STATE OF VERMONT
PUBLIC SERVICE BOARD

DOCKET NO. 6300

INVESTIGATION INTO PROPOSED SALE OF VERMONT YANKEE NUCLEAR POWER STATION AND RELATED TRANSACTIONS

DIRECT TESTIMONY AND EXHIBITS OF

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ON BEHALF OF THE

VERMONT PUBLIC INTEREST RESEARCH GROUP
AND
THE NEW ENGLAND COALITION ON NUCLEAR POLLUTION, INC.

APRIL 14, 2000

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is David A. Schlissel. My business address is Schlissel Technical Consulting, Inc., 45 Horace Road, Belmont, Massachusetts 02478.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?

A. I am testifying on behalf of the Vermont Public Interest Research Group ("VPIRG") and the New England Coalition on Nuclear Pollution, Inc. ("NECNP").

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 General Staff of the Arkansas Public Service Commission, the Staff of the Arizona Corporation Commission, the Staff of the Kansas State Corporation Commission, municipal utility systems in Massachusetts, New York, Texas, and North Carolina, the Attorney General of the Commonwealth of Massachusetts, and the Office of the Public Advocate of the State of Maine.

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 STC-1.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS DOCKET?

A. Schlissel Technical Consulting, Inc. ("STC") was retained by VPIRG and NECNP to examine three issues:

(1) Whether the testimony and exhibits filed by Vermont Yankee Nuclear Power Corporation ("VYNPC"), Central Vermont Public Service ("CVPS"), and Green Mountain Power ("GMP") show that continued operation of the Vermont Yankee nuclear plant through 2012 would be more economic than early retirement of the plant in 2001.

(2) Whether the testimony and exhibits filed by VYNPC, CVPS, and GMP ("the Petitioners") show that the proposed sale of Vermont Yankee to AmerGen would be in the public interest.

(3) Whether the proposed sale of Vermont Yankee to AmerGen Energy Company, LLC, ("AmerGen") has the potential to adversely affect nuclear safety.

This testimony presents the results of my investigations of these issues.

Q. PLEASE EXPLAIN HOW YOU CONDUCTED YOUR INVESTIGATION.

A. I have reviewed the petitions and supporting testimony filed by VYNPC, CVPS, GMP, and AmerGen and the materials provided by these companies in response to discovery submitted by VPIRG/NECNP and other active parties. I also have reviewed the Vermont Yankee Economic Study issued in January 1999 by the Department of Public Service ("DPS") and the documents submitted by the DPS at the U.S. Nuclear Regulatory Commission ("NRC") and FERC concerning the proposed sale of Vermont Yankee to AmerGen.

In addition, I have examined the documentation concerning other nuclear power plant sales that I have received in other cases or from research on the internet and Lexis-Nexis. I also have reviewed some of the recent correspondence between Vermont Yankee and the NRC.

Finally, I was given a tour of the plant by Vermont Yankee officials on March 28, 2000.

II. SUMMARY OF CONCLUSIONS

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS.

1. The Petitioners' analyses show that continued operation of Vermont Yankee through the currently scheduled end of its NRC license in 2012 can be expected to provide only marginal economic benefits as compared to retiring the plant in 2001.

2. The assumption that Vermont Yankee would be promptly dismantled at the end of its service life even if the plant were retired as early as 2001 has a significant impact on the economic analysis of continued operation versus early retirement.

3. VYNPC should be required to study the cost of decommissioning Vermont Yankee using the assumption that the plant would be maintained in a Safe Storage mode after its early retirement in 2001 and then decommissioned on the same schedule as if it operated to the end of its licensed lifetime.

4. The following costs should be excluded from the new decommissioning cost estimate to be prepared by VYNPC:

   - the costs related to the construction and operation of an ISFSI.

   - all spent fuel storage costs incurred as a result of the U.S. DOE's failure to begin accepting spent fuel in January 1998.

   - site restoration costs.

5. The market prices for replacement power assumed in the early retirement scenario have a significant impact on the economic analysis of continued operation versus early retirement. Because market price forecasts are highly volatile, the Public Service Board should require CVPS and GMP to issue requests for bids to provide replacement power assuming that Vermont Yankee were retired in 2001. This would allow the Board to know what suppliers actually would charge for replacement power rather than being forced to rely on ever changing forecasts.

6. New analyses of the economics of retiring Vermont Yankee in 2001 versus at the end of its licensed lifetime in 2012 should be performed when VYNPC has prepared the new decommissioning cost estimate and CVPS and GMP have received the bids for replacement power.

7. The testimony and exhibits filed by VYNPC and CVPS in this docket show only a very marginal economic benefit to the existing Vermont Yankee owners, $51 million NPV, from the proposed sale to AmerGen.

8. Even this marginal benefit is [ ] due to the fact that only 61.5 percent of the existing Vermont Yankee owners have elected to buy power from AmerGen under the proposed twelve year Power Purchase Agreement ("PPA"). When the fact that 38.5 percent of

the existing owners have elected to buy-out of the proposed PPA is considered in the analysis [PROTECTED MATERIALS].

9. Even in the analyses presented in the testimony of VYNPC witness Wiggett and CVPS witnesses Brown and Page, which assume that 100% of the existing Vermont Yankee owners participate in the PPA, the proposed sale to AmerGen would not provide a cumulative NPV economic benefit until the year 2007. If the more realistic assumption that 38.5 percent of the owners buy-out of the PPA is used instead, the proposed sale would [PROTECTED MATERIALS].

10. It is unrealistic to assume that VYNPC or AmerGen will not seek to increase Vermont Yankee's power level if a decision is made to continue operating the plant to the end of its licensed life in 2012.

11. The additional revenues that could be expected from shorter refueling outages and the sale of the extra plant output from a power uprate would significantly change the relative economics of the proposed sale to AmerGen.

12. A sensitivity analysis presented by CVPS witnesses Deehan and Cater shows that increasing Vermont Yankee's assumed

production by 10 percent changes the $72 million NPV benefit shown for the sale in their base case to a $30 million NPV loss using an eight percent discount rate, and a $55 million NPV loss using risk adjusted discount rates.

13. Actual operating experience at Vermont Yankee and other BWRs shows that VYNPC should be able to achieve as much additional output at Vermont Yankee as AmerGen.

14. The Vermont Yankee owners could reduce or eliminate certain qualitative risks if they ended their ownership of the plant. However, none of the witnesses for VYNPC, CVPS, or GMP has attempted to quantify the benefits associated with eliminating these risks. Nor have they examined whether these same benefits could be achieved without the proposed sale.

15. There are a number of alternative steps besides entering into the proposed sale to AmerGen that the Vermont Yankee owners could take to eliminate much, if not all, of the risk of further escalation in decommissioning costs.

16. The Vermont Yankee owners could enter into a fixed-price decommissioning contract similar to those that have been made at Maine Yankee, Connecticut Yankee, and Millstone Unit 1. Many areas that traditionally have been exposed to significant

cost uncertainty appear to be included within the scope of these fixed-price decommissioning contracts.

17. There is no need to rush into the proposed sale to AmerGen. Recent developments show that there is now a much more robust market for nuclear power plants than existed last fall when VYNPC entered into the agreement with AmerGen. Consequently, a decision at this time by the Public Service Board to reject the proposed sale of Vermont Yankee to AmerGen would not foreclose the possibility that a future sale could be completed which would provide more significant economic benefits for ratepayers.

18. Since last November, several new utilities have expressed their interest in entering the market to purchase nuclear power plants. One new market participant recently has made an unsuccessful bid of nearly one billion dollars for two nuclear plants. It is reasonable to expect that the larger pool of potential buyers who now have expressed interest in participating in the nuclear market will mean more competitive bidding processes and will result in higher prices for nuclear power plants being sold.

19. The New York State Power Authority recently has agreed to sell its two nuclear power plants to Entergy. This sale is significant for the following reasons:

A. The sale involved a fiercely competitive bidding process between Entergy and Dominion Resources.

B. One of the bidders, Dominion Resources, was a new participant in the market.

C. A year to 18 months earlier NYPA believed that there was no market for its two nuclear plants.

D. NYPA received significantly more value than any seller had received in any previous nuclear sale.

E. The NPV of the $636 million NYPA will receive for the two plants and the $171 million it will receive for the nuclear fuel is $ 319/kw or 7.4 times the $43/kw that the Vermont Yankee owners are due to receive from AmerGen.

20. The Power Purchase Agreement between NYPA and Entergy is for a much shorter duration than the proposed PPA for Vermont Yankee and provides for lower power prices. Entergy also has agreed to pay NYPA $68 million over an eight year period, as a result of NYPA's commitment to make additional purchases of power from one of the two plants. Finally, Entergy has agreed to make additional payments to NYPA if over the ten year period beginning with the expiration of the PPA, the prices for the power from the two plants exceeds specified amounts. In contrast, VYNPC's proposed PPA with AmerGen would lock the Vermont Yankee owners into paying for at least six years of replacement power at higher than projected market prices.

21. Last June, AmerGen reached agreement with two New York State utilities to buy all of Nine Mile Point Unit 1 and 59 percent of Nine Mile Point Unit 2. In late December, the staff of the New York State Public Service Commission decided to reject AmerGen's proposed purchase because the sale did not appear to maximize the value of the plants for ratepayers. Within the past week, one of the two utilities involved in the sale asked the Public Service Commission to terminate the proposed deal and put the plants up for auction because of the increasing interest from other prospective buyers.

22. The terms of the proposed sale of the Nine Mile Point nuclear plants to AmerGen that has been rejected by the staff of the New York State Public Service Commission and repudiated by one of the two selling utilities were more favorable than the terms of the proposed sale of Vermont Yankee to AmerGen. For example, AmerGen had agreed to pay $117/kw for Nine Mile Point Unit 1 and $136/kw for Nine Mile Point Unit 2, for a total of $163 million. This was substantially higher than the $43/kw that AmerGen has agreed to pay for Vermont Yankee. The terms of the proposed Power Purchase Agreements for the sale of the power from the Nine Mile Point plants also were significantly

more favorable than the terms in the proposed Vermont Yankee PPA.

23. The other nuclear power plant sales that have occurred were completed in a significantly less competitive market than appears to exist at this time. Consequently, the prices for which other utilities may have felt compelled to sell their nuclear plants in that less robust market offer very little, if any, insight into whether the Vermont Yankee owners should be allowed to close the proposed sale to AmerGen.

24. The proposed sale of Vermont Yankee to AmerGen is not in the public interest.

25. There is a significant risk that the competitive pressures in a deregulated market will increase the economic and financial pressures on nuclear plant owners to reduce or eliminate necessary costs, cut corners, defer needed maintenance or improvements, or maximize short term operating performance.

26. Even when power plants were subject to economic regulation, there were many instances in which the pressures to cut costs or maximize production led to safety-related problems.

27. Commonwealth Edison, Northeast Utilities and Maine Yankee were three examples of strong utilities that experienced serious problems after undue emphasis was placed on cutting or

containing nuclear plant operating costs or on maximizing near term plant performance.

28. I agree with the following conclusions reached by the Vermont State Nuclear Engineer in his February 23, 2000, Affidavit to the NRC:

- There is no guarantee that AmerGen's owners will be liable for any more than $110 million.
- There is no guarantee that operating costs will provide an adequate source of funds to meet Vermont Yankee's ongoing operational expenses for an unanticipated six-month outage.
- There is no guarantee that any of AmerGen's net income will be available to fund future operational shortfalls.
- Simultaneous six-month outages at more than one of AmerGen's plants are a reasonable possibility.
- AmerGen is susceptible to events which could lead to simultaneous outages at more than one plant.
- Immediate entry into decommissioning is not an alternative for insufficient funding.
- The $110 million pledged by AmerGen's owners is not sufficient to pay the full costs of a six-month outage at Vermont Yankee considering scenarios which might reasonably occur.

29. There have been numerous instances where two or more of a utility's nuclear power plants have been out of service at the same time for six months or longer due to problems that arose as a result of an emphasis on reducing costs, deficiencies in the

utility's safety culture, management problems, or generic or plant-specific technical issues.

30. The Public Service Board should take all reasonable steps to ensure that AmerGen or whatever entity may purchase Vermont Yankee commits adequate resources to operate and decommission the plant in a safe manner.

III. THE PETITIONERS' ANALYSES HAVE NOT SHOWN THAT EARLY RETIREMENT OF VERMONT YANKEE IN THE YEAR 2001 WOULD BE MORE EXPENSVE THAN CONTINUED OPERATION

Q. DO THE ANALYSES PRESENTED BY THE PETITIONERS SHOW A CONVINCING ECONOMIC ADVANTAGE TO CONTINUED OPERATION OF VERMONT YANKEE THROUGH THE END OF ITS CURRENT NRC LICENSE IN 2012 OVER RETIREMENT OF THE PLANT IN 2001?

A. No. As shown on Table STC-1 below, the economic analyses presented by CVPS witnesses Brown and Page, at best, show only marginal benefits for continued operation of Vermont Yankee through the year 2012 over the early retirement of the plant in 2001.[1]

[1] CVPS was the only petitioning party to submit an economic comparison of early retirement of Vermont Yankee in 2001 and continued operation through the end of the plant's current NRC license in 2012.

Table STC-1
Net Present Value ("NPV") Benefit for
Continued Operation Shown in CVPS Analyses

	10% Discount Rate	10.97% Discount Rate	13.65% Discount Rate
NPV Benefit from Continued Operation through 2012	$63,643,000[2]	$63,310,000[3]	$61,537,000[4]

These NPV benefits to continued operation represent only about 4% of the existing Vermont Yankee owners' overall contract obligations related to the plant under either the early retirement or the continued operation scenarios.

Q. DO THE PETITIONERS ACKNOWLEDGE THAT THEIR OWN ECONOMIC ANALYSES SHOW ONLY MARGINAL ADVANTAGES FOR CONTINUED OPERATION OF VERMONT YANKEE THROUGH THE END OF ITS CURRENT NRC LICENSE IN 2012?

[2] Line 465 of Exhibit ___ SWP-1, page 6 of 6.
[3] Line 465 of Exhibit ____SWP-2, page 6 of 6.
[4] Line 465 of Exhibit ____SWP-3, page 6 of 6.

A. Yes. The Petitioners acknowledge that their base case analyses show only marginal benefits for continued operation of Vermont Yankee through 2012 over scenarios which assume that the plant would be

retired early. [PROTECTED MATERIALS]

[PROTECTED MATERIALS[5]]

Although Mr. Page was referring to a slightly earlier set of economic studies, those analyses produced the same levels of marginal benefits as the studies he has sponsored in this proceeding.

Q. WHY IS EARLY RETIREMENT THE MORE EXPENSIVE OPTION IN CVPS'S ECONOMIC ANALYSES IN THIS PROCEEDING?

A. As shown on Table STC-2 below, the marginally higher cost of retiring Vermont Yankee in 2001 in CVPS's analyses is due to the significantly higher decommissioning expenditures in that scenario.

[5] Protected Materials

Table STC-2
Contribution of Higher Decommissioning
Expenditures to the Benefit for
Continued Operation Shown in CVPS Analyses

	10% Discount Rate	10.97% Discount Rate	13.65% Discount Rate
NPV Benefit from Continued Operation through 2012	$63,643,000	$63,310,000	$61,537,000
NPV of Incremental Decommissioning Costs in Early Retirement Scenario	$97,025,000[6]	$92,646,000[7]	$82,512,000[8]

In other words, early retirement would be the lower cost alternative in this analysis but for the higher decommissioning costs.

Q. WHY ARE THE DECOMMISSIONING COSTS HIGHER IN CVPS'S EARLY RETIREMENT SCENARIOS THAN IN THE SCENARIOS IN WHICH VERMONT YANKEE CONTINUES OPERATION THROUGH THE YEAR 2012?

A. The decommissioning costs are higher in the early retirement scenarios because CVPS assumes that Vermont Yankee would be promptly

[6] Line 444 of Exhibit____SWP-1, page 6 of 6.
[7] Line 444 of Exhibit____SWP-2, page 6 of 6.
[8] Line 444 of Exhibit____SWP-3, page 6 of 6.

dismantled at the end of its service life, even if the plant were retired early in 2001.

As was clearly explained by the DPS staff in its January 1999 Vermont Yankee Economic Study, the assumption that the plant would be promptly dismantled after being retired early increases the share of decommissioning costs that would have to be paid by ratepayers:

> The study found that the greatest contributor to the extra expenses related to shutdown was the financial impact of using the decommissioning fund early. Vermont Yankee has just over $200 million in its decommissioning fund. This money is invested, and a significant part of future decommissioning expenses at End of License ("EOL") would come from returns on this investment. However, if the plant were to close prematurely, the existing fund would be used promptly, and ratepayers would have to pay the amounts now expected to come from investment returns.[9]

The DPS staff further explained that the penalty resulting from this early use of the decommissioning fund could be reduced by holding the plant in a safe-storage condition following early shutdown until the fund earns enough to proceed with decommissioning:

> For early shutdown cases, delaying use of the decommissioning fund by placing the plant in a safe storage condition would be beneficial to ratepayers. This allows the fund to build up through returns on

[9] January 1999 DPS Vermont Yankee Economic Study, at page 3.

investments and reduces the decommissioning portion of early shutdown (the early-use-of-the-fund effect.[10]

Q. IS THERE ANY REQUIREMENT THAT VERMONT YANKEE BE PROMPTLY DISMANTLED IF THE PLANT WERE RETIRED BEFORE ITS CURRENTLY SCHEDULED END OF LIFE IN 2012?

A. No. There is no requirement from the NRC or any other government agency or industry group that would necessitate the immediate decommissioning of Vermont Yankee if it were retired in the year 2001. In fact, there are several accepted options, designated as SAFSTOR and ENTOMBMENT, in which decommissioning of a nuclear power plant is delayed for years after the plant completes commercial operation. Under the SAFSTOR option, the facility is placed and maintained in a condition that allows it to be safely stored and subsequently decommissioned. Under the ENTOMBMENT option, the radioactive contaminants are encased in a structurally long-lived material such as concrete; the entombed structure is appropriately maintained and continued surveillance is carried out until the radioactive material decays to a level permitting unrestricted use of the property. The delay in decommissioning inherent in the ENTOMBMENT option is substantially longer than in the SAFSTOR option.

[10] January 1999 DPS Vermont Yankee Economic Study, at page 40.

Q. ARE YOU AWARE OF ANY UTILITIES THAT HAVE DECIDED TO DELAY THE DISMANTLING OF PREMATURELY RETIRED NUCLEAR POWER PLANTS?

A. Yes. Commonwealth Edison Company ("ComEd") retired both units of the Zion Nuclear Station in January, 1998, approximately 15 years prior to their previously scheduled end of service life. However, the Company subsequently decided to delay the dismantling of most of these two units until the originally expected end of operations in 2013 rather than immediately dismantling the entire facility. Under the current plan, ComEd initially will dismantle a number of plant systems and structures and then maintain the plant in a dormant state from 2000 through 2013. ComEd has given the following explanation for its decision to pursue this delayed decommissioning strategy:

> ComEd has chosen a modified version of DECON, referred to as Delayed-DECON, which decommissions the site in a timely manner, but recognizes constraints associated with storage of the spent fuel and decommissioning funding availability for the site. Decommissioning field activities are forecast to begin on the same schedule as if the plant operated to the end of its licensed lifetime. This permits the decommissioning trusts to be fully funded prior to field activities, plus it allows the spent fuel situation in the U.S. to coalesce and a definite plan of action to begin.[11]

VYNPC similarly could decide to maintain Vermont Yankee in an extended safe storage mode and delay the start of decommissioning and dismantling until after the previously scheduled termination of operations in the year 2012.

Q. DID THE DPS STAFF RECOMMEND THAT VYNPC STUDY THE ECONOMICS OF PLACING VERMONT YANKEE INTO EXTENDED SAFE STORAGE IF THE PLANT WERE RETIRED EARLY?

A. Yes. The DPS staff's January 1999 Vermont Yankee Economic Study specifically recommended that VNPC should:

> investigate and provide information regarding potential savings associated with extended safe-storage instead of prompt decommissioning. This investigation should also include the alternative of longer-term storage (entombment) which is currently under review by NRC.[12]

The DPS further recommended that VYNPC should adjust the assumptions for its decommissioning estimate so that the federal government, and not ratepayers, is responsible for the costs of long-term storage of spent nuclear fuel.[13]

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[11] February 1999 Decommissioning Cost Estimate for the Zion Nuclear Power Station Units 1 and 2, prepared for Commonwealth Edison Company by TLG Services, Inc., at Section 3, page 1 of 9.

[12] January 1999 DPS Vermont Yankee Economic Study, at page 55.

[13] January 1999 DPS Vermont Yankee Economic Study, at page 55.

Q. HAVE VYNPC OR EITHER OF THE VERMONT OWNERS SUBSEQUENTLY ANALYZED WHAT THE COST OF DECOMMISSIONING VERMONT YANKEE WOULD BE IF THE PLANT WERE RETIRED IN 2001 AND THEN MAINTAINED IN EXTENDED SAFE-STORAGE?

A. No.[14] The 1994 Vermont Yankee decommissioning cost analysis did consider a SAFSTOR option in which the plant was placed in an extended safety-storage mode upon the completion of its planned 40 year service life. However, the 1999 Vermont Yankee decommissioning cost estimate only considered prompt dismantling.[15] Consequently, VYNPC only assumes prompt dismantlement in all decommissioning scenarios.[16]

Q. IF VERMONT YANKEE WERE PLACED IN AN EXTENDED SAFE STORAGE MODE AFTER BEING RETIRED IN 2001, WHAT COSTS WOULD VYNPC INCUR IN THE INTERVENING YEARS BETWEEN EARLY RETIREMENT AND THE START OF DECOMMISSIONING ACTIVITIES?

A. Based on its 1994 decommissioning cost analysis, VYNPC has estimated that preparations for entering into an extended safe storage mode would cost approximately $40.6 million in 1999 dollars.

[14] VYNPC's response to VPIRG/NECNP Data Request 1-64.
[15] VYNPC's response to DPS Informal Data Request 1-16.

Maintaining the plant in such a mode for a twelve year SAFSTOR period would cost another $59.4 million in 1999 dollars.[17]

Q. DOES CVPS INCLUDE ANY INAPPROPRIATE COSTS IN ITS ESTIMATE OF THE IMPACT OF DECOMMISSIONING VERMONT YANKEE UPON THE PLANT'S RETIREMENT IN 2001?

A. Yes. The following costs need to be removed from VYNPC's 1999 decommissioning cost analysis:

1. The $56 million or more of costs related to the expansion and operation of the dry cask storage facility.

2. All spent fuel storage costs incurred as a result of the Federal Department of Energy's failure to begin accepting spent fuel in January 1998, as mandated by the Nuclear Waste Policy Act of 1982.

3. At least $33.85 million in site restoration costs included in the 1999 estimate.

In addition, the new Vermont Yankee analysis should reflect the potential savings that could be obtained by retaining Entergy or another qualified contractor to manage decommissioning activities.

Q. WOULD A DRY CASK STORAGE FACILITY HAVE TO BE BUILT AT VERMONT YANKEE IF THE PLANT WERE RETIRED IN 2001?

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[16] VYNPC's response to VPIRG/NECNP Data Request 1-62.
[17] VYNPC's response to DPS Informal Data Request 1-16.

A. No. There would be sufficient wet storage capacity in the plant's spent fuel pool. However, a dry cask storage facility would be required if the plant continued operating through 2012 in order to enable the plant to maintain a full core offload capacity. Therefore, all costs related to the construction and operation of the Interim Spent Fuel Storage Installation ("ISFSI") should be removed from the estimate of what it would cost to decommission Vermont Yankee if the plant were retired in 2001.

Q. WHY DO YOU SAY THAT AT LEAST $33.85 MILLION IN SITE RESTORATION COSTS SHOULD BE REMOVED FROM THE 1999 DECOMMISSIONING COST ESTIMATE WHEN ANALYZING WHETHER EARLY RETIREMENT OR CONTINUED OPERATION IS THE MORE ECONOMIC OPTION?

A. Vermont Yankee's 1999 decommissioning cost estimate includes $33.85 million for site restoration costs. This figure is substantially lower than the site restoration costs included in Vermont Yankee's 1994 and 1997 decommissioning cost estimates. For example, the 1994 estimate, which was prepared by TLG, Inc., the same consultant who prepared the 1999 estimate, included site restoration costs of $44.117 million in 1993 dollars. This translates into approximately $54 million in 1999 dollars.

Similarly, Vermont Yankee's 1997 decommissioning cost estimate included $68.765 million in 1997 dollars for site restoration costs. This translates into $73.66 million in 1999 dollars. Clearly, the 1994 and 1997 estimates both included significantly higher site restoration costs than are in the 1999 estimate. VYNPC should be required to explain this discrepancy as part of the revised decommissioning cost analysis that I believe the Board should require the Company to prepare.

Q. DID THE DPS INCLUDE THESE SITE RESTORATION COSTS IN ITS JANUARY 1999 VERMONT YANKEE ECONOMIC STUDY?

A. The DPS excluded these site restoration costs in their base case analysis. However, they also included a sensitivity case to show the effects of including these costs.[18]

Q. WHAT IS THE BASIS FOR YOUR STATEMENT THAT VYNPC SHOULD EVALUATE THE POTENTIAL SAVINGS AVAILABLE FROM RETAINING ENTERGY OR ANOTHER QUALIFIED CONTRACTOR TO MANAGE THE DECOMMISSIONING OF VERMONT YANKEE?

A.

[PROTECTED MATERIALS[19]]

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[18] January 1999 DPS Vermont Yankee Economic Study, at page 37.

[19] Protected Materials

Unfortunately, neither GMP, CVPS nor VYNPC has provided a copy of the [PROTECTED MATERIALS]. Nevertheless, the potential savings from [PROTECTED MATERIALS] should be explored and factored into the economic analyses of early retirement versus continued operations.

Q. ARE THERE ANY OTHER INPUT ASSUMPTIONS IN CVPS'S ANALYSIS OF THE ECONOMICS OF EARLY RETIREMENT THAT SHOULD BE RE-EVALUATED?

A. Yes. The economic costs and benefits of both the continued operation and the early retirement scenarios need to be examined over a range of possible capacity factors and O&M and capital expenditures. For example, the possible adverse impacts of plant aging on operating performance and operating costs should be explored.

At the same time, as I will explain in the next section of this testimony, it is realistic to expect that if Vermont Yankee is not retired in the near future whatever entity owns the plant will seek to uprate the power

level. The additional output resulting from such a power uprate also should be considered.

Finally, the assumed market prices for the replacement power that would be needed if Vermont Yankee were to be retired in 2001 also have a significant impact on the relative economics of early retirement. For example, using the market price forecasts for replacement power prepared by the REED Consulting Group in 1998 and a 10% discount rate, CVPS witness Page has estimated that continued operation of Vermont Yankee through 2012 would produce a $64 million NPV versus early retirement in 2001. [PROTECTED MATERIALS]

[PROTECTED MATERIALS[20]]

Q. ARE MARKET PRICE FORECASTS FOR FUTURE POWER PRICES VERY VOLATILE?

A. Yes. Replacement power market price forecasts are very volatile. For example, the State of Vermont Nuclear Engineer, William K. Sherman, noted in his February 23, 2000, Affidavit to the NRC that Vermont Yankee market price forecasts had changed by negative 4% to negative 7% over the period 1997 to 1999.[21] Mr. Sherman also cited the following NRC Staff conclusion regarding the difficulty of relying on market price forecasts:

> After reviewing several forecasts of U.S. electricity prices and other relevant information (such as a forecast of regional capacity margins), the staff concludes that attempting to forecast the growth rate, or even the direction of growth, for market-based prices in [Clinton Power Station's] market area is too speculative to be useful for its contingency analysis.[22]

Q. ON WHICH MARKET PRICE FORECAST SHOULD THE PUBLIC SERVICE BOARD RELY WHEN EVALUATING WHETHER EARLY RETIREMENT OR CONTINUED OPERATION IS THE MORE ECONOMIC OPTION?

A. Rather than rely on any speculative market price forecast(s), I believe the Public Service Board should require CVPS and GMP to issue requests for bids to provide replacement power assuming that Vermont

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[20] Protected Materials

[21] Affidavit of William K. Sherman, dated February 23, 2000, at page 3, and Exhibit WKS-4.

[22] Affidavit of William K. Sherman, dated February 23, 2000, at page 3

Yankee were retired in 2001. In this way, the Board would know what suppliers actually would charge for that replacement power instead of being forced to rely on ever changing forecasts.

Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE CONTINUED OPERATIONS STUDIES PRESENTED BY CVPS WITNESSES BROWN AND PAGE?

A. My conclusions regarding the early retirement versus continued operations economic analyses presented in this proceeding by CVPS witnesses Brown and Page are as follows:

1. The Petitioners' analyses show that continued operation of Vermont Yankee through the year 2012 can be expected to provide only marginal economic benefits as compared to retiring the plant in 2001.

2. The assumption that Vermont Yankee would be promptly dismantled at the end of its service life even if the plant were retired as early as 2001 has a significant impact on the economic analysis of continued operation versus early retirement.

3. VYNPC should be required to study the cost of decommissioning Vermont Yankee using the assumption that the plant would be maintained in a Safe Storage mode after its early retirement in 2001 and then decommissioned on the same schedule as if it operated to the end of its licensed lifetime.

4. The following costs should be excluded from the new decommissioning cost estimate to be prepared by VYNPC:

- the costs related to the construction and operation of an ISFSI.
- all spent fuel storage costs incurred as a result of the U.S. DOE's failure to begin accepting spent fuel in January 1998.
- site restoration costs.

5. The market prices for replacement power assumed in the early retirement scenario have a significant impact on the economic analysis of continued operation versus early retirement. Because market price forecasts are highly volatile, the Public Service Board should require CVPS and GMP to issue requests for bids to provide replacement power assuming that Vermont Yankee were retired in 2001. This would allow the Board to know what suppliers actually would charge for replacement power rather than being forced to rely on ever changing forecasts.

6. New analyses of the economics of retiring Vermont Yankee in 2001 versus at the end of its licensed lifetime in 2012 should be performed when VYNPC has prepared the new decommissioning cost estimate and CVPS and GMP have received the bids for replacement power.

IV. THE PROPOSED SALE OF VERMONT YANKEE TO AMERGEN IS NOT IN THE PUBLIC INTEREST

Q. WHAT PAYMENTS WILL VERMONT YANKEE'S OWNERS RECEIVE UNDER THE PROPOSED SALE TO AMERGEN?

A. The Asset Purchase Agreement ("APA") establishes that AmerGen will pay a price of $10 million, net of several adjustments specified in the APA, if the sale is closed on December 1, 2000, plus $90,000 for each day prior to December 1, 2000, that the closing occurs. This means that that Vermont Yankee's owners would receive $23.5 million, net of adjustments, if the sale were to be closed on July 1, 2000. However, VYNPC also expects that the purchase price will be reduced by $1.5 million, whenever closing occurs, as an adjustment for technical work that will not be completed by the closing date.[23]

Q. WOULD THIS PAYMENT FULLY COMPENSATE THE OWNERS AND THEIR RATEPAYERS FOR THE VALUE OF VYNPC AS OF THE CLOSING DATE?

A. No. A $22 million payment if closing were completed on July 1, 2000, would not even compensate VYNPC for the $35.7 million value of the fuel on hand and fuel related contracts, let alone the $139 million net value of the plant.[24] In fact, when you consider the other payments that VYNPC has to make to AmerGen as part of the proposed sale, the

[23] VYNPC's response to DPS Formal Data Request 1F-21.

owners really are paying AmerGen to take the plant and associated assets.

Q. DO THE ANALYSES PRESENTED BY THE PETITIONERS SHOW SIGNIFICANT NPV BENEFITS FROM THE PROPOSED SALE OF VERMONT YANKEE TO AMERGEN?

A. No. The base case analyses presented by the witnesses for VYNPC and CVPS show marginal NPV benefits of only $51 million to $75 million from the proposed sale to AmerGen. These benefits are only 3.5 to 4 percent of the total contract obligation associated with Vermont Yankee over the period 2000 through 2012.

Moreover, all of these analyses [ ] the benefits associated with the proposed sale to AmerGen because they assume that 100 percent of the Vermont Yankee owners elect to buy power under the twelve year Power Purchase Agreement ("PPA"). In reality, 38.5 percent of the owners have elected the PPA buy-out option and will not participate in the 12 year PPA.

Q. WHAT IMPACT DOES THE FACT THAT 38.5 PERCENT OF THE VERMONT YANKEE OWNERS HAVE ELECTED TO BUY-OUT OF THE 12 YEAR PPA HAVE ON THE RELATIVE ECONOMICS OF THE PROPOSED SALE TO AMERGEN?

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[24] VYNPC's response to CLF Data Request 2-1.

A. VYNPC witness Wiggett has revised his economic analysis to reflect the fact that 38.5 percent of the owners have decided to buy-out of the PPA rather than purchasing power from Vermont Yankee. [PROTECTED MATERIALS[25]]

It is reasonable to expect that the analyses presented by CVPS witnesses Brown/Page and Cater/Deehan would change in a similar manner if they were adjusted to reflect the fact that only 61.5 percent of the owners will participate in the 12 year PPA.

Q. WOULD THE PROPOSED SALE PROVIDE AN IMMEDIATE ECONOMIC BENEFIT TO RATEPAYERS?

A. No. Even in the analyses presented in the testimony of VYNPC witness Wiggett and CVPS witnesses Brown and Page, which assume that 100 percent of the owners participate in the PPA, the proposed

sale would not provide a cumulative NPV economic benefit until the year 2007. If the more realistic assumption that only 61.5 percent of the owners participate in the PPA is used instead, the proposed sale would [PROTECTED MATERIALS]

Q. ARE THERE ANY OTHER FLAWED ASSUMPTIONS THAT RESULT IN THE ANALYSES PRESENTED BY VYNPC, CVPS AND GMP OVERSTATING THE ECONOMIC BENEFITS THAT

[25] Protected Materials

CAN BE EXPECTED FROM THE PROPOSED SALE OF VERMONT YANKEE TO AMERGEN?

A. Yes. The analyses presented by VYNPC and CVPS in support of their petition assume that Vermont Yankee's future refueling outages would be 52 days in length.[26] However, VYNPC's internal documents reveal that Vermont Yankee budgets in recent years have projected that plant refueling outages would be [ ] days in duration.[27] At the same time, AmerGen expects to be able to achieve refueling outages as short as 35 days in length.

In addition, the analyses presented by VYNPC and CVPS mostly ignore the fact that unless the plant is retired in the near future, whatever entity owns Vermont Yankee will seek to uprate the power level. However, the additional revenues that could be expected from shorter refueling outages and the sale of the extra plant output made available as a result of a power uprate would significantly change the relative economics of the proposed sale to AmerGen.

Q. WHAT IMPACT WOULD ASSUMING SHORTER REFUELING OUTAGES HAVE ON THE RELATIVE ECONOMICS OF THE PROPOSED SALE?

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[26] VYNPC's response to CAN Data Request 2-16, at page 2.

[27] Protected Materials

A. The analyses prepared by VYNPC and CVPS show that the benefits from the proposed sale decrease if it is assumed that the output of Vermont Yankee increases above forecast levels. In other words, the higher the output from Vermont Yankee, the lower the claimed benefits from the proposed sale. Consequently, assuming that future Vermont Yankee refueling outages would last [ ] days, as in the Company's budget documents, rather than 52 days would mean a minor decrease in level of the economic benefits from the sale claimed by the VYNPC and CVPS witnesses.

Q. PLEASE EXPLAIN WHAT IS INVOLVED IN A POWER UPRATE FOR A BOILING WATER REACTOR NUCLEAR POWER PLANT LIKE VERMONT YANKEE.

A. Boiling water reactor ("BWR") nuclear power plants like Vermont Yankee were originally licensed by the NRC for power levels approximately 20 percent below their physical capacity. Since the late 1980's, the NRC has permitted utilities to uprate the licensed power levels at their BWRs after the utilities have conducted very detailed analyses that show that acceptable safety margins exist at the higher power levels. No significant equipment changes or modifications have generally been required to achieve these power uprates.

Q. WHAT IS THE BENEFIT OF SUCH A POWER UPRATE?

A. A power uprate allows a utility to increase the output of its plant at very low cost.

Q. HAVE OTHER THE POWER LEVELS BEEN INCREASED AT OTHER BWRS?

A. Yes. [PROTECTED MATERIALS[28]]

Q. HAS VYNPC STUDIED WHETHER A POWER UPRATE WOULD BE FEASIBLE AT VERMONT YANKEE?

A. Yes. [PROTECTED MATERIALS[29]]

[PROTECTED MATERIALS[30]]

[28] Protected Materials
[29] Protected Materials

Q. WHY HASN'T A POWER UPRATE BEEN PERFORMED AT VERMONT YANKEE?

A. [PROTECTED MATERIALS[31]]

[PROTECTED MATERIALS]

Q. IS IT REALISTIC TO ASSUME THAT VYNPC OR AMERGEN WILL NOT SEEK A POWER UPRATE IF A DECISION IS MADE TO CONTINUE OPERATING VERMONT YANKEE TO THE END OF ITS LICENSED LIFE IN 2012?

A. No.

Q. WHAT IMPACT WOULD THE ASSUMPTION THAT THE CURRENT VERMONT YANKEE OWNERS OR AMERGEN WILL SEEK A POWER UPRATE HAVE ON THE RELATIVE ECONOMICS OF THE PROPOSED SALE TO AMERGEN?

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[30] Protected Materials
[31] Protected Materials

A. If the proposed sale is completed, then AmerGen will be able to sell any additional power made available as a result of a power uprate and pocket the profits. As explained by CVPS witness Stephen Page in a November 10, 1999, CVPS Power Supply Department Memorandum, if VYNPC maintained ownership, the increased megawatt hours from a successful uprate would be saleable at market prices if not needed to serve the owners' native loads. As a result, CVPS and GMP, and their ratepayers would receive the economic benefits from such an uprate.

In fact, a sensitivity analysis presented CVPS witnesses Deehan and Cater shows that increasing Vermont Yankee's assumed production by 10% changes the $72 million NPV benefit from the sale in their base case analysis to a $30 million NPV loss using an eight percent discount rate, and a $55 million NPV loss using risk adjusted discount rates.[32]

Q. DO YOU AGREE WITH THE CLAIM BY CVPS WITNESSES DEEHAN AND CATER THAT VYNPC WOULD NOT BE ABLE TO ACHIEVE AS MUCH ADDITIONAL OUTPUT AT VERMONT YANKEE AS AMERGEN?

A. No. Actual operating experience at Vermont Yankee and other BWRs shows that VYNPC could achieve the same additional output as AmerGen. For example, the 1999 Vermont Yankee refueling outage was only 34 days in duration.

Moreover, a number of utilities which only own a single nuclear power plant, including Detroit Edison, Washington Public Power System and Alliant Energy already have achieved or are currently seeking power uprates at their plants.

Q. HAVE ANY OTHER WITNESSES FOR VYNPC, CVPS, AND GMP OTHER THAN MESSRS. DEEHAN AND CATER REFLECTED THE POTENTIAL IMPACT OF A POWER UPRATE ON THE RELATIVE ECONOMICS OF THE PROPOSED SALE?

A. No. VYNPC witness Wiggett simply dismisses the possibility that the output from Vermont Yankee could be any higher than he has assumed in his analyses.[33] Therefore, he doesn't examine what the relative economics of the proposed sale to AmerGen would be if it were assumed that the output from Vermont Yankee will be above forecast levels. CVPS witnesses Brown and Page do present sensitivity studies in Exhibit____SWP-6 that examine what happens to the relative economics of the sale if output from Vermont Yankee is below forecast levels. However, they too simply ignore the question of what happens if the output is above forecast levels. Finally, GMP witness Kvedar did

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[32] Exhibit____WJD/JCC-3, Tables I and II, Column (3).

[33] Testimony of VYNPC witness Bruce Wiggett, at page 39, lines 9 through 15.

not present any independent analysis but relied, instead, on the VYNPC studies.

Q. DO YOU AGREE WITH THE CLAIMS BY WITNESSES FOR VYNPC, CVPS AND GMP THAT THE PROPOSED SALE TO AMERGEN WOULD PROVIDE QUALITATIVE BENEFITS?

A. Yes. I agree that, in general, the Vermont Yankee owners could eliminate certain risks if they ended their ownership of the plant. However, none of the witnesses for VYNPC, CVPS or GMP has attempted to quantify the benefits associated with eliminating these risks. Nor have they examined whether these same benefits could be achieved without the proposed sale.

For example, Messrs. Deehan and Cater mention ending Price-Anderson Act nuclear incident liabilities and eliminating exposure to potential NEIL Property Insurance retrospective premium adjustments as potential benefits from the proposed sale. However, these witnesses never mention that neither CVPS nor GMP has ever made any payments for nuclear accident liabilities under the Price-Anderson Act or due to NEIL Property Insurance retrospective premium adjustments.[34] Nor do these witnesses mention that these same benefits could be achieved by

[34] See GMP's responses to VPIRG/NECNP Data Requests 1-52 and 1-53 and CVPS's responses to Data Requests VPIRG/NECNP 1-70 and 1-71.

retiring Vermont Yankee or by divesting the plant in a sale that would be more economically advantageous for ratepayers.

The same is true for the claim by Messrs. Wiggett, Brown, Page, and Kvedar that the proposed sale will reduce the significant operating risks associated with continued ownership.[35] The elimination of operating risk cited by these witnesses as a benefit from the proposed sale also could be achieved by retiring Vermont Yankee or by divesting the plant in a sale that would be more economically advantageous for ratepayers.

GMP witness Kvedar cites eliminating the risk of future power supply cost uncertainty as a qualitative benefit of the proposed sale. However, locking themselves into a 12 year PPA with prices significantly above projected market prices for at least the first six years hardly seems a reasonable way for CVPS and GMP to protect against future power supply cost uncertainty.

Q. ARE THERE REASONABLE STEPS, OTHER THAN ENTERING INTO THE PROPOSED SALE TO AMERGEN, THAT THE VERMONT YANKEE OWNERS COULD TAKE TO REDUCE DECOMMISSIONING COST UNCERTAINTY?

A. Yes. There are a number of alternative steps that the Vermont Yankee owners could take to eliminate much, if not all, of the risk of further

[35] For example, see CVPS's responses to Data Requests VPIRG/NECNP 1-65, 1-66, and 1-72.

escalation in decommissioning costs. First, they could decide to retire the plant in the near future and explore the possibility of entering into a fixed-price contract for the decommissioning of Vermont Yankee. Second, the existing owners could pursue the offer [PROTECTED MATERIALS[36]] of the cost of decommissioning the plant. Or, the owners could sign a contract with a qualified contractor other than Entergy.[37]

The owners also could enter into a sale for Vermont Yankee in which VYNPC retained the obligation to decommission the plant, and the existing funds, but the buyer made a significant cash contribution towards the cost of decommissioning. Finally, the owners could enter into a new agreement to sell Vermont Yankee that would be more economically advantageous for ratepayers but in which the decommissioning obligation and funds would be transferred to the buyer, as in the current sale.

Q. HAVE OTHER NUCLEAR POWER PLANT OWNERS ENTERED INTO FIXED-PRICE CONTRACTS FOR DECOMMISSIONING RECENTLY RETIRED NUCLEAR POWER PLANTS?

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[36] Protected Materials

[37] For example, AmerGen has testified in this proceeding that its decommissioning cost estimate for Vermont Yankee is lower than the

A. Yes. The signing of fixed-price contracts for decommissioning appears to be an emerging trend within the nuclear industry. For example, such fixed-price contracts have been signed with decommissioning operations contractors ("DOC") for the decommissioning of the recently retired Maine Yankee, Connecticut, and Millstone Unit 1 nuclear power plants.

Q. WHAT COSTS ARE INCLUDED WITHIN THE SCOPE OF SUCH FIXED PRICE CONTRACTS?

A. I have not been able to review the specific terms of the fixed-price DOC contracts because those agreements are confidential. However, CVPS has indicated that, in general, the Maine Yankee DOC contract covers $250 million of the total $541 million, in 1998 dollars, of the current estimated cost for decommissioning the plant and includes the costs to dismantle the nuclear plant, costs for the burial of low-level radioactive waste, costs for site restoration to "greenfield" condition, and capital costs for a dry cask storage facility.[38] The fixed-price contract for Connecticut Yankee apparently covers the same approximate scope of work.[39] Consequently, many areas that traditionally have been exposed

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current VYNPC estimate. See Testimony of AmerGen witness Duncan Hawthorne, at page 4.

[38] CVPS response to Department of Public Service Formal Data Request 1-7.

[39] CVPS response to Department of Public Service Data Request 2-5.

to significant cost uncertainty are included within the scope of the fixed-price DOC contract.

Q. WHAT COSTS HAVE NOT BEEN INCLUDED WITHIN THE SCOPE OF SUCH FIXED-PRICE CONTRACTS?

A. According to CVPS, the following costs have not been included within the scope of the Maine Yankee fixed-price DOC contract: expenditures in 1997 actual and 1998 prior to the signing of the contract; contracted and management services; labor and staff augmentation costs; fees, insurance and property taxes; $12.7 million of miscellaneous expenses; and $6.3 million of purchased power costs.[40]

Q. HAVE YOU SEEN ANY EVIDENCE THAT THE EXISTING VERMONT YANKEE OWNERS ARE CONCERNED THAT THEY MIGHT CONTINUE TO BE EXPOSED TO SOME RISKS EVEN IF THEY COMPLETE THE PROPOSED SALE TO AMERGEN?

A. Yes.

[PROTECTED MATERIALS[41]]

[40] CVPS response to VPIRG/NECNP Data Request 2-1.
[41] Protected Materials

Q. IS IT POSSIBLE THAT VYNPC HAS SUBSEQUENTLY PROVIDED DOCUMENTS THAT GAVE SUCH REASONABLE ASSURANCES TO THE VERMONT YANKEE OWNERS?

A. Yes. However, I don't believe that I have seen any documents in which such assurances were subsequently communicated.

Q. DOES THE PUBLIC SERVICE BOARD HAVE TO APPROVE THE PROPOSED SALE AT THIS TIME?

A. No. Recent developments show that there is now a much more robust market for nuclear power plants than existed last fall when VYNPC entered into the agreement to sell Vermont Yankee to AmerGen. Consequently, a decision at this time by the Board to reject the proposed sale of Vermont Yankee to AmerGen would not foreclose the possibility that a future sale could be completed which would provide more significant economic benefits for ratepayers.

Q. WHAT ARE THE RECENT DEVELOPMENTS WHICH HAVE LED YOU TO CONCLUDE THAT THERE IS NOW A MUCH MORE ROBUST MARKET FOR NUCLEAR POWER PLANTS?

A. My conclusion that there is now a much more competitive market for nuclear power plants is based on the following developments:

1. Since last November, several new utilities have expressed their interest in entering the market to purchase nuclear power plants. Another new market participant has made an unsuccessful bid of nearly a billion dollars for two nuclear plants.

2. The New York Power Authority recently agreed to sell its Indian Point 3 and Fitzpatrick nuclear plants to Entergy for significantly more value than had been received by any seller in any previous nuclear sale.

3. In late December, the staff of the New York State Public Service Commission decided to reject AmerGen's proposed purchase of the Nine Mile Point 1 and 2 nuclear plants in New York State because that sale did not appear to maximize the value of the plants for ratepayers. Within the past week, one of the New York utilities involved in the sale of the Nine Mile Point plants asked the Public Service Commission to terminate the proposed deal and put the plants up for auction because of the increasing interest from other prospective buyers.

Q. WHICH UTILITIES HAVE RECENTLY EXPRESSED THEIR INTEREST IN PARTICIPATING AS BUYERS IN THE NUCLEAR PLANT MARKET?

A. Constellation Nuclear Group, Duke Energy, and the Midwest Nuclear Management Group have all expressed interest in recent months in

bidding to buy nuclear power plants.[42] A fourth utility, Dominion Resources recently has unsuccessfully bid a billion dollars for the two nuclear plants owned by the New York State Power Authority ("NYPA")

Q. WHY IS IT IMPORTANT THAT ADDITIONAL UTILITIES HAVE EXPRESSED THEIR INTEREST IN BIDDING TO BUY NUCLEAR POWER PLANTS?

A. The first four nuclear plants divested by their original owners were purchased by either Entergy or AmerGen. It is reasonable to expect that the larger pool of potential buyers who now have expressed interest in participating in the nuclear market will mean more competitive bidding processes and will result in higher prices for nuclear power plants being sold.

Q. WHAT IS THE SIGNIFICANCE OF THE NEW YORK POWER AUTHORITY'S RECENT SALE OF TWO NUCLEAR POWER PLANTS TO ENTERGY?

A. The recently announced sale of NYPA's Indian Point 3 and Fitzpatrick nuclear power plants to Entergy is significant for at least four reasons:

1. The sale involved a fiercely competitive bidding process between Entergy and Dominion Resources.[43]

[42] The Energy Daily, November 17, 1999, and November 30, 1999.
[43] The Electricity Daily, March 21, 2000.

2. One of the bidders, Dominion Resources, was a new participant in the market.

3. A year to 18 months earlier, NYPA believed that there was no market for its two nuclear plants.

4. NYPA received significantly more value than any seller had received in any previous nuclear sale and substantially more value than VYNPC is to receive as part of the proposed sale to AmerGen.

Q. PLEASE SUMMARIZE THE MAIN FEATURES OF THE NYPA SALE.

A. NYPA will receive $636 million for the two plants themselves, including an initial payment of $50 million, followed by seven annual installments of $83.7 million. NYPA also will receive $171 million for fuel on hand or ordered. The fuel payment will be made in seven annual installments of $24.4 million.

Entergy also has agreed to make further payments of up to $120 million to NYPA if the utility acquires additional nuclear plants in New York State or receives license extensions for either plant.

The NPV of the $636 million that NYPA will receive for the two plants and the $171 million it will receive for the nuclear fuel is $319 per kw, or 7.4 times the $43/kw that the Vermont Yankee owners are due to receive from AmerGen.[44]

[44] The price of $43/kw reflects a payment of $22 million on a July 1, 2000, closing date. If the closing date is after July 1, 2000, AmerGen will pay less than $43/kw for Vermont Yankee.

Q. HAS NYPA AGREED TO ENTER INTO A POWER PURCHASE AGREEMENT WITH ENTERGY AS PART OF THE SALE?

A. Yes. However, the terms of that power purchase agreement are much more favorable than the terms of VYNPC's proposed PPA with AmerGen. First, the NYPA power purchase agreement is only five years in duration, not twelve. Second, NYPA will purchase all of Indian Point 3's output through the end of 2004 and shares of Fitzpatrick power that will decline from 46 percent at the start to 31 percent in 2004. Under the agreement NYPA will pay Entergy $36 per MWH for the Indian Point 3 power and $32 per MWH for the Fitzpatrick power. Both of these prices are lower than the prices that CVPS and GMP will pay for Vermont Yankee power pursuant to the proposed PPA with AmerGen.

NYPA also has entered into a second agreement with Entergy for additional Fitzpatrick power at a price of only $29 per MWH. This additional power will be used to help NYPA's economic development efforts.

In addition, Entergy has agreed to make eight annual cash payments of $8.5 million to NYPA, for a total of $68 million, as a result of NYPA's commitment to make these additional purchases of power from the Fitzpatrick plant.

Entergy also has agreed to make additional payments to NYPA if the prices for the power from Indian Point 3 and Fitzpatrick plants over the 10 year period beginning with the expiration of the PPA exceed specified amounts.

In contrast, VYNPC's proposed PPA with AmerGen would lock the Vermont Yankee owners into paying for at least six years of replacement power at higher than projected market prices.

Q. WILL NYPA HAVE TO MAKE A PAYMENT TO ENTERGY TO "TOP-OFF" ITS DECOMMISSIONING FUND?

A. No. NYPA has decided to retain its decommissioning funds and will transfer money to Entergy at the time of decommissioning. However, Entergy has agreed to make 8 annual cash payments of $11.5 million, for a total of $92 million, to reduce NYPA's decommissioning obligations.

Q. ARE EITHER OF NYPA'S POWER PLANTS SIMILAR IN DESIGN AND VINTAGE TO VERMONT YANKEE?

A. Yes. NYPA's Fitzpatrick nuclear plant is a BWR similar in design and vintage to Vermont Yankee. However, Fitzpatrick is larger than Vermont Yankee and several years older.

NYPA's Indian Point 3 plant has a completely different design than Vermont Yankee and entered commercial service three and one-half years later.

Q. WILL NYPA RECEIVE ANY QUALITATIVE BENEFITS FROM THE SALE OF ITS NUCLEAR POWER PLANTS TO ENTERGY?

A. Yes. Selling the plants will enable NYPA to avoid the nuclear operating risks discussed in this proceeding by witnesses for VYNPC and CVPS. In addition, it appears that by selling its two nuclear plants, NYPA also will get the other qualitative benefits cited by VYNPC, CVPS, and GMP witnesses in this docket.

Q. PLEASE DESCRIBE THE RECENT DEVELOPMENTS CONCERNING AMERGEN'S PROPOSED PURCHASE OF THE NINE MILE POINT UNIT 1 AND NINE MILE POINT UNIT 2 NUCLEAR PLANTS.

A. Last June, AmerGen reached agreement with Niagara Mohawk Power Corporation ("Niagara Mohawk") and New York State Electric and Gas ("NYSEG") to purchase the 100% of Nine Mile Point Unit 1 owned by Niagara Mohawk and the 59% of Nine Mile Point Unit 2 owned by the two utilities. A petition was filed last fall seeking the approval of the New York State Public Service Commission for the sale.

Then, in December, Rochester Gas and Electric ("RG&E"), one of the minority owners of Nine Mile Point Unit 2, announced that it was going to exercise its right of first refusal to purchase Nine Mile Point Unit 2 under essentially the same terms as AmerGen had previously offered.

RG&E also announced that it had entered into an agreement with Entergy to operate the plant on its behalf.

In addition, in late December, the Staff of the New York State Public Service Commission announced that it did not approve of the proposed sale because the deal did not appear to maximize the value of the plants for ratepayers. The Staff then conducted a series of confidential settlement conferences with AmerGen, Niagara Mohawk, NYSEG, and other interested parties. While these conferences were going on, AmerGen announced that it was willing to pay more for the Nine Mile Point plants.

However, NYSEG has filed a petition with the New York State Public Service Commission within the past week seeking to terminate the proposed deal with AmerGen and place the Nine Mile plants up for auction. In announcing this move, NYSEG cited the recently completed NYPA sale and the increasing interest in the Nine Mile units from other prospective buyers.[45]

Q. WERE THE TERMS OF THE PROPOSED SALE OF THE NINE MILE POINT PLANTS TO AMERGEN THAT HAS BEEN REJECTED BY THE NEW YORK STATE PUBLIC SERVICE COMMISSION STAFF AND REPUDIATED BY NYSEG MORE

[45] The Energy Daily, April 10, 2000.

OR LESS FAVORABLE THAN THE TERMS OF THE PROPOSED SALE OF VERMONT YANKEE TO AMERGEN?

A. The terms of the rejected sale of the Nine Mile Point plants to AmerGen were substantially more favorable to the selling utilities than the terms of the proposed sale of Vermont Yankee to AmerGen. For example, AmerGen had agreed to pay $117/kw for Nine Mile Point 1 and $136/kw for Nine Mile Point 2, for a total of $163 million for both plants. This was substantially higher than the $43/kw that AmerGen has agreed to pay for Vermont Yankee.

Q. DO EITHER OF THE TWO NINE MILE POINT NUCLEAR POWER PLANTS HAVE DESIGNS OR VINTAGES SIMILAR TO THAT OF VERMONT YANKEE?

A. Yes. Like Vermont Yankee, both Nine Mile Point plants are BWRs. Nine Mile Point Unit 1 is slightly larger and slightly older than Vermont Yankee, having entered commercial service three years earlier. Nine Mile Point Unit 2 is a much larger and much newer plant than Vermont Yankee.

Q. DID THE PROPOSED SALE OF THE NINE MILE POINT PLANTS TO AMERGEN INCLUDE A POWER PURCHASE AGREEMENT?

A. Yes. Niagara Mohawk was to purchase Nine Mile Point 1 power from AmerGen under a 5 year PPA. Niagara Mohawk and NYSEG were both

to purchase power from Nine Mile Point 2 under a 3 year PPA. The prices for this power set in the PPA were to have been in the range of $35/mwh to $37/mwh. AmerGen had also agreed to a 10 year revenue sharing mechanism for the power from Nine Mile Point 2 due to begin after the 3 year PPA expired.

These terms, in a now repudiated sale, were significantly more favorable than the terms in the proposed Vermont Yankee PPA.

Q. WERE THE PRICES TO BE PAID FOR NINE MILE POINT 1 AND NINE MILE POINT 2 POWER UNDER THE PROPOSED PPA ABOVE FORECAST MARKET PRICES?

A. Yes. In fact, the petitions filed by Niagara Mohawk and NYSEG seeking the approval of the New York State Public Service Commission for the sale specifically noted that that the agreed upon prices might "exceed actual wholesale prices for certain periods during the terms of the PPA."[46] However, these petitions subsequently reported that "The possibility that AmerGen will be able to sell power from Nine Mile Station under the PPA at what may be, for some periods, a favorable price has been reflected in a higher asset price to be received by NYSEG and Niagara Mohawk than AmerGen would have agreed to pay

[46] Joint Petition to Transfer Certain Generating and Related Assets to Amergen Energy Company, L.L.C. and for Related Approvals, dated July 23, 1999, at page 17.

in the absence of the PPA."[47] Unfortunately, the proposed sale of Vermont Yankee burdens ratepayers with a 12 year PPA at above forecast market prices for at least the first six years but only provides a sale price for the plant that is significantly lower than NYPA will receive or that Niagara Mohawk and NYSEG would have received in the now repudiated Nine Mile Point sale.

Q. WOULD THE PROPOSED SALE OF THE NINE MILE POINT NUCLEAR PLANTS HAVE PROVIDED NIAGARA MOHAWK AND NYSEG THE SAME QUALITATIVE BENEFITS CITED BY WITNESSES FOR VERMONT YANKEE IN THIS PROCEEDING?

A. Yes. Selling the plants would have enabled Niagara Mohawk and NYSEG to have avoided the nuclear operating risks discussed in this proceeding by witnesses for VYNPC and CVPS. In addition, it appears that by selling the two nuclear plants, Niagara Mohawk and NYSEG also would have received get the other qualitative benefits cited by VYNPC, CVPS, and GMP witnesses in this docket.

Q. ARE ANY OTHER NUCLEAR PLANT SALES RELEVANT TO EVALUATING WHETHER THE BOARD SHOULD APPROVE THE PROPOSED SALE OF VERMONT YANKEE?

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[47] Joint Petition to Transfer Certain Generating and Related Assets to Amergen Energy Company, L.L.C. and for Related Approvals, dated

A. No. The other nuclear power plant sales that have occurred were completed in a significantly less competitive market than appears to exist at this time. The prices for which other utilities may have felt compelled to sell their nuclear plants in that less robust market offer very little, if any, insight into whether the Vermont Yankee owners should be allowed to close the proposed sale to AmerGen.

Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE PROPOSED SALE OF VERMONT YANKEE TO AMERGEN.

A. My conclusions regarding the proposed sale of Vermont Yankee to AmerGen are as follows:

1. The testimony and exhibits filed by VYNPC and CVPS in this docket show only a very marginal economic benefit to the existing Vermont Yankee owners, $51 million NPV, from the proposed sale.

2. Even this marginal benefit is [ ] due to the fact that only 61.5 percent of the existing Vermont Yankee owners have elected to buy power from AmerGen under the proposed twelve year PPA. When the fact that 38.5 percent of the existing owners have elected to buy-out of the proposed PPA is considered, [PROTECTED MATERIALS]

July 23, 1999, at page 17.

3. Even in the analyses presented in the testimony of VYNPC witness Wiggett and CVPS witnesses Brown and Page, which assume 100% of the existing owners participate in the PPA, the proposed sale to AmerGen would not provide a cumulative NPV economic benefit until the year 2007. If the more realistic assumption that 38.5 percent of the owners buy-out of the PPA is used instead, the proposed sale would

[PROTECTED MATERIALS]

4. It is unrealistic to assume that VYNPC or AmerGen will not seek to increase Vermont Yankee's power level if a decision is made to continue operating the plant to the end of its licensed life in 2012.

5. The additional revenues that could be expected from shorter refueling outages and the sale of the extra plant output from a power uprate would significantly change the relative economics of the proposed sale to AmerGen.

6. A sensitivity analysis presented by CVPS witnesses Deehan and Cater shows that increasing Vermont Yankee's assumed production by 10 percent changes the $72 million NPV benefit shown for the sale in their base case to a $30 million NPV loss using an eight percent discount rate, and a $55 million NPV loss using risk adjusted discount rates.

7. Actual operating experience at Vermont Yankee and other BWRs shows that VYNPC should be able to achieve as much additional output at Vermont Yankee as AmerGen.

8. The Vermont Yankee owners could reduce or eliminate certain qualitative risks if they ended their ownership of the plant. However, none of the witnesses for VYNPC, CVPS, or GMP has attempted to quantify the benefits associated with eliminating these risks. Nor have they examined whether these same benefits could be achieved without the proposed sale.

9. There are a number of alternative steps besides entering into the proposed sale to AmerGen that the Vermont Yankee owners could take to eliminate much, if not all, of the risk of further escalation in decommissioning costs.

10. The Vermont Yankee owners could enter into a fixed-price decommissioning contract similar to those that have been made at Maine Yankee, Connecticut Yankee, and Millstone Unit 1. Many areas that traditionally have been exposed to significant cost uncertainty appear to be included within the scope of these fixed-price decommissioning contracts.

11. There is no need to rush into the proposed sale to AmerGen. Recent developments show that there is now a much more robust market for nuclear power plants than existed last fall when

VYNPC entered into the agreement with AmerGen. Consequently, a decision at this time by the Public Service Board to reject the proposed sale of Vermont Yankee to AmerGen would not foreclose the possibility that a future sale could be completed which would provide more significant economic benefits for ratepayers.

12. Since last November, several new utilities have expressed their interest in entering the market to purchase nuclear power plants. One new market participant recently has made an unsuccessful bid of nearly one billion dollars for two nuclear plants. It is reasonable to expect that the larger pool of potential buyers who now have expressed interest in participating in the nuclear market will mean more competitive bidding processes and will result in higher prices for nuclear power plants being sold.

13. The New York State Power Authority recently has agreed to sell its two nuclear power plants to Entergy. This sale is significant for the following reasons:

A. The sale involved a fiercely competitive bidding process between Entergy and Dominion Resources.

B. One of the bidders, Dominion Resources, was a new participant in the market.

C. A year to 18 months earlier NYPA believed that there was no market for its two nuclear plants.

D. NYPA received significantly more value than any seller had received in any previous nuclear sale.

E. The NPV of the $636 million NYPA will receive for the two plants and the $171 million it will receive for the nuclear fuel is $ 319/kw or 7.4 times the $43/kw that the Vermont Yankee owners are due to receive from AmerGen.

14. The Power Purchase Agreement between NYPA and Entergy is for a much shorter duration than the proposed PPA for Vermont Yankee and provides for lower power prices. Entergy also has agreed to pay NYPA $68 million over an eight year period, as a result of NYPA's commitment to make additional purchases of power from one of the two plants. Finally, Entergy has agreed to make additional payments to NYPA if over the ten year period beginning with the expiration of the PPA, the prices for the power from the two plants exceeds specified amounts. In contrast, VYNPC's proposed PPA with AmerGen would lock the Vermont Yankee owners into paying for at least six years of replacement power at higher than projected market prices.

15. Last June, AmerGen reached agreement with two New York State utilities to buy all of Nine Mile Point Unit 1 and 59 percent of Nine Mile Point Unit 2. In late December, the staff of the New York State Public Service Commission decided to reject AmerGen's proposed purchase because the sale did not appear to

maximize the value of the plants for ratepayers. Within the past week, one of the two utilities involved in the sale asked the Public Service Commission to terminate the proposed deal and put the plants up for auction because of the increasing interest from other prospective buyers.

16. The terms of the proposed sale of the Nine Mile Point nuclear plants to AmerGen that has been rejected by the staff of the New York State Public Service Commission and repudiated by one of the two selling utilities were more favorable than the terms of the proposed sale of Vermont Yankee to AmerGen. For example, AmerGen had agreed to pay $117/kw for Nine Mile Point Unit 1 and $136/kw for Nine Mile Point Unit 2, for a total of $163 million. This was substantially higher than the $43/kw that AmerGen has agreed to pay for Vermont Yankee. The terms of the proposed Power Purchase Agreements for the sale of the power from the Nine Mile Point plants also were significantly more favorable than the terms in the proposed Vermont Yankee PPA.

17. The other nuclear power plant sales that have occurred were completed in a significantly less competitive market than appears to exist at this time. Consequently, the prices for which other utilities may have felt compelled to sell their nuclear plants in

that less robust market offer very little, if any, insight into whether the Vermont Yankee owners should be allowed to close the proposed sale to AmerGen.

18. The proposed sale of Vermont Yankee to AmerGen is not in the public interest.

V. THE SAFETY CONCERNS RAISED BY THE PROPOSED SALE OF VERMONT YANKEE

Q. DOES THE ECONOMIC DEREGULATION OF NUCLEAR POWER PLANTS AND THE RESULTING INTRODUCTION OF COMPETITION CREATE POTENTIAL SAFETY CONCERNS AT NUCLEAR UTILITIES?

A. Yes. There is a significant risk that the competitive pressures in a restructured and deregulated market will increase the economic and financial pressures on nuclear plant owners to reduce or eliminate necessary costs, cut corners, defer needed maintenance or improvements, or maximize short term operating performance even when plants should be shut down for repairs.

Q. HAVE YOU SEEN ANY EVIDENCE THAT IN THE PAST ECONOMIC PRESSURES HAVE LED TO SAFETY RELATED PROBLEMS AT NUCLEAR POWER PLANTS?

A. Yes. Even when nuclear power plants were subject to economic regulation there were many instances where the pressures to cut costs or

maximize production led to safety-related problems. In fact, the experiences of Commonwealth Edison, Northeast Utilities, and Maine Yankee illustrate that even strong utilities can experience serious problems when undue emphasis is placed on cutting or containing nuclear plant operating costs or on maximizing near term plant performance.

For example, a June 1992 NRC Staff evaluation of the performance of Commonwealth Edison's nuclear plants identified insufficient management attention and resources given to the Company's operating sites during the early to mid-1980s as one of the root causes of subsequent performance weaknesses:

> CECo undertook an ambitious nuclear construction effort that culminated in the mid-1980's with the completion of six nuclear units; two each at LaSalle, Braidwood, and Byron. During this time, corporate oversight and resources were focused on what CECo considered to be the high priority task of completing this construction effort. The amount of monetary and personnel resources expended on the older plants suffered. In many cases, experienced personnel were diverted from older plants to new plant construction and startup….
>
> As a consequence, performance of the older stations did not keep pace with the rest of the industry. This was at a time when most of the industry was focusing strongly on improved operating plant performance. CECo did not make the same progress at its operating plants in improving the control of operations, maintenance, outage activities, equipment/material condition, corrective action/root cause analysis, personnel performance, and communications. The effects of this diversion of resources and management attention from older plants to

> construction through the mid-80s is, to some extent, still evident today in hardware deficiencies, difficulty in changing longstanding ways of doing business, and weak procedures at the older units.[48]

Subsequent assessments by Commonwealth Edison and evaluations by the NRC and the Institute of Nuclear Power Operations ("INPO") agreed that pressures to reduce costs and maximize production had led to subsequent performance problems at eight of the utility's twelve nuclear plants. For example, INPO also told the Company's Board of Directors in March 1996 that a strong emphasis, "indeed over-emphasis" on budget, without first emphasizing performance, had "clearly been a major impediment to success" and had "had far reaching detrimental effects."[49] INPO subsequently told Commonwealth Edison's Board of Directors in September of 1997 that nuclear safety performance frequently had not taken precedence over meeting short-term financial targets.[50]

An internal Commonwealth Edison assessment similarly attributed the declining material condition of the Company's LaSalle Nuclear Station to management's over-emphasis on "the importance of achieving short-term production goals, at the cost of accepting temporary fixes [to

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[48] NRC SECY-92-228, issued on June 25, 1992, at pages 3-4.

[49] INPO Briefing Materials for March 14, 1996, Meeting with the ComEd Board of Directors, Attachment 4, at page 3.

[50] INPO Briefing Materials for September 10, 1997, Meeting with the ComEd Board of Directors, Attachment 2, at page 15.

equipment problems], without a corresponding focus on long-term issue resolution."[51]

Q. DID SIMILAR ECONOMIC PRESSURES LEAD TO PERFORMANCE PROBLEMS AT NORTHEAST UTILITIES' MILLSTONE NUCLEAR PLANTS?

A. Yes. Utility-sponsored assessments and audits by the NRC and the Connecticut Department of Public Utility Control have concluded that Northeast Utilities experienced serious regulatory problems in the mid- and late-1990s as a result of having had an undue focus on economic issues since the mid-1980s.

For example, a 1996 audit of Northeast Utilities sponsored by the State of Connecticut Department of Public Utility Control reached the following conclusions:

- The NU Nuclear Organization had been mismanaged for the previous ten years. NU executive management had lost focus on the safe operation of the nuclear units, placing primary importance on financial issues, geographical expansion and the pending threat of wholesale and retail competition. Executive management's frequent statements over this period that nuclear safety was their primary concern had been hollow. As a result, the plant equipment and processes at best had failed to keep up with industry standards and, at worst, had significantly deteriorated.

- NU management had lost the trust and confidence of a significant fraction of the Nuclear Organization workforce. The primary

[51] Commonwealth Edison April 1995, LaSalle Nuclear Station Course of Action, at page 67.

> cause has been a mixed message regarding corporate goals related to cost, financial matters, and production, as opposed to safety and regulatory compliance considerations.... Management's emphasis on cost containment and production had overwhelmed the safety culture which once existed at Millstone Station.[52]

It is significant that Northeast Utilities had been considered to be a strong performer through the late 1980s and a leader in the nuclear industry. Plant operating performance and SALP scores were generally very good. The Company's decline coincided with the placement of an undue emphasis on economic issues.

Q. WHAT EVIDENCE HAVE YOU SEEN THAT SHOWS THAT ECONOMIC PRESSURES LED TO SAFETY CONCERNS AT THE MAINE YANKEE NUCLEAR PLANT?

A. The NRC conducted an Independent Safety Assessment Team ("ISA") inspection at Maine Yankee in 1996. The October 7, 1996, Report of this ISA inspection concluded that the economic pressures to be a low-cost energy producer had been one of the two underlying root causes for performance problems at the plant.[53] These economic pressures had led to limitations on resources which delayed and deferred needed plant upgrades, improvements and lower priority corrective actions. In fact,

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[52] R.C. Brown & Associates "Focused Audit of the Connecticut Light & Power Company Nuclear Operations," issued December 31, 1996.

the NRC ISA report found that "Projects which would likely have prevented problems were unfunded because of budget limits."[54] The NRC ISA report also concluded that economic pressures had created an environment at Maine Yankee where management was willing to accept existing deficient conditions without having them corrected.

Most significantly, the NRC ISA report found that Maine Yankee had not previously been a high cost producer where management had been forced to make significant cuts in staffing and resources in order to make the unit competitive:

> Like all licensees, the Maine Yankee Atomic Power Company (MYAPCo) has experienced competitive pressure to generate power at low cost. However, unlike others, Maine Yankee has not engaged in drastic staff reductions, work process reengineering or other budget cutback efforts to maintain competitiveness because it has historically maintained a lean and efficient organization. Staffing levels and budget expenditures have been constrained to that necessary to generate power efficiently.[55]

The owners of Maine Yankee retained consultants during 1996 to conduct an assessment of the culture at the plant. The report of this cultural assessment team ("CAT") noted that competitive pressures had

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[53] NRC Independent Safety Assessment Report for Maine Yankee, October 7, 1996, at page 71.

[54] NRC Independent Safety Assessment Report for Maine Yankee, October 7, 1996, at page 67.

[55] NRC Independent Safety Assessment Report for Maine Yankee, October 7, 1996, at page 67.

led to safety concerns at the plant. For example, the CAT reported that workers at the plant believed that management didn't want to hear about problems that could lower power production and that cutting corners to meet tight work schedules was necessary and tolerated.[56]

The Maine Yankee CAT Report further noted that the economic and political environment facing Maine Yankee at the time was considered "precarious" and the plant's survival was seen to be based on maintaining low costs and achieving high production. This led to a fear among many workers that "highlighting any negative issue could endanger the plant's continued operation." Moreover, the report said "No one wants to be responsible for a premature plant shutdown and decommissioning."

Although the cultural assessment report concluded that nuclear safety was considered the first priority at Maine Yankee, cost was a second priority. Workers told the cultural assessment team that over the years money was spent only on areas that required it – primarily on safety and regulatory issues. Expenditures were rarely made on non-essential items, including preventive measures, so that while costs were kept down, workers believed that the material condition of the plant had deteriorated to the point where substantive improvements needed to be made. However, workers believed that a clear message from

[56] Nucleonics Week, June 27, 1996, at page 1.

management was that further, major problems or events requiring significant expenditures could lead to a premature, permanent shutdown.

Q. HAVE YOU REVIEWED THE FEBRUARY 23, 2000, AFFIDAVIT CONCERNING THE PROPOSED SALE TO AMERGEN THAT WAS FILED AT THE U.S. NUCLEAR REGULATORY COMMISSION BY WILLIAM K. SHERMAN, THE VERMONT STATE NUCLEAR ENGINEER?

A. Yes.

Q. DO YOU AGREE WITH THE CONCLUSIONS REACHED BY MR. SHERMAN IN THAT AFFIDAVIT?

A. Yes. I agree with the following conclusions reached by Mr. Sherman in his affidavit:

- There is no guarantee that AmerGen's owners will be liable for any more than $110 million.

- There is no guarantee that operating costs will provide an adequate source of funds to meet Vermont Yankee's ongoing operational expenses for an unanticipated six-month outage.

- There is no guarantee that any of AmerGen's net income will be available to fund future operational shortfalls.

- Simultaneous six-month outages at more than one of AmerGen's plants are a reasonable possibility.

- AmerGen is susceptible to events which could lead to simultaneous outages at more than one plant.

- Immediate entry into decommissioning is not an alternative for insufficient funding.

- The $110 million pledged by AmerGen's owners is not sufficient to pay the full costs of a six-month outage at Vermont Yankee considering scenarios which might reasonably occur.

Q. ARE YOU AWARE OF ANY INSTANCES IN WHICH UTILITIES HAVE EXPERIENCED SIMULTANEOUS EXTENDED OUTAGES OF TWO OR MORE NUCLEAR POWER PLANT?

A. Yes. There have been numerous instances where two or more of a utility's nuclear plants have been out of service at the same time for six months or longer due to problems that arose as a result of an emphasis on reducing costs, deficiencies in the utility's safety culture, management problems, or generic or plant-specific technical issues. For example:

* Two of the three units at the Palo Verde Nuclear Generating Station were shut down at the same time for approximately twelve months starting in March 1989. During this same twelve month period, the third Palo Verde unit was shut down for numerous outages, including one outage that lasted approximately four months.

* The two units at the South Texas nuclear plant were both shut down for the twelve month period February 1993 to February 1994.

* All five of TVA's operating nuclear power plants were shut down in 1985. The first unit to be restarted, Sequoyah Unit 1, re-commenced commercial operations in May 1989.

* All three units at Northeast Utilities' Millstone nuclear plant were shut down for multi-year outages starting in March of 1996.

* Commonwealth Edison has experienced numerous simultaneous extended outages among the eight units at its Dresden, LaSalle, Quad Cities, and Zion nuclear stations. For example, during the first six months of 1996, the utility had at least three units shut down at any one time for extended outages of longer than three months in duration. Commonwealth Edison had at least four units shut down at any one time for extended outages during the last six months of 1996, except for a short period at the end of August and early September. The utility also experienced simultaneous outages of at least six months in length at its two unit Zion nuclear station from October 1993 through April 1994 and at its two unit LaSalle Station from September 1996 through 1998.

* Both units at the D.C. Cook Nuclear Plant in Michigan were shutdown in September 1997. These units remain shutdown at this time.

* Both units at the Salem Nuclear Station were shutdown for more than two years between July 1995 and the fall of 1997.

* Both units at the Brunswick nuclear plant were shutdown for the twelve month period April 1992 through April 1993.

* Both units at the Calvert Cliffs nuclear plant were shut down at the same time for more than one year starting in May 1989.

Q. WHAT ARE YOUR CONCLUSIONS REGARDING NUCLEAR SAFETY ISSUES?

A. My conclusions regarding the nuclear safety issues raised by the proposed sale of Vermont Yankee are as follows:

1. There is a significant risk that the competitive pressures in a deregulated market will increase the economic and financial pressures on nuclear plant owners to reduce or eliminate

necessary costs, cut corners, defer needed maintenance or improvements, or maximize short term operating performance.

2. Even when power plants were subject to economic regulation, there were many instances in which the pressures to cut costs or maximize production led to safety-related problems.

3. Commonwealth Edison, Northeast Utilities and Maine Yankee were three examples of strong utilities that experienced serious problems after undue emphasis was placed on cutting or containing nuclear plant operating costs or on maximizing near term plant performance.

4. I agree with the following conclusions reached by the Vermont State Nuclear Engineer in his February 23, 2000, Affidavit to the NRC:

- There is no guarantee that AmerGen's owners will be liable for any more than $110 million.

- There is no guarantee that operating costs will provide an adequate source of funds to meet Vermont Yankee's ongoing operational expenses for an unanticipated six-month outage.

- There is no guarantee that any of AmerGen's net income will be available to fund future operational shortfalls.

- Simultaneous six-month outages at more than one of AmerGen's plants are a reasonable possibility.

- AmerGen is susceptible to events which could lead to simultaneous outages at more than one plant.

- Immediate entry into decommissioning is not an alternative for insufficient funding.

- The $110 million pledged by AmerGen's owners is not sufficient to pay the full costs of a six-month outage at Vermont Yankee considering scenarios which might reasonably occur.

5. There have been numerous instances where two or more of a utility's nuclear power plants have been out of service at the same time for six months or longer due to problems that arose as a result of an emphasis on reducing costs, deficiencies in the utility's safety culture, management problems, or generic or plant-specific technical issues.

6. The Public Service Board should take all reasonable steps to ensure that AmerGen or whatever entity may purchase Vermont Yankee commits adequate resources to operate and decommission the plant in a safe manner.

Q. DOES THIS COMPLETE YOUR TESTIMONY AT THIS TIME?

A. Yes. However, I have just received additional documents from AmerGen. If necessary, I will supplement this testimony once I have had a reasonable opportunity to review those documents.