BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Application of Pacific Gas and Electric Company to Recover the Costs Associated With Renewal of the Diablo Canyon Power Plant Operating Licenses	**)**	**Application No. 10-01-022**

DIRECT TESTIMONY
OF DAVID A. SCHLISSEL
SCHLISSEL TECHNICAL CONSULTING, INC.

On Behalf of
The Utility Reform Network

August 18, 2010

Summary and Conclusion

Relicensing of the two Diablo Canyon nuclear units will provide economic benefits for ratepayers if PG&E's assumptions about the units' future costs and operating performance and the costs of alternatives are correct. However, it appears that PG&E has overstated these benefits through the use of very optimistic assumptions about Diablo Canyon's future operating performance and costs. In fact, it is not unreasonable to posit that there are a number of circumstances in which the costs to ratepayers of relicensing Diablo Canyon would exceed the benefits. In particular:

- Although a significant number of nuclear units in the U.S. have had their operating licenses renewed by the NRC for an additional twenty years, no unit has operated for longer than 41 years. Thus, it is not known how well nuclear plants actually will operate and what their costs will be as they age beyond that point.

- PG&E has not included any costs to address the California State Water Resources Control Board's May 4, 2010 *Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling* which may require the Company to make expensive investments to convert Diablo Canyon from once-through cooling to a closed cycle cooling system with towers or to install additional earthquake-related upgrades.

- PG&E has included some relatively minor expenditures for earthquake related upgrades but does not assume any additional costs from the three year seismic studies that the California Energy Commission has recommended.

- One or both of the units at Diablo Canyon may operate more poorly than PG&E now assumes or may have higher O&M, capital or fuel costs. One or both of the units may not operate through the entire twenty year license renewal period.

- The nuclear industry has a history of experiencing unpleasant surprises that require expensive expenditures to repair or replace major plant components. It is not unreasonable to expect that additional 'unpleasant surprises' may be encountered as systems, structures and components at Diablo Canyon age. However, PG&E has assumed that its capital investments in Diablo Canyon

would go down, in constant dollars, if the plant is relicensed. Nuclear fuel costs may be higher than PG&E now assumes.

Indeed, PG&E's November 2009 *Major Project Business Case - Diablo Canyon Power Plant – License Renewal Application* has acknowledged that "increase future operating or capital costs, for instance expenditures to address Once-Through-Cooling issues, may make continued operations of [Diablo Canyon Power Plant] not cost effective."[1]

PG&E's shareholders will benefit from the renewal of Diablo Canyon's operating life – indeed, shareholders would benefit from some of the investments that would increase the costs to ratepayers. Consequently, the risks of future Diablo Canyon operating performance and costs should be shared between shareholders and ratepayers. Ratepayers should not have to bear all of the risk that the Company's current long-term plant performance and cost projections turn out to have been overly optimistic.

Nuclear Power Plant Operating Experience

As indicated in Exhibit DAS-2, the U.S. Nuclear Regulatory Commission ("NRC") has granted extended operating licenses for 59 nuclear units. However, as shown in Exhibit DAS-3, the oldest nuclear units for which extended operating licenses have been granted were Nine Mile Point Unit 1 and Oyster Creek Unit 1, both of which began commercial operations on December 1, 1969 – or only 40 years and eight months ago. Consequently, there is no actual operating experience for any nuclear power plant that is even a full 41 years old.

PG&E has said that it understands that there are four nuclear generating stations currently operating in their [license] renewal periods and that each of these four units is operating at a capacity factor greater than 90 percent.[2] This statement is misleading. The four nuclear generating units that are currently operating in their license renewal periods began operations as follows:

- Nine Mile Point 1 – December 1, 1969
- Oyster Creek – December 1, 1969

[1] Attachment No. 2 to PG&E's response to DR_TURN_004-Q03, at page 4.

[2] PG&E response to DR_TURN_009-Q03.

- Dresden 2 – June 9, 1970
- Ginna – July 1, 1970.[3]

Consequently, each of these units is barely into its license renewal period. As noted above, Nine Mile Point 1 and Oyster Creek had the earliest commercial operation dates and those were barely 40 years and 8 months ago.

The absence of any meaningful operating experience past the age of 40 years is significant because many nuclear power plants have suffered unpleasant and expensive surprises from problems that have arisen during their operations or the operations of other power plants with similar designs and vintages. Such unanticipated problems have included steam generator tube corrosion and reactor vessel head cracking in pressurized water reactors, ("PWR") like Diablo Canyon, and large diameter pipe cracking in boiling water reactors. ("BWR")

These problems were not expected when the current generation of nuclear power plants were designed and built. Instead, they were identified through actual plant operating experience. For example, reactor head vessel cracking was not identified as a serious problem in PWRs until 2002, by which time Diablo Canyon had been operating for approximately seventeen years.

Unanticipated problems like steam generator corrosion and reactor vessel head cracking have led to expensive repairs and replacements and extended outages at many PWRs, including Diablo Canyon and SONGS. It is reasonable to expect that other unpleasant surprises may be identified as nuclear power plants operate through their twenty year license renewal periods.

Although PG&E's assumptions that Diablo Canyon Units 1 and 2 will continue to operate at high capacity factors and with its assumed O&M costs and capital expenditures through a twenty year license renewal period may turn out to be correct, there is no evidence from other nuclear plants to support these assumptions.[4] For this reason, PG&E

[3] See Exhibit DAS-3.

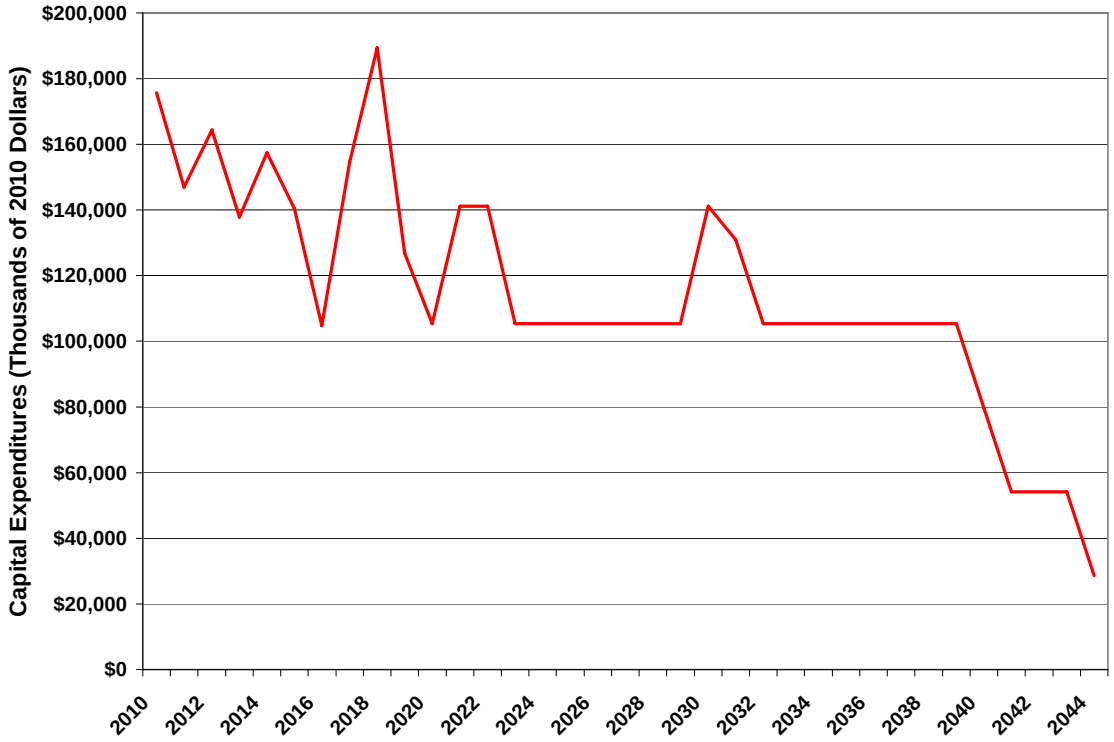
[4] PG&E also was unable to provide any information that it has received as a member of STARS concerning the actual or projected operating costs and operating performance during all or part of

should have considered a wider range of future plant capacity factors than the 85% to 90% range it assumed for its economic studies. A range of 60 percent to 90 percent would have been reasonable and would have allowed for some decrease in plant operations as the Diablo Canyon units age. The Company also could have examined scenarios in which the capacity factors of the Diablo Canyon units start relatively high and then decrease over time. There is no guarantee that Diablo Canyon will continue to operate for the next 34 years at the average 90 percent annual capacity factors it has achieved in recent years or that, if its performance does decline, its annual capacity factors will not drop below the 85 percent end of the narrow range considered by PG&E.

Figure 1, below, presents in constant 2010 year dollars, the annual Diablo Canyon capital expenditures that PG&E assumes it will spend in the years 2010 through 2044 if the plant's NRC license is renewed. However, the $88 million that PG&E projects it will spend through 2014 to renew Diablo Canyon's NRC license have been excluded. As a result, Figure 1 shows the capital expenditures that PG&E is assuming for normal ongoing plant operations and maintenance work, for equipment replacements and upgrades and for the additional ISFSI capacity that the Company currently anticipates would be needed if Diablo Canyon were operated for an additional twenty years.

the twenty year license renewal period for other nuclear power plants. See PG&E's response to DR_TURN_002-Q05.

Figure 1: PG&E Projected Capital &M Expenditures (in 2010 Dollars)

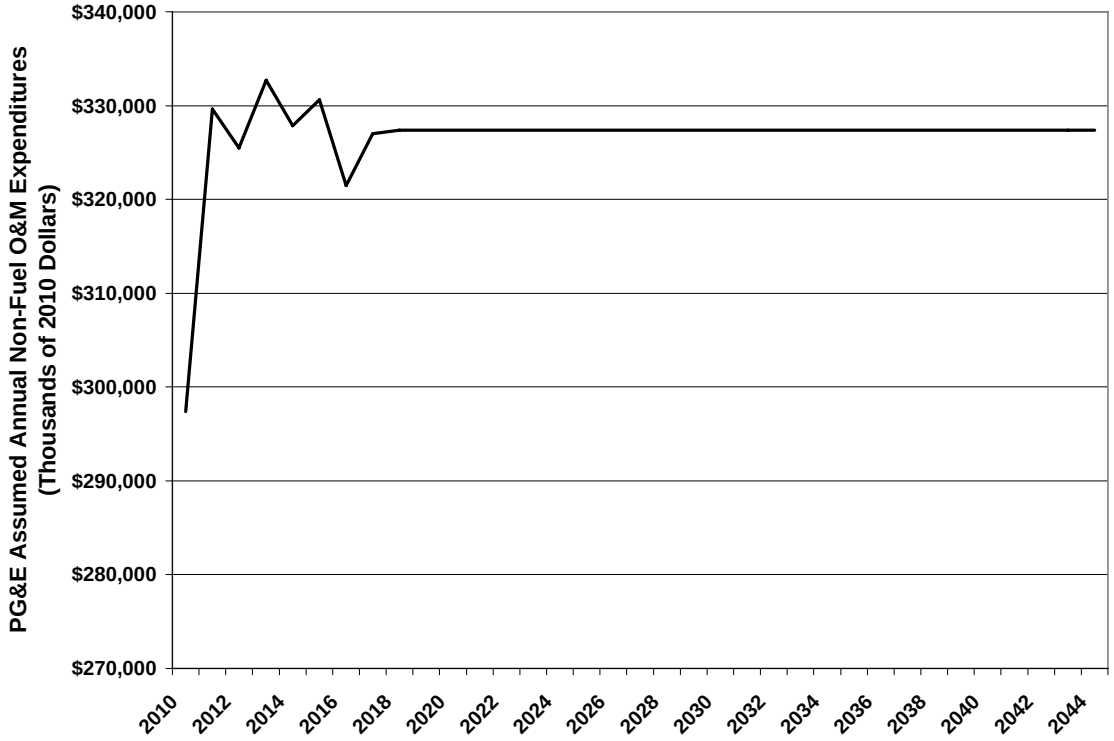


As can be seen, PG&E is projecting that, except for a very few years, it will be spending less, in constant 2010 dollars, on Diablo Canyon during any of part of the twenty year license renewal period than it is planning to spending between 2010 and 2016. For example, the Company projects that it will be spending significantly less in 2010 dollars in 2024 for 40 year units that it expects to operate for another twenty years than it would be spending in 2014 for 30 year old units that would expect to operate for only another ten years through 2024.

PG&E's capital projections for Diablo Canyon are contrary to the reasonable expectation that more (and, perhaps, significantly more) problems will be experienced as nuclear power plants age (requiring greater not few capital expenditures). As noted above, there is absolutely no actual nuclear operating or cost experience that can support PG&E's very optimistic assumption. It would have been more reasonable for PG&E to consider a range of possible capital expenditures in its economic analyses extending to ten to twenty percent above the expenditures it has assumed.

Figure 2, below, shows that PG&E assumed that its non-fuel O&M expenditures on Diablo Canyon would be flat after 2017, in constant dollars, and that the Company would only spend the same on non-fuel O&M in each year of the period 2018 through 2044 as it is planning to spend in 2014.

Figure 2: PG&E Projected Diablo Canyon Non-Fuel O&M Expenditures (in 2010 Dollars)



Again, this appears contrary to the common sense expectation that the Company will have to spend more, in constant year dollars, on non-fuel O&M in order to be able to continue to operate aging nuclear units at high levels of performance.

Given the lack of actual nuclear power plant operating experience during a twenty year license renewal period, PG&E should have considered a range of future O&M costs and capital expenditures instead of the single trajectories that it assumed in its economic analyses. For example, PG&E should have included scenarios where annual plant O&M costs increase at one percent or two percent (or more) above the rate of inflation instead of only assuming that O&M costs would be flat, in constant dollars, through the entire 27 year period, 2017 through 2044.

Conversion to Closed Cycle Cooling

The California State Water Resources Control Board (SWRCB) voted on May 4, 2010 to adopt the *Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling.* ("the Policy") This policy applies to 19 existing power plants including Diablo Canyon.

The SWRCB Policy provides two compliance alternatives – an owner or operator of an existing power plant must comply with either Track 1 or Track 2, as follows:

(1) Track 1. An owner or operator of an existing power plant must reduce *intake flow rate* at each unit, at a minimum, to a level commensurate with that which can be attained by a *closed-cycle wet cooling system*. A minimum 93 percent reduction in *intake flow rate* for each unit is required for Track 1 compliance, compared to the unit's design *intake flow rate*. The through-screen intake velocity must not exceed 0.5 foot per second. The installation of closed cycle dry cooling systems meets the intent and minimum reduction requirements of this compliance alternative.[5]

(2) Track 2. If an owner or operator of an *existing power plant* demonstrates to the State Water Board's satisfaction that compliance with Track 1 is *not feasible*, the owner or operator of an *existing power plant* must reduce impingement mortality and entrainment of marine life for the facility, on a unit-by-unit basis, to a comparable level to that which would be achieved under Track 1, using operation or structural controls, or both.

Although the *Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling* adopted by the SWRCB allows PG&E the opportunity to investigate alternative compliance options, it does not appear that this issue will be resolved at any time in the near future, given the following schedule set out in the May 4, 2010 *Policy*:

- Three months after the effective date of the Policy, the State Water Board Executive Director is to request PG&E and Southern California Edison to conduct

[5] SWRCB May 2010 *Statewide Water Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling*, May 4, 2010, Section 2.A., at page 4.

special studies to investigate compliance options for their nuclear-fueled power plants. According to the SWRCB May 4, 2010 *Policy*:

1. These special studies are to investigate alternatives for the nuclear-fueled power plants to meet the requirements of the Policy, including the costs for these alternatives.

2. The special studies shall be conducted by an independent third party with engineering experience with nuclear power plants, selected by the Executive Director of the State Water Board.

3. The special studies shall be overseen by a Review Committee established by the Policy.

4. No later than one year after the effective date of the *Policy*, the Review Committee shall provide a report for public committee detailing the scope of the special studies, including the degree to which existing, completed studies can be relied upon.

5. No later than three years after the effective date of the *Policy*, the Review Committee shall provide the final report and the Review Committee's comments for public comment detailed the results of the special studies and shall present the report to the State Water Board.

6. The meetings of the Review Committee shall be open to the public and shall be noticed at least 10 days in advance of the meeting. All products of the Review Committee shall be made available to the public.

7. The State Water Board shall consider the results of the special studies, and shall evaluate the need to modify this Policy with respect to the *nuclear-fueled power plants*. In evaluating the need to modify this Policy, the State Water Board shall base its decision to modify this Policy with respect to the *nuclear-fuel power plants* on the following factors:

(a) Costs of compliance in terms of total dollars and dollars per megawatt hour of electrical energy produced over an amortization period of 20 years;

(b) Ability to achieve compliance with Track 1 considering factors including, but not limited to, engineering constraints, space constraints, permitting constraints, and public safety considerations;

(c). Potential environmental impacts of compliance with Track 1, including, but not limited to air emissions.

8. If the State Water Board finds that for a specific *nuclear-fueled power plant* to implement Track 1, either (1) the costs are wholly out of proportion to the costs identified in Tetra Tech, Inc., California's Coastal Power Plants: Alternative Cooling System Analysis, February 2008 and considered by the State Water Board in establishing Track 1, or (2) that compliance is wholly unreasonable based on the factors in paragraphs 7(b) and (c), then the State Water Board shall establish alternate requirements for that *nuclear-fueled power plant*. The State Water Board shall establish alternative requirements no less stringent than justified by the wholly out of proportion (i) cost and (ii) factors of paragraph 7. The burden is on the person requesting the alternative requirement to demonstrate that alternative requirements should be authorized.

9. In the event the State Water Board establishes alternate requirements for *nuclear-fueled power plants,* the difference in impacts in marine life resulting from any alternative, less stringent requirements shall be fully mitigated. Mitigation required pursuant to this paragraph shall be a *mitigation project* directed toward the increase in marine life associated with the State's Marine Protected Areas in the geographic region of the facility. Funding for the *mitigation project* shall be provided to the

California Coastal Conservancy, working with the Ocean Protection Council to fund an appropriate *mitigation project.*[6]

Diablo Canyon has until 2024 to be in compliance with the new requirements and, consequently, it appears that PG&E will have to take some significant actions to resolve this issue.

Unfortunately, PG&E's Application in this proceeding does not address the new SWRCB Policy and the risk that Diablo Canyon will be required to end the use of once-through-cooling and either convert to a closed-cycle system with cooling towers (Track 1) or adopt alternative operational or structural controls that achieve comparable levels of compliance (Track 2).[7] Instead, PG&E is setting up to argue that converting to a closed-cycle cooling system is not technically feasible at Diablo Canyon or that its cost is wholly out of proportion to the costs identified in the 2008 Tetra Tech Inc. study.[8]

However, PG&E has performed a preliminary analysis of the cost and technical feasibility of installing cooling towers at Diablo Canyon.[9] This analysis, which according to PG&E raised substantial questions about the technical feasibility of converting to cooling towers at the plant from once through cooling, identified the following costs for installing mechanical draft cooling towers at Diablo Canyon.[10]

- Cooling tower retrofit capital cost of $2.7 billion direct in 2008 dollars.
- 17 month outage of both units for cooling system modifications and tie-in requiring the purchase of replacement energy.
- $7.4 million increase in annual O&M (in 2008 dollars) after the retrofit
- A 55 MW (average) reduction in output combined for both units after cooling tower installation.

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6 SWRCB May 2010 *Statewide Water Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling*, May 4, 2010, Section 3.D., at pages 10-12.

7 PG&E response to DR_TURN_001-Q05.

8 PG&E response to DR_TURN_007-Q02.

9 Prepared by Enercon Services, Inc.

10 PG&E response to DR _TURN_004-Q07.

At the request of the DRA, PG&E reran its economic model to reflect these costs assuming scenarios with 90 and 85 percent capacity factors. In each case examined, the inclusion of PG&E's estimated costs of converting Diablo Canyon to closed cycle cooling reduced the NPV benefit of extended operation by $3.380 billion.[11]

However, PG&E has further stated that in the unlikely event that it was determined that installation of cooling towers is feasible, the cooling tower retrofit cost figures it used in the revised economic analyses that it ran for the DRA were based on a conceptual design and that "It is likely that cost estimates based on more detailed design studies will result in even higher costs for addressing once-through-cooling issues at DCPP…"[12] Any such higher costs will further reduce and, perhaps, eliminate completely, the NPV shown in the Application for the renewal of Diablo Canyon's NRC-issued operating license.

PG&E has offered no evidence as to what the cost of installing and operating alternative mitigation measures at Diablo Canyon might be.

Seismic Upgrades

PG&E includes some costs for possible seismic upgrades in its estimated long-term capital expenditures, as follows:

2010 $1.4 million

2011 $4.9 million

2012 $16.2 million

These costs appear to be placeholders for the possible costs of projects that may be required in these years:

> PG&E anticipates that there may be some projects as a result of the ongoing research into the seismic hazard at and around Diablo Canyon. Detailed estimates are not available at this point in time. These are engineering conceptual estimates.
>
> These projects include analyses, engineering and modifications to equipment and systems that may require enhanced seismic capacity due to increased seismic demands discovered during DCPP's update of the LTSP

[11] PG&E response to DR_DRA_005-Q01.

[12] PG&E response to DR_DRA_005-Q03.

> (Long Term Seismic Program) earthquake. Some of these systems may include the Diesel Generator (DG) control panels, and the 4,160 VAC vital power switchgear. Also, revised Tsunami Hazards for Diablo Canyon's site may require engineering analysis and modifications of susceptible systems. Following completion of the tsunami analyses, an evaluation of any newly identified hazard will be performed. This evaluation will include a risk assessment as appropriate and will identify any further evaluations. Further evaluation if required, may entail evaluations of structures, systems and components to determine their capability to withstand new hazards. If required, modifications to structures, systems and components.[13]

In other words, there appears to be a not insignificant risk that the costs of these earthquake-related upgrades at Diablo Canyon will exceed the placeholder $22.5 million that PG&E has included in its economic analyses.

In fact, PG&E has requested CPUC approval to spend $16.73 million during the three year period 2011-2013 on additional seismic studies and analyses and has included these costs in its economic analyses in this proceeding.[14] According to PG&E, it is planning to perform the following additional seismic studies – seismic survey design, off-shore 3-D seismic surveys, on-shore 2-D seismic surveys, ocean bottom seismometer installation and project management support.[15]

Indeed, the Atomic Safety & Licensing Board of the NRC has just accepted in the hearings for the relicensing of Diablo Canyon a contention that PG&E's application lacks crucial information on the seismic risks to Diablo Canyon given that the studies of the shoreline fault, identified in 2008, are incomplete. Seismic studies of the newly discovered fault and the potential interaction with the Hosgri fault will not be completed until 2013, as noted above. For this reason, it will be argued that the NRC should wait for the results of the Company's studies before reaching any conclusions about the risks posed by severe earthquakes. It is not unreasonable to expect that PG&E's new studies and surveys will identify the need for additional seismic related upgrades and costs.

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13 PG&E response to DR_TURN_001-Q09.

14 See PG&E's Application, at page 3-5, lines 10-32.

15 Id, at page 3-5, lines 17-21.

PG&E has acknowledged that it did not incorporate into its cost effectiveness analysis the risk that a major seismic event could force Diablo Canyon offline for an extended period of time or could lead that additional retrofits or required upgrades.[16] This is a significant omission.

Net Present Value Benefit (Cost) of Extended Diablo Canyon Operation with Less Optimistic Assumptions About Future Performance and Costs

PG&E assumed in the cost effectiveness analyses in its Application that each Diablo Canyon unit would achieve 90 percent and 85 percent average annual capacity factors during their twenty year license renewal periods.[17] The Company also examined other Diablo Canyon operating performance and cost scenarios in response to requests from TURN and the DRA.[18] Overall, all of these scenarios showed that the net present value benefit of extended operation of Diablo Canyon:

- Would decrease by approximately $530 million for a five percentage point decrease in the assumed annual capacity factor.
- Would decrease by approximately $620 million if the plant's O&M and capital expenditures were 25 percent higher than PG&E has assumed in its cost effectiveness analyses.
- Would decrease by $3,889 million if PG&E were required to add cooling towers and convert to a closed-cycle cooling system.

As a result, Table 1, below, shows that if PG&E has to add cooling towers at Diablo Canyon and the plant's actual O&M and capital expenditures are only 25 percent above its current estimates, there are a number of credible scenarios in which extended operation would be the more expensive alternative for the Company's ratepayers.

16 PG&E response to DR_TURN_001-Q10.

17 For example, see PG&E's Prepared Testimony, Volume I of III, at pages 5-6 and 5-7.

18 PG&E response to DR_TURN_007-Q03.

Table 1: Net Present Value Benefit (Cost) of Diablo Canyon Extended Operation Assuming Addition of Cooling Towers and Higher O&M and Capital Expenditures

Description	Net Benefit of Extended Operation Assuming a 90% Capacity Factor	Net Benefit of Extended Operation Assuming an 85% Capacity Factor	Net Benefit of Extended Operation Assuming an 80% Capacity Factor	Net Benefit of Extended Operation Assuming a 75% Capacity Factor
	($Millions)			
CC – Low Gas/Low Emission Price	(928)	(1,548)	(2,080)	(2,612)
CC – MPR Gas/Low Emission Price	466	(155)	(687)	(1,219)
CC – High Gas/Low Emission Price	7,750	7,130	6,599	6,068
CC – Low Gas/MPR Emission Price	77	(544)	(1,076)	(1,608)
CC – MPR Gas/MPR Emission Price	1,471	851	320	(211)
CC – High Gas/MPR Emission Price	8,754	8,134	7,602	7,070
CC – Low Gas/High Emission Price	625	5	(526)	(1,057)
CC – MPR Gas/High Emission Price	2,018	1,398	866	334
CC – High Gas/High Emission Price	9,302	8,682	8,151	7,620

It is important to note that Table 1, above, and Table 2, below, do not include the four replacement power scenarios in which PG&E assumed that Diablo Canyon would be replaced by an IGCC unit. We do not believe that this is a credible alternative to Diablo Canyon. We have similarly excluded PG&E's energy efficiency and renewal replacement power scenarios from these comparisons.

As shown in Table 1, if it is assumed that Diablo Canyon would achieve an 80 percent average annual capacity factor, extended operation would produce negative net present value benefits (that is, costs) for ratepayers in four of the nine combined cycle scenarios considered by PG&E. These four scenarios are:

- Low Gas Prices/Low Emission Prices
- MPR Gas Prices/Low Emission Prices
- Low Gas Prices/MPR Emission Prices
- Low Gas Prices/High Emission Prices

Moreover, if Diablo Canyon achieves only a 75 percent average annual capacity factor, extended operation would be the more expensive alternative for ratepayers in five of the nine scenarios developed by PG&E in which Diablo Canyon would be replaced by power generated at a combined cycle natural gas-fired unit:

- Low Gas Prices/Low Emission Prices
- MPR Gas Prices/Low Emission Prices

- MPR Gas Prices/MPR Emission Prices
- Low Gas Prices/MPR Emission Prices
- Low Gas Prices/High Emission Prices

It is important to recognize that these 80 percent and 75 percent average annual capacity factor scenarios do not in any way represent worst case scenarios. It is not unreasonable to expect that Diablo Canyon could achieve significantly lower capacity factors as the units age or have O&M and capital expenditures that are more than 25 percent higher than PG&E now projects.

PG&E also examined a scenario for TURN that evaluated what the net present value benefits would be for ratepayers if Diablo Canyon were assumed to operate for only ten years instead of the entire twenty year license renewal period. As can be seen in Table 2, below, extended operation would produce negative net benefits for ratepayers in all but the high gas price scenarios if it is assumed that (a) PG&E has to add cooling towers or make alternative compliance actions with comparable costs, (b) has actual O&M and capital expenditures that are only 25 percent above its current estimates and (c) the plant is forced to shut down midway in the twenty year license renewal period due to a seismic or other significant event or cost.

Table 2: Net Present Value Benefit (Cost) of Diablo Canyon Extended Operation If Plant Only Operates for an Additional Ten Years

Ln. No.	Description (a)	NPV of Extended Operation (b)	NPV of Current Operations ©	NPV of Replacement Energy (d)	Net Benefit of Extended Operation (e) = '(c)+(d)-(b)	Net Benefit of Extended Operation - Change from Application
1	CC – Low Gas/Low Emission Price	16,628	6,343	7,170	(3,115)	(6,618)
2	CC – MPR Gas/Low Emission Price	16,628	6,343	8,563	(1,722)	(6,618)
3	CC – High Gas/Low Emission Price	16,628	6,343	15,847	5,562	(6,618)
4	CC – Low Gas/MPR Emission Price	16,628	6,343	8,174	(2,111)	(6,618)
5	CC – MPR Gas/MPR Emission Price	16,628	6,343	9,568	(717)	(6,618)
6	CC – High Gas/MPR Emission Price	16,628	6,343	16,852	6,566	(6,618)
7	CC – Low Gas/High Emission Price	16,628	6,343	8,722	(1,563)	(6,618)
8	CC – MPR Gas/High Emission Price	16,628	6,343	10,116	(169)	(6,618)
9	CC – High Gas/High Emission Price	16,628	6,343	17,399	7,114	(6,618)

The results in Table 2 reflect a 90 percent average annual capacity factor. They would be even more negative if a lower capacity factor were used instead.

Ratepayer Protection Proposal

In order to protect ratepayers against the possibility that PG&E's assumptions regarding Diablo Canyon's operating performance and costs during the twenty year license renewal period are shown to be overly optimistic, the Commission should adopt the following mechanism:

There would be a rebuttal presumption that any O&M and capital costs above those that PG&E now forecasts and any plant operating performance below that which PG&E now projects are unreasonable. For the purposes of this mechanism, Diablo Canyon's actual operating costs and operating performance would be averaged over a series of four-year periods beginning with 2025-2029 and then compared to the average costs and performance that PG&E is now forecasting for each of these periods. PG&E would have an opportunity to present evidence to defend why the plant's actual costs and performance have deviated from its forecasts. If PG&E's actual costs are higher, or performance is lower, than the rebuttal presumption benchmarks, the Commission should consider cost sharing between ratepayers and shareholders.

STATEMENT OF QUALIFICATIONS

Q. Please state your name and business address.

A. My name is David A. Schlissel. I am the President of Schlissel Technical Consulting, Inc., 45 Horace Road, Belmont, MA 02478.

Q. 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 recent clients have included the New Mexico Public Regulation Commission, the U.S. Department of Justice, the Attorney General and the Governor of the State of New York, state consumer advocates, and national and local environmental organizations.

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

A copy of my current resume is attached as Exhibit DAS-1. Additional information about my work is available at www.schlissel-technical.com.

Q. What is the purpose of your testimony?

A. Schlissel Technical Consulting was retained to assist TURN in its review of Pacific Gas and Electric Company's proposed recovery of the costs associated with the renewal of the NRC-issued Operating Licenses for the Diablo Canyon Power Plant. This testimony provides the results of my review.

David A. Schlissel

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SUMMARY

I have worked for thirty six 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 Resource Planning - Analyzed the economic costs and benefits of energy supply options. Examined whether there are lower cost, lower risk alternatives than proposed fossil and nuclear power plants. Evaluated the economic and system reliability consequences of retiring existing electric generating facilities. Investigated whether new electric generating facilities are used and useful. Investigated whether new generating facilities that were built for a deregulated subsidiary should be included in the rate base of a regulated utility. Assessed the reasonableness of proposed utility power purchase agreements with deregulated affiliates. Investigated the prudence of utility power purchases in deregulated markets.

Coal-fired Generation – Evaluated the economic and financial risks of investing in, constructing and operating new coal-fired power plants. Analyzed the economic and financial risks of making expensive environmental and other upgrades to existing plants. Investigated whether plant owners had adequately considered the risks associated with building new fossil-fired power plants, the most significant of which are the likelihood of federal regulation of greenhouse gas emissions and construction cost increases.

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 and federal 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 Proposed Clean Water Act Section 316(b) Rule for Cooling Water Intake Structures at existing power plants.

Electric System Reliability - Evaluated whether existing or new generation facilities and transmission lines are 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.

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

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. 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.

Nuclear Power – Reviewed recent cost estimates for proposed nuclear power plants. Examined the impact of the nuclear power plant life extensions and power uprates on decommissioning costs and collections policies. 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.

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.

Electric Industry Regulation and 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.

Expert Testimony - Presented the results of management, technical and economic analyses as testimony in more than 100 proceedings before regulatory boards and commissions in 35 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

Indiana Utility Regulatory Commission (Cause No. 43114 IGCC S4) – July 2010
The reasonableness of Duke Energy Indiana's new analyses of the economics of completing the Edwardsport Project as an IGCC plant.

Oregon Public Utility Commission (Docket LC 48) – May 2010
Comments on Portland General Electric Company's 2009 Integrated Resource Plan.

South Dakota Public Service Commission (Docket No. EL-09-018) – April 2010
The reasonableness of Black Hills Power Company's 2007 Integrated Resource Plan and the Company's decision to build the Wygen III coal-fired power plant.

Michigan Public Service Commission (Docket No. U-16077) – April 2010
Comments on the City of Holland Board of Public Works' 2010 Power Supply Study.

Illinois Commerce Commission (Tenaska Clean Coal Facility Analysis) – April 2010
Comments on the Facility Cost Report for the proposed Taylorville IGCC power plant.

North Carolina Utilities Commission (Docket No. E-100, Sub 124) – February 2010
The reasonableness of the 2009 Integrated Resource Plans of Duke Energy Carolinas and Progress Energy Carolinas.

Mississippi Public Service Commission (Docket No. 2009-UA-014) – December 2009
The costs and risks associated with the proposed Kemper County IGCC power plant.

Public Service Commission of Wisconsin (Docket No. 05-CE-137) –December 2009 and January 2010
The costs and risks associated with the proposed installation of emissions control equipment at the Edgewater Unit 5 coal-fired power plant.

Public Service Commission of Wisconsin (Docket No. 05-CE-138) –September and October 2009
The costs and risks associated with the proposed installation of emissions control equipment at the Columbia 1 and 2 coal-fired power plants.

Public Service Commission of Michigan (Docket No. U-15996) – July 2009
Comments on Consumer Energy's Electric Generation Alernatives Analysis for the Balanced Energy Initiative including the Proposed Karn-Weadock Coal Plant.

Public Service Commission of Michigan (Docket No. U-16000) – Juy 2009
Comments on Wolverine Power Cooperative's Electric Generation Alternatives Analysis for the Proposed Rogers City Coal Plant.

Georgia Public Service Commission (Docket No. 27800-U) – December 2008
The possible costs and risks of proceeding with the proposed Plant Vogtle Units 3 and 4 nuclear power plants.

Public Service Commission of Wisconsin (Docket No. 6680-CE-170) – August and Sepember 2008
The risks associated with the proposed Nelson Dewey 3 baseload coal-fired power plant.

Indiana Utility Regulatory Commission (Cause No. 43114 IGCC 1) – July 2008
The estimated cost of Duke Energy Indiana's Edwardsport Project.

Public Service Commission of Maryland (Case 9127) – July 2008
The estimated cost of the proposed Calvert Cliffs Unit 3 nuclear power plant.

Ohio Power Siting Board (Case No. 06-1358-EL-BGN) – December 2007
AMP-Ohio's application for a Certificate of Environmental Compatibility and Public Need for a 960 MW pulverized coal generating facility.

U.S. Nuclear Regulatory Commission (Docket Nos. 50-247-LR, 50-286-LR) – November 2007 and February 2009
The available options for replacing the power generated at Indian Point Unit 2 and/or Unit 3.

West Virginia Public Service Commission (Case No. 06-0033-E-CN) – November 2007
Appalachian Power Company's application for a Certificate of Public Convenience and Necessity for a 600 MW integrated gasification combined cycle generating facility.

Iowa Utility Board (Docket No. GCU-07-01) – October 2007
Whether Interstate Power & Light Company's adequately considered the risks associated with building a new coal-fired power plant and whether that Company's participation in the proposed Marshalltown plant is prudent.

Virginia State Corporation Commission (Case No. PUE-2007-00066) – November 2007
Whether Dominion Virginia Power's adequately considered the risks associated with building the proposed Wise County coal-fired power plant and whether that Commission should grant a certificate of public convenience and necessity for the plant.

Louisiana Public Service Commission (Docket No. U-30192) – September 2007
The reasonableness of Entergy Louisiana's proposal to repower the Little Gypsy Unit 3 generating facility as a coal-fired power plant.

Arkansas Public Service Commission (Docket No. 06-154-U) – July 2007
The probable economic impact of the Southwestern Electric Power Company's proposed Hempstead coal-fired power plant project.

North Dakota Public Service Commission (Case Nos. PU-06-481 and 482) – May 2007 and April 2008

Whether the participation of Otter Tail Power Company and Montana-Dakota Utilities in the Big Stone II Generating Project is prudent.

Indiana Utility Regulatory Commission (Cause No. 43114) – May 2007
The appropriate carbon dioxide ("CO_2") emissions prices that should be used to analyze the relative economic costs and benefits of Duke Energy Indiana and Vectren Energy Delivery of Indiana's proposed Integrated Gasification Combined Cycle Facility and whether Duke and Vectren have appropriately reflected the capital cost of the proposed facility in their modeling analyses.

Public Service Commission of Wisconsin (Docket No. 6630-EI-113) – May and June 2007
Whether the proposed sale of the Point Beach Nuclear Plant to FPL Energy Point Beach, LLC, is in the interest of the ratepayers of Wisconsin Electric Power Company.

Florida Public Service Commission (Docket No. 070098-EI) – March 2007
Florida Light & Power Company's need for and the economics of the proposed Glades Power Park.

Michigan Public Service Commission (Case No. 14992-U) – December 2006
The reasonableness of the proposed sale of the Palisades Nuclear Power Plant.

Minnesota Public Utilities Commission (Docket No. CN-05-619) – November 2006, December 2007, January 2008 and November 2008
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 and January 2007
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-115) - 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) – May 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 June 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) - January 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

Presentation to the Oregon Public Utility Commission on Portland General Electric Company's 2009 Integrated Resource Plan, May 2010.

Comments on Draft Portland General Electric Company 2009 Integrated Resource Plan, October 2009.

Energy Future: A Green Energy Alternative for Michigan, report, July 2009.

Energy Future: A Green Energy Alternative for Michigan, presentation, July 2009.

Preliminary Assessment of East Kentucky Power Cooperative's 2009 Resource Plan, June 2009.

The Financial Risks to Old Dominion Electric Cooperative's Consumer-Members of Building and Operating the Proposed Cypress Creek Power Station, April 2009.

An Assessment of Santee Cooper's 2008 Resource Planning, April 2009.

Nuclear Loan Guarantees: Another Taxpayer Bailout Ahead, Report for the Union of Concerned Scientists, March 2009.

New Hampshire Senate Bill 152: Merrimack Station Scrubber, March 2009.

The Risks of Building and Operating Plant Washington, Presentation to the Sustainable Atlanta Roundtable, December 2008.

The Risks of Building and Operating Plant Washington, Report and Presentation to EMC Board Members, December 2008.

Don't Get Burned, the Risks of Investing in New Coal-Fired Power Plants, Presentation at the University of California at Berkeley Energy and Resources Group Colloquium, October 2008.

Don't Get Burned, the Risks of Investing in New Coal-Fired Power Plants, Presentation at Georgia Tech University, October 2008.

Nuclear Power Plant Construction Costs, Synapse Energy Economics, July 2008.

Coal-Fired Power Plant Construction Costs, Synapse Energy Economics, July 2008.

Synapse 2008 CO_2 Price Forecasts, Synapse Energy Economics, July 2008.

Don't Get Burned, the Risks of Investing in New Coal-Fired Power Plants, Presentation at the NARUC ERE Committee, NARUC Summer Meetings, July 2008.

Are There Nukes In Our Future, Presentation at the NASUCA Summer Meetings, June 2008.

Risky Appropriations: Gambling US Energy Policy on the Global Nuclear Energy Partnership, Report for Friends of the Earth, the Institute for Policy Studies, the Government Accountability Project, and the Southern Alliance for Clean Energy, March 2008.

Don't Get Burned, the Risks of Investing in New Coal-Fired Power Plants, Presentation to the New York Society of Securities Analysts, February 26, 2008.

*Don't Get Burned,*Report for the Interfaith Center for Corporate Responsibility, February 2008.

The Risks of Participating in the AMPGS Coal Plant, Report for NRDC, February 2008.

Kansas is Not Alone, the New Climate for Coal, Presentation to members of the Kansas State Legislature, January 22, 2008.

The Risks of Building New Nuclear Power Plants, Presentation to the Utah State Legislature Public Utilities and Technology Committee, September 19, 2007.

The Risks of Building New Nuclear Power Plants, Presentation to Moody's and Standard & Poor's rating agencies, May 17, 2007.

The Risks of Building New Nuclear Power Plants, U.S. Senate and House of Representative Briefings, April 20, 2007.

Carbon Dioxide Emissions Costs and Electricity Resource Planning, New Mexico Public Regulation Commission, Case 06-00448-UT, March 28, 2007, with Anna Sommer.

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

2010 - President, Schlissel Technical Consulting, Inc.

2000 - 2009: 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

License Renewal
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Process
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Introduction

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Status of License Renewal Applications and Industr Activities

On this page:

Plant Applications for License Renewal

Completed Applications:

(includes Application, Review Schedule, Supplemental Environmental Impact Statement, a Safety Evaluation Report)

- Calvert Cliffs, Units 1 and 2
- Oconee Nuclear Station, Units 1, 2 and 3
- Arkansas Nuclear One, Unit 1
- Edwin I. Hatch Nuclear Plant, Units 1 and 2
- Turkey Point Nuclear Plant, Units 3 and 4
- North Anna, Units 1 and 2, and Surry, Units 1 and 2
- Peach Bottom, Units 2 and 3
- St. Lucie, Units 1 and 2
- Fort Calhoun Station, Unit 1
- McGuire, Units 1 and 2, and Catawba, Units 1 and 2
- H.B. Robinson Nuclear Plant, Unit 2
- R.E. Ginna Nuclear Power Plant, Unit 1
- V.C. Summer Nuclear Station, Unit 1
- Dresden, Units 2 and 3, and Quad Cities, Units 1 and 2
- Farley, Units 1 and 2
- Arkansas Nuclear One, Unit 2
- D.C. Cook, Units 1 and 2
- Millstone, Units 2 and 3
- Point Beach, Units 1 and 2
- Browns Ferry, Units 1, 2, and 3
- Brunswick, Units 1 and 2
- Nine Mile Point, Units 1 and 2
- Monticello
- Palisades
- James A. FitzPatrick
- Wolf Creek, Unit 1
- Harris, Unit 1
- Oyster Creek
- Vogtle, Units 1 and 2
- Three Mile Island, Unit 1
- Beaver Valley, Units 1 and 2
- Susquehanna, Units 1 and 2

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Applications Currently Under Review:

- Pilgrim 1, Unit 1 - Application received January 27, 2006
- Vermont Yankee - Application received January 27, 2006
- Indian Point, Units 2 and 3 - Application received April 30, 2007
- Prairie Island, Units 1 and 2 - Application received April 15, 2008
- Kewaunee Power Station - Application received August 14, 2008
- Cooper Nuclear Station - Application received September 30, 2008
- Duane Arnold Energy Center - Application received October 1, 2008
- Palo Verde, Units 1, 2, and 3 - Application received December 15, 2008
- Crystal River, Unit 3 - Application received December 18, 2008
- Hope Creek - Application received August 18, 2009
- Salem, Units 1 and 2 - Application received August 18, 2009
- Diablo Canyon, Units 1 and 2 - Application received November 24, 2009
- Columbia Generating Station - Application received January 20, 2010
- Seabrook Station, Unit 1 - Application received June 1, 2010

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Some links on this page are to documents in our Agencywide Documents Access and Management System (ADAMS), and others are to documents in Adobe Portable Document Format (PDF). ADAMS documents are provided in either PDF or Tagged Image File Format (TIFF). To obtain free viewers for displaying these formats, see our Plugins, Viewers, and C Tools page. If you have questions about search techniques or problems with viewing or pri documents from ADAMS, please contact the Public Document Room staff.

Future Submittals of Applications:

Fiscal Year	No.	Renewal Application	Applicant	Letter of Intent (ADAMS Accession No.)	Submis Dat
2010	1	Davis-Besse Nuclear Power Station, Unit 1	FirstEnergy Nuclear Operating Company	ML062290261	Aug. 2
2011	1	South Texas Project, Unit 1 and Unit 2	STP Nuclear Operating Company	ML081770299	Oct. to 201
	2	Grand Gulf Nuclear Station, Unit 1	Entergy Nuclear, Inc.	ML092450109	July 2
	3	Limerick Generating Station, Unit 1 and Unit 2	Exelon Generation Company, LLC	ML091210103	Sept. 2
2012	1	Callaway Plant, Unit 1	AmerenUE	ML083370203	Oct. to 201
2013	1	Strategic Teaming and Resource Sharing (STARS) No. 7	Un-named	ML080590377	Oct. to 201
	2	Waterford Steam Electric Station, Unit 3	Entergy Nuclear, Inc.	ML092450109	Jan. 2
	3	Sequoyah Nuclear Plant, Unit 1 and Unit 2	Tennessee Valley Authority	ML092220377	Apr. to 201
	4	Strategic Teaming and Resource Sharing (STARS) No. 6	Un-named	ML062550111	July to 201
	5	Un-named	Exelon Generation Company, LLC	ML091210103	July 2

	6	Perry Nuclear Power Plant, Unit 1	FirstEnergy Nuclear Operating Company	ML062290261	Aug. 2
2015	1	River Bend Station, Unit 1	Entergy Nuclear, Inc.	ML092450109	Jan. 2
	2	Un-named	Exelon Generation Company, LLC	ML091210103	July 2
2017	1	Un-named	Exelon Generation Company, LLC	ML091210103	Apr. 2

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Owners' Groups

Babcock & Wilcox -- The Babcock & Wilcox Owners Group, representing five operating B&W plants, has formulated a generic license renewal program. The B&W Owners Group has submitted generic license renewal reports on the reactor coolant system piping, the pressu the reactor pressure vessel, and reactor vessel internals.

Westinghouse -- The Westinghouse Owners Group also has programs for license renewal a submitted technical reports on the aging management activities for the reactor coolant sys supports, the pressurizer, the Class I piping, the containment structure, and the reactor ve internals.

General Electric -- The Boiling Water Reactor Owners Group submitted a generic technical on the containment structure and is currently concentrating their efforts on reports related vessel internals program.

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Industry Activities

Nuclear Energy Institute (NEI) -- Industry representatives also participate in working g and technical committees, coordinated by the Nuclear Energy Institute, to address generic technical and process issues, and to develop additional guidance related to scoping and agi management programs. The NRC has established a formal feedback process by which the resolution of the generic renewal issues and lessons learned during the review of the initial renewal applications is documented and included in revisions to the implementation guidan These activities are expected to improve the efficiency and effectiveness of future license r reviews.

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Related Information

Slides for Vermont Yankee and Pilgrim License Renewal Application.

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U.S. Nuclear Plant License Information

Reactor Name	License Dates			Net Summer Capacity (MW)
	Operating	Commercial Operation	Expiration	
Nine Mile Point 1	8/22/1969	12/1/1969	8/22/2029	621
Oyster Creek 1	4/9/1969	12/1/1969	4/9/2029	615
Dresden 2	12/22/1969	6/9/1970	12/22/2029	867
Ginna	9/19/1969	7/1/1970	9/18/2029	581
Point Beach 1	10/5/1970	12/21/1970	10/5/2030	510
H.B. Robinson 2	7/31/1970	3/7/1971	7/31/2030	710
Monticello	9/8/1970	6/30/1971	9/8/2030	572
Dresden 3	1/12/1971	11/16/1971	1/12/2031	867
Palisades	3/24/1971	12/31/1971	3/24/2031	778
Point Beach 2	11/16/1971	10/1/1972	3/8/2033	516
Vermont Yankee 1	3/21/1972	11/30/1972	3/21/2012	620
Pilgrim 1	6/8/1972	12/1/1972	6/8/2012	685
Turkey Point 3	7/19/1972	12/14/1972	7/19/2032	693
Surry 1	5/25/1972	12/22/1972	5/25/2032	799
Quad Cities 1	10/1/1971	2/18/1973	12/14/2032	867
Quad Cities 2	3/31/1972	3/10/1973	12/14/2032	867
Surry 2	1/29/1973	5/1/1973	1/29/2033	799
Oconee 1	2/6/1973	7/15/1973	2/6/2033	846
Turkey Point 4	4/10/1973	9/7/1973	4/10/2033	693
Prairie Island 1	8/9/1973	12/16/1973	8/9/2013	551
Kewaunee	12/21/1973	6/16/1974	12/21/2013	556
Fort Calhoun	5/24/1973	6/20/1974	8/9/2033	482
Cooper	1/18/1974	7/1/1974	1/18/2014	770
Peach Bottom 2	8/8/1973	7/5/1974	8/8/2033	1,112
Browns Ferry 1	6/26/1973	8/1/1974	12/20/2033	1,065
Indian Point 2	10/19/1971	8/1/1974	9/28/2013	1,025
Three Mile Island 1	4/19/1974	9/2/1974	4/19/2034	786
Oconee 2	10/6/1973	9/9/1974	10/6/2033	846
Oconee 3	7/19/1974	12/16/1974	7/19/2034	846
Arkansas Nuclear One 1	5/21/1974	12/19/1974	5/20/2034	842
Prairie Island 2	10/29/1974	12/21/1974	10/29/2014	545
Peach Bottom 3	7/2/1974	12/23/1974	7/2/2034	1,112
Edwin I. Hatch 1	8/6/1974	12/31/1974	8/6/2034	876
Duane Arnold	2/22/1974	2/1/1975	2/2/2014	580
Browns Ferry 2	6/28/1974	3/1/1975	6/28/2034	1,104
Calvert Cliffs 1	7/31/1974	5/8/1975	7/31/2034	873
James A. FitzPatrick	10/17/1974	7/28/1975	10/17/2034	854
Donald C. Cook 1	10/25/1974	8/23/1975	10/25/2034	1,009
Brunswick 2	12/27/1974	11/3/1975	12/27/2034	920
Millstone 2	8/1/1975	12/26/1975	7/31/2035	877

Reactor Name	License Dates			Net Summer Capacity (MW)
	Operating	Commercial Operation	Expiration	
Indian Point 3	12/12/1975	8/30/1976	12/12/2015	1,040
Beaver Valley 1	1/30/1976	10/1/1976	1/29/2036	892
St. Lucie 1	3/1/1976	12/21/1976	3/1/2036	839
Browns Ferry 3	7/2/1976	3/1/1977	7/2/2036	1,105
Crystal River 3	12/3/1976	3/13/1977	12/3/2016	860
Brunswick 1	9/8/1976	3/18/1977	9/8/2036	938
Calvert Cliffs 2	8/13/1976	4/1/1977	8/13/2036	862
Salem 1	8/13/1976	6/30/1977	8/13/2016	1,174
Joseph M. Farley 1	6/25/1977	12/1/1977	6/25/2037	851
North Anna 1	11/26/1977	6/6/1978	4/1/2038	903
Donald C. Cook 2	12/23/1977	7/1/1978	12/23/2037	1,060
Davis Besse	4/22/1977	7/31/1978	4/22/2017	879
Edwin I. Hatch 2	6/13/1978	9/5/1979	6/13/2038	883
Arkansas Nuclear One 2	7/18/1978	3/26/1980	7/17/2038	997
North Anna 2	4/11/1980	12/14/1980	8/21/2040	903
Sequoyah 1	2/29/1980	7/1/1981	9/17/2020	1,148
Joseph M. Farley 2	10/23/1980	7/30/1981	3/31/2041	860
Salem 2	4/18/1980	10/13/1981	4/18/2020	1,158
McGuire 1	1/23/1981	12/1/1981	6/12/2041	1,100
Sequoyah 2	6/25/1981	6/1/1982	9/15/2021	1,126
Susquehanna 1	7/17/1982	6/8/1983	7/17/2042	1,185
San Onofre 2	2/16/1982	8/8/1983	2/16/2022	1,070
St. Lucie 2	4/6/1983	8/8/1983	4/6/2043	839
La Salle 1	4/17/1982	1/1/1984	5/17/2022	1,118
V.C. Summer	8/6/1982	1/1/1984	8/6/2042	966
McGuire 2	3/3/1983	3/1/1984	3/3/2043	1,100
San Onofre 3	11/15/1982	4/1/1984	11/15/2022	1,080
La Salle 2	12/16/1983	10/19/1984	12/16/2023	1,120
Station 2	12/20/1983	12/13/1984	12/20/2023	1,131
Callaway	6/11/1984	12/19/1984	10/18/2024	1,190
Susquehanna 2	3/23/1984	2/12/1985	3/23/2044	1,140
Diablo Canyon 1	9/22/1981	5/7/1985	9/22/2021	1,122
Catawba 1	7/18/1984	6/29/1985	12/5/2043	1,129
Grand Gulf 1	6/18/1982	7/1/1985	6/12/2022	1,259
Wolf Creek 1	3/11/1985	9/3/1985	3/11/2045	1,160
Byron 1	10/31/1984	9/16/1985	10/31/2024	1,164
Waterford 3	12/18/1984	9/24/1985	12/18/2024	1,176
Palo Verde 1	12/31/1984	1/28/1986	12/31/2024	1,311
Limerick 1	10/26/1984	2/1/1986	10/26/2024	1,130
Diablo Canyon 2	4/26/1985	3/13/1986	4/26/2025	1,118
Millstone 3	11/25/1985	4/23/1986	11/25/2045	1,138
River Bend 1	8/29/1985	6/16/1986	8/29/2025	978
Catawba 2	2/24/1986	8/19/1986	12/5/2043	1,129

Reactor Name	License Dates			Net Summer Capacity (MW)
	Operating	Commercial Operation	Expiration	
Palo Verde 2	12/9/1985	9/19/1986	12/9/2025	1,314
Hope Creek 1	4/11/1986	12/20/1986	4/11/2026	1,161
Shearon Harris 1	10/24/1986	5/2/1987	10/24/2046	900
Vogtle 1	1/16/1987	6/1/1987	1/16/2047	1,150
Byron 2	11/6/1986	8/21/1987	11/6/2026	1,136
Beaver Valley 2	5/28/1987	11/17/1987	5/27/2047	846
Perry 1	3/18/1986	11/18/1987	3/18/2026	1,245
Clinton	9/29/1986	11/24/1987	9/29/2026	1,043
Palo Verde 3	3/25/1987	1/8/1988	3/25/2027	1,317
Fermi 2	3/20/1985	1/23/1988	3/20/2025	1,122
Nine Mile Point 2	10/31/1986	3/11/1988	10/31/2046	1,143
Braidwood 1	10/17/1986	7/29/1988	10/17/2026	1,178
South Texas Project 1	8/21/1987	8/25/1988	8/20/2027	1,280
Braidwood 2	12/18/1987	10/17/1988	12/18/2027	1,152
Vogtle 2	2/9/1989	5/20/1989	2/9/2049	1,152
South Texas Project 2	12/16/1988	6/19/1989	12/15/2028	1,280
Limerick 2	6/22/1989	1/8/1990	6/22/2029	1,134
Comanche Peak 1	2/8/1990	8/13/1990	2/8/2030	1,209
Seabrook 1	10/17/1986	8/17/1990	10/17/2026	1,245
Comanche Peak 2	2/2/1993	8/3/1993	2/2/2033	1,158
Watts Bar 1	11/9/1995	2/7/1996	11/9/2035	1,123

Source: Nuclear Regulatory Commission / Energy Information Administration
Updated: 5/10