proposed a package of generation capacity that includes 1,090 MW of natural gas-fired capacity at its existing Port Washington Power Plant site and ~~1,860~~1,830 MW of coal-based generation that is the subject of this application.

(p 2) Proposed sites Comment: Suggest clarifying first paragraph as follows.

The proposed sites for the ERGS are on a large parcel of land located along the shore of Lake Michigan near the OCPP. The parcel is approximately 1,000 acres in size, and is primarily owned by WEPCO. This land currently functions as buffer area around the existing OCPP. A ~~federally owned 7~~80-acre property within the WEPCO property is currently used as a shooting range, but is also being considered as a site for some of the facilities. The property consists of two parcels - a northerly parcel owned by the State of Wisconsin (28.92 acres) and a southerly parcel owned by the U.S.A. (51.08 acres).

(p 9) Table 1-2 Comment: CPCNs will be needed for transmission.

(p 13, par. 2 and Executive Summary, p xx) "WEPCO provided the costs for the ERGS as part of its overall PTF application. However, the costs provided for ERGS are not as certain as those provided for the Port Washington units. The costs provided for the SCPC units are somewhat uncertain and the cost for the IGCC unit is even less certain. Thus, the estimated costs for the ERGS are on a "cost-plus" basis, rather than a "firm" basis like the Port Washington costs."
Comment: Please use the more accurate term "Cost Reimbursable with Cap."

(p 14) Suggested change: In addition, IGCC cost estimates are less certain because coal-based IGCC plants in the 500+ MW range have not been built anywhere in the world.
Comment: This is only true for coal based IGCC plants. Two heavy oil IGCC plants in Italy (ISAB 520 MW, SARAS 550MW) entered commercial service in 2001.

(p 15) Suggest changing "Bechtel Engineering" to "Bechtel Power Corporation."

(p 15) "Items that could impact or increase the original estimate provided by WEPCO include:"

Comment: All capital costs items listed are included in WE Power's estimate provided in the direct Testimony of Mihm with the exception of transmission (ATC costs) and City of Oak Creek payments (not capital). Also coal shed estimate is $20 million not $5 million.

(p 16) The cost for one of those plants, the Wabash River Plant in Indiana, was $417 million for a 262-MW facility (in 1995 dollars) or $1,591/kW.
Comment: According to the response to 1-SUP-166, Wabash was $438 million for a 260 MW plant (in 1995 dollars) or $1,685/kW. However, this was a repowering of an existing coal fired unit. Because of re-use of existing plant equipment, it is not directly comparable to other projects. Allowing for new equipment, the estimated cost would be $29 million higher. This would result in a cost of $1,796/kW. Costs are higher because of the interpretation of capital costs versus capital costs.

A DOE report entitled "Wabash River Coal Gasification Repowering Project, Final Technical Report, August 2000" states "The installed cost of the overall IGCC facility including start-up was about $1590/kW (1994$). Allowing for new equipment that would have been required if this had been a greenfield project instead of repowering, the installed cost figure on this demonstration project was $1700/kW (1994$).

(p 18) Suggest the following change:
In Wisconsin, several generation projects that preceded the ERGS proposal in the ATC queue have been cancelled, or indefinitely delayed. At the time that the initial interconnection study for the ERGS was completed, there were other units in the Midwest queue ahead of Elm Road, including IC001 (Badger Gen – Kenosha~~Midwest Power – Germantown~~) and IC003 (~~Badger Gen – Kenosha~~ Midwest Power – ~~Germantown~~New Berlin) and four generating units in northern Illinois.

(p 22) Chapter 2, **Figure 2-4**
Comment:

The facility lease relationship shown as A between the ERGS SCPC 1 LLC and the Other Investors is included in the diagram in error. The description for that symbol also erroneously mentions "two secondary Lessees". There will not be a lease between ERGS and Other Investors; the facility lease will only be between ERGS (as Lessor) and WEPCO (as a single Lessee). There might be a facility lease between the "Other Investor SPE's" and the "Other Investors", but such a lease is not the subject of the Applicants' filings in either Docket No. 05-CE-130 or Docket No. 05-AE-118.

Further, the party labeled "W.E. Power SCPC1 LLC" should be renamed "ERGS SC LLC" and the subsidiary labeled "ERGS-SCPC 1 LLC" will not exist. The ERGS SC LLC will have an ownership interest somewhere between 83.34% and 100% in the Unit 1 facility. The lease agreements are between WEPCO and ERGS SC LLC, not between WEPCO and the Unit 1 facility.

(p 24) Chapter 2,
In a July 19, 2002, agreement with the Customers First Coalition, an intervener group representing a variety of consumer groups, WEPCO agreed to seek financing for the coal facilities using a 12.9 percent return on equity and 55 percent common equity in the capital structure.

Comment: The July 19, 2002 stipulated agreement covers the two proposed PTF gas units at Port Washington. It is silent as to the terms that would be proposed for the coal units at the Elm Road site.

Given the facility lease payment calculation shown above, it is possible to estimate the effect on ratepayers for the two SCPC plants. Together, the annual lease payments would equal about $214.million. Presently, the retail electric revenue requirement for WEPCO is $1.7 billion. By 2007, WEPCO's retail revenue requirement may equal $2 billion. This means that the additional lease payments for the first two SCPC plants at Elm Road would increase retail electric revenue requirement by about 10.7 percent.
Comment: In 2007, while WEPCO's retail revenue requirement may equal $2 billion, only one of the SCPC units will go into service and it will not go into service until mid-year. Thus, for 2007 the rate impact would be 2.7%, not 10.7% (($107 million/2)/$2 billion).

For 2008 the revenue requirement would increase (assuming a 2.32% inflation factor) but the lease payment would remain the same, for a net impact of ($107 million/($2 billion * 1.0232%)) = 5.2% compared to 2006 rates. The increase in rates from 2007 to 2008 is only 2.6%.

For 2009, the second SCPC unit would go into service mid-year. The net impact for that year would be ($107 million + 107 million/2))/($2 billion*1.0232^2) = 7.67% when compared to 2006 rates. The increase in rates from 2008 to 2009 is only 2.6%.

When both plants are in service, in 2010, the net impact would be ($107 million*2)/($2 billion*1.0232^3) = 9.99% when compared to 2006 rates. The increase in rates from 2009 to 2010 is only 2.5%.

Because the lease payment remains fixed, the rate impact thereafter declines as the overall revenue requirement increases.

The estimate does not include carrying costs or interest during construction.

Comment: One cannot include carrying costs or interest during construction to the estimated future rate impacts because those costs are being paid by the utility (and recovered in rates) during construction. This was intentionally established by the parties in the lease in order to mitigate future rate impacts.

(p 31) , 5th Par. Please consider the following changes.
The PSC has traditionally ~~required~~ recommends Eastern Wisconsin utilities ~~to~~ maintain a higher 18 percent planning reserve margin due to concerns with issues such as transmission limitations. The Mid-America Interconnected Network (MAIN) guidelines typically ~~require~~ recommend about 15 percent target reserves.

(p32) Note (2 places): MAIN audit results show 20.56% reserve margin.

(p 37) Comment: Suggest the following changes to Table 3-2.

Table 3-2 Generating units installed by or under contract to WEPCO since 1985

1997	Whitewater combined-cycle (purchase)	235	~~288~~247
2000	Neenah combustion turbines (purchase)	300	350
2003~~4~~	Zion combustion turbines (Illinois purchase)	450	

(p 37) Comment: Suggest the following change to the 2nd par.
In addition to the generating units it built, WEPCO arranged a 235 MW power purchase from the Whitewater combined-cycle generating unit and it expects to use up to 450 MW of capacity from Calpine's Zion Energy Center in Illinois by ~~2004~~2003.

(p 38) Comment: Consider the following title revision.
Table 3-3 Other generating units greater than 50 MW installed ~~in Wisconsin~~ since 1998 (or under construction)

(p 38) Comment: Consider the following changes.
During the summer of 2000, SEI Wisconsin, ~~an affiliate~~the predecessor of Mirant, placed a 300 MW natural gas facility in Neenah into commercial operation (the plant subsequently purchased by ~~WP&L~~Alliant Generation). During 2001, the 450 MW RockGen combustion turbine project located in the town of Christiana in Dane County began full operation. All of these facilities are under contract to various state utilities. The sale of some of the merchant power plants to Wisconsin utilities reduces the amount of generation that merchant plants were predicted to supply toward the state's generation needs.

By the end of 2004, nearly 2,050 MW of electric generating supply being used by electricity providers for Wisconsin customers may come from merchant plants under contract to the states utilities. Some of this power will come from merchant facilities located outside the state; such capacity plays an important part in maintaining electric reliability in the state. For instance, by ~~2004~~June 2003, WEPCO expects to use up to 450 MW of capacity from Calpine's Zion Energy Center in Illinois.

(p 43) Suggest the following change:

Planned capacity retirements and nuclear relicensing

WEPCO has indicated that no existing baseload capacity would be retired in the near future. Commission staff recommended considering retirement of a generating unit at 60 years and this assumption was incorporated into the EGEAS modeling. This would allow retirement of Oak Creek Unit 5~~1~~ in 2019.

(p 48) Comment: Suggest revising the last paragraph as follows.
An alternative way to depict the information in Figure 3-14 is to examine the expected planning reserve margin for WEPCO if the capacity represented by the Port Washington and ERGS units is added to the existing system. Figure 3-15 portrays expected planning reserve margins with or without the Port Washington and ERGS units. Presently, the PSC ~~requires~~ recommends the state's utilities to maintain an 18 percent planning reserve margin.

(p 59) **Renewable Resources as an Alternative**

In Wisconsin, the noncombustible renewable resources in use for electric generation are wind, solar and hydro. Combustible renewable resources include fuel cells fueled by hydrogen that is produced by a renewable resource and biomass energy derived from wood or plant residue, biological waste, crops grown for use as a resource, or landfill gas. The main renewable energy resources for Wisconsin electric generation appear to be wind power and biomass fuels, including waste-to-energy. At this time, solar power appears too costly to install on a utility scale and there is very little additional hydroelectric power potential available in Wisconsin.
Comment: Please change the third sentence in the above paragraph as follows:
The main new renewable energy resources for Wisconsin electric generation appear to be wind power and biomass fuels, including waste-to-energy.

(p 59 last paragraph)Comment: Suggest revising as follows:
Blades are shaped and positioned to take advantage of different wind velocities so that, depending on design, one wind machine may produce power in a different range of wind velocities than another. Power output is ~~directly~~ proportional to the square of the length of the blades. Cold air is denser, which means it ~~has more force, or ability to turn the blades~~is heavier, than warm air. A wind machine in Wisconsin's cold, dense winter air can produce up to 20 percent more than the same machine with the same wind speed but in ~~warmer~~ hot summer air.

(p 60) Clarifying Comment:
Table 4-1 shows potential capacity and electrical generation based on the land area exhibiting each class of wind speed and assuming 12 MW per square mile.41 The numbers in 4-1 do not include potential offshore wind development in the Great Lakes because the greater projected cost per MW and greater O&M cost ($1671 per MWh and $33 per kW-yr.). Wind power imports from neighboring states with superior wind regimes are also not included due to severe transmission constraints.

(p 61 first paragraph)Comment: Suggest revising as follows:
Factors affecting property values ~~including~~ include the general condition of the local and national economy, taxes, the reputation of the school system, and the availability and condition of infrastructure (i.e. roads, police and fire protection).

(p 61) Comment: Please consider the following revision to include pertinent factual information.
From a social and economic standpoint, wind power has several advantages. Wind energy generally requires a larger workforce than typical gas fueled combustion turbine technologies but less than typical coal fueled facilities. From an economic standpoint, wind power does not have any associated fuel-price risks. Because wind power requires no fuel, the cost of wind generated electricity would not be affected by volatility in fuel prices.

(p 62 Table 4-2)Comment: Suggest using "lb." instead of "#".

(p 62 Sentence following Table 4-2)Comment: Suggest revising as follows:
At an 85 percent capacity factor, ~~22,547,000 MWh~~ 3028 MW would yield ~~3028 MW~~ 22,547,000 MWh of energy per year.

(p 63)Comment: Suggest revising as follows:

3. Woody or herbaceous energy crops—grown ~~sustainable~~sustainably on cropland or in plantations and dedicated for conversion to electricity.

(p 66) Comment: Suggest revising as follows:
Another important assumption in the EGEAS runs is the 20 percent credit to reserve margin. This means that for every 100 MW of wind power generated, only 20 MW would be credited toward WEPCO's reserve margin. This is somewhat conservative in light of the Mid-Continent Area Power Pool (MAPP's) wind accreditation reporting for 2000 through 2001, indicating that five wind farms in Minnesota had accredited capacities ranging from 21 to 29 percent. However, those wind farms are located in stronger wind regimes than Wisconsin has.

(p 69) Comment: Please consider the following qualifications to the last paragraph.
The Calpine proposal submitted to the PSC does contain a ~~completed~~ sample power purchase agreement (PPA) with relevant economic and engineering terms and conditions determined solely by Calpine. Such terms and conditions, due to their trade secret nature, have been filed confidentially at the PSC and are available only from Calpine after entering into an appropriate trade secret protection legal framework.

(p 83) Chapter 5 - Fuel Diversity Perspectives Comment: Suggest adding to the second paragraph as follows.
Some of these considerations include: the age and condition of WEPCO's existing generating units; the source and availability of the fuels; fuel prices and the expected stability or volatility of fuel price over time; overall energy balance in the State of energy use in all applications; and the environmental effects and safety issues associated with the use of different fuels.

(p 85) Comment: Suggest adding to the 3rd paragraph, last sentence as follows.
This suggests that even though large volumes of natural gas continue to be consumed, the available resource base may be expanding, not declining, as gas prices move higher. Over the long term, existing production areas will not be able to supply the increases in demand. Gas will need to be brought to market from areas that currently have little or no production because of cost, technology or regulatory reasons. Examples include importing LNG, offshore eastern Canada, the Mackenzie Delta, Alaska and the Rocky Mountains.

(p 87) Comment: Suggest citing the demand forecast that shows a slowing as stated in the following.
With the generally slow growth rate in natural gas demand and the apparent slowing in the pace of natural-gas- fired electrical generation, technological advance and technological innovation could allow for the development of additional supplies to keep pace with the demand for natural gas.

(p 89) Comment: Suggest adding to the 3rd par., the following.

When the number of operating rigs is not sufficient to keep up with demand, ~~two~~ three things happen: (1) interruptible customers do not receive natural gas ~~and~~ , (2) natural gas prices rise and (3) demand

destruction occurs. So during these situations for the generator using natural gas, supplies might be available at high cost, or under certain conditions might not be available at all.

(p 91) The recently-constructed Guardian Pipeline is such an example. It brings an additional 750 dekatherms per day of capacity to the state, some of which could be used to serve natural-gas-fired electric generators.
Comment: Instead of dekatherms, the unit of measure is million cubic feet. The same error is repeated in footnote 67.

(p 93) Coal mining and transport, 3rd par. Comment: Please consider the following change:
To grasp the impact coal mining has had on the environment, one can examine the statistics for Pennsylvania, the ~~second~~ fourth largest coal-producing state in the U.S. and the source of the coal to be used in the ERGS facilities.

(p 95) **Chapter 5 - Solid Waste**
Comment: Change quantities because of the updated bituminous coal characteristics (Washed Pittsburgh #8) as follows for the SCPC units:
165,200 tons per year of fly ash changes to 206,300 tons per year
38,600 tons per year of bottom ash changes to 51,600 tons per year

In the fourth line the word "acid" should be deleted or changed to "ash". Leachate from coal ash is typically basic rather than acidic.

(p 101) Comment: par. 5 refers to an existing rail loop. There is currently no "loop." The existing track curves onto the property, but terminates rather than reconnecting with the UPRR tracks.

p 101 par. 6. Comment: There are two existing storage piles, one on the dock as mentioned, and one east of the car dumper.

p 102 Comment: par. 3 States generating station equipment would occupy about half of the site. If this is referring to the 1000 acre site, then it is incorrect. Also included with balance of the site would be existing landfill areas, which cover a large portion of the 1000 acres.

(p 102) Note: par. 7 Comment: Outdoor piles will occupy 22 acres of land. Apparently, the Staff's calculation did not consider the irregular shape of the coal piles. Please consider the following revision.

The new coal piles would occupy approximately ~~55~~ 22 acres of land ~~with a footprint of approximately 1,425 by 1,650 feet~~, exclusive of the various conveyors.

(p 102, par. 8) Comment - semantics: A *harbor* is required for ship delivery of coal only. The *expansion* is used for limestone and gypsum loading, unloading, and processing, even if ship delivery of coal is not the chosen fuel delivery method.

(p 109) Comment: Please revise the first sentence and associated footnote as follows.
The SCPC units are being designed to burn an ~~un~~washed fuel.[70]

[70]DR-032 says coal washing will not occur at the ERGS site.

(p 109, Table 6-2) Comment: Please substituting the washed bituminous coal column from Table 9-1.

(p 110, par. 5) Clarification: Conveyors handling crushed coal will be installed inside enclosed galleries. Conveyors handling uncrushed coal would be covered conveyors.

(p114) **Solid waste production, storage, and beneficial use**
Comment: Please change quantities because of the updated bituminous coal characteristics (Washed Pittsburgh #8) as follows for the SCPC units:
165,200 tons per year of fly ash changes to 206,300 tons per year
38,600 tons per year of bottom ash changes to 51,600 tons per year
248,800 tons per year of gypsum changes to 543,600 tons per year

(p114, par. 3) **Water use, storage and discharge**
Comment: Delete first sentence and replace with the following: A new pump house will be installed on the southwest side of the proposed SCPC site plan. OCPP units 5-8 will utilize the existing south plant pump house that will withdraw water from the planned forebay area that will enclose the western end of the intake channel. Both the forebay and new SCPC pump house locations will be connected to the proposed intake tunnel by means of a vertical dropshaft.

(p116) **Fly ash**
Comment: Change "industrial" use to "commercial" use.

(p116) **Bottom ash**
Comment: Change "industrial" use to "commercial" use.

(p 116, par. 6) Plans for gypsum may also include conveyance to a wall board plant if one is constructed in nearby vicinity, or barging off site.

(p 122) HAPs, including mercury, would be controlled in the gasification process. Information from currently operating IGCC facilities suggests that at least 50 percent of the mercury is removed in this gasification process
Comment: We have committed to at least 90 percent mercury removal. This information is included in the revised air permit application.

(p 122, par. 4) Comment: typo. Consider revising as follows.

"The rated heat load input is estimated to be 5,035 million British thermal units (MMBTU/hr) as shown in Figure 6-9. The IGCC unit ~~heat rate~~efficiency would be 37 percent, which currently is slightly less than a SCPC unit under the same conditions."

(p126) **Solid waste generation and use**
Comment: Change quantities for the IGCC units based on more detailed information as follows:
18,000 tons per year of elemental sulfur changes to 33,200 tons per year
60,000 tons per year of sulfuric acid changes to 109,200 tons per year
Change 12,000 Btu/pound bituminous coal to 13,100 Btu/pound bituminous coal
Change 3.2 percent coal sulfur to 2.69 percent coal sulfur

(p 127) Interconnection on the plant site, 2nd paragraph. Suggest the following changes:
The interconnection would consist of three circuits. Two circuits from the plant area to the expanded 345 kV substation area and one circuit from the plant area to the 138 kV substation area. Each circuit would be approximately 4,000 feet in length. For the North Site, the line route from the generators to the substation would travel southwest over the coal handling area, then south to the new expanded 345 kV substation(see Figure Vol. 2-1). For the South Site ~~(see Figure Vol. 2-1)~~, the transmission interconnection lines from the SCPC units would head west northwest across the proposed rail loop track toward the expanded substation which would be located inside of the loop.

(p 128) Stability issues, 3rd paragraph. Suggest the following changes:
ATC issued a 10-Year Assessment Update February 2003. The update indicates the conceptual plan for a number of 345 kV lines in southern Wisconsin connecting to Illinois and Iowa. The Big Bend to Paddock 345 kV line is illustrated as one of several 345 kV lines that could meet future needs. The line is not being proposed at this time. With the recent removal of the interconnections for IC001 (Badger Gen – Kenosha~~Midwest Power – Germantown~~) and IC003 (Midwest Power – Germantown~~Badger Gen – Kenosha~~), a different stability solution may be available.

(p157, **Table 7-11, NO_x row, BACT column)** Comment: typo.
Low NOx burners and selective catalytic reduction

(p 181) Fall Turnover
"The annual temperature cycle can generally be broken down into three stages."
Comment: typo. This sentence is carried over from the previous paragraph, is redundant, and should be removed.

(p 193) Existing impingement and entrainment levels
"In 1985, units 1-4 were retired."
Comment: North Oak Creek Units 3&4 were retired in April 1988; Units 1&2 were retired in December 1989.

(p 194) Existing impingement and entrainment levels
"This system releases dissolved copper and aluminum into the intake water,….."

Comment: The Copper Ion Generator discharges into the House Service Water system that subsequently discharges to Lake Michigan via the condenser cooling water outfalls (WPDES outfalls 003, 004, 005 and 006).

(p200, par. 3) **IGCC unit**
Comment: typos – first sentence (p**o**wer block,…)

(p200, footnote) **IGCC unit**
Comment: typos – date reference should be 2-01-02 (not 2-10-02)

(p201, par. 3) **IGCC unit**
Comment: Flow rate in last sentence should be 2,948,900 gpm

(p201, par. 3) **Cumulative use** Comment: typos – IGCC (not OGCC) and 485,000 gpm (not gmp)

Comment: Delete first sentence of the final paragraph and replace it with the following: A new pump houses will be installed on the southwest side of the proposed SCPC site plan. OCPP units 5-8 will utilize the existing south plant pump house that will withdraw water from the planned forebay area that will enclose the western end of the intake channel. Both the forebay and new SCPC pump house locations will be connected to the proposed intake tunnel by means of a vertical dropshaft.

(p203, par. 3) **Description and location of proposed water intake system**
Comment: third sentence – delete the words "includes an on-shore pumping station". Also, for this paragraph the reference to a 3,500 feet intake can be deleted. Depth proposed for the intake cribs is about 43 feet.

(pp. 203-204) **Construction methods for the water intake transport system**
Comment: Delete the first paragraph of this section. Delete the first sentence of the first full paragraph on page 204. Alter the second sentence to state: "The proposed tunnel would be 32 feet in diameter and approximately 200 feet below the bed of the lake." Forth sentence – delete 30 foot reference. Fifth and sentences replace with – "The proposed design is to install four intake cribs at the lake bottom that will each connected to a 14 foot diameter tunnel that leads to a drop shaft that is 32 feet in diameter." Delete the sixth sentence.

(p 207) Comment: typo
ERGS ~~1,060,000~~10,600,000 tpy

(p 212) 1st paragraph
Comment: In discussing the dredging, it should be made clear that WE can already dredge a sizeable portion of the proposed navigational channel. This would be done as maintenance dredging of an existing channel.

Rooted Aquatic plants and algae (p218)
Lakebed surveys within the project area were undertaken in 2002 by the Great Lakes WATER Institute. Those studies show no aquatic macrophytes within the project area. Most of the project area is in water depths deeper than (typo) the maximum rooting depth of…

(p 225) Because the plant would use once-through cooling technology which returns water to Lake Michigan and the make-up water for the boilers would come from the municipal water supply, no water filtration or treatment would occur.
Comment: But in fact water treatment will occur, probably demineralization. In particular, the zero discharge facility for the IGCC unit will have a salt cake which will require disposal. At this time it is not known whether this will be a hazardous waste. Other wastes may be generated from the gasification process, including spent catalysts, carbon beds, and other assorted materials.

(p 229) **Early ash disposal areas** Comment: Typos
In addition to the two closed landfills and one open landfill, four early ash disposal areas (EADAs) were identified on the OCPP property. These are ~~five~~ four places on-site where OCPP ash was buried in the early years of plant operation.

Isolated Natural Resource Areas and ~~Primaray~~Primary ~~Environental~~Environmental Corridors are also described in Chapter 10.

(p 230) **Present methods of re-use** Comment: Please consider the following changes:
WEPCO's existing plant currently creates two main by-products: fly ash (class C and F) and bottom ash. Class C fly ash is produced by newer boilers and has more calcium. It is used as a cementitious material and is very good for making concrete. Class F fly ash comes from older boilers and has less or no calcium and a high carbon content. It has little to no economic value at this time.

At this time, over ~~90~~ 96 percent of these by-products are recycled. Class C fly ash is used as admixtures in concrete and soil stabilization beneath paved surfaces. Bottom ash is primarily used in construction, as sub-base below paved surfaces and beneath commercial buildings. Most of the high carbon Class F fly ash is utilized as a supplemental fuel at Pleasant Prairie Power Plant or utilized for manufacturing portland cement~~Most of Class F fly ash is landfilled~~.

(p230) **Fly ash and bottom ash** Comment: Please consider the following changes:
Table 9-1 illustrates the potential components of the ash by-products from the proposed ERGS SCPC units.

Based on the characteristics reported in Table 9-1, and an 85 percent capacity factor for the new SCPC units, WEPCO estimates that the amount of coal combustion by-products materials produced by each unit would be:

Fly ash ~~82,600 tons/year~~ 103,100 tons/year per unit
Bottom ash ~~19,300 tons/year~~ 25,800 tons/year per unit

Thus, a total of ~~165,200 tons per year of fly ash and 38,600 tons of bottom ash~~206,300 tons per year of fly ash and 61,600 tons of bottom ash would be produced each year by the two SCPC units. Using the standards in Wis. Admin. Code § NR 520.15 (20) and a field capacity conversion factor of 1.2 tons/cubic yard, the respective volumes of the fly ash and bottom ash would be calculated 171,899 cubic yards and 42,975~~at 137,666 cubic yards and 32,166~~ cubic yards. The total volume of fly ash and bottom ash together would be 214,874 ~~169,832~~ cubic yards per year.

(p231) **Synthetic gypsum** Comment: Please consider the following changes:

As discussed in Chapters 6 and 7, the ERGS SCPC units would utilize limestone or organic-acid promoted limestone to control and reduce SO2 emissions. The use of limestone versus organic-acid-promoted limestone would depend upon the fuel sulfur content. Synthetic gypsum by-product would be generated in this operation regardless. WEPCO estimates that about ~~124,400 tons/year~~ 271,800 tons/year per unit would be generated by each unit. The two proposed SCPC units would then create a total of ~~248,800 tons~~543,600 tons of gypsum per year.

(p232) **Elemental sulfur and sulfuric acid** Comment: Please consider the following changes:

In the sulfur recovery plant, the sulfur-containing gases from the Acid Gas Removal (AGR) system would be converted to either elemental sulfur or sulfuric acid. Elemental sulfur and sulfuric acid production would be directly related to the sulfur content of the coal. Based on the proposed fuel, the sulfur content of the coal would yield about ~~18,000 tons/year~~ 33,200 tons/year of elemental sulfur. The quantity of sulfuric acid produced would amount to approximately 60,000 tons/year, or 62,400 gallons per day. ~~This material may be considered hazardous waste.~~

(p 233) **Storage and Handling of Construction and Operation By-Products Fly ash**
Comment: Please consider the following change:
Fly ash collected in the fabric filter hoppers and the air heater hoppers **(**see Figures Vol. 2-1-to 2-**3)** would be conveyed to the fly ash storage silo via a pneumatic transport system using low-pressure air from a blower. The fly ash would be discharged through a wet or dry unloader and conveyed through a telescopic unloading chute into a truck for disposal or utilization.

(p233) **Bottom ash**
Comment: Please consider the following addition:
Bottom ash from the boiler would be collected and transported on a submerged scraper conveyor and dewatered. The ash would then be collected in a dump truck and hauled to a storage pad on site (see Figures Vol. 2-1 to 2-3**).** The ash collected on the storage pad could be loaded into a truck using a front-end loader. It could then be taken to a landfill or recycled as permit allows by NR 538 rules for beneficial utilization of industrial by-products.

(p233) **Gypsum**

par. 2 Comment: typo. Should say "Secondary dewatering….."

par. 3 WEPCO has not proposed the size of the storage shed at this time.
Comment: Please note that the storage shed is to be sized for 3 day storage (refer to air model).

par. 4 Comment: Please consider the following addition.
WEPCO must contract with commercial landfills for gypsum disposal until a wallboard plant is available to accept it or modify the license for the WEPCO landfills.

(p234) Elemental sulfur or sulfuric acid Comment: Please consider the following changes.
Either elemental sulfur or liquid sulfuric acid would be produced as part of the AGR process for the IGCC unit. WEPCO proposes an on-site, three-day storage for liquid sulfuric acid. Based on production of ~~62,400~~50,700 gallons of sulfuric acid per day; a bulk liquid storage of 200,000 gallons would be needed.

WEPCO has stated its intention to haul 30 truckloads (at 3,000 gallons per truckload) per day from the power plant on a Monday through Friday basis. Rail cars hold a capacity of 10,000 to 11,000 gallons and could be considered for longer distance shipments. This material may be classified as hazardous material. The storage and transportation will be regulated as a hazardous material like conventionally manufactured sulfuric acid~~waste. If determined to be hazardous waste, the storage and transportation will be regulated as hazardous waste~~.

(p 235) **Changes in hauling methods and timing** Comment: Please consider the following addition.
WEPCO does not anticipate any substantial changes in the hauling methods or routes for solid waste from the new facilities. There would be an increase in truck traffic for transportation of ashes and other by-products from the ERGS to other WEPCO-owned landfills if the Caledonia landfill capacity is exhausted.

(p236) **Disposal in local landfills** Comment: Please consider the following changes.
As discussed at the beginning of this chapter, WEPCO operates three licensed landfills in the southeast region. The three active landfills are not near capacity and are expected to remain operational for many years. As noted above, the SCPC units are expected to generate ~~165,200 tons/year (82,600 tons per unit per year)~~257800 tons/year (128,900 tons per unit per year).

(p236) **Need for changes in landfill operating plans or licenses** Comment: Please consider the following change.
WEPCO is required to submit plan modifications to the DNR for any of the landfills they plan to use for disposal of newly generated by-products. WEPCO ~~would~~ may also be required to update the design of these landfills to provide better protection for the groundwater.

(p237) **Oak Creek North (OCN)** Comment: Please consider the following change.
Phase II -- Fill would be placed and temporary parking facilities would be constructed. These actions would also result in changes in surface drainage off of the landfill. See the discussion in Chapter 8 on stormwater discharge. The landfill reconfiguration will improve cover impermeability, drainage characteristics and minimize the production of leachate. Long term plans for the OCN site include source removal for use as a supplemental fuel in the proposed generating units. The site will eventually be reclaimed and become available for other uses.

(p237) **Oak Creek South (OCS)** Comment: Please consider the following correction.

Coal combustion by-products generated by the OCPP were disposed of at the OCS beginning in 1974 when it was licensed until it reached its capacity in May 1992 and was covered. The OCS landfill covers 80 acres and contains 3,760,000 cubic yards of ash.

(p237) Comment: Please consider adding an additional bullet.
As discussed in Chapters 10 and 11, construction of the ERGS would require excavation of a significant amount of native soil for construction of the new power plant units and other features. The proposed modifications to the OCS landfill involve:
• Placement of soil on the top. Fill would be placed at a minimum thickness of eight feet over the cover of the OCS.

• Compaction and grading of the newly placed soil to prepare a construction laydown area. Following the relocation of soil, predominantly clay in composition, from the ERGS excavation areas to the top of the OCS, a construction laydown area would be placed as the final surface.
• Construction of access roads and development of short- and long-term stormwater management facilities.
• Proposed cover upgrades from the ERGS project will reduce the production of leachate at the OCS landfill.

(p237) **Beneficial Re-use Ash** Comment: Please consider the following correction.
WEPCO has a beneficial ash re-use program in place. Companies have been working with WEPCO since 1980 to market fly ash and bottom ash from WEPCO's existing coal-fired plants. Since 1980, re-use of the ash has increased until about ~~90~~96 percent of the by-products from its power plants are now beneficially used.

(p 237) Comment: Please consider the following addition.
Bottom ash is now being utilized as base or sub-base material for building floors and foundations, paved roads, and parking lots. Fly ash is now being utilized in cements as a raw feed material for portland cement production, soil stabilization, cold in-place recycling of asphalt pavements, in controlled low-strength materials, and as a supplemental fuel.

(p 237) Comment: Please consider the following change.
WEPCO has approached marketers for their projections on reaching full utilization of the fly ash and bottom ash and has received optimistic replies (these are filed at the PSC as part of WEPCO's CPCN application.) A.W. Oakes & Son of Racine, Wisconsin has indicated that it could utilize 100 percent of the bottom ash within two years of the commissioning of each unit. Mineral Solutions, Incorporated has indicated that it could utilize 100 percent of the fly ash within three years of the commissioning of each unit. This would require working to expand the market for Class F fly ash. Class F fly ash can be used to produce high performance concrete if it meets ASTM C-618 and has consistent quality from a base loaded power plant. WEPCO's current sources of Class F fly ash have high carbon content and thus are not suitable for use in concrete.~~Class F fly ash is not a good ash for making concrete because it contains less than 10 percent calcium oxide (CaO). However, if water is added to it, it somewhat hydrates and solidifies. It has been marketable as "controlled low strength material" (CLSM) or as "flowable fill" (concrete that flows). Basically, it can make a weak concrete for nonstructural use. For instance, it has been used for abandonment of utility tunnels. This market is very limited.~~

(p239) **Table 9-2** Comment: Table 9.2 below is an update to reflect Pittsburgh #8 washed bituminous coal and shows quantities of coal combustion products projected for storage at the Caledonia landfill based on the 10 year straight line utilization growth assumption.

Table 9-2 WEPCO's Projected Annual Coal Combustion Products Landfill Quantities for Fly Ash, Bottom Ash, and Slag

Year	SCPC FA	SCPC BA	SCPC FA	SCPC BA	IGCC Slag	Total
2007	103,100	25,800	0	0	0	128,900
2008	92,790	23,220	0	0	0	116,010
2009	82,480	20,640	103,100	25,800	0	232,020
2010	72,170	18,060	92,790	23,220	0	206,240

2011	61,860	15,480	82,460	20,640	100,000	280,460
2012	51,550	12,900	72,170	18,060	90,000	244,680
2013	41,240	10,320	61,860	15,480	80,000	208,900
2014	30,930	7,740	51,550	12,900	70,000	173,120
2015	20,620	5,160	41,240	10,320	60,000	137,340
2016	10,310	2,580	30,930	7,740	50,000	101,560
2017	0	0	20,620	5,160	40,000	65,780
2018	0	0	10,310	2,580	30,000	42,860
2019	0	0	0	0	20,000	20,000
2020	0	0	0	0	10,000	10,000
2021	0	0	0	0	0	0
TOTAL	567,050	141,900	567,050	141,900	550,000	1,967,870

(p 260) In summary, the topography of the present OCPP property would be altered with a large amount of soil excavation, transport, and deposition to accommodate the two SCPC units at the lakeshore for once-through cooling access and the IGCC combined-cycle and AGR units to handle their water needs as well.
Comment: AGR should be ASU (Air Separation Unit).

(p 275) 2nd par.
Comment: The OCPP currently has two stacks.

(p 277) Communities close to the power plant site
Comment: typo
Communities closest to the site may experience increased noise, dust, traffic problems, and visual impacts. Communities more than one-half mile away are usually too far from a power plant site to experience most of these impacts, but there exceptions, especially with respect ~~top~~ to visual impacts along the lakeshore.

(p 279) **Table 11-1**.
Comment: The column labeled in operation appears to have the wrong dates for OC U-2 & 3 (others are close). The following information was obtained from NERC.

Unit Name	Commercial Operation Date
Oak Creek 1	9/30/1953
Oak Creek 2	10/21/1954
Oak Creek 3	12/3/1955
Oak Creek 4	10/22/1957
Oak Creek 5	12/31/1959
Oak Creek 6	11/25/1961
Oak Creek 7	3/16/1965
Oak Creek 8	10/31/1967
Oak Creek 9	2/10/1969

(p 299) **Jobs and Employment**

Expected changes in on-site employment

During construction (temporary)

Comment: typo

The electric utility industry has one of the lowest workers per dollar investment ratio. SCPC Units 1 and 2 would each take four years to construct using an average work force of 500 employees for each unit. The maximum number of employees ~~world~~ would be 600 people per unit….

(p306) Causes of increased traffic

Comment: Please consider the following correction.

The sources of increased traffic during construction are: (1) truck delivery of equipment and supplies, (2) additional employee vehicles, and (3) possible hauling of soil offsite by truck. Increased traffic during operation could be due to: (1) truck delivery of supplies, (2) additional employee vehicles, (3) vehicles used in routine maintenance, (4) ash shipment to market, (5) vehicles needed for mining of landfill ash, and disposal of byproducts, and (6) gypsum shipments to market if there is not a wallboard plant onsite or if not barged off site.

(p 309) Ash shipments Comment: Please consider the following clarification.

The number of vehicle trips for shipment of ash to off-site beneficial-use markets or waste disposal sites is not included in Table 11-14. At first, the applicants plan to store ash at the on-site Caledonia Landfill. Off-site ash shipments would start ~~only after all three units are operational,~~following startup of the first unit, ramping up to 100 percent utilization ~~and~~ after markets for the ash are fully developed. Table 11-15 shows the ultimate amount of off-site ash shipment, although shipments are likely to start at a lower number and increase as markets develop.

(p 330) Proposed changes to lands adjacent to Haas Park Comment: Please consider the following correction (typo).

The existing power plant chimneys are currently visible from Haas Park. Three new stacks or chimneys would be added if the entire ERGS facility is built. The new stacks for the SCPC units ~~and the IGCC~~ would be higher and larger in diameter than the OCPP stacks. Refer to the Visual Impacts section of this chapter for more information.

(p 330) **Table 11-15** Comment: typo in footnote **

(p 339) **Figure 11-14** Comment: Please consider revising the Figure title for accuracy as follows.

New residential area near existing ~~T~~transmission lines ~~passing through new residential areas~~

(p335) Shore access and fishing

Concerns about the effect of the ERGS facility on local fish populations are addressed in Chapter 8. Based on interested generated by the public, the applicants have developed some initial ideas for fishing access on the north end of the property as close to the proposed warm water discharge (for the North Site) as possible. They have also sponsored meeting with ~~lcoal~~local (typo) fishing groups to get feedback.

(p 349) Splitting coal delivery between rail and ship options
Table 11-29 'Average number of trains per week entering the Oak Creek/ERGS site under a range of coal delivery options (compared to a current five trains of 125 cars per week)

(p 350) Process for altering railroads and ownership
"WE Power would also pay for any other changes to town or country roads due to the proposed power project."
Comment: "Any" is too broad. Suggest using the word "specific" instead.

(p 352) Comment: Please consider the following clarification to the 6th bullet for accuracy.
The summary included the following:
• 30 coal trains passed Four Mile Road traveling to and from the Oak Creek site
• The number of vehicles stopped at the crossing (for coal trains) averaged 24, with a maximum of over 50
• Coal train crossing times averaged 3 minutes 48 seconds
• The maximum coal train crossing time was 8 minutes 50 seconds
• The minimum coal train crossing time was 2 minutes 17 seconds
• There were 61 other (non-coal) trains or gate closings

(p361) Wetlands Comment: typo
An overpass (rather than an underpass as proposed) at Six Mile Road, would have greater land disturbance and wetland impacts than other alternatives. It would also be more expensive than the ~~Benisch~~ Benesch recommendation

(p 365) Table 11-38, footnote 2. Comment: I-93 should be I-43.

(p 365) Effect of a proposed new 4-mile transmission line Comment: Please consider the following clarification.
The proposed new transmission line is a 345 kV line that would extend from the substation on the OCPP/ERGS site to the Chicago and Northwest (C&NW) railroad track (It is listed as reinforcement 2a on Table 6-4). This new line would be one transmission circuit, (a set of three ~~lines~~conductors) with three insulator strings. Some transmission structures carry two circuits (six ~~lines~~conductors) on two sets of arms. At the C&NW railroad track, the circuit from this new line would continue on existing, two-circuit structures which are only carrying one operating circuit now.

ERGS DEIS Applicants' Comments – Enclosure D

Comment: Please consider the following clarifications to the DEIS Executive summary:

Air quality impacts

WE is proposing to install best available control technologies for nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter less than 10 microns in diameter (PM_{10}), lead, mercury, fluorides, and sulfuric acid mist (H_2SO_4). In addition, Lowest Achievable Emissions Rate (LAER) controls are proposed for volatile organic compounds (VOCs).

In addition, best available control technologies and operating practices are proposed to control fugitive particulate emissions from the various material handling and storage processes.

The air modeling and PSD increment results demonstrates that ERGS meets the NAAQS and PSD increment. However, local air quality would be expected to be impacted as a result of constructing and operating the facility. Results of air modeling analysis indicate that the resultant concentration of total suspended particulates (TSP 24-hr) including the regional background would be nearly 100 percent of the Wisconsin secondary (welfare based) air quality standard. Concentrations of PM_{10} including the regional background are expected to be about 80 percent of the health-based National Ambient Air Quality Standard (NAAQS). The ambient air impacts of TSP and PM_{10} are very localized at specific locations around the plant site or along the railroad track that runs through the site and are not regional in nature.

PM_{10} (24-hour) would also consume nearly 100 percent of the PSD increment. However, increment impacts are also very localized at specific locations around the plant site and are not regional in nature. The probability that a new PM_{10} source would impact the same specific locations at the Elm Road site is very remote. The PSD increment modeling results show that a new source located in Racine County would not have a measurable impact on the specific high increment locations around the Elm Road site. Therefore, the Elm Road Generating Station should not affect this new source or any other major source of PM_{10} from being able to obtain an air permit

If constructed on the North Site with accommodations, the concentration of TSP would be a slightly lower percentage of the standard compared to the North Site without accommodations, and less of the expected increment for the 24-hour PM_{10} and 24-hour SO2 increments would be consumed.

An air quality modeling assessment of the potential impacts of the proposed Elm Road Generating Station as well as the multi-emission reduction agreements on regional ozone (1-hr and 8-hr) and fine particulate (24-hr $PM_{2.5}$ and PM_{10}) standards indicate that there would be minimal impacts on the regional 1 hour and 8 hour ozone and on the 24-hr $PM_{2.5}$ concentrations.

An air quality modeling assessment of the potential impact of the proposed Elm Road Generating Station and existing Oak Creek units on local mercury deposition in Wisconsin indicates that the existing Oak Creek Power Plant contributes about 2% to the total background Hg deposition. The corresponding ratio of incremental local Hg deposition to background deposition is about 1% for the new ERGS units

The air modeling and PSD increment results demonstrates that ERGS meets the NAAQS and PSD increment. The information provided in the air permit application and in the environmental impact statement demonstrate that the ERGS project is permittable. A final determination will made after the requirements of Wis. Admin. Code ch. NR 150, the DNR WEPA rule, are satisfied

Comments on the Draft Environmental Impact Statement, submitted by the Wisconsin Legislature

05-CE-130

WISCONSIN LEGISLATURE

P.O. BOX 8952 · MADISON, WI 53708

June 11, 2003

RECEIVED
2003 JUN 13 P 3:30
WISCONSIN PUBLIC SERVICE COMMISSION

Jeffery Kitsembel
Public Service Commission of Wisconsin
610 North Whitney Way
Madison, WI 53705

Re: Elm Road Generating Station, docket no. 05-CE-130

Dear Mr. Kitsembel:

In the next five months, the Wisconsin Public Service Commission (PSC) will face several major decisions related to ensuring that the state will have adequate power supplies to meet its future needs in an environmentally safe and affordable manner. How your agency decides on the alternatives before it will have dramatic impacts on Wisconsin's energy and environmental profile for decades to come.

Specifically, your decisions on these matters will have various long-term ramifications to Wisconsin. These include:

- How much state residents will pay for electricity and transmission, both now and under potentially higher regulatory costs stemming from stricter rules on mercury or new limits on greenhouse gas emissions.
- How strongly the state is committed to viable wholesale competition in the power sector, which in turn, impacts the state's future ability to attract new investments in power generation.
- Finally, how new generation will either stifle or bolster economic development in many Wisconsin counties that already face or are poised to face challenges due to nonattainment of federal air quality standards.

We believe that Calpine's proposed power plants in Fond du Lac and Kaukauna should be included in the final mix of new sources of electricity that will be approved in this proceeding. The Draft Environmental Impact Statement indicates that the Calpine proposal is environmentally responsible and lower cost than proposed alternatives.

The plants would not create risks to ratepayers or the environment from new mercury emissions or high emissions of greenhouse gasses. NOx emissions would also be lower than under alternatives – a major benefit as many Wisconsin counties face possible new ozone nonattainment regulations.

MFC
CO-8
ALJ
OGC-2
ELEC-10

We appreciate the opportunity to comment on this important public policy decision. We are confident that both agencies will continue to review these alternatives in a fair, unbiased manner.

Sincerely,

Terri McCormick

Alvin R. Ott Jr.

Carol Roessler

Karl Van Roy

Judy Krawczyk

Frank Lassee

Gregg Underheim

Garey Bies

Carol Owens

Steve Kestell

John Lehman

Dave Hansen

Signed by:

Representative Terri McCormick

Representative Alvin Ott

Senator Carol Roessler

Representative Karl Van Roy

Representative Judy Krawczyk

Representative Frank Lassee

Representative Gregg Underheim

Representative Garey Bies

Representative Carol Owens

Representative Steve Kestell

Representative John Lehman

Senator Dave Hansen

Cc: Burnie Bridge, Chairperson
Public Service Commission of
Wisconsin

P. Scott Hassert, Secretary
Wisconsin Department of Natural
Resources

Comments on the Draft Environmental Impact Statement, submitted by Wisconsin Public Power Inc.

BEFORE THE
PUBLIC SERVICE COMMISION OF WISCONSIN

Application of Wisconsin Electric Power Company; Wisconsin Energy Corporation; and W.E. Power, LLC; For a Certificate of Public Convenience and Necessity For Construction of Three Large Electric Generation Facilities, the Elm Road Generating Station, and Associated High Voltage Transmission Interconnection Facilities to be Located in Milwaukee and Racine Counties	Docket No. 05-CE-130

COMMENT OF WISCONSIN PUBLIC POWER, INC.

Wisconsin Public Power Inc. (WPPI) submits this comment on the draft Environmental Impact Statement (EIS) for the Elm Road Generating Station (ERGS). The draft EIS provides an assessment of the relative economics of the ERGS project and its environmental impacts. In these comments, WPPI suggests certain revisions to the report that would put into better focus the need for the project and the economic and environmental impacts of the project.

SUMMARY OF KEY COMMENTS

- **Wisconsin Energy's proactive mitigation of potential adverse impacts on wholesale electric competition should be commended and recognized as a significant benefit of the project.** The draft EIS recognizes that the PSC's regulation of the economic terms of the Facility Lease provides protection to retail ratepayers. However, the draft EIS should also recognize the wholesale market mitigation measures that are a key ingredient of the proposal. The wholesale market problem addressed by these measures is the inability of smaller Wisconsin utilities that need new baseload capacity, like WPPI and Madison Gas and

Electric ("MGE"), to construct economic coal-fired capacity on their own. At the same time, their options for purchasing such capacity are very limited because the market in Wisconsin for long-term wholesale baseload power is very tight, in part because of the serious transmission constraints that prevent additional long term firm imports. Without the ability to participate as owners in large baseload projects like the ERGS units, or to buy additional long term wholesale power at average embedded cost rates, the future viability of Wisconsin's smaller utilities will be threatened and their customers could be faced with significantly higher rates. By offering ownership rights in the ERGS units to WPPI and MGE and offering blocks of average embedded cost power from its system to other small utilities that depend on the wholesale market, WEPCO has affirmatively addressed potential adverse competitive impacts of the ERGS project on the wholesale market.

- **The state needs significant new baseload generating capacity, and if there is an error in timing, it should be on the side of adding new baseload resources sooner rather than later.** There should be no dispute that Wisconsin desperately needs additional baseload generation. The existing baseload fleet in the state is aging; Wisconsin has not added any new coal-fired generation in almost 20 years. New generation is required to meet continued load growth and offset inevitable unit retirements in the future. Further, Wisconsin's overtaxed and highly constrained transmission system cannot be relied on to import additional capacity and energy to satisfy Wisconsin's baseload requirements,

which means additional baseload generating capacity must be built within the state.

The ERGS should not be delayed just because a large plant addition may result in a slightly higher than optimal reserve margin for a year or two. The permitting and construction of new coal baseload facilities requires a long lead time. By necessity, new baseload capacity must be installed in large blocks. Given load forecast uncertainty and the long lead time needed to construct baseload generation projects, projects such as the ERGS can not be timed precisely to meet the capacity needs of WEPCO in each year. This is inevitable and must be expected. It should be recognized in the EIS that the impact to ratepayers of any temporary excess baseload capacity can be mitigated through wholesale sales and reduced fuel costs. A much more significant concern is not having sufficient baseload resources available to meet the state's needs, particularly given the risks of an LMP market, high natural gas prices, or an otherwise volatile wholesale market. Simply put, it is much riskier to be a little short than a little long on capacity.

- **WPPI cautions against placing too much reliance on the EGEAS computer model results.** The EGEAS model, while a useful planning tool, does not account for a number of important considerations in determining an optimal resource expansion plan, such as the economic risks associated with delaying the ERGS units and the operational difficulty of combining wind turbines and conventional generation to provide reliable generation output. Such factors were apparently not considered in interpreting the EGEAS results. A broad perspective

needs to be applied when interpreting the EGEAS results, rather than simply accepting a plan produced by the model as the "optimal" plan.

- **The current economic environment is extremely favorable for developing high capital cost baseload projects.** Given the current economic conditions – low interest rates and low inflation – this is an excellent time to proceed with the development of a high capital cost project such as the ERGS units. The risk that significant cost overruns will be experienced is substantially lower in this environment. Conversely, delay risks pushing construction into a less favorable economic environment and would increase project cost risk substantially. For example, based on the lease calculation used in the draft EIS on page 26, the annual lease payment would increase by approximately 3.1% for each 100 basis point increase in the interest rate on 30-year corporate A rated bonds. An increase of 300 basis points would increase the annual lease payment by approximately 9.4%. Higher interest rates would likely also be accompanied by higher inflation rates, resulting in a double whammy on the base cost of construction of the project. Thus, the risks of delay overwhelm any perceived benefits of such delay in an "all else being equal" analysis.

- **While wind generation is definitely a promising renewable technology, at this time, it is not a dependable substitute for coal-fired baseload generation.** Wisconsin utilities should be encouraged to develop significant wind generation in the state. This will give the state experience with an increasingly viable technology. However, wind technology is still developing and its capability to function as a cost-effective baseload power source in Wisconsin has yet to be

demonstrated. It is not an alternative to proven baseload technology at this time. There are a number of uncertainties related to annual energy production, availability at time of peak demand, the economics of using combustion turbines to back up wind generation and the long-term reliability of wind generation compared to mature technologies such as the SCPC units proposed for use at ERGS. In addition, there are uncertainties about the interaction of large-scale wind farms with the bulk power system and the ability to site such farms in Wisconsin.

- **The ERGS facilities provide a hedge against early retirement of Wisconsin's nuclear power plants.** Wisconsin's nuclear power plant operating licenses all expire early next decade. While the NRC has recently been granting license extensions, there is no guarantee this trend will continue. Wisconsin could face a significant need for baseload resources if problems develop with these older units or the licenses are not extended. Waiting to decide on any new clean-coal baseload additions until the uncertainties with respect to our aging nuclear plants are fully resolved is a very risky strategy given inflation and interest rate risks, among others. Having baseload capacity in place by the end of the decade would substantially increase Wisconsin's flexibility in dealing with the complex issues that relicensing may raise.

- **The ERGS site is a brownfield site that is well suited for coal-fired generation.** Sites for major new generating facilities are difficult to find. The ERGS site is an existing plant site and use of the site avoids the need to construct at a greenfield site with much greater environmental impacts.

- **The risks of high natural gas prices and supply interruptions are not fully captured in EGEAS sensitivities reported in the draft EIS.** The draft EIS provides a good discussion of the historical relationship between natural gas and coal prices on pages 66 through 68. However, the high natural gas price sensitivity analyzed in the draft EIS is based on WEPCO's high natural gas price forecast, which assumed a 15% increase over the base natural gas price forecast. It is reasonable for WEPCO to use a conservative high natural gas price scenario when presenting their analysis supporting the ERGS proposal. To do otherwise would clearly invite criticism. However, in our view a 15% increase over the base natural gas price forecast does not adequately capture the significant risk that natural gas prices will be much higher than the base natural gas price forecast or that the supply of gas could be interrupted. Today natural gas prices are double what they were a year ago. WPPI suggests that a high natural gas price sensitivity should use a natural gas price forecast that is at least 50% over the base natural gas price forecast in order to capture the significant price and availability risks associated with natural gas.

  In addition, WPPI questions whether the CO_2 monetization sensitivity analyzed in the draft EIS incorporated a higher natural gas price forecast to account for the impact of a CO_2 tax. If a CO_2 tax were implemented generators could be expected to switch from coal to natural gas where feasible to avoid this tax. The result would be to increase the demand for natural gas and, in turn the price of natural gas. The effect of incorporating the potential impacts of a CO_2 tax on natural gas

prices would be to lower the relative cost penalty on coal-fired generation in the CO_2 tax monetization analysis.

- **The description air quality impacts of the proposed ERGS units in the Executive Summary is not complete.** In the discussion of air quality impacts on pages x and xxxi, the draft EIS concludes that the concentrations of SO_2 would increase dramatically, approaching 93% and 87% of NAAQS, respectively, as a result of the ERGS units. This discussion of air quality impacts is incomplete. It does not recognize, for example, that the air emissions from the proposed ERGS units will be far lower than the air emissions from any existing Wisconsin coal fired power plant or that the development of these facilities in conjunction with the future retirement of some existing coal plants will over time result in a substantial reduction in SO_2 and other pollutants from Wisconsin coal plants.

WPPI'S INTEREST IN PTF

WPPI is a municipal electric company serving 37 member municipalities that operate electric distribution utilities. WPPI's members purchase all of their electricity requirements from WPPI and serve approximately 140,000 customers. WPPI was formed by its members in 1980 pursuant to (now) Section 66.0825, Wisconsin Statutes, to achieve economies of scale in the acquisition of generation facilities, transmission service and in the purchase of electric power needed to provide their customers with safe, reliable and economic electric power and energy. WPPI initially supplied the power requirements of its members through power purchased at wholesale from the Wisconsin investor-owned utilities that previously supplied its members. Over the years, WPPI acquired some of its own power resources and blended those resources into a portfolio

that continues to include substantial wholesale purchases. At the present time, approximately 25% of WPPI's capacity requirements are satisfied from its owned resources. WPPI's projected 2003 system peak demand is 858 MW with energy requirements of 4,798 GWh.

Achieving greater supply independence is part of WPPI's long-term power supply strategy. This objective is particularly important given the uncertainties that exist as to the availability of long term wholesale power in the future. A key part of this strategy is to obtain additional baseload resources that allow WPPI more control of future costs. WPPI currently owns only one baseload resource - a 20% interest (107 MW) in Boswell Unit No. 4, a 535 MW coal-fired generating unit operated by Minnesota Power and located near Grand Rapids, Minnesota. Given the volatility of natural gas prices, WPPI believes coal-fired baseload generation is significantly more likely than other baseload options to provide a dependable supply of electricity at relatively stable prices. For this reason, WPPI negotiated with Wisconsin Energy Corporation ("WEC") and its affiliates to obtain an option to participate as an 8.33% owner in each of the three proposed ERGS units (approximately 50 MW in each unit), with a further option to increase WPPI's ownership to 10% (to approximately 60 MW in each unit) in the event that MGE elects not to exercise a similar option for ownership in the ERGS units.[1] This option will either be exercised or expire for a unit shortly after a CPCN is issued for that unit.

This option is very important to WPPI. WPPI is not large enough to obtain on its own the economies of scale that WEC will realize through the ERGS project. To obtain

[1] WEC seeks a CPCN for the entire PTF project and plans to proceed with the entire PTF project even if MGE and WPPI decline to exercise their options.

such economies of scale, WPPI must find partnership opportunities with other entities to pursue the development of large baseload generation.

In addition to the interest in potential ownership, WPPI is WEPCO's largest long term wholesale electric customer, with a contract that extends through April 25, 2025. WPPI's current purchase under this agreement is 210 MW, which is purchased on a take or pay basis pursuant to demand nominations made two years in advance. Under this arrangement, WPPI has agreed that the costs of the PTF coal units will be reflected in WEPCO's wholesale rates at the same lease cost that the PSC approves for recovery of PTF plant costs in retail rates. This agreement will treat wholesale and retail customers equitably and prevent any discrimination in either direction due to potentially different FERC and PSC rate treatments of the units. As a long term firm customer, WPPI is vitally interested in WEPCO's long term power costs. While construction of the PTF units will increase rates, WPPI is convinced that the projects offer better long term price stability than alternatives and therefore supports construction of the ERGS units.

COMMENTS ON EIS

For the reasons given below, WPPI believes its members and the state as a whole will benefit from the development of the proposed ERGS facilities.

- **Wisconsin Energy's proactive mitigation of potential adverse impacts on the competitiveness of the wholesale market should be commended and recognized as a significant benefit of the project.** The draft EIS correctly notes that by statute the Commission must determine prior to issuing a CPCN that a facility will not have a material adverse impact on competition in the relevant

wholesale electric service market. See Section 196.491(3)(d)7. In this case, WPPI believes that the "relevant" wholesale market is the long-term wholesale market for baseload capacity. The draft EIS, however, primarily analyzes the impact of the Facility Lease, and the rates at which capacity and energy from ERGS would be sold to WEPCO, on WEPCO's retail rates. The lease is not really a bona fide wholesale transaction; it is a financing structure.

While WPPI agrees that PSC regulation of the economic terms and conditions of the Facility Lease provides protection to retail ratepayers, WPPI believes that the draft EIS should also address the project's impact on the relevant wholesale market – the market for long term baseload capacity. An analysis of WEPCO's actions as they relate to the long-term wholesale capacity market discloses that WEPCO has addressed what otherwise would be significant adverse impacts of the ERGS proposal by offering ownership rights in the ERGS units to WPPI and MGE and offering average embedded cost pricing from its system to other small participants in the Wisconsin wholesale market.

WEPCO's affirmative mitigation efforts should be recognized in the EIS as a key element of the proposal. As a smaller load serving entity, WPPI's ability to provide price stability and reliable service to its customers over the long term is dependent upon a diversified resource portfolio. Although WPPI and other small load serving entities (LSEs) are able to compete with larger suppliers in many contexts, the barriers to entry into baseload capacity ownership are very steep. Small LSEs cannot achieve the economies of scale inherent in the ERGS units without joining larger entities, such as WEPCO, as partners. WPPI has sought

cost effective joint ownership opportunities in large baseload plants since its inception in 1980. WEPCO is only the second party to agree to WPPI's participation as an owner in a large scale project. The first such project – WPPI's 20% (107 megawatts) ownership share in Boswell No. 4 – is the backbone of our power supply. Without this resource, WPPI would not have become a viable power supplier. WPPI cannot predict when, if ever, an opportunity similar to WPPI's PTF option will materialize in the future.

Without the ability to participate as owners in large baseload projects like the ERGS units or to buy power at average embedded cost rates, the future viability of Wisconsin smaller utilities will be threatened and their consumers could be faced with significantly higher rates. By offering ownership rights in the ERGS units to WPPI and MGE and offering blocks of average embedded cost power from its system to other small participants that depend on the wholesale market, WEPCO has affirmatively addressed potential adverse competitive impacts on the wholesale market of the PTF proposal. The EIS should recognize WEPCO's initiative as a very positive step. WEPCO's agreements in this regard should be held by the Commission to be sufficient to meet WEPCO's obligation under the CPCN statute and further should be held up as an example to other large entities constructing baseload units as a desirable means to meet their statutory obligations to mitigate adverse impacts on the wholesale market.

- **The state needs significant new baseload generating capacity, and if there is an error in timing, it should be on the side of adding new baseload resources sooner rather than later.** There should be no dispute that Wisconsin

desperately needs additional baseload generation. The existing baseload fleet in the state is aging; Wisconsin has not added any new coal-fired generation in almost 20 years. New generation is required to meet continued load growth and offset inevitable unit retirements in the future. Further, Wisconsin's overtaxed and highly constrained transmission system cannot be relied on to import additional capacity and energy to satisfy Wisconsin's baseload requirements, which means additional baseload generating capacity must be built within the state.

On pages xxiv and xxv, the draft EIS compares WEPCO's forecast to the EIA MAIN forecast. From a planning perspective, the EIS should recognize there is really not much difference in the forecasts. The projected growth rates for the period 2002 to 2005 are 2.6% for energy use in the WEPCO forecast and 2.5% in the MAIN forecast. For the period 2005-2010, the WEPCO forecast is 2.6% and the MAIN forecast is 2.3%. These forecasts are sufficiently close that one can conclude that either forecast is reasonable to use for planning purposes. Certainly there is no basis to conclude WEPCO's proposal is unreasonable or that the difference in forecasts is material enough to change the outcome of the CPCN application. In any event, these load forecasts should not be the critical issue in this resource decision. The load in Wisconsin is growing, and substantial additional generating resources will be needed in the future. We will not know which load forecast is correct (or off by one or two percent per year) until the end of the decade, and by that time it may be too late to undertake this project in a way that will benefit consumers. The EIS should recognize it is important to

proceed now with the construction of new baseload facilities when interest rates are low and inflation is in check.

- **WPPI believes the draft EIS significantly overstates the impact of adding baseload capacity before it is actually needed.** On page 79, the draft EIS states, "If WEPCO were to pay WE Power for a coal plant that was constructed but not needed, WEPCO under the facility lease would have to pay an annual rent of $106.9 million. Using the job-loss-to-sales-tax-increase estimate from above would translate into a loss of about 3,700 jobs per year per unit." This calculation substantially overstates the impact of adding more coal capacity sooner than needed (if it ultimately proves that the capacity is brought on-line slightly earlier than a "just-in-time" in service date) for several reasons and does not take into account the long term economic benefits the ERGS would provide.

  First, because the ERGS units will be very efficient and produce energy at lower cost than most existing generating units, WEPCO's energy costs (fuel costs) will decrease due to the addition of an ERGS unit even if the capacity is not needed to meet WEPCO's planning reserve requirement. Second, even if all the capacity from an ERGS unit is not needed the year the unit goes in-service, WEPCO's power requirements will continue to grow. Based on WEPCO's current load growth rate of approximately 150 MW per year, there is little risk of overbuilding. While WEPCO might end up with a higher than optimal reserve margin for a short time, this result is inevitable when adding a new block of generation. This is no reason not to proceed. Given the size of WEPCO's system, WEPCO would grow into its entire share of an ERGS unit in a very short time. Finally, if there is

a short term surplus, WEPCO should be able to make additional wholesale sales to mitigate the impact on ratepayers. Clearly, some offsetting value can be achieved through short term off-system sales. In this regard, it is important to recognize that Wisconsin's transmission system is constrained for imports but not for exports. Thus, the impact on jobs from adding too much baseload capacity is likely to be considerably lower than the 3,700 jobs per year reported in the draft EIS and will be a temporary not a permanent phenomenon.

- **WPPI cautions against placing too much reliance on the EGEAS computer model results.** The EGEAS model, while a useful planning tool, does not account for a number of considerations important in determining an optimal resource expansion plan, such as the economic risks associated with delaying the ERGS units and the operational interaction of wind turbines and conventional generation. Such factors were apparently not considered in interpreting the EGEAS results. Ultimately, a broad perspective needs to be applied in interpreting the EGEAS results, not adherence to an optimal scenario from any particular model.

  In the draft EIS the EGEAS results (with wind potential limited to 250 MW) indicate that the optimal least cost plan would require 250 MW of wind for 2004, 300 MW of combustion turbines in 2007, and a 550 MW SCPC coal plant in 2009. These EGEAS results should not be accepted at face value. Rather, they should be interpreted with recognition of the limitations of the EGEAS model and the assumptions used in the model.

The EGEAS model is only one of a number of useful tools available to generation planners. It has strengths and limitations. One limitation of the model is its simulation of the system based solely upon the use of load duration curves. The model is not a detailed operational simulation of a power system. It does not present an hour-by-hour or real-time simulation of power system dispatch. As a consequence, it does not consider factors such as start-up time, ramp rates, and operating reserve requirements associated with the real-time operation of power systems. Second, the model is only as good as the input data. In the draft EIS, the input data does not differentiate between the relative dependability and technological maturity of the various supply alternatives considered. Thus, no distinction is made in the draft EIS between wind generation, which is a relatively unproven power source in Wisconsin, and mature technologies such as the SCPC units proposed for use at ERGS.

Based upon the EGEAS analysis results, the draft EIS concludes that WEPCO's proposed timing of the SCPC units in 2007 and 2009 is not least-cost under any scenario. Although this conclusion may follow from a strict adherence to the EGEAS model analysis result as presented in the draft EIS, this conclusion should be reconsidered based upon other factors, particularly risk factors, not analyzed by EGEAS. Given the clear need for Wisconsin to develop additional baseload coal-fired capacity and the current environment of low interest rates and low inflation, the state is presented with a historically exceptional opportunity to construct these units. There is a very substantial risk, not factored into the EGEAS analysis, that delaying these units by even one or two years could cause

their costs to increase substantially if the rate of inflation and/or interest rates increase. The risk of these rates rising from present levels is clearly much greater than the potential for decreases.

- **The materiality threshold should be $50 million not $10 million.** With respect to the interpretation of the EGEAS results, on page xxviii, the draft EIS states that the results of the analyses are based on a materiality threshold of $10 million. WPPI wonders why a $10 million threshold was selected. WPPI understands that a $50 million materiality threshold was used by Commission staff in the analysis of the Port Washington plants. Given the much greater capital investment associated with development of the proposed ERGS facilities, it is unreasonable to use a much narrower $10 million materiality threshold for the ERGS units. If the $50 million threshold is used here, under most sensitivities examined in the draft EIS there would be no material economic difference between the ERGS without the IGCC or the Calpine projects.

- **The current economic environment is extremely favorable for developing high capital cost baseload projects.** The capital costs of a large baseload coal plant are greater than many alternative technologies. If Wisconsin is to maintain fuel diversity into the future, it must build new clean coal plants at some point in the relatively near term. Given the current economic conditions – low interest rates and low inflation – now is an excellent time to proceed with the development of a high capital cost project in Wisconsin such as the ERGS units. Any significant delay in proceeding with the ERGS units significantly increases the risk that higher interest rates or inflation could affect the cost of the project to

the substantial detriment of Wisconsin consumers. The risk that significant cost overruns will be experienced is substantially lower in this environment. For example, based on the lease calculation used in the draft EIS on page 26, the annual lease payment would increase approximately 3.1% for each 100 basis point increase in the interest rate on 30-year corporate A rated bonds. An increase of 300 basis points would increase the annual lease payment by approximately 9.4% or for each unit add $10 million to the annual lease payment as calculated in the draft EIS.

In the draft EIS, a sensitivity is examined where the ERGS experiences a 20% capital cost overrun based (purportedly) on the significant cost overruns experienced during construction of WEPCO's Pleasant Prairie plant. The reasons for the cost overruns at the Pleasant Prairie plant are summarized on page 21 of the draft EIS. These reasons include higher-than-anticipated inflation, a high demand for labor and materials for power plant construction and a delay in the plant's start-up construction. The experience with the Pleasant Prairie plant in the early 1980's demonstrates the significance of these risks for what has turned out to be an excellent system addition despite the overrun. Rather than penalizing the ERGS alternative with 20% cost overrun sensitivity because of the Pleasant Prairie experience, the experience should be seen as strong support for proceeding with the ERGS proposal without delay.

In contrast, the draft EIS concludes that if coal plants were to have cost overruns of 20%, then the optimal expansion plan does not include a coal plant until 2014. While this analysis apparently is intended to provide a risk analysis, WPPI

believes that the risk of such an overrun is unlikely in the current environment of relatively low interest rates and low inflation, especially if construction proceeds under a fixed-price EPC contract as contemplated by WEPCO. The real risk of cost overruns will occur if construction of these plants is delayed, in which case delaying the in-service date until 2014 likely will result in a self-fulfilling prophecy compared to the current cost estimates for the project.

- **While wind generation is definitely a promising renewable technology, at this time, it is not a dependable substitute for coal-fired baseload generation.** Wisconsin utilities should be encouraged to develop significant wind generation in the state. We understand that WEPCO is already committed to 200 MW of wind. Other utilities are likely to follow suit without new legislation or regulatory mandates. However, wind is not yet a substitute for baseload generation. Wind technology is relatively untested in Wisconsin. There are a number of uncertainties related to annual energy production, availability at time of peak demand, the economics of using gas-fired generation to back up wind generation and the long-term reliability of wind generation compared to mature technologies such as the SCPC units proposed for use at ERGS. In addition, there are uncertainties about the interaction of large-scale wind farms with the bulk power system and the ability to site such farms in Wisconsin.

  The discussion on pages 59 and 60 of the draft EIS assumes wind turbines will achieve a 32.4% capacity factor in Wisconsin. WPPI believes this capacity factor exceeds what has been achieved at the best Wisconsin sites to date. The ability to achieve the capacity factors assumed in the draft EIS study have not been proven,

and the long-term reliability of Class IV wind machines in Wisconsin has also not been established.

On page 72, the EGEAS results conclude that Class IV wind competes favorably with SCPC units, assuming a wind tax credit. The prospects for future tax credits and the ability to site Class IV wind turbines in significant numbers and to achieve the assumed capacity factors are all uncertain. Thus, the long-term reliability, dependability and costs associated with Class IV wind turbines in Wisconsin, not to mention the ability to site units on this scale, are all uncertain. We need more experience with wind before depending on it as a substantial baseload capacity resource. We should first get that experience before relying on wind to supply our baseload power needs.

- **The ERGS facilities provide a hedge against early retirement of Wisconsin's nuclear power plants.** Wisconsin's nuclear power plant operating licenses all expire early next decade. Wisconsin faces risk in that all three nuclear units share the same design. If the NRC uncovers a problem with one unit, the (re)licensing of all three units may be in jeopardy. While the NRC has recently been granting license extensions, there is no guarantee this trend will continue. Very strong intervenor opposition to relicensing is likely. The loss of two out of three nuclear units today would have a devastating impact on Wisconsin's reliability. One only has to look back to 1997 to see the impact Wisconsin's nuclear power plants have on the state's reliability.

Given the long lead time to construct coal-fired baseload units, now is the time to proceed with the first two ERGS units. Wisconsin cannot replace the nuclear units and also meet all of the PTF requirements with gas and wind. Since replacements of nuclear may have to be installed quickly (i.e. with gas), doing the coal now makes great sense. The ERGS facility will provide an important hedge, helping to protect consumers from the potential adverse economic consequences of the retirement of existing baseload plants and providing the state with more flexibility to deal with what may be hard decisions in the future.

- **The ERGS site is a brownfield site that is well suited for coal-fired generation.** Sites for major new generating facilities are difficult to find. The ERGS site is an existing plant site and use of the site avoids the need to construct at a greenfield site with much greater environmental impacts. This site has the advantage of utilizing a significant amount of existing infrastructure and, given its location, provides the opportunity for substantial energy cost savings and emissions reductions through the ability to utilize once-thru cooling using the cold waters of Lake Michigan to increase the efficiency of the energy production at the plant.

- **The risks of high natural gas prices and supply interruptions are not fully captured in EGEAS sensitivities reported in the draft EIS.** The draft EIS provides a good discussion of the historical relationship between natural gas and coal prices on pages 66 through 68. However, the high natural gas price sensitivity analyzed in the draft EIS is based on WEPCO's high natural gas price

forecast, which assumed a 15% increase over the base natural gas price forecast. It is reasonable for WEPCO to use a conservative high natural gas price scenario when presenting their analysis supporting the ERGS proposal. To do otherwise would clearly invite criticism. However, in our view a 15% increase over the base natural gas price forecast does not adequately capture the significant risk that natural gas prices could be much higher than the base natural gas price forecast or that the supply of gas could be interrupted. Today natural gas prices are double what they were a year ago. WPPI suggests that a high natural gas price sensitivity should use a natural gas price forecast that is at least 50% over the base natural gas price forecast in order to capture the significant price and availability risks associated with natural gas.

In addition, WPPI questions whether the CO_2 monetization sensitivity analyzed in the draft EIS incorporated a higher natural gas price forecast to account for the impact of a CO_2 tax. If a CO_2 tax were implemented generators could be expected to switch from coal to natural gas where feasible to avoid this tax. The result would be to increase the demand for natural gas and, in turn the price of natural gas. The effect of incorporating the potential impacts of a CO_2 tax on natural gas prices would be to lower the relative cost penalty on coal-fired generation in the CO_2 tax monetization analysis.

- **The description of air quality impacts of the proposed ERGS units in the Executive Summary is not complete.** In the discussion of air quality impacts on pages x and xxxi, the draft EIS concludes that the concentrations of SO2 would increase dramatically, approaching 93% and 87% of NAAQS, respectively, as a

result of the ERGS units. The discussion of air quality impacts is incomplete. It does not recognize, for example, that the air emissions from the proposed ERGS units will be far lower than the air emissions from any existing Wisconsin coal fired power plant or that the development of these facilities in conjunction with the future retirement of existing coal plants will over time result in substantial reduction in SO2 and other pollutants from Wisconsin coal plant.

Dated this 13th day of June, 2003.

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