BEFORE THE
PUBLIC SERVICE COMMISSION OF WISCONSIN

APPLICATION OF WISCONSIN PUBLIC SERVICE CORPORATION FOR AUTHORITY TO ADJUST RATES	)))	**DOCKET NO. 6690-UR-115**

Direct Testimony of

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Synapse Energy Economics, Inc.

On behalf of the

Citizens' Utility Board of Wisconsin

September 17, 2003

Q. Please state your name, position and business address.

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

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

A. I am testifying on behalf of the Citizens' Utility Board of Wisconsin ("CUB").

Q. Please describe Synapse Energy Economics.

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

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 24 states to prepare expert testimony and analyses on engineering and economic issues related to electric utilities. My clients have included the Staff of the California Public Utilities Commission, the Staff of the Arizona Corporation Commission, the Staff of the Kansas State Corporation Commission, the Arkansas Public Service Commission, municipal utility systems in Massachusetts, New York, Texas, and North Carolina, and the Attorney General of the Commonwealth of Massachusetts.

I have testified before state regulatory commissions in Arizona, New Jersey, Connecticut, Kansas, Texas, New Mexico, New York, Vermont, North Carolina, South Carolina, Maine, Illinois, Indiana, Ohio, Massachusetts, Missouri, and

Wisconsin 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.

Q. Have you previously submitted testimony before this Commission?

A. Yes. I submitted testimony in September 1994 in Public Service Commission of Wisconsin ("Commission") Docket Nos. 6630-CE-197 and 6630-CE-209 addressing the proposed replacement of the steam generators at the Point Beach Unit 2 Nuclear Generating Station.

Q. What is the purpose of your testimony?

A. Synapse was retained by CUB to evaluate the reasonableness of Wisconsin Public Service Corporation's ("WPS") proposed decommissioning funding plan for the Kewaunee Nuclear Power Plant. ("Kewaunee") This testimony presents the results of our investigation of this issue.

Q. Please explain how Synapse conducted its investigations and analyses on the decommissioning cost issue.

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

1. Reviewed WPS testimony and prepared data requests that CUB submitted to the Company.
2. Reviewed WPS's responses to the data requests submitted by CUB.
3. Reviewed Commission Orders related to WPS and nuclear power plant decommissioning costs.
4. Examined materials in Synapse files related to decommissioning cost issues for other power plants.
5. Examined materials available in the U.S. Nuclear Regulatory Commission's public docket files related to decommissioning cost issues at other power plants.

6. Analyzed the impact of different decommissioning funding levels using WPS's nuclear decommissioning funding model.

Q. Have you evaluated the decommissioning costs being collected for other nuclear power plants?

A. Yes. I have evaluated the reasonableness of the decommissioning costs being collected for Commonwealth Edison's twelve nuclear power plants, the three Millstone nuclear units in Connecticut, the Vermont Yankee nuclear plant, the Maine Yankee nuclear plant, and the Summer nuclear plant in South Carolina.

Q. Please summarize your findings in this investigation.

A. I have found that WPS's funds for decommissioning the Kewaunee nuclear power plant will be adequately funded even if WPS does not collect any additional funds from ratepayers after 2003. The funds only appear underfunded because WPS uses an unnecessarily conservative (i.e., high) annual escalation rate to project future decommissioning costs. This unnecessarily conservative escalation rate is based on the requirement in the Commission's July 1994 Order 05-EI-14 that the "other costs" category of projected decommissioning costs be escalated at an annual rate of eight percent. However, this requirement needs to be revised due to changed circumstances since the Commission issued its Order 05-EI-14 in order to avoid ratepayers being forced to make unreasonably high annual contributions to WPS for the cost of decommissioning Kewaunee.

Q. What are your recommendations in this proceeding?

A. I recommend that the Commission:

1. Reject WPS's request for $7,208,000 in annual decommissioning cost contributions from WPS's ratepayers beginning in 2004.

2. Establish a regulatory policy that all decommissioning expenditures will be investigated for prudence and that any imprudent decommissioning expenditure must be refunded to ratepayers with interest.

3. Establish a regulatory policy that any excess funds remaining in WPS's Kewaunee decommissioning trust funds be refunded to ratepayers with interest.

Q. Do you believe that it is important that decommissioning cost collections from ratepayers be adequate to ensure that a plant owner will have sufficient funds to decommission and decontaminate its nuclear facility at the end of the plant's operating life?

A. Yes. However, it also is important that there not be an unreasonably high over collection of decommissioning costs from ratepayers.

Q. Have you identified any aspects of the Company's Kewaunee decommissioning plan that you believe are unnecessarily conservative?

A. Yes. The future annual escalation rate for the cost of decommissioning the Kewaunee plant which the Company uses to develop the required annual contribution from ratepayers in the 2004 decommissioning plan is unnecessarily high. The use of this high escalation rate is leading to the overcollection of decommissioning costs from WPS's retail ratepayers.

Q. What annual decommissioning cost escalation rate has WPS used in developing its 2004 decommissioning plan?

A. WPS has escalated decommissioning costs by the following annual rates: labor costs by 3.965 percent, waste burial costs by 9.123 percent, energy costs by 2.356 percent, and "other costs" by 8.0 percent.[1] This results in an overall 5.76 percent weighted average annual escalation rate for the entire decommissioning cost estimate.

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[1] WPS Response to Data Request 3-CUB-21.

Q. How did WPS develop the escalation rates for the various categories of decommissioning costs for the Kewaunee plant?

A. WPS used the methodology established by the Commission in July 1994 in Order 05-EI-14.

Q. Do you think that the annual escalation rates that WPS has used for the labor, waste burial, and energy cost categories of the decommissioning cost estimate are reasonable?

A. I have seen no evidence that the labor, waste burial and energy escalation rates are unreasonable. However, the eight percent rate at which WPS escalates the "other costs" category is unnecessarily conservative given current circumstances.

Q. What costs are included in the "other costs" category of the decommissioning cost estimate?

A. The "other costs" category includes spent fuel-related costs, NRC fees, license termination costs, insurance, property taxes, emergency planning, and equipment and supply costs.

Q. What factors led the Commission to adopt an eight percent annual escalation rate for these "other costs"?

A. In Order 05-El-14, the Commission said that an eight percent annual escalation rate should be used for the "other costs" category because it "factors in some of the uncertainty associated with calculating future decommissioning costs" and "will alleviate future concerns for unanticipated future costs."[2]

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[2] PSCW Order 05-EI-14, at pages 20 and 26.

Q. Given changed circumstances since 1994, would a lower annual escalation rate for the "other costs" category be adequate to protect against the same uncertainties regarding "unanticipated future costs"?

A. Yes. An annual escalation rate for the "other costs" category of less than six percent would be more than adequate to protect against unanticipated future decommissioning costs.

Q. What circumstances have changed since the Commission issued Order 05-El-14 in July 1994?

A. Since 1994 there has been significant actual experience in decommissioning nuclear power facilities. This should reduce the Commission's concern over possible unanticipated future decommissioning costs.

In addition, Kewaunee became part of the Nuclear Management Company ("NMC") in February 1999. Consequently, Kewaunee is no longer operated by a single operator as a separate site. Instead, Kewaunee is one of the eight nuclear power plants operated by NMC. This development was unanticipated in 1994. It is reasonable to expect that the cost of decommissioning Kewaunee will be reduced as a result of synergies and efficiencies that should be available to a large nuclear operator like NMC.

Finally, spent nuclear fuel related costs represent a substantial portion of the "other costs" category in the 2002 Kewaunee site-specific study prepared by TLG Services Inc. ("the 2002 TLG Study"). A significant portion of these costs are the direct result of the U.S. Department of Energy's ("U.S. DOE") failure to begin accepting spent nuclear fuel on January 31, 1998. However, the U.S. DOE has accepted responsibility for these costs and can be expected to compensate utilities for them. This also should reduce the Commission's concern over possible unanticipated future spent nuclear fuel-related decommissioning costs.

Q. Which nuclear power plants have been decommissioned since 1994?

A. Significant activities under an immediate decommissioning methodology have been accomplished since 1994 at five commercial nuclear power plants: Haddam

Neck-Connecticut Yankee, Maine Yankee, San Onofre Unit 1, Trojan, and Yankee Rowe. Substantial decommissioning activities also have been completed to place the permanently shut down Zion Unit 1 and Unit 2 and Millstone Unit 1 commercial nuclear power plants into cold storage/mothball status pending the ultimate decommissioning of these facilities at a later date. This actual decommissioning experience should reduce the possibility and, hence, lessen the Commission's concern that major unanticipated problems and costs will be experienced when other nuclear facilities, such as Kewaunee, are ultimately decommissioned at the end of their operating lives. This is not to say that there will be no risk that currently unanticipated problems and costs will be experienced. I only mean that there is less of a risk that such problems and costs will be experienced from today's perspective as opposed to back in 1994 given that there is now substantial actual experience decommissioning large commercial nuclear power plants.

Q. Please summarize the decommissioning-related activities that have been completed at these facilities.

A. The extent to which each plant has been decommissioned varies from site to site. However, in general, major primary and secondary system components at a number of plants, including the reactor vessels, reactor coolant pumps, and steam generators, have been decontaminated, removed and shipped to waste burial sites. In some cases, highly radioactive reactor internal structures have been cut and removed. The highly radioactive spent nuclear fuel is being transferred to long-term dry cask storage at some sites. Some buildings also have been decontaminated and demolished.

Q. Are any of the nuclear plants that are being decommissioned or that have been placed into mothball/safe storage condition similar in design to Kewaunee?

A. Yes. The Haddam Neck-Connecticut Yankee, Maine Yankee, San Onofre Unit 1, Trojan, Yankee Rowe, and Zion Units are all pressurized water reactors, like Kewaunee. In addition, like Kewaunee, Connecticut Yankee, San Onofre Unit 1, Trojan and the Zion units had nuclear system supply systems designed by Westinghouse. The NRC considers Connecticut Yankee and San Onofre Unit 1, in particular, to be peer plants to Kewaunee which means that they were very similar in design and vintage.

Q. What role does the recent Kewaunee decommissioning cost study foresee for the Nuclear Management Company which operates the Kewaunee, Point Beach, Prairie Island, Monticello, Duane Arnold and Palisades nuclear plants?

A. The recent TLG decommissioning cost studies for both Kewaunee and Point Beach anticipate that NMC will oversee and provide site administration for the overall decommissioning process. In particular, the most recent Kewaunee TLG study assumes that:

> NMC will hire a Decommissioning Operations Contractor (DOC) to manage the decommissioning. NMC will provide site security, radiological health and safety, quality assurance and overall site administration during the decommissioning and demolition phases.[3]

NMC also almost certainly will be involved in the license termination activities, decommissioning planning and engineering, site preparations, and spent nuclear fuel dry cask storage operations.

Q. Is it reasonable to expect that NMC will experience synergies and efficiencies that will reduce decommissioning costs because it will be performing these same decommissioning-related activities at a number of the nuclear power plants it is currently operating?

A. Yes. It is reasonable to expect that the operator of a number of nuclear power plants will be able to reduce individual plant decommissioning costs through synergies and efficiencies that would not be available to the operator of a single nuclear unit.

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[3] Exhibit BAJ-3, at Section 3, page 13 of 21.

Q. Have you seen any claims by nuclear operators that they would be able to obtain such synergies and efficiencies in decommissioning costs because they own and/or operate a number of nuclear plants?

A. Yes. In 1999, AmerGen was attempting to purchase the Vermont Yankee Nuclear Plant from its then-current owners. AmerGen claimed that it could reduce the cost of decommissioning Vermont Yankee by more effectively planning, and standardizing its approach to decommissioning.[4] AmerGen further said that it intended to "take advantage of both the synergies available to a large nuclear operator and experience in achieving [its] decommissioning goals in a more efficient manner than was possible for or foreseen by [the then-current Vermont Yankee owners]."[5] AmerGen also argued that "a large on-going nuclear company will have more resources to apply to decommissioning and will be able to negotiate lower vendor prices."[6]

AmerGen further described the synergies and efficiencies that should be available to a large nuclear operator:

> I guess that there are a number of views we have taken of synergies coming from the part of the operator. Some of the synergies we contemplate in the operation of the facility are merged in the decommissioning process. Example being AmerGen's experience with a large fleet of nuclear plants. And to decommission plants from our own experiences is based on perhaps making some investments that are not cost effective for a single unit utility to make, but make a lot of sense for someone who owns a fleet of plants. Things like investment in mobile cranes, plasma cutters, lots of equipment to make the decommissioning process more effective and reduce the cost of that.[7]

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4 Testimony of AmerGen witness Duncan Hawthorne in Vermont Public Service Board Docket No. 6300, at page 3.

5 Testimony of AmerGen witness Duncan Hawthorne in Vermont Public Service Board Docket No. 6300, at page 4, lines 6-9.

6 AmerGen's response to Conservation Law Foundation Information Request 1AEC13 in Vermont Public Service Board Docket No. 6300.

7 Hearing of May 12, 2000 in Vermont Public Service Board Docket No. 6300, at Transcript page 163.

Q. Have you seen any independent assessments of AmerGen's claim that it would have decommissioning advantages from being a large company and being more efficient?

A. Yes. AmerGen's claim that it could achieve decommissioning advantages from being a large company was found "reasonable" by the Vermont Department of Public Service and the Nuclear Engineer for the State of Vermont.[8]

Q. Has NMC claimed that its joint operation of a number of power plants will reduce the operating costs at each of the eight nuclear power plants it operates?

A. Yes. When it was formed in 1999, NMC said that it expected to be able to reduce the power production costs at each of the nuclear plants it operates by roughly 25 percent through efficiencies in purchasing fuels, joint contracting for services, and by reducing general administrative costs.[9]

Q. Should NMC also be able to achieve similar efficiencies and cost reductions during the decommissioning of the Kewaunee nuclear plant?

A. Yes. I think it is reasonable to expect that NMC will be able to achieve some efficiencies and cost reductions because it will be decommissioning a number of nuclear power plants.

Q. Does the recent TLG decommissioning cost study for Kewaunee reflect any such efficiencies and cost reductions?

A. No. `

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8 Testimony of Vermont State Nuclear Engineer William Sherman on behalf of the Department of Public Service in Vermont Public Service Board Docket No. 6300, at page 48, lines 9-18.

9 Nucleonics Week, December 2, 1999, at page 1.

Q. Are you recommending that the TLG decommissioning cost estimate be reduced to reflect such efficiencies?

A. No. I am not making that recommendation in this proceeding. I am merely recommending that the Commission consider the potential synergies and efficiencies that should be available to NMC, and the resulting potential reductions in the cost of decommissioning Kewaunee, as additional evidence that the eight percent escalation rate for the "other costs" category is unnecessarily high.

Q. Has the U.S. DOE's failure to begin taking spent nuclear fuel on January 31, 1998 impacted the estimated cost of decommissioning Kewaunee?

A. Yes. The failure by the U.S. DOE to begin taking spent nuclear fuel from nuclear power plants on January 31, 1998, as required by the Nuclear Waste Policy Act, has increased the estimated cost of decommissioning Kewaunee. For example, WPS has said that the cost to place the spent fuel that should have been picked up starting in 1998 in dry cask storage is now in Kewaunee's decommissioning cost study.[10] WPS also has explained that some of the costs related to the purchase of dry casks are related to the DOE's failure to begin accepting spent nuclear fuel starting in 1998 as are some of the Post Period 3 – ISFSI Operations costs in the 2002 TLG Study.[11]

Q. Has WPS quantified how much of the spent nuclear fuel-related costs in the 2002 TLG decommissioning cost study are related to the U.S. DOE's failure to begin taking spent fuel on January 31, 1998?

A. No. WPS has said that it has not tried to identify and quantify all of the costs that can be expected to be incurred as a result of the DOE's failure to begin accepting spent nuclear fuel starting in 1998.[12] Nevertheless, it is clear that these costs will

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[10] WPS Response to Data Request 3-CUB-13.a.

[11] WPS Response to Data Request 3-CUB-12.

[12] WPS Response to Data Request 3-CUB-12.

be significant and that to the extent that the DOE will compensate WPS for these costs, that the net decommissioning cost in the recent TLG is overstated.

Q. Are spent fuel related costs a significant element of the total estimated cost of decommissioning Kewaunee?

A. Yes. The 2002 TLG Study estimates that decommissioning related spent nuclear fuel capital and O&M costs will be $43,548,100, in 2002 dollars.[13] Total spent fuel management costs will be $111,624,000, also in 2002 dollars.[14] Consequently, spent fuel costs represent a significant portion of the "other costs" category.

Q. Is it reasonable to expect that WPS will recover some of the additional costs that it will incur as a result of the DOE's failure to begin taking spent nuclear fuel starting in 1998?

A. Yes. Federal courts have decided that the U.S. government was unconditionally contracted to begin removing spent nuclear fuel by January 31, 1998.[15] The Federal Court of Claims has subsequently determined the individual utilities are owed damages resulting from the DOE's failure to carry out this responsibility. Only the size of the payments remains to be determined and the amount of damages owed to individual utilities, like WPS, will continue to grow as the DOE is further unable to remove spent nuclear fuel from plant sites.

The DOE has acknowledged that it is responsible for removing spent nuclear fuel and is liable for the damages resulting from its failure to do so.[16]

Therefore, it is very reasonable to expect that at some point before Kewaunee is ultimately decommissioned, WPS will receive payments from the DOE (or

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13 Exhibit BAJ-3, Table 6.1, at page 4 of Section 6.

14 Exhibit BAJ-3, Table 3.3, at page 20 of Section 3.

15 For example, see the attachments to WPS's Response to Data Request 3-CUB-13 and the article on Nuclear Waste in the September 25, 2000 issue of Environment and Energy Daily.

16 For example, see the August 2, 2000 issue of the Foster Electric Report, at page 24.

equivalent services in lieu of payments) for increased spent fuel costs at Kewaunee, either as the result of litigation or negotiation.

Q. Should the damages that WPS receives from the DOE be returned to WPS's Wisconsin ratepayers?

A. Yes. WPS has indicated that it would not object to returning to Wisconsin ratepayers their share of any spent nuclear fuel-related costs recovered from the U.S. DOE through litigation or negotiation.[17]

Consequently, those damages received by WPS from the DOE related to increased spent fuel-related costs incurred during Kewaunee's operating life should be returned to its Wisconsin ratepayers. The damages received by WPS from the DOE that are related to increased spent fuel-related costs that are expected to be incurred after the plant is retired should be used to reduce the cost of decommissioning the facility.

The expectation that WPS will receive payment (or any equivalent value of services that will reduce decommissioning costs) from the DOE for these damages also should reduce the Commission's concern about future escalation of the spent nuclear fuel-related costs, a significant portion of the "other costs" category in the 2002 TLG Study.

Q. Does the 2002 TLG decommissioning cost estimate for Kewaunee already include significant contingency factors?

A. Yes. The 2002 TLG Study includes an average 16.9 percent contingency allowance. The individual contingency factors used by TLG are listed at Section 3, page 5 of 21, of the TLG Study. In particular, the TLG cost estimate includes contingencies for a number of the cost elements in the "other costs" category: a 25 percent contingency for the cost of supplies, 15 percent for heavy equipment & tooling, 10 percent for taxes, and 10 percent for insurance.[18] The use of these

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[17] WPS Response to Data Request 3-CUB-13.e.

[18] Exhibit BAJ-3, at Section 3, page 5 of 21.

contingency factors further reduces the need for high escalation rates to reflect the potential for future unanticipated decommissioning costs.

Q. Does TLG explain the purpose of including these contingencies in its decommissioning cost estimate for Kewaunee?

A. Yes. TLG explains that the contingencies are included to address unforeseeable events and cost increases within the decommissioning scope of work.[19]

Q. When they develop their decommissioning plans and identify their decommissioning funding requirements, do any other utilities escalate the individual categories of decommissioning costs at different rates, like WPS does?

A. Yes. I have seen evidence that some other utilities use separate annual escalation rates to inflate the labor, waste burial, energy and "other costs" categories of decommissioning costs:

- Public Service Electric & Gas uses the following escalation rates to project the future costs to decommission its shares of five nuclear units: labor 3.36%; low level radioactive waste disposal 3.75%; energy costs 3.24%; and the Producer Price Index at 2.67% for other costs.
- South Carolina Electric & Gas uses the following escalation rates to project the future costs to decommission its Summer nuclear plant for the years 1999-2024 with slightly higher rates for the years 2020-2024: labor 3.994%; energy 2.407%; machinery & equipment 0.370%; and other costs 3.004%.
- Southern California Edison uses the following escalation rates to project the future costs to decommission its San Onofre Units 2 and 3 nuclear plants: waste burial costs 10.00%; and other costs 3.02%.

[19] Exhibit BAJ-3, page viii.

Thus, each of these utilities uses an annual escalation rate significantly lower than eight percent to project the future levels of the "other costs" of decommissioning their nuclear power plants. Indeed, all of these utilities use an annual escalation rate of approximately three percent to escalate the "other costs" category of decommissioning costs.

Q. Earlier you mentioned that WPS is using an overall 5.76 percent annual escalation rate for developing its 2004 decommissioning plan. How does this 5.76 percent escalation rate compare to the rates assumed for the future escalation of the cost of decommissioning the other power plants operated by the Nuclear Management Company?

A. As shown on Table 1 below, the 5.76 percent annual decommissioning cost escalation rate used by WPS is significantly higher than the annual escalation rates used to project the costs of decommissioning the five non-Wisconsin power plants operated by the Nuclear Management Company.

Table 1: Annual Decommissioning Cost Escalation Rates for NMC Plants

Unit	Projected Decommissioning Escalation Rate
Point Beach Unit 1	5.96%
Kewaunee	5.76%
Point Beach Unit 2	5.75%
Palisades	4.54%
Monticello	4.35%
Prairie Island Unit 1	4.35%
Prairie Island Unit 2	4.35%
Duane Arnold	4.25%

Q. How does WPS's 5.76 percent escalation rate compare to the annual escalation rates used by other utilities to project the future costs of decommissioning their nuclear plants?

A. The current annual escalation rates that power plant owners use to project the future costs of decommissioning their nuclear units, as reported to the Nuclear

Regulatory Commission, are presented in Exhibit DAS-2.[20] AmerGen does not report the escalation rates it uses to project the future costs of decommissioning its Clinton, Oyster Creek and Three Mile Island Unit 1 nuclear power plants. Therefore, these three plants are not included in Exhibit DAS-2.

As shown in this Exhibit, the 5.76 percent weighted annual escalation rate used by WPS is the fifth highest among all operating power plants. In fact, only the two Cook units, Fermi 2, and Point Beach Unit 1 use higher escalation rates.[21]

The 5.76 percent annual escalation rate used by WPS also is significantly higher than the 4.28 percent median annual escalation rate used to project the future costs of decommissioning the other 100 operating nuclear power plants.

Q. How much money is there in the Kewaunee decommissioning funds?

A. At the end of 2002 WPS had $299,746,000 in its tax qualified and non-qualified funds for its 59 percent share of the cost of decommissioning Kewaunee.[22] Wisconsin Power & Light Company had another $228,832,447 in its accumulated decommissioning funds. Consequently, the two owners had over $527 million in their accumulated decommissioning funds as of the end of 2002.

Q. What annual escalation rate should the Commission use for the "other costs" category to determine the annual decommissioning cost collections that WPS needs to make from its ratepayers in 2004 and future years?

A. The Commission should use an annual escalation rate for the "other costs" category of less than 6 percent to determine the annual decommissioning cost collections that WPS needs to make in 2004 and future years.

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[20] The source documents for the information presented in Exhibit DAS-2 are the Decommissioning Funding Status Reports submitted to the NRC by each licensee pursuant to 10 CFR 50.75(f)(1).

[21] Significantly, the three regulatory decisions which form the basis for the 6.43 percent escalation rate used to project future Cook plant decommissioning costs were all issued in the early 1990s. The most recent of these decisions were a Michigan Public Service Commission decision in October 1993 and an Indiana Utility Regulatory Commission decision in November 1993.

[22] WPS Response to Data Request 3-CUB-18.

Q. What would be the resulting overall annual escalation rate that WPS would be using to project the future cost of decommissioning the Kewaunee plant?

A. The use of a less than six percent annual escalation rate for the "other costs" category would result in an annual escalation rate of 5.11 percent or less for the overall decommissioning cost estimate. As shown by the information in Exhibit DAS-2, an overall annual escalation rate of 5.11 percent would still be significantly above the 4.28 percent median value of the escalation rates used to project the future costs of decommissioning the 100 other operating nuclear power plants.

Q. What level of annual collections would be necessary from WPS's ratepayers starting in the year 2004 if the Commission were to use an escalation rate of four to six percent for the "other costs" category?

A. WPS would not need to make any additional collections from its retail ratepayers after 2003. Its funds for decommissioning Kewaunee are already fully funded. In fact, it would be quite possible that there will be substantial excess monies left over in the Kewaunee decommissioning funds after the projected end of decommissioning in 2038 even if ratepayers make no further contributions after 2003.

Q. Please explain what analyses form the basis for this conclusion.

A. We used the Company's Nuclear Decommissioning Trust Fund Model which is the same model used by WPS witness Jackson. For our analyses, we accepted all of WPS's input assumptions except for the "other costs" escalation rate and the annual contributions from ratepayers into WPS's tax qualified fund.

First, we modified the "other costs" annual escalation rate from WPS's eight percent figure to six percent and four percent. We found that there would be between $300 million (with a 6 percent escalation rate) and $500 million (with a 4 percent escalation rate) of excess monies remaining in WPS's decommissioning funds after Kewaunee was fully decommissioned if WPS's request to collect

$7,207,000 from its Wisconsin ratepayers during the years 2004-2010 is approved.[23]

We then examined what would happen if there were no further decommissioning cost collections from ratepayers after 2003. From this analysis, we found that there will be sufficient monies in WPS's funds to pay for the Company's share of the cost of decommissioning Kewaunee even if no further funds are collected from ratepayers after 2003.

Q. Have any nuclear power plant owners stopped making annual collections from ratepayers because their decommissioning funds already are adequate?

A. Yes. The Omaha Public Power District, the owner of the Fort Calhoun nuclear station, ceased making annual decommissioning collections starting in 2002. Like Kewaunee, Fort Calhoun is scheduled to end its operating life in 2013.

Q. What should the Commission do if there are excess funds in WPS's decommissioning funds after Kewaunee is fully decommissioned?

A. The Commission should establish a regulatory policy that puts WPS on notice that all decommissioning expenditures will be investigated for prudence, that WPS must refund to its ratepayers with interest any imprudent decommissioning expenditures, and that all excess monies remaining in WPS's funds after decommissioning of Kewaunee is completed will be refunded to ratepayers with interest. WPS should not be able to gain any windfall from keeping excess decommissioning funds.

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[23] The amount of excess funds in the decommissioning fund would be even higher if we were to use a 3 percent or lower annual escalation rate for "other costs."

Q. **What could the Commission do if it decides in this proceeding that WPS should not make any annual decommissioning collections from its ratepayers after 2003 and at some later date subsequently finds that the accumulated Kewaunee decommissioning funds will be insufficient?**

A. I understand that the Commission will be revisiting the decommissioning issue every four years. If it appears in 2007 or 2011 that the Kewaunee decommissioning funds will be inadequate, because of some currently unanticipated costs or problems, the Commission can order that WPS again make annual decommissioning cost collections from its ratepayers to cover any projected fund shortfalls. Or the Commission could revisit the question of the adequacy of the Kewaunee decommissioning funds more frequently than every four years.

Q. **Does this complete your testimony?**

A. Yes.

Unit	Owner/NRC Licensee	Projected Annual Decommissioning Escalation Rate	Notes
Cook Unit 1	Indiana Michigan	6.43%	
Cook Unit 2	Indiana Michigan	6.43%	
Fermi 2	Detroit Edison	6.00%	
Point Beach Unit 1	Wisconsin Electric Power Company	5.96%	
Kewaunee	WPS and WP&L	5.76%	
Point Beach Unit 2	Wisconsin Electric Power Company	5.75%	
Turkey Point Unit 3	Florida Power & Light	5.60%	
Turkey Point Unit 4	Florida Power & Light	5.60%	
Diablo Canyon Unit 1	Pacific Gas & Electric	5.50%	
Diablo Canyon Unit 2	Pacific Gas & Electric	5.50%	
Grand Gulf	Entergy	5.50%	
St. Lucie Unit 1	Florida Power & Light	5.50%	
St. Lucie Unit 2	Florida Power & Light	5.50%	
Waterford 3	Entergy	5.50%	
Crystal River Unit 3	Progress Energy Florida	5.30%	
Seabrook	FPL Energy	5.25%	
San Onofre Unit 2	Southern California Edison	5.02%	
San Onofre Unit 3	Southern California Edison	5.02%	
Braidwood Unit 1	Exelon	4.95%	
Braidwood Unit 2	Exelon	4.95%	
Byron Unit 1	Exelon	4.95%	
Byron Unit 2	Exelon	4.95%	
Dresden Unit 2	Exelon	4.95%	
Dresden Unit 3	Exelon	4.95%	
LaSalle Unit 1	Exelon	4.95%	
LaSalle Unit 2	Exelon	4.95%	
Quad Cities Unit 1	Exelon	4.95%	
Quad Cities Unit 2	Exelon	4.95%	
River Bend	Entergy Gulf States	4.81%	Texas jurisdictional rate. Louisiana rate is 2.53%.
Millstone Unit 3	Dominion	4.73%	
Comanche Peak Unit 1	TXU Generation	4.68%	
Comanche Peak Unit 2	TXU Generation	4.68%	
South Texas Unit 1	Texas Genco	4.58%	Weighted average of rates used by 4 joint owners
South Texas Unit 2	Texas Genco	4.58%	Weighted average of rates used by 4 joint owners
Palisades	Consumers Energy	4.54%	
Catawba Unit 1	Duke Power	4.50%	
Catawba Unit 2	Duke Power	4.50%	
Farley Unit 1	Alabama Power	4.50%	
Farley Unit 2	Alabama Power	4.50%	
McGuire Unit 1	Duke Power	4.50%	
McGuire Unit 2	Duke Power	4.50%	
Oconee Unit 1	Duke Power	4.50%	
Oconee Unit 2	Duke Power	4.50%	

Unit	Owner/NRC Licensee	Projected Annual Decommissioning Escalation Rate	Notes
Oconee Unit 3	Duke Power	4.50%	
Wolf Creek	KGE, KCP&L, KEPCo.	4.50%	KCP&L's Kansas jurisdictional rate. Kansas jurisdictional rates are lower.
Monticello	Xcel Energy	4.35%	
Prairie Island Unit 1	Xcel Energy	4.35%	
Prairie Island Unit 2	Xcel Energy	4.35%	
North Anna Unit 1	Dominion	4.28%	
North Anna Unit 2	Dominion	4.28%	
Surry Unit 1	Dominion	4.28%	
Surry Unit 2	Dominion	4.28%	
Duane Arnold	IPL, CIPCO & Corn Belt	4.25%	Minority owner CIPCO uses a 4% escalation rate. Minority owner Corn Belt uses a 5% rate.
Millstone Unit 2	Dominion	4.19%	
Calvert Cliffs Unit 1	Constellation Energy Group	4.05%	
Calvert Cliffs Unit 2	Constellation Energy Group	4.05%	
Nine Mile Point Unit 1	Constellation Energy Group	4.05%	Minority owner Long Island Power Authority uses 3% escalation rate
Nine Mile Point Unit 2	Constellation Energy Group	4.05%	
Browns Ferry Unit 1	Tennessee Valley Authority	4.00%	
Browns Ferry Unit 2	Tennessee Valley Authority	4.00%	
Browns Ferry Unit 3	Tennessee Valley Authority	4.00%	
Brunswick Unit 1	Progress Energy	4.00%	
Brunswick Unit 2	Progress Energy	4.00%	
Columbia	Energy Northwest	4.00%	
Cooper	Nebraska Public Power District	4.00%	
Ginna	Energy East	4.00%	
Harris Unit 1	Progress Energy	4.00%	
Palo Verde Unit 1	Pinnacle West	4.00%	
Palo Verde Unit 2	Pinnacle West	4.00%	
Palo Verde Unit 3	Pinnacle West	4.00%	
Robinson Unit 2	Progress Energy	4.00%	
Sequoyah Unit 1	Tennessee Valley Authority	4.00%	
Sequoyah Unit 2	Tennessee Valley Authority	4.00%	
Summer	SCE&G and South Carolina Public Service Authority	4.00%	SCE&G projects an approximate 4% escalation rate through 2020 and a lower rate thereafter
Susquehanna 1	PPL Corp	4.00%	
Susquehanna 2	PPL Corp	4.00%	
Watts Bar Unit 1	Tennessee Valley Authority	4.00%	
Beaver Valley Unit 1	FirstEnergy	3.86%	
Callaway	Ameren UE	3.86%	
Davis-Besse	FirstEnergy	3.80%	
Beaver Valley Unit 2	FirstEnergy	3.78%	
Perry Unit 1	FirstEnergy	3.77%	

Unit	Owner/NRC Licensee	Projected Annual Decommissioning Escalation Rate	Notes
Hatch Unit 1	Southern Company	3.60%	Minority owner - Municipal Electric Authority of Georgia uses a 4.5% escalation rate
Hatch Unit 2	Southern Company	3.60%	Minority owner - Municipal Electric Authority of Georgia uses a 4.5% escalation rate
Vogtle Unit 1	Southern Company	3.60%	Minority owner - Municipal Electric Authority of Georgia uses a 4.5% escalation rate
Vogtle Unit 2	Southern Company	3.60%	Minority owner - Municipal Electric Authority of Georgia uses a 4.5% escalation rate
Limerick Unit 1	Exelon	3.47%	
Limerick Unit 2	Exelon	3.47%	
Peach Bottom Unit 2	Exelon	3.47%	Other owner PSE&G uses a lower rate
Peach Bottom Unit 3	Exelon	3.47%	Other owner PSE&G uses a lower rate
Salem Unit 1	Exelon	3.47%	Other owner PSE&G uses a lower rate
Salem Unit 2	Exelon	3.47%	Other owner, PSE&G uses a lower rate
Hope Creek	Public Service Electric & Gas	3.36%	
Arkansas Nuclear One, Unit 2	Entergy	3.10%	
Arkansas Nuclear One, Unit 1	Entergy	3.06%	
Fitzpatrick	Entergy	3.00%	
Indian Point Unit 2	Entergy	3.00%	
Indian Point Unit 3	Entergy	3.00%	
Pilgrim	Entergy	3.00%	
Vermont Yankee	Entergy	3.00%	
Fort Calhoun	Omaha Public Power District	2.90%	