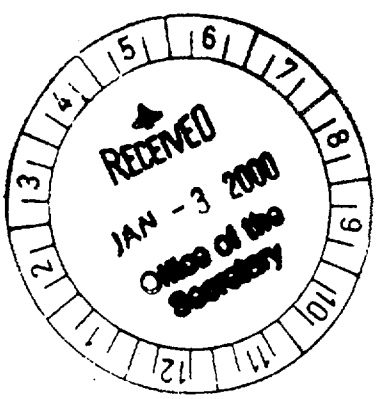
PRM-50-70

BEFORE THE

UNITED STATES NUCLEAR REGULATORY COMMISSION
Washington, D.C. 20555-0111

PETITION for RULEMAKING:
10 CFR CH.1 (1-1-99 EDITION)SUBPART -H §2802:
PETITION to AMEND THE FINANCIAL ASSURANCE REQUIREMENTS for DECOMMISSIONING NUCLEAR POWER REACTORS SECTION 50.75 REPORTING and RECORDKEEPING for DECOMMISSIONING PLANNING, Parts: (a), (b), (c), (d), (e),and (f) to INCLUDE UNIFORM REPORTING and RECORDKEEPING for PROPORTIONAL OWNERS of NUCLEAR STATIONS
and
A REQUEST to ADOPT PETITIONER'S RECOMMENDATIONS for NUCLEAR DECOMMISSIONING IDENTIFIED in; II) STATEMENT of ISSUES: (A), (B), (C), (D), (E), and (F)



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Secretary,
United States
Nuclear Regulatory Commission
Washington, D.C. 20555-0001
ATTENTION: *Rulemakings and Adjudication Staff*

I. INTRODUCTION

Eric Joseph Epstein, *Pro se*, has been actively involved in testifying, filing, and, intervening, before the Nuclear Regulatory Commission (NRC) and Pennsylvania Public Utility Commission (Pa PUC) on nuclear decommissioning and radioactive waste isolation issues since 1985. (*See Enclosure I).* Mr. Epstein's research and testimony have focused on the following nuclear generating stations: Peach Bottom 1, 2 & 3, the Saxton Experimental Reactor, Shippingport, the Susquehanna Steam Electric Station (SSES) 1 & 2, and Three Mile Island (TMI) 1 & 2. Moreover, Mr. Epstein, along with General Public Utilities Nuclear (GPUN) sponsored and invested $890,000 in remote robotics research relating to nuclear decommissioning (*See Enclosure II*).

Mr. Epstein does not dispute the nuclear industry's contention that radiological decommissioning and radioactive waste isolation expenses are subject to change and likely to increase. At issue, is the indisputable fact that the funding component from nuclear decommissioning supplied by proportional owners, who are not the power reactor licensee, including Rural Electric Cooperatives (REC), is fatally flawed, and likely to contribute to gross underfunding, especially if a generating station is forced to retire prematurely. Proportional owners are not required to submit periodic cost projections, conduct site specific studies, or coordinate with the power reactor licensee. In fact, proportional owners are not mandated by the Nuclear Regulatory Commission to empirically verify, report, or monitor record keeping relating to nuclear decommissioning funding mechanisms. In some instances, proportional owners are engaged in protracted litigation with the power reactor licensee. (See Footnote 1, Paragraph 2 for a current citation involving a power reactor licensee, Pennsylvania Power & Light, Inc., and its proportional partner, the Allegheny Electric Cooperative)

Proportional owners and Rural Electric Cooperatives (1) aggressively supported construction, licensing, and operation of nuclear generating generating stations. Minority owners were fully cognizant that no commercial nuclear reactor had been decommissioned, and that a solution to nuclear waste disposal did not exist. Furthermore, neither the utility industry (2), proportional owners, or the Rural Electric Cooperatives, have actively sponsored decommissioning research, or seek good faith solutions to the permanent storage and isolation of low-level and high-level radioactive waste. Proportional owners and RECs willfully pursued a financial investment in nuclear energy which was knowingly fraught with huge uncertainties. (3) Therefore, it is grossly unfair and inequitable to request that federal tax payers and hostage state rate payers, provide a financial safety net for proportional investors nuclear investments.

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1 Mr. Epstein will utilize the Allegheny Electric Cooperative (AEC), Inc. and Pennsylvania Power & Light (PP&L) Inc.'s paradigm of arbitrary funding prescriptions at the Susquehanna Steam Electric Station (SSES) to illustrate how insufficient funding levels, the lack of coordination, and the absence of reliable decommissioning funding bookkeeping, jeopardize a sound fiduciary relationship between power reactor licensees and proportional owners.

The AEC has a ten (10) percent, undivided ownership in the SSES, and "owns a 42 mile potion of a 500 kV which delivers Allegheny's share of output of SSES to PP&L's interconnection points with GPU Energy transmission system for ultimate delivery to Allegheny..." (Application(s) of PP&L, Inc., for Issuance of Certain Certificates, Certain Determinations, and Certain Approvals Relating to the Transfer of its "Competitive Electric Business, Protest of Allegheny Electric Cooperative, Inc., Pa Public Utility Commission, Page 2, Paragraph 6, December 27, 1999.)

2 Q. 12. "What technological initiatives are PP&L pursuing to ensure decommissioning technology is available when the SSES is no longer operational?"

A. 12. "PP&L expects that appropriate decommissioning technology will be available at the time Susquehanna is decommissioned, and accordingly, is not pursuing additional 'technological initiatives' at this time." (Company's Response to Interrogatories of Eric Joseph Epstein, Set I, Dated June 3, 1997.)

3 "One dark cloud was on the horizon when PP&L got construction under way. By late 1974, when construction crews had been on site for nearly a year, overall cost of the Susquehanna project was estimated at $1.385 billion. That was nearly three times the estimated cost when Jack Busby had announced the project back in 1970. Between 1974 and 1984, PP&L construction expenditures for generating capacity topped $4.3 billion. Much of that was attributable to nuclear construction." PP&L, 75 Years of Powering the Future: An Illustrated History of Pennsylvania Power & Light Company, PP&L Company. Bill Beck, Eden Prairie, Minnesota, Viking Press, 1995, p. 384).

Rate payer and taxpayer equity, and fiduciary accountability, require that all proportional.owners, including members of Rural Electric Cooperatives, conform to universal saving formulas for nuclear decommissioning.

Mr. Epstein seeks the following action to support a general solution to the absence of uniform nuclear decommissioning planning and record keeping for all entities who have a proportional interest(s) in nuclear generating station(s). In order to eliminate the funding gap between power reactor licensees, and proportional owners of nuclear generating stations, Mr. Epstein respectfully requests the Nuclear Regulatory Commission:

1) Issue an **amendment guaranteeing uniform reporting and recording keeping, as identified in Nuclear Regulatory Commission, 10 CFR, RIN 3150-AF41, Financial Assurances Requirements for Decommissioning Nuclear Power Reactors, Section 50.75, Reporting and Recordkeeping for Decommissioning Planning, (a), (b), (c), (d), (e) and (f);**

2) **Modify and strengthen current nuclear decommissioning accounting** take into consideration the issues identified in **II. Statement of Issues, A.) Definition of An Electric Utility, B.) Current Problems Associated with Cost Estimates for Radiological Decommissioning, C.) Proportional Confusion: The Case of the Allegheny Electric Cooperative and Pennsylvania Power & Light, D.) Planned Operating Life for Nuclear Generating Stations, E.) Spent Fuel Isolation, and F.) Low Level Radioactive Waste Isolation.**

3) **Order proportional owners of nuclear generating stations to conduct a pudency review in order to determine a balanced formula for decommissioning funding involving rate payers and/or tax payers and shareholders and/or Board Members of Rural Electric Cooperatives.**

II. STATEMENT OF THE ISSUES

A. Definition of an Electric Utility

The NRC promulgated revised rule making for decommissioning nuclear power plants, including an amendment to its regulations,

> ...on financial assurance requirements for the decommissioning of nuclear power plants. The proposed amendments are in response to the potential deregulation of the power generating industry and respond to questions on whether current NRC regulations concerning decommissioning funds and their financial mechanisms will need to be modified. the proposed action would require power reactor licensees to report periodically on the status of their decommissioning funds and on the changes in their external trust agreements. (Federal Register, Financial assurance Requirements for Decommissioning Nuclear Power Reactors, 10 CFR Part 50, RIN 3150-AF 41, September 10, 1997 (Volume 62, Number 175, pp. 47588-47606.)

Utility deregulation has obviously caused concerns regarding future rate recovery for the nuclear industry. For example, the uncertainty of whether PP&L Inc., might lose its *exemption from decommissioning financial assurance requirements* was articulated by the Company:

> The NRC rules define 'electric utilities' as 'any entity that generates or distributes electricity and which recovers the cost of electricity, either directly or indirectly, through rates established by the entity itself or by a separate regulatory authority. 10 C.F.R. S 50.2....Moreover, as I explained earlier, there is some concern regarding whether a portion of PP&L's nuclear decommissioning costs have to be recovered through market rates after the CTC expires.

> Therefore, it will be possible that, following the transition to competition, the NRC will determine that the Company's nuclear decommissioning costs are not recovered through rates established by the PUC. This determination could cause the NRC to reconsider PP&L's status as an 'electric utility' exempt from decommissioning financial assurance requirements. If PP&L were to lose its status as an 'electric utility', it might have to pre-fund the entire cost of decommissioning Susquehanna or, at a minimum, provide some form of insurance or other surety for future decommissioning trust fund collections. Either portion would have a significant financial impact on PP&L and would increase the level of its stranded costs. (Direct Testimony of Company Witness, Statement 3, Joseph M. Kleha, pp. 13 -14.) [PP&L recommitted to this position on May 22, 1997, in Response to Interrogatories to the Office of Small Business Advocate, Set I, Q. & A. 9.]

Zonia: Note that the final rule was published 9-22-98 (63 FR 50465)

This argument is no longer relevant, and has been deemed mool

Nuclear Regulatory Commission's amended regulations on Financial A

Requirements for Decommissioning Nuclear Power Plants. (*Federal Re*

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September 10, 1997, Volume 62, Number 175, Proposed Rules, pp. 47588-476060.) The NRC's proposed regulations addressed the changing landscape caused by deregulation. In fact, the Commission specifically addressed the particular condition of nuclear utilities under the jurisdiction of regulatory authorities.

> ...the NRC is proposing to revise its definition of "electric utility" to introduce additional flexibility to address potential impacts of electric industry deregulation. The Commission notes that the key component of the revised definition is a licensee's rates being established either through cost-of-service mechanism or through other non-bypassable charge mechanisms, such as wire charges, non-bypassable customer fees, including securitization or exit fees, by a rate-regulating authority...Should a licensee be under the jurisdiction of a rate-regulating authority for only a portion of the licensee's cost of operation, covering only a corresponding portion of the decommissioning costs that are recoverable by rates set by a rate-regulating authority, the licensee will be considered an "electric utility" only for part of the Commission's regulations to which those portions of costs pertain. (Pages 47593- 47594.)

Clearly, the NRC has anticipated the nuclear industry's financial apprehension, and acted accordingly by promulgating regulations to resolve the industry's concerns. Furthermore, the Commission extended the definition of an "electric utility" to include:

> An entity whose rates are established by a regulatory authority by mechanisms that cover only a portion of the costs collected in manner. Public utility districts, municipalities, rural electric cooperatives and Sate and Federal agencies, including associations of any of the foregoing, that establish their own rates are included within the meaning of "electric utility." (Section 50.2, Definitions, p. 47605.)

However, the NRC created a **legal loophole** for proportional owners and Rural Electric Cooperatives by limiting reporting and record keeping requirements to "power reactor licensees"; thus, enabling partial owners to be free from Nuclear Regulatory Commission scrutiny. This fatal flaw must be **remedied instantly**. Furthermore, the NRC must **mandate that all partial owners of nuclear generating stations, including Rural Electric Cooperatives, be subject to the the same Reporting and Recordkeeping requirements, and pre-funding thresholds and timetables, identified in Section 50.75, Paragraphs (a), (b), (c), (d), (e), Pages 47605-47606.)**

B. Current Problems Associated with Cost Estimates for Radiological Decommissioning

Power reactor licensees continue to rely heavily on nuclear decommissioning projections provided by the industry consultant, Thomas LaGuardia and TLG , Inc. And TLG continues to base decommissioning estimates on flawed and specious "field" studies extrapolated from small, minimally contaminated, and/or prematurely shutdown nuclear reactors.

> The cost of estimating methodology employed in developing the decommissioning estimates, has been field verified by the Company's decommissioning consultant in work performed during the decontamination and dismantling of the Shippingport Atomic Power Station, Shoreham Nuclear Station and Pathfinder atomic Station as well as for activities ongoing at the Yankee Rowe, Trojan and Rancho Seco nuclear units. (Question & Answer 155, PP&L's Response to Interrogatories of Environmentalists, Set 3, Dated May 19, 1997.)

No reasonable sound or prudent financial officer operating outside of the nuclear industry would accept a funding formula and rate recovery strategy that relies on so many fluid caveats and assumptions. Recently, David Hayward, president of Hayward Consulting stated:

> In my judgment, AmerGen Energy Co.'s strategy to purchase and operate nuclear power plants does not make a lot of sense for the following reasons. First, from a historical perspective, many nuclear power plants have closed down prior to the expiration of their licenses. thus, their financial performance has been lower than that originally anticipated. **Second, nuclear plant owners have historically underestimated the cost of decommissioning nuclear power plants (Bold face type added.)** Third, the issue of disposing nuclear waste has not been fully settled. "Plant Valuation: Book Value and Beyond", *Public Utilities Fortnightly*, September 1, 1999, p. 58

The wild fluctuation in the cost estimates for radiological decommissioning are attributable to the lack of actual decommissioning experience at large nuclear generating (See Discussion on Page 11) over 1,000 MWe, or at plants that have operated for their full, planned lifespan. The largest commercial nuclear power plant to be fully decommissioned, Shippingport, is a 72 megawatt (MWe) light-water breeder reactor is substantially smaller than the Susquehanna Steam Electric Station-1 & 2 (1,050 Net MWe for each unit). During Pennsylvania Power & Light's Base Rate Case (1995) (*PA PUC v. PP&L*, Docket No. R-00943271; R-00943271COO1, *et seq.*), Company witness Thomas LaGuardia, President of TLG, admitted that Shippingport was "almost like a pilot plant." (1995 PP&L Base Rate Proceeding; Official Transcript, Page 2103, Lines 17-20) Shippingport was owned and operated by Duquesne Light Company under special agreement with the Department of Energy. The entire core was removed and replaced three times prior to decommissioning, and as noted by Company witness LaGuardia during cross examination, "[T]here were several cores at Shippingport starting out as a pressurized water reactor and later being converted to a light water reactor." (1995 PP&L Base Rate Proceeding; Page 2105, Lines 19-21). Furthermore, the reactor vessel was shipped to the Hanford Reservation (through an exclusive and unique agreement with the Department of Energy) thus depriving the industry of critical hands-on decommissioning experience. In fact, Shippingport was dismantled and not decommissioned. The immense differences between Shippingport and the Susquehanna Steam Electric Station make any financial comparison between the two inadequate and baseless.

Several other nuclear reactors are being prepared for decommissioning but provide little meaningful decommissioning experience that could be used reliably to predict the decommissioning costs of the SSES.

For instance, Yankee Rowe was cited during the recent 1995 PP&L Base Rate Case as a reliable predictor of the decommissioning cost estimates associated with a large commercial reactor. Yankee Rowe, however, is a small commercial plant (167 MWe) that had a unique advantage which make it an unlikely predictor of decommissioning costs at other nuclear plants: The most significant component removal, steam generators, was completed without Nuclear Regulatory Commission (NRC) approval. PP&L's witness, Thomas LaGuardia, admitted, "[t]hat's correct, at the time. They [Maine Yankee Atomic Power Company] didn't have the decommissioning plan approved at that time." (PP&L Base Rate Case, Page 2095; Lines 17-18.) Moreover, this plant is only in the initial phase of decommissioning and costs have already mushroomed from $247 to $370 million from 1993 to 1995 primarily for spent fuel management costs. (PP&L witness, Thomas LaGuardia, confirmed the figures on Page 1029, Lines 16-22.)

Shoreham, a large Boiling Water Reactor (809 MWe), was decommissioned after two full power days of operation or 1/7,300 of the "expected" operating life of the SSES. Therefore, Shoreham is also an unpredictable and unreliable indicator of future decommissioning costs at the Susquehanna Steam Electric Station.

As of this filing, no commercial nuclear power plant has been decommissioned, decontaminated, and returned to free-release. Nuclear decontamination and decommissioning technologies are in their infancy and several identifiable industrial trends are apparent when reviewing the Nuclear Regulatory Commission's treatment of prematurely shutdown reactors: 1) There is a reluctance to undertake, initiate or finance decommissioning research; 2) Prematurely shutdown reactors place an additional financial strain on the licensee; and, 3) These reactors have been retired for

mechanical or economic reasons. [United States Nuclear Regulatory Commission, *Advisory Panel for the Decontamination of Three Mile Island Unit-2*, September 23, 1993.]

Pennsylvania Power & Light contracted with the nuclear industry's decommissioning consultant, TLG, to construct decommissioning cost estimates based on work completed at Shippingport, Shoreham, Yankee Rowe and small, prototype reactors such as: BONUS (17 MWe) placed in ENTOMBMENT; Elk River (20 MWe) a reactor approximately 2% of Susquehanna's size which operated for five years; and, Pathfinder (60 MWe), which operated for 283 full power days (PP&L Base Rate Case, LaGuardia, Page 1044, Line 1) before being placed in SAFESTOR in 1989.) These estimates, made by LaGuardia, relied on: 1) The development of nonexistent technologies; 2) Anticipated projected cost of radioactive disposal; and, 3) The assumption that costs for decommissioning small and short lived reactors can be accurately extrapolated to apply to large commercial reactors operating for forty years.

In Response to Interrogatories of the Environmentalists, Set 3, Dated May 19, 1997, PP&L stated: "However, at this time, the Company cannot predict future changes in decommissioning technology, decommissioning costs or nuclear regulatory requirements. Accordingly, the Company cannot anticipate future decommissioning cost requirements or the associated rate recovery levels." (Q. & A. 157.)

At the Susquehanna Steam Electric Station, projected costs for decommissioning have **increased by at least** 553% in the last 19 years. In 1981, PP&L engineer Alvin Weinstein predicted that PP&L's share to decommission SSES would fall between $135 and $191 million. By 1985, the cost estimate had climbed to $285 million, and by 1991 the cost in 1988 dollars for the "radioactive portion" of decommissioning was $350 million. The Company then contracted out for a site-specific study which projected that the cost of immediate decommissioning [DECON] would be $725 million in 1993 dollars. The 1994 cost estimate remained steady at $724 million, but the market value of securities held and accrued in income in the trust funds declined, and thus the estimate reflected another increase in decommissioning costs. (4) (PP&L Base Rate Case, Page, 1016, Lines 7-27 and Page 1017, Lines 1-24.)

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4 "PP&L has not performed an analysis which compares the PP&L estimate of $4.6 billion to $5.6 billion in stranded costs to the $3.1 billion estimate prepared by Resource Data International/POWERdata reported on page 12 of the May 1997 edition of Public Utilities Fortnightly." (PP&L's Response to Interrogatories of the Office of Small Business Advocate, Set I, Dated May 22, 1997, Q. & A. 38.)

However, three days earlier, the Environmentalists asked PP&L (Q. & A. 156 b.): "Is the Company aware of any such [decommissioning] studies conducted by others? Please identify and provide each such study conducted by others and in the Company's possession or control."

"PP&L is unaware of any such studies." (PP&L's Response to Interrogatories of the Environmentalists, Set 3, dated May 19, 1997.)

Furthermore, PP&L has never analyzed or evaluated decommissioning cost discrepancies and predictions offered by separate entities.

Q.4. a. "Are you aware that PP&L's decommissioning estimates from 1981 (Alvin Weinstein, $135 to $191 million) through 1995 have increased by 553% when TLG projected nuclear decommissioning costs at $724 million?"

A. 4. a. The S.M. Stoller Company study and the TLG studies were prepared using different assumptions. PP&L has not done any study that would compare or equate the two estimates. (PP&L's Response to Interrogatories of Eric Joseph Epstein, Dated June 3, 1997.)

C. Proportional Confusion: The Case of the Allegheny Electric Cooperative and Pennsylvania Power & Light, Inc.

Clearly, there are serious problems with TLG's methodology and cost projections. However, even if these figures were accepted uncritically, there would still be a substantial funding shortfall produced by PP&L's partner, the Allegheny Electric Cooperative.

The Susquehanna Steam Electric Station is owned by PP&L (90%) and the Allegheny Electric Cooperative (10%). The Allegheny Electric Cooperative (AEC) is responsible for 10% of the cost of decommissioning. PP&L's consultant, TLG, estimated PP&L's decommissioning share to be $724 million. Therefore, the AEC is responsible for the remaining 10%, or $79 million, of the $804 million projected funding "target" for nuclear decommissioning. However, the AEC is saving for decommissioning by **setting aside 5%** (rather than 10%) of its projected share of nuclear decommissioning. Laurence V. Bladen, Director of Finance and Administrative Services told Mr. Epstein that AEC's is basing its decommissioning estimates on **data supplied by PP&L**. (**Bold faced type added**.) (Telephone conversation between Mr. Epstein and Mr. Bladen, March 30, 1995.) "Allegheny's portion of the estimated cost of decommissioning SSES is approximately $37.8 million and is being accrued over the estimated useful life of the plant."
(Allegheny Electric Cooperative 1994 Annual Report, The Power of Initiative: Seizing Opportunities on the Horizon. Decommissioning Trust Fund, **Cost of Decommissioning Nuclear Plant**, p.49.)

The cost projections have not changed since the AEC's 1993 Annual Report (p.27) (See 1995 Annual Report: Beyond Electricity, p.29. Mr. Epstein has been unable to procure more recent AEC Annual Reports despite numerous requests. Moreover, Mr. Epstein attempted to facilitate dialogue between AEC through their general counsel, Otto Hoffman, beginning on August 14, 1998. As of Wednesday October 27, 1999, Mr. Hoffman notified Mr. Epstein, "AEC's decommissioning fund is adequately funded." However, requests for documentation to support Mr. Hoffman's assertion were not acted upon by Mr. Hoffman or the AEC.)

Complication the matter is PP&L's steadfast refusal to actively monitor AEC's obligations. Mr. Ronald E. Hill, senior vice-president of Finance for PP&L was questioned by Mr. Epstein during the PP&L Base Rate Case (1995) on the relationship between AEC and PP&L, and he exhibited this distant and negligent attitude:

Q: Have you read Allegheny Electric Cooperative's annual report from last year by any chance?
Witness: I believe I glanced at it, but I can't recall specifics. (Page 448, Lines 15-22.)
Q: Can you tell me why they're [AEC] only putting aside $37.8 million?
Witness: Not specifically except they're probably using a different estimate than we used. (page 449, Lines 5-8.)

Q: Allegheny could be planning it [decommissioning] on entomb, they could be planning it on decon?
Witness: They could be basing they're estimate on the NRC required funding level, too. There are several different methodologies of coming up with the estimate to decommission plants.

Q: But it's possible that you could be putting aside money -- I believe, actually, your method is decon and their method is safe store.
Witness: I don't know what their method is. I don't believe it's safe store. (PP&L Base Rate Case, Page 450, Lines 11-25 and Page 451, Lines 1-12.)

Also note, in PP&L's Response to Interrogatories of the Environmentalists, Set III, dated May 19, 1997, p. 2, A: 15, c.-d., the Company admitted: "**PP&L does not have any information regrading the extent to which the Allegheny Electric Cooperative, Inc. used the same contingency factor for funding purposes.**" (**Bold face type added.**) *13*

Unfortunately, **AEC does not know what method it is employing to calculate decommissioning costs either.** (**Bold face type added.**) On March 30, 1995, Mr. Epstein contacted Mr. Bladen of the Allegheny Electric Cooperative. Mr. Bladen informed Mr. Epstein that decommissioning costs were based on estimates supplied by PP&L. Bladen noted: "It's not like we could decommission [Susquehanna] using a different method." However, Mr. Bladen could not identify the decommissioning mode. Mr. Epstein called on May 12, 1995 and **Mr. Bladen informed him that the method for decommissioning Susquehanna was "Greenfield." Mr. Epstein informed Mr. Bladen that Greenfield is not a decommissioning mode and Mr. Bladen responded, "I'll have to do some further checking." Mr. Epstein recontacted Mr. Bladen on June 5, 1995, at which time Mr. Bladen replied, "I keep asking the engineers. I know its not ENTOMBMENT."** (**Bold face type added.**) Mr. Bladen is charged with financial oversight of AEC, and although sincere and responsive, has absolutely no idea about the method and financial expectations associated with the decommissioning of Susquehanna.

The impact of this uncertainty between decommissioning partners is crucial and potentially debilitating. Since PP&L has no enforcement mechanism to compel Allegheny Electric to fund 10% of the decommissioning costs for SSES, the question of financial responsibility looms large. Mr. Epstein queried the Company witness during PP&L Base Rate Case (1995), Mr. Ronald Hill, about the relationship:

Q: "But there is actually no coordination?"
A: "There is coordination, but they're under no obligation to accept our estimate and to fund in the same manner that we do. They are obligated to come up with their share of the money at the end."

Judge Christianson: "Coordination but not control."
Witness: "That's right your honor."

Q: "Do you know what method right now they're anticipating Susquehanna will be decommissioned as?"
A: "No, I don't."

Q: So it's possible they may be envisioning the decommissioning of Susquehanna say, entomb, whereas right now you're envisioning it as decon?
Witness: They may be. (Page 450, Lines 11-25 and Page 451, Line 1-12.)

The Allegheny Electric Cooperative is owned and controlled by fourteen (14) distribution cooperatives. AEC is not regulated by the Public Utility Commission nor does the company have publicly traded stock. Therefore, there is no behavior modifying mechanism afforded to state regulators or PP&L shareholders to oversee AEC's contributions. If current trends continue unabated, AEC's expected decommissioning savings will be grossly inadequate and will therefore undermine PP&L's decommissioning plans for Susquehanna.

In addition, the Allegheny Electric Cooperative "generates approximately 64% of the power it delivers to its members through operation of the Raystown Hydroelectric Project...and its 10% ownership of the Susquehanna Steam Electric Station..." (Allegheny Electric Cooperative, Annual Report 1995: Beyond Electricity, p.9.) Any sudden and unexpected interruption in electric distribution, e.g., premature shutdown of Susquehanna, would further erode AEC's ability to make decommissioning contributions.

AEC's tenuous financial position in regard to inadequate decommissioning savings will place a greater fiscal burden on PP&L; and, thereby; 1) Create further uncertainties about PP&L's ability to meet its financial commitments to decommission SSES; 2) Undermine TLG's net decommissioning estimates; and, 3) Radically skew

TLG's contingency factor. If this scenario is realized by other power reactor licensees and their proportional partners, the ripple impact is staggering, and could potentially expose both hostage rate payers and captive taxpayers to billions of dollars in nuclear decommissioning shortfalls.

The cost estimates for non-radiological decommissioning, (an imprecise term), are not mandated by the NRC although the agency stipulates that all nuclear power plants be returned to Greenfield, i.e. the original environmental status of the facilities prior to construction of the nuclear power plant. Furthermore, Greenfield has not been achieved by any large commercial nuclear plant and utilities are not required to save for this mandated eventuality (5), placing additional strain on the companies ability to finance radiological and non-radiological decommissioning. Moreover, the AEC was unable to distinguish between Greenfield and an NRC approved mode for nuclear decommissioning.

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5 Q. 6. a. "How much additional moneys does the Company estimate will be needed for non-radiological decommissioning in order to restore the site to "Greenfield?"

b. "How is PP&L saving for this mandated eventuality?"

A. 6. "a. None. Non-radiological equipment was included in the TLG decommissioning study."

b. "See response to item a."

(Pennsylvania Power & Light Company Response to Interrogatories of Eric Joseph Epstein, Dated June 3, 1997.)

D. Planned Operating Life for Nuclear Generating Stations

Experience at large commercial nuclear power plants over 200 MWe has clearly demonstrated that TLG's assumption that nuclear units will operate for 40 years, i.e., "PP&L expects that Susquehanna will operate for its full license life" (6) contradicts existing nuclear reactor experience. The Company's witness, Thomas LaGuardia, was asked by Mr. Epstein: "[H]ow many commercial nuclear power plants in this country have completed their full operating lives?" Mr. LaGuardia replied: "[N]one, essentially." (PP&L Base Rate Case, Page 1023, Lines 20-22.) Additionally, George T. Jones, Vice-President of Nuclear Engineering, was asked by Mr. Epstein:

Q: "In your experience, which is rather extensive at TVA, Entergy and CE, can you at least let me know what is the longest life of a plant you've been associated with?"

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6 Pennsylvania Power & Light Company, Response to Interrogatories of the Environmentalists, Set 3, Dated May 19 1997, Question and Answer: 167 (Also see, Pennsylvania Power & Light Company, Response to Interrogatories of the Office of Consumer Advocate, Set III, Dated April 17, 1997 and PP&L's Response to Interrogatories of Eric Joseph Epstein, Set I, dated June 3, 1997.)

Additionally, PPL admitted (in the same set of Interrogatory Response of the Environmentalists) that TLG "has not performed, nor is he aware of, any generic studies or studies that address the premature closure of a nuclear unit and the cost of decommissioning under such a scenario." (Q. & A. p. 190.)

Moreover, PP&L believes that while the SSES may operate for 40 years, they are not confident that this critical assumption applies to other commercial nuclear power plants.

Q. 9. "Is the Company aware that if the Susquehanna Steam Electric Station operated for 40 years, it will be retired at the same time as the majority of nuclear reactors in America?"

A. 9. "This question is premised upon an assumption that the majority of other nuclear reactors in America will operate for their full license lives. **There is no evidence that this premise is correct.**" (**Boldface type added**.) (PP&L's Response to Interrogatories of Eric Joseph Epstein, Set I, Dated June 3, 1997.)

Mr. Jones: I've never been associated with one that -- none of them have ever reached the end of their licensed life.

There has been a lot of work done and continues to be done on life extension, not by us but by the industry. I don't know." (Page 2272, Lines 8-16.)

Even Mr. MacGregor, counsel for PP&L, wavered on Susquehanna's ability to operate for its full-life. Mr. Epstein asked him: "But his [LaGuardia] methodology is based on the fact the plant will operate for 40 years; is that not correct." Mr. MacGregor answered, "I'm not sure that's true." (Page 456, Lines 15-18.)

The Company reconfirmed the 40 year assumption in the present case. "PP&L expects that Susquehanna will operate for its full license life. Moreover, the Company believes that it can meet 'higher than expected decommissioning costs,' if they arise, and can avoid 'financial difficulties at the responsible entity' by operating its system in a efficient and cost effective manner. The Company has not contemplated additional measures at this time." (Pennsylvania Power & Light Company Response to Interrogatories of the Environmentalists, Set 3, Dated May 19, 1997. Q. & A. 167.) This assertion **contradicts PP&L's direct testimony** about their apprehension and financial vulnerability if the Company is no longer defined as an "electric utility." (**Bold face type added**.)

Mr. LaGuardia's and Mr. Jones's acknowledgments are confirmed by empirical data, i.e., approximately one nuclear generation station closes prematurely per year. For example, the following reactors have been shut down prematurely: Shoreham, 809 MWe, operated for two full-power days (which is .000136986% of the estimated life of the Susquehanna Steam Electric Station) and closed before it could begin commercial operation in May 1989; Trojan, 1095 MWe which operated for 40% of its operating life, and completed a unique disposal arrangement with the Hanford

Nuclear Reservation (May 1976 to November 1992); Three Mile Island-2, 792 MWe which operated for 1/120 of its operating life (December 1978 to March 1979), Dresden, 200 MWe which operated for 45% of its operating life (July 1960 to October 1978); Indian Point-1, 257 MWe which operated for 30% of its planned operating life (January 1963 to October 1974); San Onofre-1, 436 MWe which operated for 35% of its expected life (from January 1968 to November 1992); and, Fort Saint Vrain, 330 MWe which operated for 27.5% of its expected life (January 1979 to to August 1989) and Big Rock Point a 67 MWe General Electric BWR which began commercial operation in March 1963 prematurely shut down on August 29, 1997. (World List of Nuclear Power Plants: Operable, Under Construction, or on Order (30 MWe and Over) as of December 31, 1994, "Nuclear News," March, 1995, pp. 38-42.)

On December 4, 1996, Haddam Neck, a 582 MWe Pressurized Water Reactor operated by Connecticut Yankee Atomic Power Company, closed prematurely in the hope of saving rate payers $100 million ("Nuclear Monitor", p. 4, December 1996.) The plant came on-line in January 1968 and operated for 72.5% of its predicted life. Six months later, on May 27, 1997, Main Yankee was shut down and became the first Combustion Engineering reactor to be prematurely retired. The plant, an 860 MWe Pressurized Water Reactor, opened in December 1972 and was scheduled to operate through 2008.

The Connecticut Department of Public Utility Control removed Millstone-1 from the rate base on December 31, 1997. Millstone-1, a 660 MWe General Electric Boiling Water Reactor operated by Northeast Utilities, began operation in March 1971 before being prematurely retired. More importantly, the decision prevents Northeast Utilities from charging rate payers for costs associated with the shutdown.

And, on January 15, 1998, Commonwealth Edison announced it was permanently shutting down Zion-1 and Zion-2, 1040 MWe Westinghouse PWRs. Zion-1 began commercial operation in December 1973 followed by Zion-2 in September 1974. Com Ed also reported this decision will cost shareholders $515 million or $2.38 per share. With the shutdown of Zion, premature closure has occurred for every nuclear reactor type and supplier in the United States of America.

A sense of fair play, intergenerational equity, and fiduciary accountability, direct proportional owners, including Rural Electric Cooperatives, to plan for decommissioning based on the assumption that their nuclear units will be prematurely shut down. The chief indicators that the nuclear industry relies on to measure plant longevity are spurious and imprecise. There is no clear nexus between operating capacity (measure of electricity actually produced compared to what would have been generated if the plant had operated continuously at full power) and plant longevity. As previously noted, operating capacity and historical evidence from commercial nuclear power plants give no indication that nuclear generating stations will operate for 40 years. (Refer to Page 32 for a Nuclear Regulatory Commission precedent establishing a 30 year planned operating life as a benchmark for nuclear decommissioning funding). On the contrary, reactor history has resoundingly demonstrated that nuclear power plants have not operated for the term of their license. [See *infra* II-A **Discussion.**] Obviously, there are chronic shortfalls between "targeted" funding levels and actual costs for nuclear decommissioning. The burden of proof rests squarely on the shoulders of power reactor licensees and their partners, to demonstrate that a 40 year operating life, which they predicate their financial planning upon, is realistic. Furthermore, the nuclear industry has exasperated this problem by resolutely refusing to put aside adequate funds for nuclear decontamination and decommissioning.

E. Spent Fuel Isolation

There is no location to permanently store spent fuel generated by nuclear power plants. This is a significant problem for nuclear generating stations where the fuel storage capacity will be exhausted before their license expires. These facilities have become *de facto* high-level, radioactive waste (HLW) sites, and many are currently proposing to increase storage capacity through an untested, commercial waste technology, i.e., dry cask storage. For example, "The Company plans to continue storing spent fuel in its spent fuel pool. When the pools are full, the Company will utilize a Dry Storage facility designed to support operation to end of plant's life, if necessary." (Pennsylvania Power & Light Company Response to Interrogatories of the Environmentalists, Set 3, Dated May 19, 1997, Q. & A. 172.) PP&L projected that spent fuel pools at SSES-1 will be full in 2001 and at SSES-2 in 2002. (Ad Crable, *Lancaster New Era*, A-6.)

Even if spent fuel storage capacity is increased, the additional cost will have a significant impact on decommissioning. For example, at the Susquehanna Steam Electric Station **spent fuel costs were omitted from TLG's decommissioning estimate**: "None of the estimates we have prepared include the cost of disposal of spent nuclear fuel," PP&L Base Rate Case, Page 1032, Lines 20-12). But spent fuel is the main contributing factor in the escalation of decommissioning costs at Yankee Rowe. Thomas LaGuardia, the Company's witness, admitted the increase during cross examination:

Mr. Epstein: "Are you aware that the cost has increased for the decommissioning of Yankee Rowe from $247 million to $370 million over the last two years?"
Witness: "Yes. I'm aware of what the estimate concludes."

Mr. Epstein: "And half of the cost was attributable to spent fuel storage?"
Witness: "That's correct." (PP&L Base Rate case, Page 1029, Lines 16-22.)

Aggravating the critical shortage of HLW storage space is the bleak estimate for the completion of Yucca Mountain, the designated repository for high level nuclear waste. The earliest date this site could be available is 2010. Lynn M. Shishido-Topel, commissioner of the Illinois Commerce Commission testified on behalf of the National Association of Regulatory Commissioners before the House Subcommittee on Energy and Mining Resources and the House Committee on Oversight and Investigations on March 17, 1995. She told the panel that she was "fairly certain that DOE would not meet its revised 2010 deadline to begin accepting spent fuel from commercial reactors." (Bureau of National Affairs (BNA), "Federal Facilities: Industry, DOE Struggle to Find Acceptable Solution to Interim Storage of Spent Fuel, Daily Environment Report News, March 18, 1994 [1994 DEN 52 d10] .) Shishido-Topel also predicted that the amount of spent fuel generated by 2000 will be 40,000 metric tons (MTU).

The State of Nevada has demonstrated that Yucca Mountain will probably hold about 20% of the total 85,000 MTU of spent fuel earmarked for the facility. (PP&L Base Rate Case, Page 2287, Lines 4 -19.) [State of Nevada, *Nuclear Waste Project Office*, "Scientific and Technical Concerns", pp.8-11.]

In February, 1999, the scientific peer review panel for Yucca Mountain commissioned by the United Sates Department of Energy (DOE) produced a "highly critical" report. "The review panel said the model [DOE's computer model] has so many uncertainties - like the corrosion rates of waste containers, the area's vulnerability to earthquakes and how climate changes would affect rainfall - that its reliability was limited." (*The New York Times, Science*, "New Questions Plague Nuclear Waste Storage Plan", Jon Christensen, August 10, 1999.)

Furthermore, on October 4, 1999, LeBoeuf, Lamb, Green & MacRae, filed a complaint alleging a conflict of interest by the Department of Energy in their selection and awarding of $16 million legal contract to Winston & Strawn. Former general counsel to the Energy Department, R. Tenney Johnson, in a sworn affidavit, stated: "[A] situation has been created which an entity [Winston & Strawn] will pass judgment on its own work." (Matthew Wald, *New York Times*, October 5, 1999.)

Isolation of high-level radioactive waste, which is primarily composed of spent nuclear fuel, **can not be separated from nuclear decommissioning**. At the earliest, Yucca Mountain will be available in 2010. Nuclear generating stations can not be immediately decontaminated and decommissioned with the presence of spent fuel on-site or inside the reactor vessel. Aggressive and destructive decontamination clean-up processes will be unavailable until the spent fuel is removed the nuclear generating stations' temporary storage facilities. Additionally, front-end decommissioning tasks require skilled workers for site-specific tasks. Labor costs are erratic and should be linked to inflationary indices. The NRC and the nuclear industry devote scant resources to decommissioning research and development. This laissez-faire approach should not be rewarded by financially penalizing rate payers and tax payers.

If a long term solution to spent-fuel isolation is not found in the immediate near future, many nuclear generating stations will be shut down prematurely due to a lack of storage space. Cost projections by the proportional owners and the Rural Electric Cooperatives, must necessarily include variable funding scenarios in the event a high-level radioactive isolation site is not available during a premature shutdown, or at the end of plant's planned 40 (forty) year operating lifespan.

F. Low Level Radioactive Waste Isolation

TLG provided nuclear waste storage and nuclear decommissioning costs estimates for all Pennsylvania utilities regulated by the Public Utility Commission. However, TLG's testimony during the 1995 PP&L Base Rate Proceeding discredits their projections. Mr. La Guardia based his cost estimates for low-level radioactive waste disposal on the assumption that the Appalachian Compact would be available when the SSES closes (PP&L Base Rate Case, Page 1034, 17-20). He concluded that the disposal of LLRW is the most expensive component in the decommissioning formula (Page 2091, Lines 21-25.) Furthermore, Mr. LaGuardia conceded it may be necessary to recompute cost estimates for disposal because it now appears imminent that Barnwell will open for seven to ten years for all states except North Carolina (Page 2108, Lines 4-9.) However, the Company has not yet taken the step of reconfiguring costs of LLRW disposal now that Barnwell has been open since **July 5, 1995**. (**Bold face type added.**)

Q. 7. "Has TLG or the Company recomputed decommissioning estimates since Barnwell has reopened?"

A. 7. "No." (Pennsylvania Power & Light Company Response to Interrogatories of Eric Joseph Epstein, dated June 3, 1997.)

Barnwell is currently operating and has the capacity to function through 2006. In a response to a formal inquiry posed by Mr. Eric Epstein, Chairman of Three Mile Island Alert, Inc., on May 18, 1996, concerning Barnwell's operating and capacity status, Chem-Nuclear Systems, Incorporated, the owners and operators of the Barnwell, declared:

> Our analysis is based on the insights and understanding that come from having a major operation in South Carolina. The realities are that Chem-Nuclear LLRW disposal facility in Barnwell, S.C. has sufficient disposal capacity to remain open to the nation for approximately 10 years based on volume received. (Walter E. Newcomb, Ph. D., Vice President and Project Manger, CNSI Pennsylvania Office, May 18, 1996.)

In addition to recomputing the cost of LLRW disposal downwards, the reopening of Barnwell has indefinitely postponed the siting of a waste facility in Pennsylvania. Marc Tenan, Appalachian Sates LLRW Commission executive director observed: "If Barnwell's going to open to the entire country for at least the next 10 years, is there really a pressing need to continue work on regional disposal facilities?" ("ACURIE Newsletter, About Low-Level Radioactive Waste Management," May 1995, Page 1.) And on June 18, 1998, the Appalachian States LLRW Commission voted to support the Pennsylvania Department of Environmental Protection's suspension of the siting process for a Low-Level Radioactive Waste Disposal Facility.

III. STATEMENT OF FACTS AND LAW

Imposition of Nuclear Operating Costs of onto Rate Payers and Prudence Reviews for Proportional Owners of Nuclear Generating Stations

United States regulatory law has never recognized the right of utilities to recover imprudent, highly speculative utility expenditures. *Bluefield Water Works & Improvement Company v. Public Service Commission of the State of West Virginia*, 262 U.S. 668, 678 (1923) (no "constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures"); *State of Missouri ex rel. Southwestern Bell Telephone Company v. Public Service Commission of Missouri*, 262 U.S. 276, 289 91923) (an "abuse of discretion . . . by the corporate officers" disallows recovery for those expenditures). This emphasis, not on micro management of the corporate leadership of the utility, but on the preservation of the legitimate regulatory authority of the states, was magnified in *Pike County Light and Power Company v. Pennsylvania Public Utility Commission*, 465 A. 2d 735 (Pa. Cmwlth, 1983), in which the Commonwealth Court of Pennsylvania stated that:

> The electric utility's reliance on its parent company as a source of power represented an abuse of management discretion in consideration of available alternative supplies of electricity, thus requiring a reduction in its purchase power expense.

In the same case, the court stated that the "PUC has broad discretion in rate making matters" and that the actions of the utility were imprudent based upon the availability of lower cost power and the failure of the utility to pursue this alternative. Id. at 739.

This "prudent investment" approach was also explored in *New Orleans Public Service, Inc. v. Council of the City of New Orleans*, 491 U.S. 350 (1989), in which the State utility commission questioned the Company's actions in undertaking an investment in a nuclear generating station. The Supreme Court was asked by the utility to force the New Orleans City Council to grant the utility an increase in retail rates as determined by the FERC, after the District Court had refused to rule on the basis of the abstention doctrine. Id. at 355. The Council had refused to grant the retail rates, found that the utility acted imprudently, and stated that the utility's "oversight and review of its Grand Gulf obligation . . . was uncritical and severely deficient." Id. at 356 (citing App. 24)(citation omitted). The Council also stated that the utility "acted imprudently in failing to reduce the risk of its Grand Gulf commitment, in the wake of the Three Mile Island (TMI) nuclear accident in March, 1979, 'by [not] selling all or part of its share [in Grand Gulf] off station." Id. at 357. The Court declared that the abstention doctrine did not apply to the case, and reversed and remanded the case for further consideration to the District Court.

The Pennsylvania Public Utility Commission has already established that the imprudent activity of the utility in investing in nuclear generating capacity is a relevant factor to be taken into consideration when determining the amount of a rate increase request. In *Pa. PUC et al. v. Metropolitan Edison Company*, 141 P.U.R. 4th 321 (1993), the Commission was faced with a request from Met-Ed for a rate increase prompted by the TMI-2 accident and subsequent need for decommissioning. In its threshold inquiries, the Commission explored whether the decommissioning costs were a "necessary and reasonable cost of doing business." Id. at 328. In addition, the Commission sought to determine whether the actions following the TMI accident were

"imprudent or improper." Id. The Commission then noted that "no challenge ha[d] been made to the overall reasonableness of decommissioning costs."

Given the uncertainty surrounding decommissioning, radioactive waste costs, unavailability of radioactive waste disposal facilities, and increased safety concerns surrounding nuclear plant operation, the pudency of the utility's decision to dedicate large amounts of capital to the nuclear venture are called into question. These questionable investment decisions also include proportional owners of nuclear generating stations.

Reasonable and prudent utility decision-making demand more than a simple acknowledgement of an industry-wide change in the form of a rate hike request or a *de facto* tariff passed onto tax payers. The Rural Electric Cooperatives, underwritten through the Rural Utilities Service, (formerly the Rural Electrification Administration), which is an agency of the United States Department of Agriculture, are not insulated from bearing fiscal responsibility for imprudent investments in nuclear generating stations

As stated by the Court in *Duquesne Light Co. v. Barasch*, 488 U.S. 299 (1989), the proper scope of analysis for the Commission is whether the decisions at the time, were "reasonable and prudent." The PUC must take into account the history of premature closure of nuclear generating stations. The NRC should also adopt this time tested standard.

As reflected by the Commissions and the courts in many of the above cases, an extensive prudence inquiry must be undertaken by the Public Utilities Commission under Sections 515 and 1308(f) of the Public Utility Code whenever a utility requests rate recovery based in whole or in part on the cost of constructing an electric generating unit. The roots of this prudence inquiry were discussed by the Commission in *Pa. PUC v. Pa. Power Company*, 85 PUR 4th 323 (1987), in which the Commission explained that a prudence review is demanded by the premise that "[I]t is the utility, not its rate payers, which selects the firms which work on a construction project. Therefore, the utility, not its rate payers, must bear the consequences of a firm's failure to perform adequately." Id. at 336. In addition, the Commission stated that rate recovery may be denied even if a utility has acted prudently on the basis of inadequate performance by its agents, contractors, or subcontractors. Id. In the instant case, the decisions involving investment alternatives in the nuclear field were not made by the rate payers, but by the corporate management. A solid analogy can be drawn from the reasoning in *Pa. Power* to the issue of "stranded costs" at nuclear power plants concerning the hands in which the decision making powers reside and the subsequent allocation of costs.

An extensive prudence review is necessary in rate increase requests or "stranded investment" proceedings to determine whether corporate mismanagement has resulted in costs that are then unjustly transferred to the rate payers. In a forceful dissent (3-2) filed by Commissioner Joseph Rhodes, Jr., to the decision of the Pennsylvania PUC in *Pa. PUC v. Metropolitan Edison Company*, 141 PUR 4th 321 (1993), Commissioner Rhodes disagreed with the balance struck in the Majority opinion between costs borne by the shareholder and costs borne by the rate payer. In discussing the equity of the arrangement by which Met-Ed rate payers were forced to

pay rates which included the costs of decommissioning TMI-2, Rhodes stated the relevance of this case to future nuclear plant decommissioning cases:

> Premature retirements bear great similarities to TMI-2 because they involve liabilities for premature retirements and decommissioning. Therefore, the policy set forth in determining who should pay for TMI-2's decommissioning grows in significance because it may well establish a precedent for additional early retirement cases that might involve substantial rate increases.

Rhodes characterized the equitable considerations in this case between the rate payers and the shareholders in a simple but direct question: "Is it fair to impose these costs on rate payers?" The same question must be addressed by the Nuclear Regulatory Commission in relation to adjusted increases in decommissioning funding that will clearly occur after proportional owners and the Rural Electric Cooperatives are mandated to comply to the same standards as power reactor licensees.

In *Re Wolf Creek Nuclear Generating Facility*, 70 PUR 4th 475 (1985), the Kansas State Corporation Commission was confronted with the pudency of the construction of a nuclear generating plant. The Commission discussed risk assumption and risk sharing through a summary of the testimony of one of the intervener's witnesses, who testified to the proper role of regulation in the determination of rates. The witness, Dr. Sturgeon, explained that:

> One of the goals of public utility regulation is to create the same results within the regulated industry as would occur in a competitive market. In a competitive market, if a firm does not use the efficient alternatives, it must either exit the market or receive a lower than normal return. Id. at 528.

Another witness, Mr. Drazen, argued that: "Even without a showing of imprudence, shareholders should bear a portion of the cost of Wolf Creek since regulation is a surrogate for competition." Id. at 529

The Corporation Commission declared that the "risk-sharing" approach advocated by the witnesses had considerable merit. It continued to discuss the need for "clear, equitable, and strong risk-sharing policies to be established by regulatory commissions to be able to deal with the consequences of poor planning, even when no imprudence is demonstrated." This same risk-sharing formula must be applied to Rural Electric Cooperatives and partial-owners of nuclear generating stations.

On the issue of decommissioning, the Commission stated that "Decommissioning cost estimates are inherently uncertain and speculative" and that "[t]o date, there has been no actual experience decommissioning a large, commercial nuclear plant and cost estimates have been traditionally low." In addition, the Commission held that "The current shortage (indeed nonexistence) of the site for the disposal of large quantities of radioactive waste makes detailed estimates of shipping distance and cost virtually impossible." Id. at 540-41. In the *Wolf Creek* rate case, Mr. LaGuardia (also a Company witness in the 1995 PP&L Base Rate Case) failed to include inflation in his cost estimates and assumed a forty year operating life for the nuclear plant. Id. On the basis of this omission and the speculative predictions of operating life, the Commission chose a "midpoint" of LaGuardia's testimony.

The Commission also declared, "**We believe that the NRC and general industry estimates of 30 years is a valid and realistic life to utilize for purposes of decommissioning estimates.**" Id. at 541. (**Bold faced typing added.**) The NRC must adopt and promulgate consist decommissioning mandates, which includes planning for nuclear decommissioning around a thirty (30) planned operating life.

Additionally, the Pennsylvania Public Utility Commission cited Nuclear Regulatory Commission guidelines that suggested five criteria for evaluating alternative financing mechanisms for nuclear decommissioning . One of the components of analyses in the NRC's was titled "Intergenerational equity - that the cost of decommissioning be spread equitably to all rate payers throughout the life of the facility." Id. (Discussion under **Argument** on pp. 34-36.)

The concerns expressed in the various cases discussed by the Commission's vested with the responsibility of approving rate hike requests, tax increases, and recovery of new construction costs, are valid and applicable to the issue of imprudent "stranded costs" and grossly inadequate decommissioning projections. An extensive prudence review of the costs incurred by power reactor licensees, their partners, and Rural Electric Cooperatives in the construction of nuclear generating stations and the subsequent decision by the owners and operators in their continuing operation is mandated by the speculative and imprudent nature of the corporate management. The above mentioned partners in nuclear ventures did pursue these investments, with full and complete knowledge of the uncertainties that serve as the economic foundation of the nuclear industry. The present operating status of U.S. nuclear facilities bear out this premise: no commercial nuclear generating facility has completed its full operating life, due to safety and economic considerations, nor has a safe, permanent repository been found for the isolation of high-level and low-level radioactive waste. The rate payer and the tax payer should not be made to bear the brunt of expenses incurred by premeditated imprudent and speculative management decisions. Once again, the admonishment of Commissioner Rhodes is pivotal: "[A]side from whether it is legal, is it fair to impose these costs on rate payers?"

IV. ARGUMENT

Objective empirical data clearly demonstrate that the majority of commercial nuclear power plants will not operate through their planned operating life of forty years (40). While the power reactor licensees are entitled to recover a portion of decommissioning funding through the rate and tax relief processes, they are not entitled to a full and complete rebate on "stranded investments" and shortfalls that will certainly arise do the underfunding of nuclear decommissioning "funding targets". Shareholders and Board Members of electric utilities and Rural Electric Cooperatives must assume responsibility for their business decisions. These aforementioned entities aggressively sought to license, construct, and operate nuclear power plants. To allow artificial definitions concerning ownership of nuclear generating stations to insulate those who cogently made capital investments is immoral, unethical, and an endorsement of corporate socialism. That is, shareholders profit from imprudent investment decisions and are accorded relief when error of mismanagement becomes manifest.

The issue of rate payer equity and the mandated feasibility of shared costs was highlighted in PP&L's 1995 Base Rate request before the PUC. The Company went on record during the hearings as being disgruntled with the manner in which decommissioning costs are unfairly distributed among rate payers. Mr. Douglas A. Krall, Manager-Integrated Resource Planning for PP&L is on record decrying the current decommissioning formula during the PP&L Base Rate Case:

Mr. Epstein: "That if the rate increase for decommissioning fossil fuel plants are delayed future customers would unnecessarily be at risk."

Mr. Krall: "Yes. There would be an exposure that a customer who came on the last day of operation of the plant would get very little service from the plant and end up paying the whole cost of decommissioning." (Page 1925, Lines 16-24.)

Mr. Epstein: "But you would not be adverse to assessing future customers who got no electrical benefit from a plant decommissioning costs?"

Mr. Krall: "It doesn't seem to me to be an equitable situation." (Page 1927, Lines 9-13.)

Yet, PP&L sidestepped the issue of intergenerational rate equity and focused on intraclass and interclass cost shifting prior to the *Joint Petition For Full Negotiated Settlement of PP&I Inc.'s Restructuring Plan and Related Court Proceedings* , August 12, 1998:

> For any customer, a change in the recovery of CTC costs from a usage rate to a customer charge does not constitute an intraclass or interclass shift in cost recovery, as long as those charges are developed consistent with the rate cap and so that the customer's total bill is held constant during rate restructuring, absent any changes in usage. The Company's approach meets these tests. No customer is picking up costs for another customer within his or her class or from other rate classes. (S.F. Tierny, Pennsylvania Power & Light Company response to interrogatories of the Pennsylvania Petroleum Association, Set A, Dated June 10, 1997. Q. & A. 20.)

This formula only serves active and hostage PP&L rate payers. The Company has made no provisions to insulate near future customers (seven to ten years) from financing stranded debt on a nuclear generating station. The Allegheny Electric Cooperative has not even addressed the issue of intergenerational rate equity.

Unless a more equitable funding formula for nuclear decommissioning is established, rate payers who receive little or no direct electrical benefit nuclear generating, will be financially exposed.

Society as a whole, and the nuclear industry, including prop[proportional owners and Rural Electric Cooperatives, must assume responsibility for their investment strategies. Creating and perpetuating intergenerational debt is reckless and fundamentally inequitable and undemocratic.

Future generations may be exposed to gross rate payer inequity if adequate decommissioning funding based on realistic estimates (and not "funding targets") are [sic] not assured. The solution should not be a financial safety net provided by hostage rate payers and tax payers excluded from internal corporate decision making. PP&L must assume financial responsibility for its decision to invest in nuclear power which necessarily means the shareholder should bear a substantial portion of decommissioning expenses. Clearly, a formula must be established that recognizes rate payer and tax payer equity for the realized service that power reactor licensees, their partners, including Rural Electric Cooperatives, provide. Rate payers and tax payers are human beings and not abstract, hypothetical billing invoices.

V. REMEDIES

Remedy 1: Rural Electric Cooperatives and proportional partners of nuclear generating stations that are not specified as "the power reactor licensee" must conduct a revised and updated site specific analyses biannually based on prevailing realities that include a recognition that the Nuclear Regulatory Commission is redefining the concept of "electric utility"; scientifically verifiable cost projections for the nuclear decommissioning "target"; premature shutdowns of a substantial number of commercial nuclear generating stations; dry cask storage planning and construction; the indisputable fact Yucca Mountain will not be available at the time the spent fuel capacity has been breached at many operating nuclear generating stations; and, the reality that the concept of regional low-level waste facilities has been supplanted by the extended operating life of "low-level" radioactive waste facilities;

Remedy 2: Prevailing legal precedent undermines the notion that nuclear partnerships are entitled to full rate relief from present hostage customers and current tax payers for nuclear decommissioning costs. A sense of fair play, intergenerational equity, and risk sharing between rate payers and taxpayers on one hand, and shareholders and Board Members of on the other, necessitate that the Nuclear Regulatory Commission direct, and extend the conditions and mandates promulgated in Section 50.75, Reporting and Recordkeeping for Decommissioning Planning, (a), (b), (c) (d) (e), and (f), to include all partners in nuclear generating stations including Board Members of Rural Electric Cooperatives; and,

3) **After implementing Remedies 1) and 2), the NRC must compel proportional owners of nuclear power generating stations, including Rural Electric Cooperatives to conduct prudency reviews.**

Respectfully submitted,

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DATED: December 30 , 1999

CERTIFICATION OF SERVICE

I hereby certify that I have this day served a true and correct copy of the foregoing document upon the active participants named below by the United States Postal Service.

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ATTENTION: *Rulemakings and Adjudication Staff*

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ENCLOSURE I

REFERENCES

Technical

Dr. Michael Masnik, Senior Project Manager, Non-Power Reactors and Decommissioning Project Directorate, Division of Plant Support, Office of Nuclear Reactor Regulation, Nuclear Regulatory Commission, (Bethesda, Maryland).

Dr. John Luetzelschwab, Department of Physics and Astronomy, Dickinson College, (Carlisle, Pennsylvania).

Mr. Arthur Morris, Chairman, Nuclear Regulatory Commission's Advisory Panel for the Decontamination of Three Mile Island Unit 2 and former Mayor of Lancaster (Lancaster, Pennsylvania).

RESEARCH

Energy (1999-2005)

Founding Board Member of PP&L's Sustainable Energy Fund.

Nuclear (1993-1999)

- Sponsored the purchase of **MIRS-II, Scavenger SS100** and **9050 Pipe Crawling Robot** (**PLS 8750**) by General Public Utilities. These robots perform decontamination and decommissioning tasks at Three Mile Island, Oyster Creek and Saxton nuclear power plants.

Scavenger: Used to vacuum the fuel transfer canal during refueling outage 10R at TMI. Dose savings: One to two man-rem and eliminated one entry into canal saving three to four hours critical path time. Future uses: Clean TMI-2 outdoor tanks, vacuum Oyster Creek equipment pool (16R), and vacuum deep end of TMI-1 fuel transfer canal as well as shallow end (11R).

MISR-II: Used for an entry into the Filter Sludge Tank room at Oyster Creek on February 15 and 16, 1996.) This was a high radiation area. The robot identified that there was not a leak in the cleanup system relief valve. This activity saved approximately 300 mrem and prevented replacement of the valve which would have cost 130 man-hours, and 7.5 man-rem exposure. The exercise saved about 3.5 man-rem exposure.

- Sponsored the purchase of five, **low-volume air samplers** (**Andersen**) located one to seven kilometers from Three Mile Island. The filters are collected and analyzed weekly for gross alpha and beta and Iodine-131, monthly for gamma isotopes, and semiannually for Strontium-90.