STATE OF MICHIGAN

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of the Application of CONSUMERS ENERGY COMPANY for approval of a Power Purchase Agreement and for other relief in connection with the sale of the Palisades Nuclear Power Plant and other assets	**)**	**Case No. U-14992**

Direct Testimony of
David A. Schlissel
Synapse Energy Economics, Inc.

On Behalf of
Michigan Attorney General Michael A. Cox

December 20, 2006

Q. Mr. Schlissel, please state your name, position and business address.

A. My name is David A. Schlissel. I am a Senior Consultant at Synapse Energy Economics, Inc, 22 Pearl Street, Cambridge, MA 02139.

Q. On whose behalf are you testifying in this case?

A. I am testifying on behalf of the Michigan Attorney General. ("AG")

Q. Please describe Synapse Energy Economics.

A. Synapse Energy Economics ("Synapse") is a research and consulting firm specializing in energy and environmental issues, including electric generation, transmission and distribution system reliability, market power, electricity market prices, stranded costs, efficiency, renewable energy, environmental quality, and nuclear power.

Synapse's clients include state consumer advocates, public utilities commission staff, attorneys general, environmental organizations, the federal government, state and local governments and utilities.

Q. Mr. Schlissel, please summarize your educational background and recent work experience.

A. I graduated from the Massachusetts Institute of Technology in 1968 with a Bachelor of Science Degree in Engineering. In 1969, I received a Master of Science Degree in Engineering from Stanford University. In 1973, I received a Law Degree from Stanford University. In addition, I studied nuclear engineering at the Massachusetts Institute of Technology during the years 1983-1986.

Since 1983 I have been retained by governmental bodies, publicly-owned utilities, and private organizations in 28 states to prepare expert testimony and analyses on engineering and economic issues related to electric utilities. My clients have included the Staff of the Arizona Corporation Commission, the General Staff of the Arkansas Public Service Commission, the Staff of the Kansas State Corporation Commission, municipal utility systems in Massachusetts, New York,

Texas, and North Carolina, and the Attorney General of the Commonwealth of Massachusetts.

I have testified before state regulatory commissions in Arizona, New Jersey, Connecticut, Kansas, Texas, New Mexico, New York, Vermont, North Carolina, South Carolina, Maine, Illinois, Indiana, Ohio, Massachusetts, Missouri, Rhode Island, Wisconsin, South Dakota, Georgia and Minnesota and before an Atomic Safety & Licensing Board of the U.S. Nuclear Regulatory Commission.

A copy of my current resume is attached as Exhibit AG-1 (DAS-1)

Q. Have you previously submitted testimony before this Commission?

A. No.

Q. Have you evaluated the proposed sales of other nuclear power plants?

A. Yes. I have evaluated the reasonableness of the proposed sales of the Vermont Yankee, Millstone, Seabrook, Palisades and Duane Arnold nuclear power plants. As part of these evaluations, I also have looked in detail at the sales of other nuclear power plants such as Nine Mile Point Units 1 and 2, Indian Point Unit 2 and 3, Fitzpatrick, Pilgrim, Three Mile Island, Oyster Creek, Clinton, and Ginna.

Q. What is the purpose of your testimony?

A. Synapse was retained by the AG to evaluate whether the proposed sale of the Palisades Nuclear Power Plant to Entergy Nuclear Palisades ("Entergy") is in the interest of the ratepayers of Consumers Energy Company ("Consumers") This testimony and that of my colleague Richard Hornby presents the results of our investigation of this issue.

Q. Please explain how Synapse conducted its investigations and analyses.

A. We completed the following tasks as part of this investigation:

1. Reviewed the testimony, workpapers and exhibits submitted by Consumers.

2. Reviewed the responses to the data requests submitted by the Attorney General, the Commission Staff and other active parties.

3. Examined materials in Synapse files related to nuclear power plant costs and performance, other nuclear power plant sales, nuclear power plant decommissioning, and to issues related to the ownership of nuclear power plants by subsidiaries of multi-tiered holding companies. To the extent that my testimony and exhibits directly rely upon this information, I will identify the source in my testimony.

4. Examined materials available in the U.S. Nuclear Regulatory Commission's public docket files related to the Palisades nuclear power plant and to nuclear plant performance, license renewal, power uprates, decommissioning issues and sales. To the extent that my testimony and exhibits directly rely upon this information, I will identify the source in my testimony.

5. Reviewed other publicly available materials concerning nuclear power plants costs, performance, license renewal, steam generator replacements, power uprates, decommissioning issues sales and decommissioning related plans and cost issues. To the extent that my testimony and exhibits directly rely upon this information, I will identify the source in my testimony.

Q. Did you submit data requests to Entergy as part of your evaluation of the proposed sale?

A. Yes.

Q. Did Entergy answer these data requests?

A. No. Entergy refused to answer the data requests submitted by the AG. Entergy said that it is not a party to this proceeding and, therefore, does not have to answer discovery questions or document requests.

Q. Did this refusal to answer data requests materially affect your ability to evaluate the proposed sale?

A. Yes.

Q. Have prospective buyers answered discovery questions and document requests in other state regulatory commission proceedings involving proposed nuclear power plant sales?

A. Yes. The prospective buyers have participated in every nuclear power plant sale proceeding in which I have been involved. Entergy itself submitted testimony and answered data requests in the Vermont Public Service Board docket which considered the proposed sale of the Vermont Yankee nuclear plant to an Entergy affiliate. In my experience, Entergy's refusal to participate in this proceeding is unique and disturbing.

Q. Please summarize your conclusions.

A. My conclusions on this issue are as follows:

1. Consumers overstates the value to ratepayers of the Purchased Power Agreement ("PPA") with Entergy by inflating the costs of continued ownership if Consumers continued to own and Nuclear Management Company ("NMC") continued to operate the plant.

2. Consumers overstates the value to ratepayers of the PPA with Entergy by assuming in its continuing ownership scenario that it would seek to make the very expensive replacement of Palisades steam generators in 2016 even though, according to Consumers' own forecasts, the market cost of power would be lower than the cost of generating power at Palisades.

3. Consumers has structured the sale transaction to benefit shareholders at the expense of ratepayers.

4. The sale of Palisades to Entergy will eliminate significant Michigan Public Service Commission jurisdiction over costs and operations at Palisades.

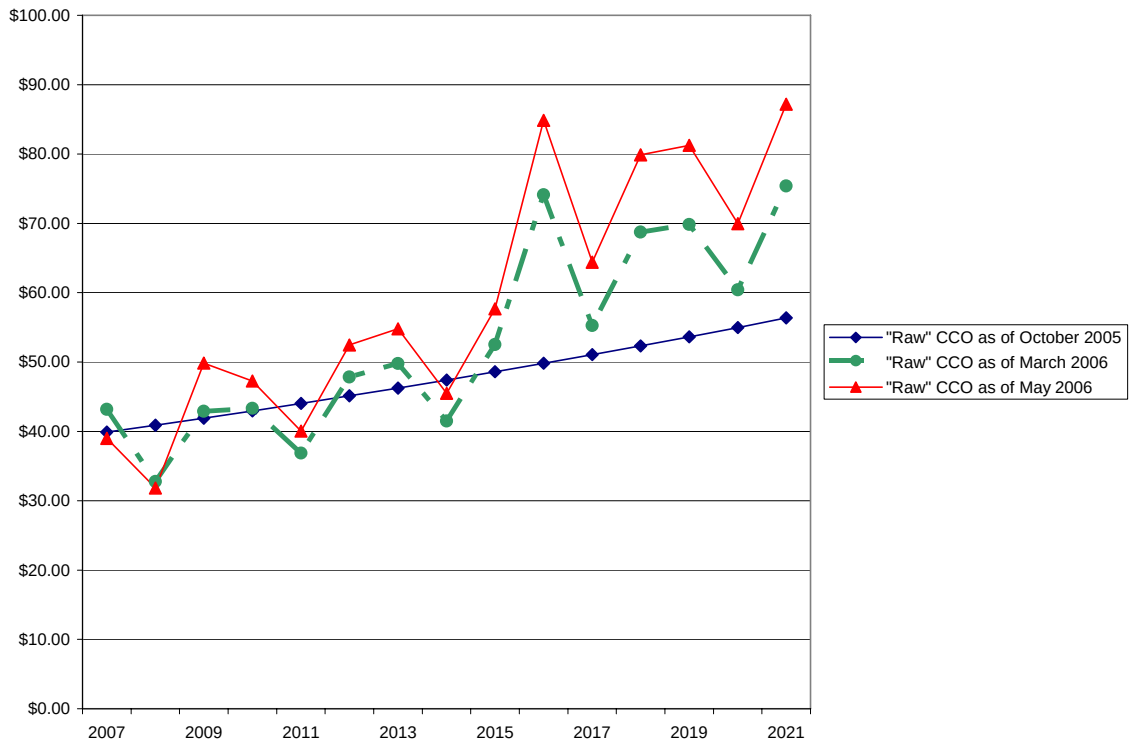
5. The sale of Palisades to a single asset subsidiary of Entergy entails significant risks for Consumers' ratepayers and the State of Michigan.

6. For these reasons, the Michigan Public Service Commission should reject the proposed sale of the Palisades Plant to Entergy Nuclear Palisades, LLC and the proposed PPA with Entergy.

Q. Have Consumers' projected Costs of Continued Ownership of Palisades ("CCO") changed since the Company began to explore the possibility of selling the plant?

A. Yes. As shown in Figure 1 below, Consumers' projected CCO has increased significantly between October 2005, when the initial bid instructions were issued to potential bidders in late March 2006 and when the final bid instructions and revised transaction documents were issued to bidders in late May 2006.

Figure 1: Increases in Consumers' Projected CCO for Palisades between October 2005 and May 2006



Q. What are the numerical values related to Figure 1?

A. The numerical values shown in Figure 1 are presented in Table 1 below:

Table 1: Increases in Consumers' Projected CCO for Palisades between October 2005 and May 2006

Source	Estimated Palisades Cost of Continued Ownership ($/MWh)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
1	"Raw" CCO as of October 2005	$39.89	$40.89	$41.91	$42.96	$44.03	$45.13	$46.26	$47.42	$48.60	$49.82	$51.06	$52.34	$53.65	$54.99	$56.36
2	"Raw" CCO as of March 2006	$43.19	$32.77	$42.89	$43.34	$36.88	$47.85	$49.81	$41.50	$52.54	$74.13	$55.26	$68.73	$69.85	$60.42	$75.40
3	"Raw" CCO as of May 2006	$39.01	$31.83	$49.84	$47.27	$40.05	$52.46	$54.81	$45.49	$57.69	$84.88	$64.42	$79.90	$81.27	$69.96	$87.18
	Notes															
	1- Concentric Analysis, dated October 27, 2005, Bates Page Number 99201778															
	2 - Initial Bid Instructions, provided in response to Data Request 14992-AG-CE-164, at Bates Page Number 99202320															
	3 - Exhibit A-7 (JJR-5)															

Q. What is the significance of the increases in the Raw CCO costs between October 2005 and May 2006?

A. The Raw CCO prices are the annual costs (presented in $/MWh) that Consumers claims ratepayers actually would see if it continued to own and NMC continued to operate the Palisades plant.

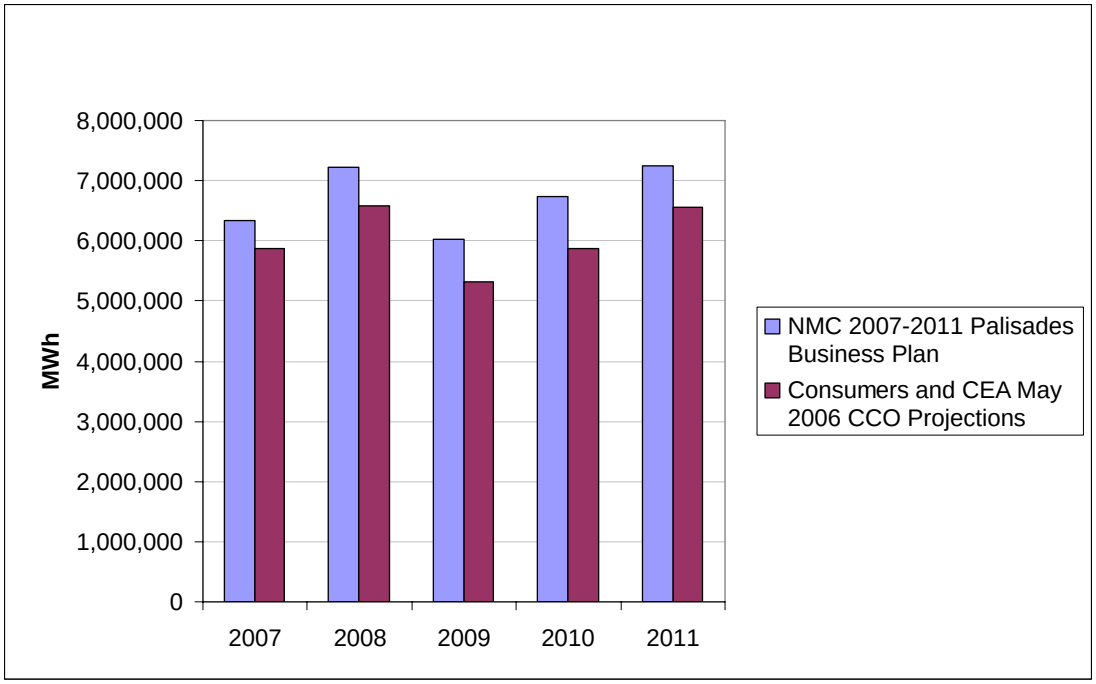
Increasing the Raw CCO costs has two benefits for Consumers. First, by increasing the higher Raw CCO costs, Consumers was able to raise the ceiling for PPA pricing and thereby entice bidders to increase the cash values they offered to pay under the asset sale agreement (ASA) [Exhibit A-8 (JJR-6)]. Second, by using the higher Raw CCO costs as a comparison, Consumers can claim greater net benefits for ratepayers from the PPA..

Consumers' has said that one of its goal for the sale is to not increase power costs for ratepayers. But Consumers' shareholders actually benefited from the higher Raw CCO projections because the higher the prices for power that ratepayers pay under the PPA, the higher the cash price that a potential buyer is willing to pay for the Palisades plant. This transfers value from ratepayers to Consumers and its shareholders as a result of increasing projected Raw CCO costs.

Q. How does the projected Palisades operating performance which formed the basis for Consumers' May 2006 Raw CCO compare with NMC's recent forecasts?

A. Consumers provided NMC's 2007-2011 Business Plan for Palisades during discovery. As shown in Figure 2 below, the annual plant generation estimates included in this Business Plan for each of these years were substantially higher than the plant generation figures which Consumers and Concentric Energy Advisors (CEA) used to derive the final Raw CCO and the Smoothed CCO figures which were provided to potential bidders in late May 2006.

Figure 2: Projected Palisades Generation 2007-2011



The Raw CCO figures for the years 2007-2011 that were provided to bidders in late May 2006 would have been significantly lower, on a $/MWh basis, if Consumers and CEA had used NMC's projected generation. These lower CCO figures would have meant lower PPA prices for these years in the bids submitted and would have increased the value for ratepayers from the PPA.

Q. What are the numerical values related to Figure 2?

A. The numerical values shown in Figure 2 are presented in Table 2 below.

Table 2: Projected Palisades Generation 2007-2011

Projected Palisades Generation (MWh)	2007	2008	2009	2010	2011
NMC 2007-2011 Palisades Business Plan [1]	6,340,128	7,231,392	6,036,288	6,745,248	7,251,648
Consumers and CEA May 2006 CCO Projections [2]	5,876,000	6,587,000	5,324,000	5,876,000	6,567,000
Notes					
1 - Provided in Consumers' response to Data Request 14992-AG-CE-104, at Bates Page Number 99201607					
2 - Exhibit A-7 (JJR-5)					

Q. Were the Palisades operating and capital costs that Consumers used to develop the final Raw CCO also different from the NMC 2007-2011 Business Plan?

A. Yes. It does appear that Consumers used higher Palisades operating and capital costs to develop its CCO figures than those in the NMC 2007-2011 Business Plan.

As it explained in the final instructions for bidders [Exhibit A-6 (JJR-4), Consumers also used different operating performance, operating costs and capital costs for the final Raw CCO than it had used in the initial instructions that had been issued in late March 2006. Except for a modest change in the expected plant forced outage rate and the delay of the reactor vessel head replacement until 2009, each of these changes resulted in higher Raw CCO and, therefore, led to higher PPA prices.

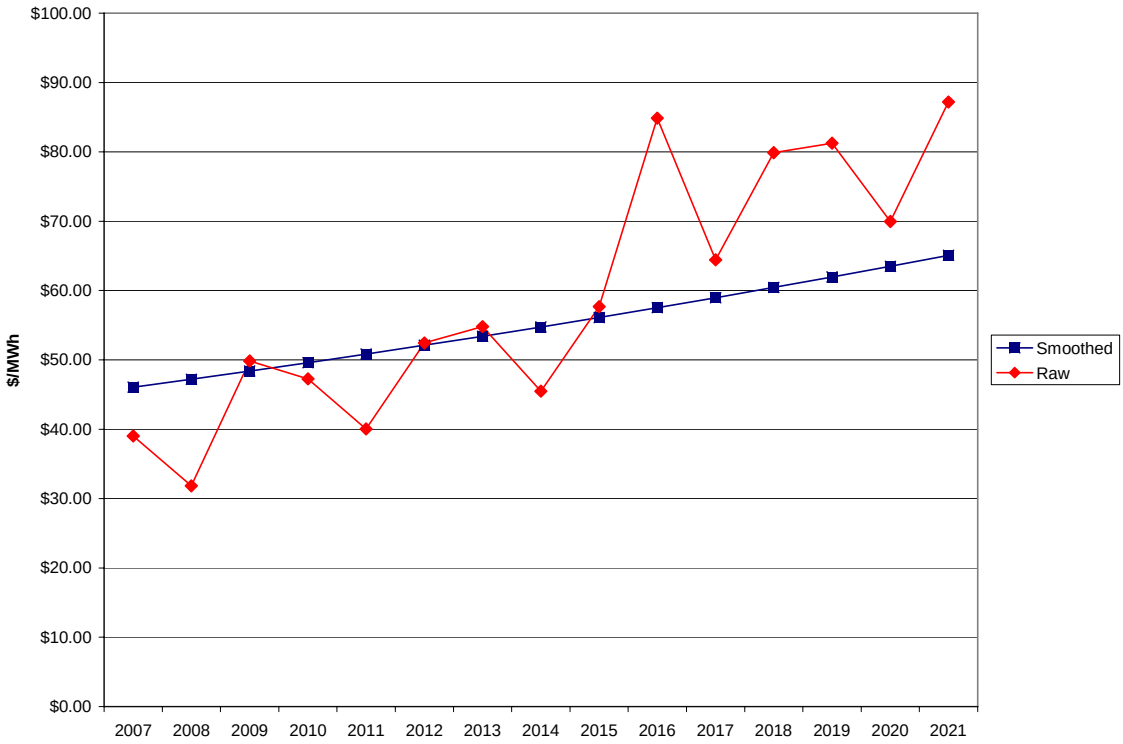
Q. Did Consumers require potential buyers to submit bids based on its May 2006 Raw Costs of Continuing Ownership?

A. No. The Raw CCO represented the annual Palisades costs that Consumers projected for each of the years 2007-2021. Consumers also gave bidders for Palisades the option of proposing a PPA based on a Smoothed CCO instead of the Raw CCO as of May 31, 2006.

Q. What is the significance of this Smoothed CCO?

A. Although the Smoothed CCO had the same present value as the Raw CCO, it was front end loaded. As shown in Figure 3 below, this meant that ratepayers would be paying higher prices for power from Entergy during the early years of the PPA period than it would under the Raw CCO. In effect, "smoothing" appears to be a mechanism for front-loading the PPA and allowing the potential buyer of Paliades to recoup a significant part of the cost of the steam generator replacements prior to the 2016 date projected by Consumers. Again, this "smoothing" provided greater value for Entergy in the near term years and increased its willingness to bid a higher cash price for the plant. As with the increasing Raw CCO prices, this transfers value from ratepayers to Consumers and its shareholders.

Figure 3: May 2006 Smoothed CCO versus Raw CCO



Q. What are the numerical values related to Figure 3?

A. The numerical values shown in Figure 3 are presented in Table 3 below.

Table 3: May 2006 Smoothed CCO versus Raw CCO

Year	Smoothed CCO $/MWh	Raw CCO $/MWh
2007	$46.06	$39.01
2008	$47.21	$31.83
2009	$48.39	$49.84
2010	$49.60	$47.27
2011	$50.84	$40.05
2012	$52.12	$52.46
2013	$53.42	$54.81
2014	$54.75	$45.49
2015	$56.12	$57.69
2016	$57.53	$84.88
2017	$58.96	$64.42
2018	$60.44	$79.90
2019	$61.95	$81.27
2020	$63.50	$69.96
2021	$65.09	$87.18

Q. Do you have any comment on the claim by Consumers' witness Garrity that the Smoothed CCO "smoothes variations in the CCO over the fifteen-year period [of the PPA] to absorb cost spikes and eliminate the volatility of the Raw CCO?"[1]

A. Yes. The "Smoothed" CCO served to absorb cost spikes and eliminate the volatility of the Raw CCO costs only by inflating annual costs in the early years of the PPA period above what they otherwise needed to be. Thus, allowing bidders to submit proposed PPAs based on the "Smooth" CCO disadvantaged ratepayers by front-end loading the PPA.

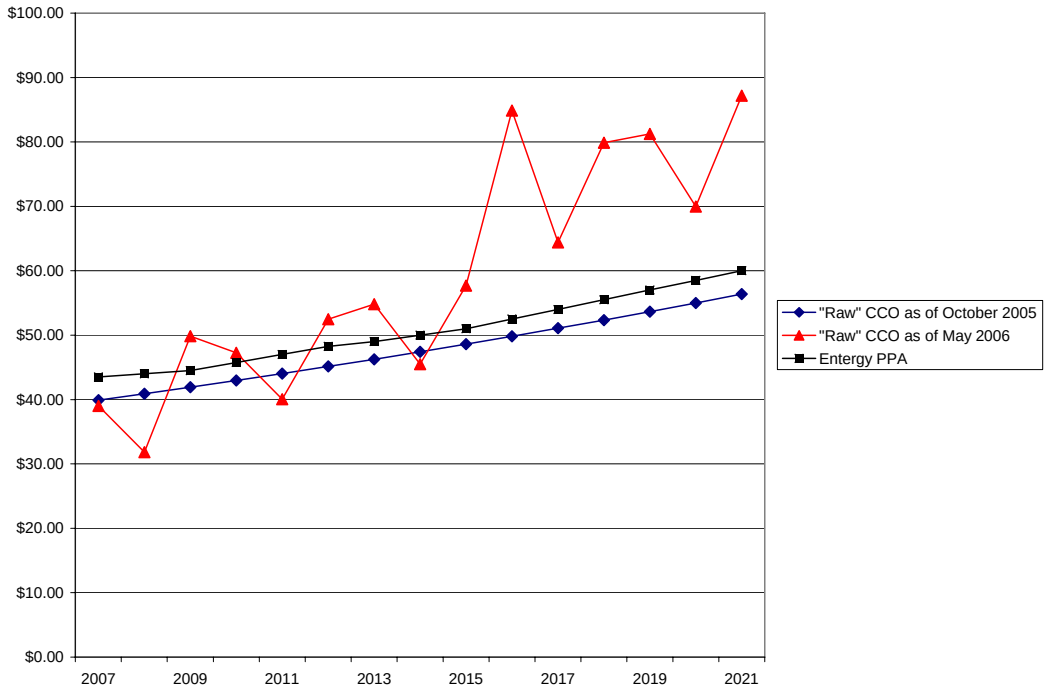
Q. How do the annual prices for power in the proposed PPA compare to the annual costs of continuing ownership of Palisades projected by Consumers and CEA in October 2005, March 2006 and May 2006?

A. As shown in Figure 4 below, the annual prices for power in the proposed PPA are higher in all years than those that would result from the October 2005 CCO. The annual prices for power in the PPA also are higher than May 2006 CCO in a

[1] William E. Garrity Direct Testimony, at page 16, lines 4-6.

number of years prior to 2015. It is only in the years 2015-2021 that prices for power in the proposed PPA are projected to be consistently higher than Consumers' May 2006 CCO.

Figure 4: Proposed PPA Prices compared to Consumers' Projected CCO for Palisades in October 2005 and May 2006



Q. What are the numerical values related to Figure 4?

A. The numerical values shown in Figure 4 are presented in Table 4 below.

Table 4: Proposed PPA Prices compared to Consumers' Projected CCO for Palisades in October 2005 and May 2006

Source	Estimated Palisades Costs ($/MWh)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
1	Raw CCO as of October 2005	$39.89	$40.89	$41.91	$42.96	$44.03	$45.13	$46.26	$47.42	$48.60	$49.82	$51.06	$52.34	$53.65	$54.99	$56.36
2	Raw CCO as of May 2006	$39.01	$31.83	$49.84	$47.27	$40.05	$52.46	$54.81	$45.49	$57.69	$84.88	$64.42	$79.90	$81.27	$69.96	$87.18
	Entergy PPA	$43.50	$44.00	$44.50	$45.75	$47.00	$48.25	$49.00	$50.00	$51.00	$52.50	$54.00	$55.50	$57.00	$58.50	$60.00
	Notes															
	1- Concentric Analysis, dated October 27, 2005, Bates Page Number 99201778															
	2 - Exhibit A-7 (JJR-5)															

Q. What is the net present value of the proposed PPA?

A. According to Consumers, the net present value of the proposed PPA would be $199 million less than the costs of continued ownership that were provided to potential bidders in late May 2006 as part of the final bid instructions.[2]

Q. What would be the value for ratepayers of the proposed PPA if it were measured against the Raw costs of continued ownership that had been projected by CEA and Consumers in October 2005 or March 2006?

A. Table 5 below shows that the proposed PPA would have a $19 million *higher* net present value than the costs of continued ownership of Palisades that were issued to potential bidders by CEA and Consumers in March 2006. The proposed PPA has a $150 million *higher* net present value than the costs of continued ownership of Palisades through 2021 when they were projected by CEA in October 2005.

Table 5: NPV Benefit/(Cost) of PPA under October 2005, March 2006 and May 2006 CCO

Power Price Scenario	Net Present Value ($million)	Net Present Value Difference from Proposed Entergy PPA ($million)
Proposed Entergy PPA	$2,340	$0
October 2005 CCO	$2,196	-$144
March 2006 CCO	$2,321	-$19
May 2006 CCO	$2,536	$196

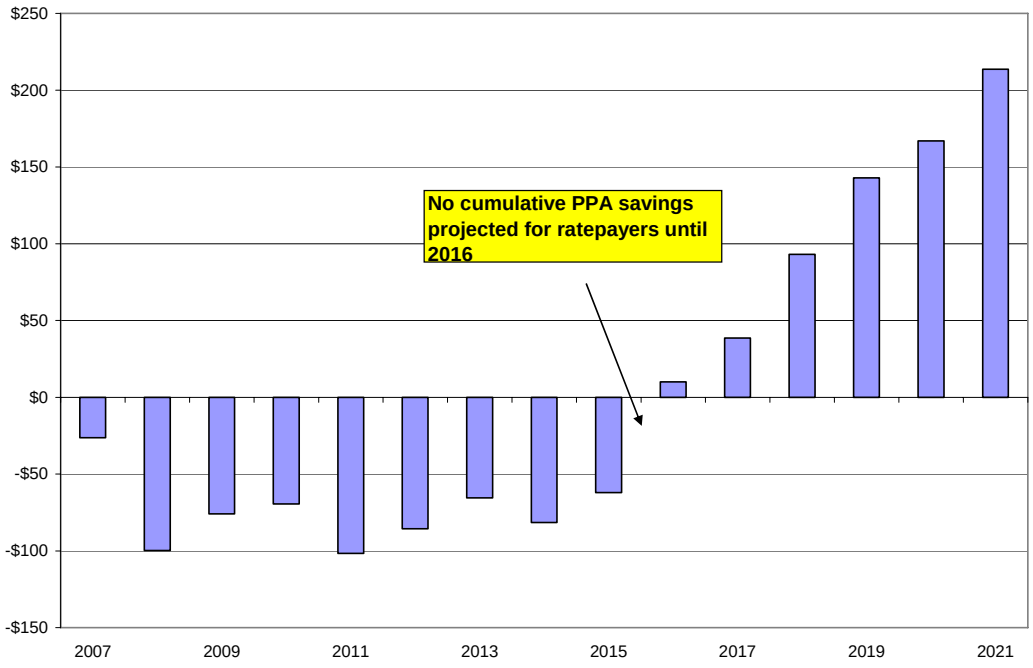
Q. Would ratepayers immediately receive lower prices under the proposed PPA?

A. No. As shown in Figure 4 above, during a number of the early years of the PPA period, the costs under the proposed PPA would be higher than even Consumers' highest May 2006 Raw CCO projections. This means that Consumers' ratepayers will not immediately receive lower prices under the proposed PPA.

[2] Application, at page 6, and William E. Garrity Direct Testimony, at page 15, lines 17-21.

In fact, as shown in Figure 5 below, under the proposed PPA ratepayers would not break-even on a net present value basis, until 2016 as compared to the costs of continued ownership by Consumers even if the Commission accepts the Company's high May 2006 Raw CCO costs?

Figure 5: Cumulative PPA "Savings" vs. May 2006 Raw CCO in constants 2007 dollars



Q. What are the numerical values related to Figure 5?

A. The numerical values shown in Figure 5 are presented in Table 6 below.

Table 6: Cumulative PPA "Savings" vs. May 2006 Raw CCO in constants 2007 dollars

Cum PPA savings Constant 2007 Dollars ($millions)	
2007	-$26
2008	-$100
2009	-$76
2010	-$69
2011	-$102
2012	-$86
2013	-$65
2014	-$82
2015	-$62
2016	$10
2017	$39
2018	$93
2019	$143
2020	$167
2021	$214

Q. Will ratepayers benefit if Entergy is able to operate the Palisades plant at a higher capacity factor during the early years of the PPA than the capacity factor Consumers and CEA projected when developing the Raw and Smoothed CCO?

A. The proposed PPA is a unit contingent agreement under which Entergy is obligated to provide and Consumers is obligated to accept all of the energy that the Palisades plant actually produces, except for certain "Uprate" conditions.[3] Therefore, the higher the capacity factor that Entergy will be able to achieve at Palisades, the more energy Consumers will be obligated to take.

This may sound like a good idea in theory. However, ratepayers will be worse off under the proposed PPA than they would have been under Consumers' continued ownership because prices during three of the first five years of the PPA period, being based on the Smoothed CCO costs will be higher than would have been the case if Consumers continued to own the plant. This can be seen from my Figure 3 above and from Consumers' witness Garrity's Exhibit A-2 (WEG-2).

[3] William E. Garrity Direct Testimony, at page 6, lines 15-17.

Paradoxically, this means that ratepayers will be worse off under the proposed PPA if Entergy is able to make the plant run better than Consumers and NMC.

Q. Have you seen any evidence of the capacity factor that Entergy believes it will be able to operate Palisades?

A. No. As I noted earlier, Entergy has refused to answer any data requests.

However, based on the operating experience of its other nuclear units, I would expect that Entergy will be able to operate Palisades above the approximate 86 percent capacity that Consumers forecasts for the unit based on the operating performance of its other nuclear units. This is the same expectation that Entergy executives communicated to security analysts in their second quarter 2006 teleconference, directing the analysts specifically to the operating performance of Entergy's other nuclear units in the northeast.

Q. What causes the significant increases in Consumers' Raw CCO prices beginning in 2013?

A. The significant increases in the Raw CCO prices beginning in 2013 result from projected costs associated with the replacement of the plant's two steam generators. According to Consumers, these steam generator replacement costs would total $357 million in 2006 dollars.[4] Expenditures would begin in 2013, although the actual in-service date of the replacements would not occur until 2016.

Q. Is it reasonable to expect that Consumers' would have to replace Palisades' steam generators if it wanted to own and operate the plant through 2031?

A. Yes. It is reasonable to expect that the Palisades steam generators will have to be replaced at some point in the next 25 years because the generator tubes were fabricated from Alloy 600 material. Tubes fabricated from this material have

[4] Response to Data Request 14992-AG-CE-117, at Bates Page Number 99200933.

experienced various forms of degradation and defects in just about every other steam generator in which they were used.

Q. Is it certain that the steam generators will have to be replaced in 2016?

A. No. The rate at which the tubes will degrade and the specific degradation mechanisms they will experience are uncertain. Given changes that Consumers has made in water chemistry control, it is possible that the current steam generators would not have to be replaced until some time after 2016. Or, it is possible that the tubes will degrade and the steam generators would have to be replaced before 2016.

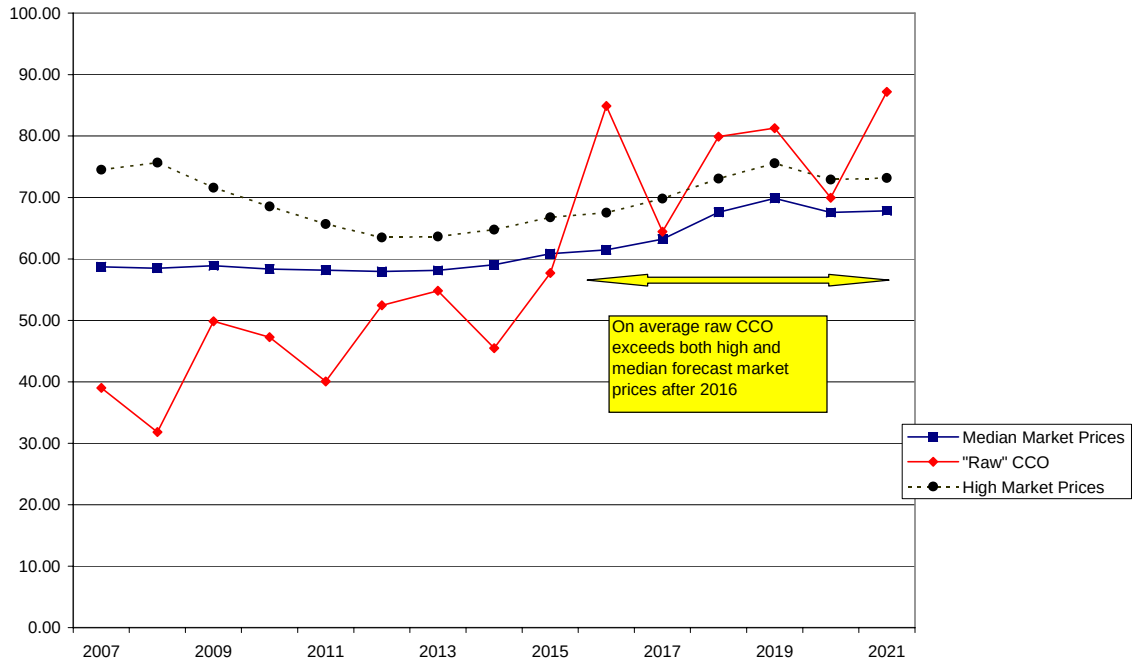
Q. Is it certain that replacement of the steam generators would be most economic option for Consumers if it continued to own Palisades?

A. No. Consumers projects that replacement will exceed projected market prices. Replacement in such circumstances would not be the most economic option.

Q. How do Consumers' estimated costs of power from Palisades beginning in 2016 compare to its projected market prices?

A. Figure 6 below compares Consumers' estimated costs of power from Palisades beginning in 2016 with the Company's projected high, low and median market prices.

Figure 6: Projected Palisades CCO compared to Estimated Market Prices



Thus, the projected CCO costs for Palisades beginning in 2016, that is, after replacement of the steam generators, would be significantly higher than even the projected High Market Prices. In these circumstances, it would not be reasonable for Consumers to seek to replace, and it would not be reasonable for the Michigan Commission approve replacement of Palisades steam generators. It just would not be an economic decision.

Q. What are the numerical values related to Figure 6?

A. The numerical values shown in Figure 6 are presented in Table 7 below.

Table 7: Projected Palisades CCO compared to Estimated Market Prices

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
"Raw" CCO	$39.01	$31.83	$49.84	$47.27	$40.05	$52.46	$54.81	$45.49	$57.69	$84.88	$64.42	$79.90	$81.27	$69.96	$87.18
High Market Prices	$74.50	$75.68	$71.58	$68.54	$65.67	$63.47	$63.66	$64.76	$66.75	$67.52	$69.81	$73.07	$75.57	$72.91	$73.18
Median Market Prices	$58.71	$58.47	$58.89	$58.35	$58.17	$57.98	$58.13	$59.06	$60.84	$61.49	$63.22	$67.60	$69.85	$67.56	$67.83

Q. Would it be possible for Entergy to decide to retire Palisades before the scheduled termination of the PPA in 2021 instead of replacing the steam generators?

A. Yes. Consumers' witness Garrity explains that there are three conditions that can result in early termination of the PPA:

1. The occurrence of certain default events as specified in Section 7.1 of the PPA.
2. If the U.S. Nuclear Regulatory Commission does not grant the application for extension of the Palisades Plant's operating license, in which case the PPA terminates upon expiration of the existing license.
3. If Entergy decides that operation of the Plant has become materially and economically adverse such that continued operation is no longer feasible, prudent and/or sustainable and provides Consumers with twelve-months written notice.[5]

Under the third condition, Entergy could decide that it had earned enough from its investment in the Palisades Plant during the early years of the PPA and, therefore, that it would not replace the steam generators. It could do so even though such an early termination might adversely affect the value of the PPA to Consumers' ratepayers. In the alternative, Entergy could offer to negotiate higher PPA prices

Q. How would such an early retirement of Palisades adversely affect the value of the PPA to Consumers' ratepayers?

A. As I discussed earlier, under the proposed PPA, ratepayers will pay more during the early years of the PPA period than they would pay under Consumers' continued ownership of the plant. If Entergy retired Palisades early, ratepayers would not get the benefit of the relatively lower projected prices (compared to the May 2006 Raw CCO) promised for the later years of the PPA period.

[5] William E. Garrity Direct Testimony, at page 23, lines 7-15.

Q. Would Consumers be able to prevent such an early retirement decision by Entergy?

A. It is unclear, at best, whether Consumers would be able to prevent such an early retirement decision by Entergy. Consumers has said that it would expect to provide input into Entergy's decision-making process.[6] But the PPA does not appear to require Entergy to consider the interests of Consumers or its ratepayers when making any decision to retire Palisades early.

Q. Consumers argues that Entergy will have an economic incentive to keep operating Palisades. Have you seen any evidence that Entergy will continue to have an economic incentive to keep operating Palisades if it has to pay the cost of replacing the plant's steam generators?

A. No. As I've noted, Entergy refused to answer any of the data requests submitted by the AG.

However, Entergy will obtain significant value from its ownership and operation of Palisades during the years 2007-2015. I expect Entergy will be able (1) to operate Palisades at a consistently high capacity factor, and therefore obtain significant value from the PPA prices that will be passed through to Consumers' ratepayers; (2) to achieve a power uprate at Palisades which will provide additional energy to sell into the market or to provide to Consumers under the PPA; and (3) to reduce Palisades' operating and capital costs below the levels reflected in Consumers' Raw and Smoothed CCO.

This expectation is reinforced by what Entergy told the investment community in the financial release it issued at the time the Palisades sale was announced:

At the time of closing, Entergy will allocate the net $350 million purchase price plus the value of the PPA to the acquired assets and liabilities based on their estimated fair market values on that date in accordance with Statement of Financial Accounting Standards No. 141, "Business Combinations." The net

[6] Consumers' response to Data Request 14992-ST-CE-46.

effect of this transaction is expected to result in additional earnings per share, most notably in the initial years of plant ownership. Entergy will include the additional earnings estimate in its 2007 guidance as the transaction close approaches, based on forward market prices at the time.

In particular, this release projected the following financial impacts on Entergy's earnings as a result of the favorable pricing in the early years of the PPA:

Economic Value

Estimated Financial Metrics

	Range 2007-2010
Annual EPS contribution from Palisades[3]	$0.19 to 0.31
Lost interest income at Parent	(0.06) to (0.08)
Total EPS impact[4]	***$0.13 to 0.23***
Average ROIC[3]	12.1%

[3] Amounts exclude net effect of amortization of PPA based on value of non-cash consideration to ultimately be recorded at closing
[4] 2007 EPS contribution of approximately $0.13 assumes a March 1, 2007 closing date

However, without detailed information from Entergy, it is impossible to tell how much value Entergy will receive from these factors and how quickly Entergy will get back the $380 million it has promised to pay for Palisades. Therefore, it is not possible to determine whether Entergy will recover more than its investment in Palisades before 2015. It is also not possible for me or the Michigan Commission to assess whether Entergy will conclude that replacing the plant's steam generators represents a materially adverse economic condition so retiring the plant early is the more economic option.

Q. Consumers has cited the relatively low level of decommissioning funds being transferred as an incentive for Entergy to keep operating Palisades.[7] Do you agree?

A. No. If Entergy decided to retire Palisades early, that is, prior to 2030, it could always place the plant in a cold storage condition for a number of years until it is

[7] Consumers' response to Data Request 14992-ST-CE-46.

ready to and has sufficient funds to begin the active decontamination and dismantlement process. During any such years, Entergy's decommissioning trust funds for Palisades would grow through the reinvestment of earnings. Because the funds are expected to earn at higher rates than the rate at which the cost of decommissioning Palisades is expected to escalate, the funds will grow over time relative to the cost of decommissioning. Thus, the level of the decommissioning funds being transferred as part of the sales transaction are unlikely to create any incentives for Entergy to keep operating the Palisades plant.

Q. Is it reasonable to expect that Entergy will be able to decommission Palisades at a lower cost than Consumers and NMC?

A. Yes. I expect the owner of a fleet of nuclear units, like Entergy, will be able to achieve efficiencies and economies of scale that will allow it to decommission Palisades at a lower cost than Consumers. Therefore, the level of decommissioning funds being transferred as part of the sale transaction, which Consumers may consider "relatively low," might be more than adequate for Entergy.

I believe it is this expectation that, at least in part, may have formed the basis for Entergy's willingness to take less than the currently funded amounts of Palisades' qualified and non-qualified decommissioning trust funds as part of the sales transaction.

Q. Is it also reasonable to expect that NMC could take advantage of similar efficiencies and economies of scale in decommissioning Palisades?

A. Perhaps. If NMC remains viable, it is reasonable to expect it could lower the cost of decommissioning the plants it operates as a result of some efficiencies and economies of scale. However, as Consumers notes in its testimony, it may be that NMC will not be viable for the long term. Although this relative factor is not quantifiable at this time, it may be that a larger nuclear owner/operator like Entergy will be able to take advantage of greater larger efficiencies and economies of scale than NMC.

Q. Is it definite that Consumers would not be allowed to return to ratepayers any monies from its Palisades decommissioning funds prior to the end of the decommissioning process if Consumers continues to own Palisades?

A. No. The NRC's approval of a license extension would allow an additional twenty years for Palisades' decommissioning funds to grow through the reinvestment of retained earnings. This means that the Palisades funds already might be overfunded if the NRC approves the request for a license extension—which is a fact all parties are assuming. Consequently, Consumers might be able to refund significant funds to ratepayers. It is my understanding that no company ever has requested permission from the NRC or the IRS to do so. Therefore, there is no precedent for or against such an action either if Consumers continues to own Palisades or if Entergy buys the plant.

The report which Consumers is required to file with the MPSC prior to March 2007 pursuant to the settlement and order in Case U-14150 regarding the adequacy of tis decommissioning funds in the event of license extension should shed considerable light on this matter.

Q. Should Consumers be required to obtain a definite answer from the NRC and the IRS before it can claim the refund of monies from Palisades' qualified and non-qualified decommissioning funds as a benefit for ratepayers from the proposed sale?

A. Yes. However, it should be noted that Consumers and Entergy have agreed to close the sale of Palisades without waiting for such a ruling.

Q. Doesn't the proposed sale provide significant benefits for ratepayers in addition to the PPA?

A. Consumers has inflated the value of the proposed sale to Entergy Nuclear Palisades to ratepayers in a number of ways.

First, the net present value of the proposed PPA depends upon the CCO projection it is measured against. As I have shown in Table 5 above, the value of the PPA to ratepayers changes from a positive $196 million net present value benefit when

compared against Consumers' May 2006 CCO forecast to a negative $19 million net present value detriment for ratepayers when compared to the March 2006 CCO forecast and a negative $144 million net present value detriment for ratepayers when compared to the October 2005 CCO forecast.

Second, Consumers says that ratepayers will benefit because they will receive a refund of the Palisades non-qualified decommissioning funds they have previously paid to Consumers. However, as noted above, this benefit results from license extension and the deferred decommissioning of Palisades not from the proposed sale. Further, because the annual prices in the early years of the PPA are so high, compared to even Consumers' May 2006 Raw CCO forecast, ratepayers actually would turn around and give a significant portion of any refunds in higher payments for power under the PPA. For example, Figure 5 shows that by 2011, ratepayers will have paid more than $100 million, in 2007 dollars, in higher power payments under the PPA than they would have under Consumers' May 2006 CCO forecast.

Third, it is not clear that, prior to decommissioning being completed, Entergy would be able to return to Consumers and Consumers would be able to return to its customers the $116 million from the qualified decommissioning fund that would be subject to return under the proposed sale.

Q. If the proposed sale of Palisades is closed will the Michigan Public Service Commission retain any regulatory oversight authority over Palisades or its owner/operator?

A. No. The Commission will lose regulatory oversight authority over Palisades and the plant's owner(s) because Entergy Nuclear Palisades, LLC will operate the plant and its output will be sold pursuant to the approved power purchase agreement.

Specifically, after a sale to Entergy, the Commission would lose authority:

- to determine whether the Palisades decommissioning funds are adequate and whether the method to be used to decommission the plant is appropriate to Michigan.
- to approve any subsequent sale of Palisades from Entergy to another owner or
- to assure the financial integrity of any subsequent owner(s) of Palisades.
- to determine whether the replacement of the Palisades's steam generators, or other major capital expenditures, are in the best of interest of Michigan and its ratepayers and taxpayers.
- to assure the financial integrity of Entergy Nuclear Palisades and its owners. [If Palisades is sold to Entergy, the Michigan Commission would be unable to assure that adequate funds are made available and prudently invested in and used to maintain and operate the plant. The Michigan Commission also would be unable to assure that funds that should be used to maintain and operate Palisades are not being improperly transferred to Entergy Nuclear Palisades' direct or indirect owners or affiliates.]
- to approve or disapprove cost recovery for major additions at Palisades including spent nuclear fuel storage and the use of the site for the storage of spent fuel from other nuclear plants.
- to exclude from rates imprudently incurred costs.
- to inspect and audit all books and records related to Palisades or to enter onto and inspect the premises of Palisades.

Q. Has the NRC expressed concern about the ownership of nuclear power plants via holding company structures?

A. Yes. The NRC has expressed concern that the use of holding companies can reduce the value of assets that would be available for the safe operation and decommissioning of a nuclear power plant, but the NRC does not adequately protect against the risk that a power plant owning subsidiary will transfer all of its

operating profits to its parent(s) or engage in questionable loans to or dealings with affiliates.

For example, the NRC Staff previously expressed concern that the use of holding company structures can lead to a diminution of the assets necessary for the safe operation and decommissioning of a licensee's nuclear power plant.[8] In early March 1993 the NRC Staff expressed concern that:

> Current and potential organizational structures of many power reactor licensees and their corporate affiliates are complex and evolving. The staff believes that the public health and safety implications of such structures warrant further examination. A licensee subsidiary without assets other than the licensed reactor could renege on its decommissioning obligations if forced to shut down prematurely. Given that corporate law generally limits the liability of stockholders, the NRC may not have recourse to the assets of a parent company if its subsidiary defaults absent legally enforceable commitments by owners. Case law with respect to bankruptcy proceedings is also ambiguous. Although bankruptcy courts have generally directed bankruptcy trustees to make justifiable, legally required expenditures to protect public health and safety, it is not clear that these expenditures will always have a high priority relative to other claims. The staff believes that it should evaluate possible ways to increase assurance of decommissioning funds availability. An increased degree of confidence may be appropriate to assure that the problems that the Office of Nuclear Material Safety and Safeguards has had with some of its licensees abandoning materials sites prior to cleanup will not be experienced for power reactor licensees.[9]

The NRC Staff requested that the NRC Commissioners approve publication of an advance notice of proposed rulemaking to explore alternatives to mitigate the potential impact on safety of power reactor licensee ownership arrangements and to consider whether increased assurance of funding availability for decommissioning activities was needed.

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[8] *Safety Evaluation by the NRC's Office of Nuclear Reactor Regulation "Related to Proposed Corporate Restructuring of Commonwealth Edison Company,"* October 5, 2000, at page 3.

[9] *Issuance of An Advance Notice of Proposed Rulemaking on the Potential Impact on Safety of Power Reactor Licensee Ownership Arrangements, SECY-93-075,* March 24, 1993, at page 1.

Unfortunately, the NRC Commissioners disapproved this request and, instead, asked for additional information on the staff proposal. In response to a Commission question on how many reactor licensees could try to set up a corporate veil to avoid decommissioning costs, the NRC Staff noted:

> Potentially, any investor-owned utility could establish a holding company to which it could transfer the bulk of its assets over time. If forced to shut down prematurely, a licensee with assets limited essentially to the shut down reactor could declare bankruptcy and renege on any unfunded decommissioning obligation. If a bankrupt licensee had insufficient assets, a bankruptcy court might be powerless to order that assets of a parent company be used to fund decommissioning, even if the court wished to do so.[10]

In the years since 1994, the NRC has not developed or adopted any policy limiting the transfer of operating profits from the subsidiary that directly owns a nuclear plant, and the NRC does not have any policy limiting the types or magnitudes of the loans that an operating subsidiary can make to affiliated companies.

At most, the NRC merely conditions license transfer approvals to new holding company structures upon a requirement that the licensee not transfer to its proposed parent or any other affiliated company significant assets for the production, transmission or distribution of electric energy without first notifying the NRC. The NRC has defined "significant assets" to be facilities having a "depreciated book value exceeding 10% of the company's consolidated net utility plant."[11]

The NRC also does not have a specific policy statement or procedure on how licensees should use financial assurance funds in the form of lines of credit for

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[10] *Response to Staff Requirements Memorandum of April 28, 1993, Which Disapproved Issuance of An Advance Notice of Proposed Rulemaking on the Potential Impact on Safety of Power Reactor Licensee Ownership Arrangements, SECY-94-280,* at pages 4 and 5

[11] For example, see the October 5, 2000 Safety Evaluation by the NRC Office of Nuclear Reactor Regulation of the proposed corporate restructuring of PECO Energy Company, at page 3.

plant operation.[12] The NRC also has no specific policy statement or procedure that controls how it would consider approval of requests by corporate subsidiaries to reduce, replace, or withdraw available lines of credit subject to NRC-established conditions. Instead, the NRC has said that it will review such requests on a case-by-case basis.[13]

The NRC has explained its policy for addressing situations where a licensee has drawn upon the lines of credit provided by a parent or affiliated companies. In such situations, the NRC would:

> evaluate the reasons behind [the licensee's] drawing on the lines of credit. The staff cannot provide a detailed discussion of potential agency actions until it learns the specific reasons for the usage of such funds. Generally, if drawings on the lines of credit were made to cover short-term cash flow deficiencies that did not appear to have any significant safety ramifications, the NRC would not likely need to take any specific action. If drawing on the lines of credit were to indicate serious longer-term financial problems that appeared to potentially adversely impact protection of public health and safety, the NRC would monitor the effects of any degradation on protection of public health and safety and act appropriately.[14]

Q. Does the NRC conduct reviews of the financial qualifications of new plant owners as part of its evaluation of proposed transfers of nuclear power plant operating licenses?

A. Yes but such a review is limited. Before it allows a nuclear power plant operating license to be transferred, the NRC conducts reviews of the financial qualifications of the prospective owner. The NRC's regulations specify the types of information that a prospective licensee must provide and the nature of the review that must be conducted by the NRC staff.

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[12] Enclosure 1 to the NRC's December 13, 2001 letter to Christine Salembier, Commissioner, Vermont Department of Public Service, on the subject of "Vermont Yankee Nuclear Power Station – Lines of Credit Associated with Vermont Yankee License Transfer."

[13] Ibid.

[14] Ibid.

However, the applicable NRC regulation, 10 CFR 50.33(f), is inconsistent. On the one hand it says that "the applicant shall submit information that demonstrates the applicant possesses or has reasonable assurance of obtaining the funds necessary to cover estimated operation costs for the **period of the license**." (emphasis added) But the regulation then merely requires applicants to submit estimates for total annual operating costs for only the first 5 years of operation of the facility. Although the NRC can ask for information for subsequent years, this regulation can mean that the NRC will only review five years of operating cost data before approving a transfer of a license which will continue in effect for another 25 years or longer.

Q. Does the NRC monitor the financial qualifications of licensees on an ongoing basis?

A. The NRC's review of financial qualifications continues after a license is transferred. The NRC requires each licensee to submit an annual financial report, pursuant to 10 CFR 50.71(b) and a decommissioning funding status report every two years.[15] The NRC Staff also monitors the general financial status of nuclear plant licensees by screening the trade and financial press reports, and other sources of information.[16]

However, it is unclear whether the NRC has the staff resources or the expertise to conduct adequate reviews of licensee's financial qualifications. For example, the NRC's Executive Director for Operations informed the Commissioners in April 1997 that the expertise of the NRC Staff in matters of finance and economic analysis were "limited."[17] It is unclear whether the NRC staff has developed greater expertise since 1997 especially in light of the fact that the overall size of the NRC Staff has been reduced by approximately ten percent since that time.[18]

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15 10 CFR50.75(f)(1).

16 NUREG-1577, Rev 1, Section III.1.d., at page 5.

17 NRC SECY-97-071, April 2, 1997.

18 NUREG-1350, Vol. 13, Figure 4.

The NRC has expressed confidence in its Staff's ability to identify financial distress and has quoted approvingly a Staff member who said "severe financial distress from any of the licensees is something that's not going to be hidden from view very long."[19] However, the suddenness of ENRON's collapse and the apparent absence of public warnings of that company's severe financial distress prior to that collapse suggest that the NRC may not have any real warning about a licensee's impending financial problems.

Q. Has Entergy the parent corporation made any guarantees to Consumers, the State of Michigan and/or any local units of government that it will adequately fund Entergy Nuclear Palisades to operate and decommission the Palisades plant?

A. No.[20]

Q. Has Entergy the parent corporation provided any guarantees that Entergy Nuclear Palisades will be adequately funded to operate and decommission Palisades?

A. The parent corporation Entergy has told the NRC that Entergy Nuclear Palisades will have access to an established line of credit of $25 million from the parent corporation or another affiliate company, if necessary, to pay the expenses of operating Palisades safely.[21]

Entergy also has committed to the NRC that, if at closing the amounts in the transferred decommissioning trust fund is less than the NRC required minimum, Entergy Nuclear Palisades will provide the additional amount through a parent or affiliate guarantee that will meet the requirements of 10 CFR 50.75(e)(1)(iii). But there is no reason to expect that this will be a significant protection or requirement for many years because the NRC required minimum is far less than would be

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[19] *In the Matter of Power Authority of the State of New York and Energy Nuclear Fitzpatrick,* 53 N.R.C. 488, June 21, 2001.

[20] Consumers' response to Data Request 14992-LU-CE-60.

[21] Application for the transfer of Palisades Operating License, dated August 31, 2006, at page 8.

required to decommission Palisades at any time in the near future according to the most recent estimates prepared by Consumers.

Q. Is this $25 million support agreement consistent with guarantees that the NRC has obtained from other new nuclear power plant owners?

A. No. This guarantee is less than $60 million support agreements that have been offered by the parent corporations of other nuclear power plant buyers.

Q. Has any state regulatory commission expressed concern about the inadequacy of even a $60 million support guarantee?

A. Yes. When the Entergy Corporation applied to the NRC and the Vermont Public Service Board for approval to purchase the Vermont Yankee nuclear plant, it offered to provide a $70 million support guarantee provided by two lines of credit from subsidiaries. The NRC accepted this $70 million guarantee based on the two lines of credit.

However, the staff of the Vermont Department of Public Service and the Vermont Public Service Board raised serious concerns about the adequacy of such a small guarantee, especially where the parent corporation had not pledged any of the $70 million support. [22] In response, Entergy pledged that if either line of credit had been drawn upon, the parent corporation would make up any deficiency up to a total of $60 million.[23] Consequently, the total support pledged by Entergy to Vermont Yankee was $130 million.

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[22] See the Direct Testimony of Andrea Crane on behalf of the Vermont Department of Public Service, Vermont Public Service Board Docket No. 6545, at pages 18-22.

[23] Rebuttal Testimony of Connie Wells, Entergy Nuclear Vermont Yankee, LLC, in Vermont Public Service Board Docket No. 6545, at page 3, lines 8-13.

Q. If a plant-owning subsidiary was to declare bankruptcy, does the NRC require a licensee in bankruptcy to continue making safety-related or decommissioning expenditures?

A. No. NRC regulations require any nuclear power plant licensee to immediately report any filing of a voluntary or involuntary petition for bankruptcy.[24] However, the NRC has no additional financial requirements for situations in which a licensee files for bankruptcy or otherwise encounters financial difficulties. The NRC must intervene in the proceedings before the bankruptcy court and petition the court to require such payments.

The NRC has had some experience with the bankruptcies of some nuclear power plant owners. However, all of these earlier bankruptcies involved entities that owned a number of different assets. The bankruptcy of a single-asset subsidiary, which owns only a single nuclear power plant, as would be the case with Entergy Nuclear Palisades, would present very different circumstances and challenges. At the same time, given the multi-tiered holding companies through which parent corporations now own nuclear power plants, the NRC might have trouble "piercing the corporate veil" to require a parent corporation to accept responsibility for the liabilities of a bankrupt subsidiary and make required payments.

Q. Would it be difficult to hold a parent corporation responsible for the liabilities incurred by a nuclear power plant owning subsidiary in a multi-tiered holding company such as that proposed by Entergy for Palisades?

A. Yes. The multiple layers of subsidiaries that have been created by parent corporations in the nuclear industry could make it difficult to hold a parent corporation responsible for liabilities incurred by the plant-owning subsidiary. Even if a court concludes that the liability of a subsidiary should be extended to businesses above the subsidiary in an organizational structure (for example, if under capitalization and profit distributions have left a subsidiary unable to cover

[24] 10 CFR 50.54 (cc).

the costs of unanticipated repairs or security improvements and a subsidiary decides to cease operations), the ability of the court to find a senior business entity with sufficient capital could be complicated by multiple layers of subsidiaries. There may be disputes over jurisdiction, applicable state or federal statutes, the role of the NRC, and other myriad issues of law and fact that would need to be resolved. It is likely that the burden will fall upon any party trying to extend liability to show how law, facts, and public policy all support shifting liability.[25] Courts, in general, are reluctant to pierce the corporate veil and extend liability; when multiple corporations are involved, that reluctance only increases.

A legal memorandum provided to the Vermont Public Service Board by the previous owners of the Vermont Yankee Nuclear Power Corporation concluded that attempts to pierce the corporate veil of nuclear power plant subsidiaries were unlikely to succeed and have seldom been attempted.[26] Despite specific instances in which courts have extended liability to parent corporations, there would be great uncertainty whether or not such protection would be available to Michigan utility customers or utilities.

Q. Has the NRC expressed doubts about its ability to hold a parent corporation responsible for the liabilities incurred by a subsidiary?

A. Yes. There are two NRC cases that involved attempts to pierce the corporate veil of the operator of a nuclear power plant. In 1995, the NRC attempted to negate a transfer of assets from a licensee which, as part of a complicated corporate restructuring, had become a subsidiary to a newly created holding company because the transfer had occurred without the prior written consent of the NRC, as required by section 184 of the Atomic Energy Act. The NRC took the position that it could pierce the veil of corporations because not doing so would have

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[25] "Piercing the Corporate Veil: An Empirical Study", Robert B. Thompson, 76 Cornell Law Review 1036 (1991), Section II, and "Limited Liability and the Corporation", Frank H. Easterbrook and Daniel R. Fishel, 52 U. Chi. L. Rev. 89 (1985), Section IV.

[26] Vermont Yankee Memorandum of Law Regarding Ratepayer Risk of Liability for Vermont Yankee Decommissioning Costs, Vermont Public Service Board Docket No. 6545, dated February 25, 2002, at pages 17 and 18.

violated section 184. However, before a final adjudication, this case ended in a settlement.[27]

In 1997, the NRC started to force a parent company to provide additional funds to the decommissioning fund for a subsidiary plant, but the NRC approved a settlement that resolved the decommissioning fund issue without any specific finding of parent company liability.[28] In accepting the settlement, the NRC expressed concern that there was a "substantial possibility of defeat if the case proceeds to trial [on a theory of] piercing the corporate veil."

Q. Please summarize your conclusions regarding the potential effect of selling Palisades to a subsidiary of an out-of-state multi-tiered holding company.

A. If the sale of Palisades to Entergy Energy Palisades is closed, the Michigan Public Service Commission will lose regulatory oversight over the plant and its owners. The Commission will no longer be able to determine critical issues such as the adequacy of the plant's decommissioning funds, whether the plant's operating life should be extended, and whether it should be sold to a subsequent owner. The Commission also would be unable to assure the financial integrity of Entergy Nuclear Palisades or its owners or that adequate funds were being made available to maintain and operate Palisades.

In addition,, the MPSC would lose power to disallow imprudently incurred replacement power costs, imprudent Palisades fuel costs, imprudent plant operating costs and imprudent capital expenditures.

The parent corporation Entergy has not guaranteed that Entergy Nuclear Palisades will have the funds it needs to operate or decommission Palisades safely. Instead, the parent corporation has only guaranteed that it will provide a line of credit of up to Twenty Five Million Dollars if Entergy Nuclear Palisades needs funds to safely operate the Palisades plant.

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[27] *Safety Light Corp.*, 41 N.R.C. at 457-458 (1995).

[28] *Sequoyah Fuels Corp. and General Atomics*, CLI-97-13, 46N.R.C. 195 (1997).

The MPSC also cannot rely upon the NRC to adequately monitor the financial condition of Entergy Nuclear Palisades and to require that sufficient funds will be made available to operate and maintain the plant. The financial assurance reviews conducted by the NRC when an operating license is transferred are very limited. It also is unclear whether the NRC has the requisite staff expertise or resources to effectively monitor licensee's financial circumstances on an ongoing basis.

Q. Does this complete your testimony?

A. Yes.

U-14992
EXHIBIT AG-1 (DAS-1)

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SUMMARY

I have worked for thirty years as a consultant and attorney on complex management, engineering, and economic issues, primarily in the field of energy. This work has involved conducting technical investigations, preparing economic analyses, presenting expert testimony, providing support during all phases of regulatory proceedings and litigation, and advising clients during settlement negotiations. I received undergraduate and advanced engineering degrees from the Massachusetts Institute of Technology and Stanford University, respectively, and a law degree from Stanford Law School

PROFESSIONAL EXPERIENCE

Electric System Reliability - Evaluated whether new transmission lines and generation facilities were needed to ensure adequate levels of system reliability. Investigated the causes of distribution system outages and inadequate service reliability. Examined the reasonableness of utility system reliability expenditures.

Transmission Line Siting – Examined the need for proposed transmission lines. Analyzed whether proposed transmission lines could be installed underground. Worked with clients to develop alternate routings for proposed lines that would have reduced impacts on the environment and communities.

Power Plant Operations and Economics - Investigated the causes of more than one hundred power plant and system outages, equipment failures, and component degradation, determined whether these problems could have been anticipated and avoided, and assessed liability for repair and replacement costs. Examined power plant operating, maintenance, and capital costs. Analyzed power plant operating data from the NERC Generating Availability Data System (GADS). Evaluated utility plans for and management of the replacement of major power plant components. Assessed the adequacy of power plant quality assurance and maintenance programs. Examined the selection and supervision of contractors and subcontractors.

Power Plant Repowering - Evaluated the environmental, economic and reliability impacts of rebuilding older, inefficient generating facilities with new combined cycle technology.

Power Plant Air Emissions – Investigated whether proposed generating facilities would provide environmental benefits in terms of reduced emissions of NO_x, SO_2 and CO_2. Examined whether new state emission standards would lead to the retirement of existing power plants or otherwise have an adverse impact on electric system reliability.

Power Plant Water Use – Examined power plant repowering as a strategy for reducing water consumption at existing electric generating facilities. Analyzed the impact of converting power plants from once-through to closed-loop systems with cooling towers on plant revenues and electric system reliability. Evaluated the potential impact of the EPA's Proosed Clean Water Act Section 316(b) Rule for Cooling Water Intake Structures at existing power plants.

Nuclear Power - Examined the impact of the nuclear power plant life extensions and power uprates on decommissioning costs and collections policies. Evaluated utility decommissioning cost estimates and cost collection plans. Examined the reasonableness of utility decisions to sell nuclear power assets and evaluated the value received as a result of the auctioning of those plants. Investigated the significance of the increasing ownership of nuclear power plants by multiple tiered holding companies with limited liability company subsidiaries. Investigated the potential safety consequences of nuclear power plant structure, system, and component failures.

Electric Industry Regulation and Markets - Investigated whether new generating facilities that were built for a deregulated subsidiary should be included in the rate base of a regulated utility. Evaluated the reasonableness of proposed utility power purchase agreements with deregulated affiliates. Investigated the prudence of utility power purchases in deregulated markets. Examined whether generating facilities experienced more outages following the transition to a deregulated wholesale market in New England. Evaluated the reasonableness of nuclear and fossil plant sales, auctions, and power purchase agreements. Analyzed the impact of proposed utility mergers on market power. Assessed the reasonableness of contract provisions and terms in proposed power supply agreements.

Economic Analysis - Analyzed the costs and benefits of energy supply options. Examined the economic and system reliability consequences of the early retirement of major electric generating facilities. Evaluated whether new electric generating facilities are used and useful. Quantified replacement power costs and the increased capital and operating costs due to identified instances of mismanagement.

Expert Testimony - Presented the results of management, technical and economic analyses as testimony in more than ninety proceedings before regulatory boards and commissions in twenty three states, before two federal regulatory agencies, and in state and federal court proceedings.

Litigation and Regulatory Support - Participated in all aspects of the development and preparation of case presentations on complex management, technical, and economic issues. Assisted in the preparation and conduct of pre-trial discovery and depositions. Helped identify and prepare expert witnesses. Aided the preparation of pre-hearing petitions and motions and post-hearing briefs and appeals. Assisted counsel in preparing for hearings and oral arguments. Advised counsel during settlement negotiations.

TESTIMONY, AFFIDAVITS, DEPOSITIONS AND COMMENTS

Minnesota Public Utilities Commission (Docket No. CN-05-619) – November 2006
Whether the co-owners of the proposed Big Stone II coal-fired generating plant have appropriately reflected the potential for the regulation of greenhouse gases in their analyses of the facility; and whether the proposed project is a lower cost alternative than renewable options, conservation and load management.

North Carolina Utilities Commission (Docket No. E-7, Sub 790) – September 2006
Duke's need for two new 800 MW coal-fired generating units and the relative economics of adding these facilities as compared to other available options including energy efficiency and renewable technologies.

New Mexico Public Regulatory Commission (Case No. 05-00275-UT) – September 2006
Report to the New Mexico Commission on whether the settlement value of the adjustment for moving the 141 MW Afton combustion turbine merchant plant into rate base is reasonable.

Arizona Corporation Commission (Docket No. E-01345A-0816) – August and September 2006
Whether APS's acquisition of the Sundance Generating Station was prudent and the reasonableness of the amounts that APS requested for fossil plant O&M.

U.S. District Court for the District of Montana (Billings Generation, Inc. vs. Electrical Controls, Inc, et al., CV-04-123-BLG-RFC) – August 2006
Quantification of plaintiff's business losses during an extended power plant outage and plaintiff's business earnings due to the shortening and delay of future plant outages. [Confidential Expert Report]

Deposition in South Dakota Public Utility Commission Case No. EL05-022 – June 14, 2006

South Dakota Public Utility Commission (Case No. EL05-022) – May and June 2006
Whether the co-owners of the proposed Big Stone II coal-fired generating plant have appropriately reflected the potential for the regulation of greenhouse gases in their analyses of the alternatives to the proposed facility; the need and timing for new supply options in the co-owners' service territories; and whether there are alternatives to the proposed facility that are technically feasible and economically cost-effective.

Georgia Public Service Commission (Docket No. 22449-U) – May 2006
Georgia Power Company's request for an accounting order to record early site permitting and construction operating license costs for new nuclear power plants.

California Public Utilities Commission (Dockets Nos. A.05-11-008 and A.05-11-009) – April 2006
The estimated costs for decommissioning the Diablo Canyon, SONGS 2&3 and Palo Verde nuclear power plants and the annual contributions that are needed from ratepayers to assure that adequate funds will be available to decommission these plants at the projected ends of their service lives.

New Jersey Board of Public Utilities (Docket No. EM05020106) – November and December 2005 and March 2006
Joint Testimony with Bob Fagan and Bruce Biewald on the market power implications of the proposed merger between Exelon Corp. and Public Service Enterprise Group.

Virginia State Corporation Commission (Case No. PUE-2005-00018)– November 2005
The siting of a proposed 230 kV transmission line.

Iowa Utility Board (Docket No. SPU-05-15) – September and October 2005
The reasonableness of IPL's proposed sale of the Duane Arnold Energy Center nuclear plant.

New York State Department of Environmental Conservation (DEC #3-3346-00011/00002) – October 2005
The likely profits that Dynegy will earn from the sale of the energy and capacity of the Danskammer Generating Facility if the plant is converted from once-through to closed-cycle cooling with wet towers or to dry cooling.

Arkansas Public Service Commission (Docket 05-042-U) – July and August 2005
Arkansas Electric Cooperative Corporation's proposed purchase of the Wrightsville Power Facility.

Maine Public Utilities Commission (Docket No. 2005-17) – July 2005
Joint testimony with Peter Lanzalotta and Bob Fagan evaluating Eastern Maine Electric Cooperative's request for a CPCN to purchase 15 MW of transmission capacity from New Brunswick Power.

Federal Energy Regulatory Commission (Docket No. EC05-43-0000) – April and May 2005
Joint Affidavit and Supplemental Affidavit with Bruce Biewald on the market power aspects of the proposed merger of Exelon Corporation and Public Service Enterprise Group, Inc.

Maine Public Utilities Commission (Docket No. 2004-538 Phase II) – April 2005
Joint testimony with Peter Lanzalotta and Bob Fagan evaluating Maine Public Service Company's request for a CPCN to purchase 35 MW of transmission capacity from New Brunswick Power.

Maine Public Utilities Commission (Docket No. 2004-771) – March 2005
Analysis of Bangor Hydro-Electric's Petition for a Certificate of Public Convenience and Necessity to construct a 345 kV transmission line

United States District Court for the Southern District of Ohio, Eastern Division (Consolidated Civil Actions Nos. C2-99-1182 and C2-99-1250)
Whether the public release of company documents more than three years old would cause competitive harm to the American Electric Power Company. [Confidential Expert Report]

New Jersey Board of Public Utilities (Docket No. EO03121014) – February 2005
Whether the Board of Public Utilities can halt further collections from Jersey Central Power & Light Company's ratepayers because there already are adequate funds in the company's decommissioning trusts for the Three Mile Island Unit No. 2 Nuclear Plant to allow for the decommissioning of that unit without endangered the public health and safety.

Maine Public Utilities Commission (Docket No. 2004-538) – January and March 2005
Analysis of Maine Public Service Company's request to construct a 138 kV transmission line from Limestone, Maine to the Canadian Border.

California Public Utilities Commission (Application No. AO4-02-026) – December 2004 and January 2005
Southern California Edison's proposed replacement of the steam generators at the San Onofre Unit 2 and Unit 3 nuclear power plants and whether the utility was imprudent for failing to initiate litigation against Combustion Engineering due to defects in the design of and materials used in those steam generators.

United States District Court for the Southern District of Indiana, Indianapolis Division (Civil Action No. IP99-1693) – December 2004
Whether the public release of company documents more than three years old would cause competitive harm to the Cinergy Corporation. [Confidential Expert Report]

California Public Utilities Commission (Application No. AO4-01-009) – August 2004
Pacific Gas & Electric's proposed replacement of the steam generators at the Diablo Canyon nuclear power plant and whether the utility was imprudent for failing to initiate litigation against Westinghouse due to defects in the design of and materials used in those steam generators.

Public Service Commission of Wisconsin (Docket No. 6690-CE-187) – June, July and August 2004
Whether Wisconsin Public Service Corporation's request for approval to build a proposed 515 MW coal-burning generating facility should be granted.

Public Service Commission of Wisconsin (Docket No. 05-EI-136) – May and June 2004
Whether the proposed sale of the Kewaunee Nuclear Power Plant to a subsidiary of an out-of-state holding company is in the public interest.

Connecticut Siting Council (Docket No. 272) – May 2004
Whether there are technically viable alternatives to the proposed 345-kV transmission line between Middletown and Norwalk Connecticut and the length of the line that can be installed underground.

Arizona Corporation Commission (Docket No. E-01345A-03-0437 – February 2004
Whether Arizona Public Service Company should be allowed to acquire and include in rate base five generating units that were built by a deregulated affiliate.

State of Rhode Island Energy Facilities Siting Board (Docket No. SB-2003-1) – February 2004
Whether the cost of undergrounding a relocated 115kV transmission line would be eligible for regional cost socialization.

State of Maine Department of Environmental Protection (Docket No. A-82-75-0-X) – December 2003
The storage of irradiated nuclear fuel in an Independent Spent Fuel Storage Installation (ISFSI) and whether such an installation represents an air pollution control facility.

Rhode Island Public Utility Commission (Docket No. 3564) – December 2003 and January 2004
Whether Narragansett Electric Company should be required to install a relocated 115kV transmission line underground.

New York State Board on Electric Generation Siting and the Environment (Case No. 01-F-1276) – September, October and November 2003
The environmental, economic and system reliability benefits that can reasonably be expected from the proposed 1,100 MW TransGas Energy generating facility in Brooklyn, New York.

Wisconsin Public Service Commission (Case 6690-UR-115209) - September and October 2003
The reasonableness of Wisconsin Public Service Corporation's decommissioning cost collections for the Kewaunee Nuclear Plant.

Oklahoma Corporation Commission (Cause No. 2003-121) – July 2003
Whether Empire District Electric Company properly reduced its capital costs to reflect the write-off of a portion of the cost of building a new electric generating facility.

Arkansas Public Service Commission (Docket 02-248-U) – May 2003
Entergy's proposed replacement of the steam generators and the reactor vessel head at the ANO Unit 1 Steam Generating Station.

Appellate Tax Board, State of Massachusetts (Docket No C258405-406) – May 2003
The physical nature of electricity and whether electricity is a tangible product or a service.

Maine Public Utilities Commission (Docket 2002-665-U) – April 2003
Analysis of Central Maine Power Company's proposed transmission line for Southern York County and recommendation of alternatives.

Massachusetts Legislature, Joint Committees on Government Regulations and Energy – March 2003
Whether PG&E can decide to permanently retire one or more of the generating units at its Salem Harbor Station if it is not granted an extension beyond October 2004 to reduce the emissions from the Station's three coal-fired units and one oil-fired unit.

New Jersey Board of Public Utilities (Docket No. ER02080614) – January 2003
The prudence of Rockland Electric Company's power purchases during the period August 1, 1999 through July 31, 2002.

New York State Board on Electric Generation Siting and the Environment (Case No. 00-F-1356) – September and October 2002 and January 2003
The need for and the environmental benefits from the proposed 300 MW Kings Park Energy generating facility.

Arizona Corporation Commission (Docket No. E-01345A-01-0822) – March 2002
The reasonableness of Arizona Public Service Company's proposed long-term power purchase agreement with an affiliated company.

New York State Board on Electric Generation Siting and the Environment (Case No. 99-F-1627) – March 2002
Repowering NYPA's existing Poletti Station in Queens, New York.

Connecticut Siting Council (Docket No. 217) – March 2002, November 2002, and January 2003
Whether the proposed 345-kV transmission line between Plumtree and Norwalk substations in Southwestern Connecticut is needed and will produce public benefits.

Vermont Public Service Board (Case No. 6545) – January 2002
Whether the proposed sale of the Vermont Yankee Nuclear Plant to Entergy is in the public interest of the State of Vermont and Vermont ratepayers.

Connecticut Department of Public Utility Control (Docket 99-09-12RE02) – December 2001
The reasonableness of adjustments that Connecticut Light and Power Company seeks to make to the proceeds that it received from the sale of Millstone Nuclear Power Station.

Connecticut Siting Council (Docket No. 208) – October 2001
Whether the proposed cross-sound cable between Connecticut and Long Island is needed and will produce public benefits for Connecticut consumers.

New Jersey Board of Public Utilities (Docket No. EM01050308) - September 2001
The market power implications of the proposed merger between Conectiv and Pepco.

Illinois Commerce Commission Docket No. 01-0423 – August, September, and October 2001
Commonwealth Edison Company's management of its distribution and transmission systems.

New York State Board on Electric Generation Siting and the Environment (Case No. 99-F-1627) - August and September 2001

The environmental benefits from the proposed 500 MW NYPA Astoria generating facility.

New York State Board on Electric Generation Siting and the Environment (Case No. 99-F-1191) - June 2001
The environmental benefits from the proposed 1,000 MW Astoria Energy generating facility.

New Jersey Board of Public Utilities (Docket No. EM00110870) - May 2001
The market power implications of the proposed merger between FirstEnergy and GPU Energy.

Connecticut Department of Public Utility Control (Docket 99-09-12RE01) - November 2000
The proposed sale of Millstone Nuclear Station to Dominion Nuclear, Inc.

Illinois Commerce Commission (Docket 00-0361) - August 2000
The impact of nuclear power plant life extensions on Commonwealth Edison Company's decommissioning costs and collections from ratepayers.

Vermont Public Service Board (Docket 6300) - April 2000
Whether the proposed sale of the Vermont Yankee nuclear plant to AmerGen Vermont is in the public interest.

Massachusetts Department of Telecommunications and Energy (Docket 99-107, Phase II) - April and June 2000
The causes of the May 18, 1999, main transformer fire at the Pilgrim generating station.

Connecticut Department of Public Utility Control (Docket 00-01-11) - March and April 2000
The impact of the proposed merger between Northeast Utilities and Con Edison, Inc. on the reliability of the electric service being provided to Connecticut ratepayers.

Connecticut Department of Public Utility Control (Docket 99-09-12) - January 2000
The reasonableness of Northeast Utilities plan for auctioning the Millstone Nuclear Station.

Connecticut Department of Public Utility Control (Docket 99-08-01) - November 1999
Generation, Transmission, and Distribution system reliability.

Illinois Commerce Commission (Docket 99-0115) - September 1999
Commonwealth Edison Company's decommissioning cost estimate for the Zion Nuclear Station.

Connecticut Department of Public Utility Control (Docket 99-03-36) - July 1999
Standard offer rates for Connecticut Light & Power Company.

Connecticut Department of Public Utility Control (Docket 99-03-35) - July 1999
Standard offer rates for United Illuminating Company.

Connecticut Department of Public Utility Control (Docket 99-02-05) - April 1999
Connecticut Light & Power Company stranded costs.

Connecticut Department of Public Utility Control (Docket 99-03-04) - April 1999
United Illuminating Company stranded costs.

Maryland Public Service Commission (Docket 8795) - December 1998
Future operating performance of Delmarva Power Company's nuclear units.

Maryland Public Service Commission (Dockets 8794/8804) - December 1998
Baltimore Gas and Electric Company's proposed replacement of the steam generators at the Calvert Cliffs Nuclear Power Plant. Future performance of nuclear units.

Indiana Utility Regulatory Commission (Docket 38702-FAC-40-S1) - November 1998
Whether the ongoing outages of the two units at the D.C. Cook Nuclear Plant were caused or extended by mismanagement.

Arkansas Public Service Commission (Docket 98-065-U) - October 1998
Entergy's proposed replacement of the steam generators at the ANO Unit 2 Steam Generating Station.

Massachusetts Department of Telecommunications and Energy (Docket 97-120) - October 1998
Western Massachusetts Electric Company's Transition Charge. Whether the extended 1996-1998 outages of the three units at the Millstone Nuclear Station were caused or extended by mismanagement.

Connecticut Department of Public Utility Control (Docket 98-01-02) - September 1998
Nuclear plant operations, operating and capital costs, and system reliability improvement costs.

Illinois Commerce Commission (Docket 97-0015) - May 1998
Whether any of the outages of Commonwealth Edison Company's twelve nuclear units during 1996 were caused or extended by mismanagement. Whether equipment problems, personnel performance weaknesses, and program deficiencies could have been avoided or addressed prior to plant outages. Outage-related fuel and replacement power costs.

Public Service Commission of West Virginia (Case 97-1329-E-CN) - March 1998
The need for a proposed 765 kV transmission line from Wyoming, West Virginia, to Cloverdate, Virginia.

Illinois Commerce Commission (Docket 97-0018) - March 1998
Whether any of the outages of the Clinton Power Station during 1996 were caused or extended by mismanagement.

Connecticut Department of Public Utility Control (Docket 97-05-12) - October 1997
The increased costs resulting from the ongoing outages of the three units at the Millstone Nuclear Station.

New Jersey Board of Public Utilities (Docket ER96030257) - August 1996
Replacement power costs during plant outages.

Illinois Commerce Commission (Docket 95-0119) - February 1996
Whether any of the outages of Commonwealth Edison Company's twelve nuclear units during 1994 were caused or extended by mismanagement. Whether equipment problems, personnel performance weaknesses, and program deficiencies could have been avoided or addressed prior to plant outages. Outage-related fuel and replacement power costs.

Public Utility Commission of Texas (Docket 13170) - December 1994
Whether any of the outages of the River Bend Nuclear Station during the period October 1, 1991, through December 31, 1993, were caused or extended by mismanagement.

Public Utility Commission of Texas (Docket 12820) - October 1994
Operations and maintenance expenses during outages of the South Texas Nuclear Generating Station.

Wisconsin Public Service Commission (Cases 6630-CE-197 and 6630-CE-209) - September and October 1994
The reasonableness of the projected cost and schedule for the replacement of the steam generators at the Point Beach Nuclear Power Plant. The potential impact of plant aging on future operating costs and performance.

Public Utility Commission of Texas (Docket 12700) - June 1994
Whether El Paso Electric Company's share of Palo Verde Unit 3 was needed to ensure adequate levels of system reliability. Whether the Company's investment in Unit 3 could be expected to generate cost savings for ratepayers within a reasonable number of years.

Arizona Corporation Commission (Docket U-1551-93-272) - May and June 1994
Southwest Gas Corporation's plastic and steel pipe repair and replacement programs.

Connecticut Department of Public Utility Control (Docket 92-04-15) - March 1994
Northeast Utilities management of the 1992/1993 replacement of the steam generators at Millstone Unit 2.

Connecticut Department of Public Utility Control (Docket 92-10-03) - August 1993
Whether the 1991 outage of Millstone Unit 3 as a result of the corrosion of safety-related plant piping systems was due to mismanagement.

Public Utility Commission of Texas (Docket 11735) - April and July 1993
Whether any of the outages of the Comanche Peak Unit 1 Nuclear Station during the period August 13, 1990, through June 30, 1992, were caused or extended by mismanagement.

Connecticut Department of Public Utility Control (Docket 91-12-07) - January 1993 and August 1995
Whether the November 6, 1991, pipe rupture at Millstone Unit 2 and the related outages of the Connecticut Yankee and Millstone units were caused or extended by mismanagement. The impact of environmental requirements on power plant design and operation.

Connecticut Department of Public Utility Control (Docket 92-06-05) - September 1992
United Illuminating Company off-system capacity sales. [Confidential Testimony]

Public Utility Commission of Texas (Docket 10894) - August 1992
Whether any of the outages of the River Bend Nuclear Station during the period October 1, 1988, through September 30, 1991, were caused or extended by mismanagement.

Connecticut Department of Public Utility Control (Docket 92-01-05) - August 1992
Whether the July 1991 outage of Millstone Unit 3 due to the fouling of important plant systems by blue mussels was the result of mismanagement.

California Public Utilities Commission (Docket 90-12-018) - November 1991, April 1992, June and July 1993
Whether any of the outages of the three units at the Palo Verde Nuclear Generating Station during 1989 and 1990 were caused or extended by mismanagement. Whether equipment problems, personnel performance weaknesses and program deficiencies could have been avoided or addressed prior to outages. Whether specific plant operating cost and capital expenditures were necessary and prudent.

Public Utility Commission of Texas (Docket 9945) - June 1991
Whether El Paso Electric Company's share of Palo Verde Unit 3 was needed to ensure adequate levels of system reliability. Whether the Company's investment in the unit could be expected to generate cost savings for ratepayers within a reasonable number of years. El Paso Electric Company's management of the planning and licensing of the Arizona Interconnection Project transmission line.

Arizona Corporation Commission (Docket U-1345-90-007) - December 1990 and April 1991
Arizona Public Service Company's management of the planning, construction and operation of the Palo Verde Nuclear Generating Station. The costs resulting from identified instances of mismanagement.

New Jersey Board of Public Utilities (Docket ER89110912J) - July and October 1990
The economic costs and benefits of the early retirement of the Oyster Creek Nuclear Plant. The potential impact of the unit's early retirement on system reliability. The cost and schedule for siting and constructing a replacement natural gas-fired generating plant.

Public Utility Commission of Texas (Docket 9300) - June and July 1990
Texas Utilities management of the design and construction of the Comanche Peak Nuclear Plant. Whether the Company was prudent in repurchasing minority owners' shares of Comanche Peak without examining the costs and benefits of the repurchase for its ratepayers.

Federal Energy Regulatory Commission (Docket EL-88-5-000) - November 1989
Boston Edison's corporate management of the Pilgrim Nuclear Station.

Connecticut Department of Public Utility Control (Docket 89-08-11) - November 1989
United Illuminating Company's off-system capacity sales.

Kansas State Corporation Commission (Case 164,211-U) - April 1989
Whether any of the 127 days of outages of the Wolf Creek generating plant during 1987 and 1988 were the result of mismanagement.

Public Utility Commission of Texas (Docket 8425) - March 1989
Whether Houston Lighting & Power Company's new Limestone Unit 2 generating facility was needed to provide adequate levels of system reliability. Whether the Company's investment in Limestone Unit 2 would provide a net economic benefit for ratepayers.

Illinois Commerce Commission (Dockets 83-0537 and 84-0555) - July 1985 and January 1989
Commonwealth Edison Company's management of quality assurance and quality control activities and the actions of project contractors during construction of the Byron Nuclear Station.

New Mexico Public Service Commission (Case 2146, Part II) - October 1988
The rate consequences of Public Service Company of New Mexico's ownership of Palo Verde Units 1 and 2.

United States District Court for the Eastern District of New York (Case 87-646-JBW) - October 1988
Whether the Long Island Lighting Company withheld important information from the New York State Public Service Commission, the New York State Board on Electric Generating Siting and the Environment, and the U.S. Nuclear Regulatory Commission.

Public Utility Commission of Texas (Docket 6668) - August 1988 and June 1989
Houston Light & Power Company's management of the design and construction of the South Texas Nuclear Project. The impact of safety-related and environmental requirements on plant construction costs and schedule.

Federal Energy Regulatory Commission (Docket ER88-202-000) - June 1988
Whether the turbine generator vibration problems that extended the 1987 outage of the Maine Yankee nuclear plant were caused by mismanagement.

Illinois Commerce Commission (Docket 87-0695) - April 1988
Illinois Power Company's planning for the Clinton Nuclear Station.

North Carolina Utilities Commission (Docket E-2, Sub 537) - February 1988
Carolina Power & Light Company's management of the design and construction of the Harris Nuclear Project. The Company's management of quality assurance and quality control activities. The impact of safety-related and environmental requirements on construction costs and schedule. The cost and schedule consequences of identified instances of mismanagement.

Ohio Public Utilities Commission (Case 87-689-EL-AIR) - October 1987
Whether any of Ohio Edison's share of the Perry Unit 2 generating facility was needed to ensure adequate levels of system reliability. Whether the Company's investment in Perry Unit 1 would produce a net economic benefit for ratepayers.

North Carolina Utilities Commission (Docket E-2, Sub 526) - May 1987
Fuel factor calculations.

New York State Public Service Commission (Case 29484) - May 1987
The planned startup and power ascension testing program for the Nine Mile Point Unit 2 generating facility.

Illinois Commerce Commission (Dockets 86-0043 and 86-0096) - April 1987
The reasonableness of certain terms in a proposed Power Supply Agreement.

Illinois Commerce Commission (Docket 86-0405) - March 1987
The in-service criteria to be used to determine when a new generating facility was capable of providing safe, adequate, reliable and efficient service.

Indiana Public Service Commission (Case 38045) - November 1986
Northern Indiana Public Service Company's planning for the Schaefer Unit 18 generating facility. Whether the capacity from Unit 18 was needed to ensure adequate system reliability. The rate consequences of excess capacity on the Company's system.

Superior Court in Rockingham County, New Hampshire (Case 86E328) - July 1986
The radiation effects of low power testing on the structures, equipment and components in a new nuclear power plant.

New York State Public Service Commission (Case 28124) - April 1986 and May 1987
The terms and provisions in a utility's contract with an equipment supplier. The prudence of the utility's planning for a new generating facility. Expenditures on a canceled generating facility.

Arizona Corporation Commission (Docket U-1345-85) - February 1986
The construction schedule for Palo Verde Unit No. 1. Regulatory and technical factors that would likely affect future plant operating costs.

New York State Public Service Commission (Case 29124) – December 1985 and January 1986
Niagara Mohawk Power Corporation's management of construction of the Nine Mile Point Unit No. 2 nuclear power plant.

New York State Public Service Commission (Case 28252) - October 1985
A performance standard for the Shoreham nuclear power plant.

New York State Public Service Commission (Case 29069) - August 1985
A performance standard for the Nine Mile Point Unit No. 2 nuclear power plant.

Missouri Public Service Commission (Cases ER-85-128 and EO-85-185) - July 1985
The impact of safety-related regulatory requirements and plant aging on power plant operating costs and performance. Regulatory factors and plant-specific design features that will likely affect the future operating costs and performance of the Wolf Creek Nuclear Plant.

Massachusetts Department of Public Utilities (Case 84-152) - January 1985
The impact of safety-related regulatory requirements and plant aging on power plant operating costs and performance. Regulatory factors and plant-specific design features that will likely affect the future operating costs and performance of the Seabrook Nuclear Plant.

Maine Public Utilities Commission (Docket 84-113) - September 1984
The impact of safety-related regulatory requirements and plant aging on power plant operating costs and performance. Regulatory factors and plant-specific design features that will likely affect the future operating costs and performance of the Seabrook Nuclear Plant.

South Carolina Public Service Commission (Case 84-122-E) - August 1984
The repair and replacement strategy adopted by Carolina Power & Light Company in response to pipe cracking at the Brunswick Nuclear Station. Quantification of replacement power costs attributable to identified instances of mismanagement.

Vermont Public Service Board (Case 4865) - May 1984
The repair and replacement strategy adopted by management in response to pipe cracking at the Vermont Yankee nuclear plant.

New York State Public Service Commission (Case 28347) -January 1984
The information that was available to Niagara Mohawk Power Corporation prior to 1982 concerning the potential for cracking in safety-related piping systems at the Nine Mile Point Unit No. 1 nuclear plant.

New York State Public Service Commission (Case 28166) - February 1983 and February 1984
Whether the January 25, 1982, steam generator tube rupture at the Ginna Nuclear Plant was caused by mismanagement.

U.S. Nuclear Regulatory Commission (Case 50-247SP) - May 1983
The economic costs and benefits of the early retirement of the Indian Point nuclear plants.

REPORTS, ARTICLES, AND PRESENTATIONS

The Risks of Building New Nuclear Power Plants, Presentation to the New York Society of Securities Analysts, June 8, 2006.

Conservation and Renewable Energy Should be the Cornerstone for Meeting Future Natural Gas Needs. Presentation to the Global LNG Summit, June 1, 2004. Presentation given by Cliff Chen.

Comments on natural gas utilities' Phase I Proposals for pre-approved full cost recovery of contracts with liquid natural gas (LNG) suppliers and the costs of interconnecting their systems with LNG facilities. Comments in California Public Utilities Commission Rulemaking 04-01-025. March 23, 2004.

The 2003 Blackout: Solutions that Won't Cost a Fortune, The Electricity Journal, November 2003, with David White, Amy Roschelle, Paul Peterson, Bruce Biewald, and William Steinhurst.

The Impact of Converting the Cooling Systems at Indian Point Units 2 and 3 on Electric System Reliability. An Analysis for Riverkeeper, Inc. November 3, 2003.

The Impact of Converting Indian Point Units 2 and 3 to Closed-Cycle Cooling Systems with Cooling Towers on Energy's Likely Future Earnings. An Analysis for Riverkeeper, Inc. November 3, 2003.

Entergy's Lost Revenues During Outages of Indian Point Units 2 and 3 to Convert to Closed-Cycle Cooling Systems. An Analysis for Riverkeeper, Inc. November 3, 2003.

Power Plant Repowering as a Strategy for Reducing Water Consumption at Existing Electric Generating Facilities. A presentation at the May 2003 Symposium on Cooling Water Intake Technologies to Protect Aquatic Organisms. May 6, 2003.

Financial Insecurity: The Increasing Use of Limited Liability Companies and Multi-tiered Holding Companies to Own Electric Generating Plants. A presentation at the 2002 NASUCA Annual Meeting. November 12, 2002.

Determining the Need for Proposed Overhead Transmission Facilities. A Presentation by David Schlissel and Paul Peterson to the Task Force and Working Group for Connecticut Public Act 02-95. October 17, 2002.

Future PG&E Net Revenues From The Sale of Electricity Generated at its Brayton Point Station. An Analysis for the Attorney General of the State of Rhode Island. October 2, 2002.

PG&E's Net Revenues From The Sale of Electricity Generated at its Brayton Point Station During the Years 1999-2002. An Analysis for the Attorney General of the State of Rhode Island. October 2, 2002.

Financial Insecurity: The Increasing Use of Limited Liability Companies and Multi-Tiered Holding Companies to Own Nuclear Power Plants. A Synapse report for the STAR Foundation and Riverkeeper, Inc., by David Schlissel, Paul Peterson, and Bruce Biewald, August 7, 2002.

Comments on EPA's Proposed Clean Water Act Section 316(b) for Cooling Water Intake Structures at Phase II Existing Facilities, on behalf of Riverkeeper, Inc., by David Schlissel and Geoffrey Keith, August 2002.

The Impact of Retiring the Indian Point Nuclear Power Station on Electric System Reliability. A Synapse Report for Riverkeeper, Inc. and Pace Law School Energy Project. May 7, 2002.

Preliminary Assessment of the Need for the Proposed Plumtree-Norwalk 345-kV Transmission Line. A Synapse Report for the Towns of Bethel, Redding, Weston, and Wilton Connecticut. October 15, 2001.

ISO New England's Generating Unit Availability Study: Where's the Beef? A Presentation at the June 29, 2001 Restructuring Roundtable.

Clean Air and Reliable Power: Connecticut Legislative House Bill HB6365 will not Jeopardize Electric System Reliability. A Synapse Report for the Clean Air Task Force. May 2001.

Room to Breathe: Why the Massachusetts Department of Environmental Protection's Proposed Air Regulations are Compatible with Reliability. A Synapse Report for MASSPIRG and the Clean Water Fund. March 2001.

Generator Outage Increases: A Preliminary Analysis of Outage Trends in the New England Electricity Market, a Synapse Report for the Union of Concerned Scientists, January 7, 2001.

Cost, Grid Reliability Concerns on the Rise Amid Restructuring, with Charlie Harak, Boston Business Journal, August 18-24, 2000.

Report on Indian Point 2 Steam Generator Issues, Schlissel Technical Consulting, Inc., March 10, 2000.

Preliminary Expert Report in Case 96-016613, Cities of Wharton, Pasadena, et al v. Houston Lighting & Power Company, October 28, 1999.

Comments of Schlissel Technical Consulting, Inc. on the Nuclear Regulatory Commission's Draft Policy Statement on Electric Industry Economic Deregulation, February 1997.

Report to the Municipal Electric Utility Association of New York State on the Cost of Decommissioning the Fitzpatrick Nuclear Plant, August 1996.

Report to the Staff of the Arizona Corporation Commission on U.S. West Corporation's telephone cable repair and replacement programs, May, 1996.

Nuclear Power in the Competitive Environment, NRRI Quarterly Bulletin, Vol. 16, No. 3, Fall 1995.

Nuclear Power in the Competitive Environment, presentation at the 18th National Conference of Regulatory Attorneys, Scottsdale, Arizona, May 17, 1995.

The Potential Safety Consequences of Steam Generator Tube Cracking at the Byron and Braidwood Nuclear Stations, a report for the Environmental Law and Policy Center of the Midwest, 1995.

Report to the Public Policy Group Concerning Future Trojan Nuclear Plant Operating Performance and Costs, July 15, 1992.

Report to the New York State Consumer Protection Board on the Costs of the 1991 Refueling Outage of Indian Point 2, December 1991.

Preliminary Report on Excess Capacity Issues to the Public Utility Regulation Board of the City of El Paso, Texas, April 1991.

Nuclear Power Plant Construction Costs, presentation at the November, 1987, Conference of the National Association of State Utility Consumer Advocates.

Comments on the Final Report of the National Electric Reliability Study, a report for the New York State Consumer Protection Board, February 27, 1981.

OTHER SIGNIFICANT INVESTIGATIONS AND LITIGATION SUPPORT WORK

Reviewed the salt deposition mitigation strategy proposed for Reliant Energy's repowering of its Astoria Generating Station. October 2002 through February 2003.

Assisted the Connecticut Office of Consumer Counsel in reviewing the auction of Connecticut Light & Power Company's power purchase agreements. August and September, 2000.

Assisted the New Jersey Division of the Ratepayer Advocate in evaluating the reasonableness of Atlantic City Electric Company's proposed sale of its fossil generating facilities. June and July, 2000.

Investigated whether the 1996-1998 outages of the three Millstone Nuclear Units were caused or extended by mismanagement. 1997 and 1998. Clients were the Connecticut Office of Consumer Counsel and the Office of the Attorney General of the Commonwealth of Massachusetts.

Investigated whether the 1995-1997 outages of the two units at the Salem Nuclear Station were caused or extended by mismanagement. 1996-1997. Client was the New Jersey Division of the Ratepayer Advocate.

Assisted the Associated Industries of Massachusetts in quantifying the stranded costs associated with utility generating plants in the New England states. May through July, 1996

Investigated whether the December 25, 1993, turbine generator failure and fire at the Fermi 2 generating plant was caused by Detroit Edison Company's mismanagement of fabrication, operation or maintenance. 1995. Client was the Attorney General of the State of Michigan.

Investigated whether the outages of the two units at the South Texas Nuclear Generating Station during the years 1990 through 1994 were caused or extended by mismanagement. Client was the Texas Office of Public Utility Counsel.

Assisted the City Public Service Board of San Antonio, Texas in litigation over Houston Lighting & Power Company's management of operations of the South Texas Nuclear Generating Station.

Investigated whether outages of the Millstone nuclear units during the years 1991 through 1994 were caused or extended by mismanagement. Client was the Office of the Attorney General of the Commonwealth of Massachusetts.

Evaluated the 1994 Decommissioning Cost Estimate for the Maine Yankee Nuclear Plant. Client was the Public Advocate of the State of Maine.

Evaluated the 1994 Decommissioning Cost Estimate for the Seabrook Nuclear Plant. Clients were investment firms that were evaluating whether to purchase the Great Bay Power Company, one of Seabrook's minority owners.

Investigated whether a proposed natural-gas fired generating facility was need to ensure adequate levels of system reliability. Examined the potential impacts of environmental regulations on the unit's expected construction cost and schedule. 1992. Client was the New Jersey Rate Counsel.

Investigated whether Public Service Company of New Mexico management had adequately disclosed to potential investors the risk that it would be unable to market its excess generating capacity. Clients were individual shareholders of Public Service Company of New Mexico.

Investigated whether the Seabrook Nuclear Plant was prudently designed and constructed. 1989. Clients were the Connecticut Office of Consumer Counsel and the Attorney General of the State of Connecticut.

Investigated whether Carolina Power & Light Company had prudently managed the design and construction of the Harris nuclear plant. 1988-1989. Clients were the North Carolina Electric Municipal Power Agency and the City of Fayetteville, North Carolina.

Investigated whether the Grand Gulf nuclear plant had been prudently designed and constructed. 1988. Client was the Arkansas Public Service Commission.

Reviewed the financial incentive program proposed by the New York State Public Service Commission to improve nuclear power plant safety. 1987. Client was the New York State Consumer Protection Board.

Reviewed the construction cost and schedule of the Hope Creek Nuclear Generating Station. 1986-1987. Client was the New Jersey Rate Counsel.

Reviewed the operating performance of the Fort St. Vrain Nuclear Plant. 1985. Client was the Colorado Office of Consumer Counsel.

WORK HISTORY

2000 - Present: Senior Consultant, Synapse Energy Economics, Inc.

1994 - 2000: President, Schlissel Technical Consulting, Inc.

1983 - 1994: Director, Schlissel Engineering Associates

1979 - 1983: Private Legal and Consulting Practice

1975 - 1979: Attorney, New York State Consumer Protection Board

1973 - 1975: Staff Attorney, Georgia Power Project

EDUCATION

1983-1985: Massachusetts Institute of Technology
Special Graduate Student in Nuclear Engineering and Project Management,

1973: Stanford Law School,
Juris Doctor

1969: Stanford University
Master of Science in Astronautical Engineering,

1968: Massachusetts Institute of Technology
Bachelor of Science in Astronautical Engineering,

PROFESSIONAL MEMBERSHIPS

- New York State Bar since 1981
- American Nuclear Society
- National Association of Corrosion Engineers
- National Academy of Forensic Engineers (Correspondent Affiliate)