August 7, 2002

Reactor Sales Are Said to Endanger Accident Payments

By MATTHEW L. WALD

The New York Times
WASHINGTON, Aug. 6 - The sale of about two dozen nuclear power reactors around the country to a small number of companies has undermined the system Congress devised to ensure compensation for people hurt by a severe nuclear accident, according to an analysis commissioned by two anti-nuclear groups in New York.

Federal law requires reactor operators to buy $200 million in conventional insurance. It also provides for about $9.3 billion in additional coverage by requiring that after an accident, each plant pay $10 million a year, up to $88 million, to compensate victims.

When the law, known as the Price-Anderson act, was approved by Congress, the idea was to spread the risk among all reactors. But as a result of recent mergers and purchases, four companies now own so many reactors that their liabilities would be more than half a billion dollars each in case of accidents.

The study, which was commissioned by Riverkeeper, a Hudson River environmental group, and the STAR Foundation, a Long Island antinuclear group, points out that in many cases, the companies bought the reactors through limited liability subsidiaries that could declare bankruptcy and permit the parent corporations to walk away unscathed. It also says that the limited liability structure jeopardizes the money set aside for decommissioning the reactors at the end of their lives.

"Price-Anderson only works if those companies are reachable in the event of an accident," said Alex Matthiessen, executive director of Riverkeeper. "These limited liability structures seem specifically designed to put them beyond reach."

The report, prepared by Synapse Energy Economics and scheduled to be officially released on Wednesday by being posted on the World Wide Web at www.noradiation.org <http://www.noradiation.org> , details layer upon layer of corporate structures used in recent reactor purchases. Robert Alvarez, program director for the Star Foundation, said that most of the holding companies had no employees and were merely "shell corporations." He called them " Enron-style subsidiaries."

Representatives for the nuclear industry scoffed at the idea that the changes in ownership threatened the insurance system. Having nuclear plants concentrated in the hands of companies that specialize in running reactors has safety benefits, they said, and may also create greater financial

responsiveness.

"If I'm a nuclear operator, I'm not going to undermine my core business to save $10 million a year," said Marvin S. Fertel, senior vice president at the Nuclear Energy Institute, a trade group. Failure to pay the fee for one reactor could jeopardize the licenses of the others, he said.

A typical 1,000-megawatt nuclear plant has fuel and operating expenses of $130 million to $140 million a year, he said, and a $10 million payment on top of that, in the unlikely event of a major accident, was a small increment. In an introduction to the report, Peter A. Bradford, a former member of the Nuclear Regulatory Commission and a former head of the public service commissions in both New York State and Vermont, agreed that the consolidation of nuclear ownership might make for safer operation. But he said he thought it also "risks the shifting of accident and decommissioning costs from the plant owners to the general public because the relatively secure financial backing of substantial utilities companies has, in many cases, been replaced by a limited liability subsidiary whose only asset is an individual nuclear power plant."

Price-Anderson, established in 1957 by Congress, expired on Aug. 1. Provisions remain in force for existing reactors but new ones would not be covered. But that point is moot, since no new reactors have been ordered since 1978.

The insurance system established by the law could be crucial for people who live within a few miles of nuclear plants because commercial property insurance does not cover radiation accidents.

In creating the program, Congress set a cap on how much would be paid to any victims of a nuclear accident. The cap is periodically adjusted for inflation; it is now about $9.5 billion, with the money coming from the $200 million in conventional insurance and the $9.3 billion that would be paid by the nuclear industry after an accident.

Opponents say the cap is a subsidy to the nuclear industry; the industry asserts that the $9.5 billion is far more than would be available for a catastrophe at a chemical plant or some other industrial site. So far, they point out, payments have totaled only about $200 million.
Whatever the merits of the arguments on both sides, the emerging structure of the industry has clearly changed the underlying assumptions behind the building of nuclear power plants. Critics agree that having a single company operate 15 or 20 reactors is probably good for safety, since plants within a company share expertise more readily than plants owned by scattered utilities.

But they also say that the new owners may lack the deep pockets of the mammoth regulated utilities that built the reactors, making an insurance scheme more necessary.

The new legal structure is radically different from what came before. For example, the Indian Point reactors, in a suburb of New York City along the Hudson River, were sold by Consolidated Edison and the New York Power Authority to Entergy a utility that built five of its own plants and has bought six more.

A spokesman for Entergy, Carl Crawford, said the structure had tax advantages. Asked if it also created a liability shield, he said, "It has that effect, too." But, he said, "anyone who thinks that a company that would spend a billion and a half of its own dollars is going to shirk a $10 million a year insurance payment, that's just not reasonable."

Synapse
Energy Economics, Inc.

FINANCIAL INSECURITY: The Increasing Use of Limited Liability Companies and Multi-Tiered Holding Companies to Own Nuclear Power Plants

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August 7, 2002

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Foreword

Where Have All the Safeguards Gone

In nuclear power's first two decades, accident insurance requirements were seriously inadequate. Decommissioning costs were overlooked entirely. The 1979 accident at Three Mile Island undermined much nuclear complacency. In the early 1980s Congress and the U.S. Nuclear Regulatory Commission made serious efforts to address these shortcomings.

The nuclear self-insurance requirement – known as the Price-Anderson Act – was increased from $560 million to the current $9.3 billion, and each plant was required to set up a dedicated decommissioning trust fund to assure that funds would be available to clean up a closed plant.

With the passage of two more decades, renewed complacency has eroded these safeguards.

This report dissects a troublesome set of developments on the cusp between economic and safety regulation, namely the rearrangement of nuclear power plant ownership into the limited liability subsidiaries of a few large companies. Because this arrangement has occurred during an era of lax and dispirited regulation, some important issues have not been pursued effectively. As a result, the consolidation of nuclear ownership – although probably a positive development if carried out wisely – now risks the shifting of accident and decommissioning costs from the plant owners to the general public because the relatively secure financial backing of substantial utility companies has in many cases been replaced by a limited liability subsidiary whose only asset is an individual nuclear power plant.

With years of reckless undermining of economic and financial regulation now exposed in a series of catastrophic financial collapses, investigators turning over rocks keep finding the same agents of decay: demands for short term "performance" in the private sector compounded by regulatory cutbacks, underqualified commission appointments, Congressional hearings harassing public protection initiatives, pressure to deregulate more and faster-a ruinous mixture of money, pressure, overconfidence, complexity and ideology.

During all those years, health and safety regulation got the same debilitating treatment from Congress and the Presidency as its financial counterparts. How long before those chickens come home to roost, and where will the roosting be?

Even in the best of times, regulation tends to be reactive, responding to events or to applications. Rarely does a regulatory commission develop a set of affirmative requirements to guide those who seek its permits. Certainly neither the Nuclear Regulatory Commission nor the several economic regulators with jurisdiction over nuclear plants ever developed a comprehensive policy to guide those seeking to transfer nuclear plant ownership. Such a policy might have required a showing that the protection of the public was in no way diminished by these transfers. Or such a requirement might have been imposed as a condition of approving the transfers.

But it was not.

In the absence of any such requirement, public protection has depended on the acumen of a Nuclear Regulatory Commission unversed in financial matters and of economic regulators unversed in health and safety issues. As has happened in financial and in utility restructuring circles, fundamental safeguards have been circumvented.

Regulating in this way is like driving drunk. On any one occasion, there may be no consequences at all. But in the nuclear field the possibilities include the undermining of the scheme that assures compensation in the event of nuclear accidents and an increased likelihood that some of the costs of decommissioning nuclear power plants will be borne by the general public. Taxpayers, utility customers and powerplant neighbors who thought themselves protected by firm requirements may one day wear the stunned expressions of Enron retirement plan holders or WorldCom investors.

Clever advisors in several professions have no doubt been well rewarded for achieving these "deregulations." As they were at Global Crossing. As they were at Qwest. As they were at Andersen Consulting. But in the nuclear realm as in the others, they have been more clever than wise. The consequences remain to be revealed. We will be fortunate if the only harm is another blow to public confidence.

Peter Bradford[1]

[1] Visiting Lecturer in Energy Policy and Environmental Protection, Yale University; Former Chair, New York State Public Service Commission and Maine Public Utilities Commission; Former Commissioner, U.S. Nuclear Regulatory Commission; Past President, National Association of Regulatory Utility Commissioners.

Introduction

In recent years corporations have increasingly owned and operated nuclear power plants through multiple tiered holding companies, which frequently include limited liability companies ("LLCs"). LLCs are new organizational forms whose liability is limited to the specific assets they directly own. More than 25 nuclear power plants are today owned by such LLCs and additional corporate reorganizations can be expected. The use of complex organizational structures involving LLCs can shield the parent corporations and their shareholders from liabilities incurred by both direct and indirect subsidiaries. In so doing, the use of multi-tiered holding companies and LLCs to own and operate nuclear power plants raises several concerns regarding security, safety and potential federal and consumer liabilities.

Nuclear power plants were traditionally constructed and operated mainly by integrated investor-owned utilities under "cost-of-service regulation" through which necessary funds were provided to operate and decommission the plants safely. Starting in the mid-1990s, however, many nuclear power plant owners began to reorganize and to sell their nuclear units to unaffiliated companies or corporate affiliates. Some of these corporate reorganizations were required or encouraged as part of state efforts to deregulate the electric utility industry and to implement industry restructuring. Other reorganizations were adopted by plant owners, on their own initiative, in order to minimize tax liabilities, maximize flexibility in corporate ownership and management, and to protect corporate assets. According to the U.S. General Accounting Office ("GAO"), the U.S. Nuclear Regulatory Commission ("NRC") has reviewed more than 60 license transfer requests in recent years, affecting more than half of the nuclear plants in the nation.[2]

Synapse Energy Economics, Inc. ("Synapse") was asked by the STAR Foundation and Riverkeeper, Inc. to survey the increasing use of complex corporate ownership structures and LLCs to own and operate nuclear power plants and to review the NRC's oversight of these developments. Synapse also was asked to identify those areas in which changes need to be made to assure that there are adequate funds available to meet NRC-imposed requirements, including post September 11, 2001 security-related requirements and Price-Anderson Act nuclear accident insurance obligations and to assure that decommissioning funds are adequate and are protected. This Report presents our findings.

Data Sources

Synapse has used publicly available documents from the following sources in the preparation of this Report: the U.S. GAO, the U.S. NRC, corporate filings at the U.S. Securities and Exchange Commission, company websites, nuclear industry publications, utility filings at state regulatory commissions and answers to post-hearing questions that arose out of the January 23, 2002 Price-Anderson Act Hearings. The specific documents on which this Report is based are identified in footnotes or the list of references.

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[2] *Nuclear Regulation: NRC's Assurance of Decommissioning Funding During Utility Restructuring Could be Improved,* U.S. GAO Report, GAO-02-48, December 2001, at page 21.

This Report also relies on detailed publicly available information about the Entergy Corporation that Synapse obtained as a result of its work in Vermont Public Service Board Docket No. 6545 in which Entergy's proposed acquisition of the Vermont Yankee nuclear plant has been examined.

Conclusion

Over the last ten years, the ownership of an increasing number of nuclear power plants has been transferred to a relatively small number of very large corporations. These large corporations have adopted business structures that create separate limited liability subsidiaries for each nuclear plant, and in a number of instances, separate operating and ownership entities that provide additional liability buffers between the nuclear plant and its ultimate owners. The limited liability structures being utilized are effective mechanisms for transferring profits to the parent/owner while avoiding tax payments. They also provide a financial shield for the parent/owner if an accident, equipment failure, safety upgrade, or unusual maintenance need at one particular plant creates a large, unanticipated cost. The parent/owner can walk away, by declaring bankruptcy for that separate entity, without jeopardizing its other nuclear and non-nuclear investments. This report examines the recent trend towards the use of limited liability corporations in the nuclear industry, often as part of multi-tiered holding companies, and identifies numerous concerns related to the use of such business structures.

Summary of Findings

The above conclusion is based on the following findings:

Finding No. 1 - Nuclear power plant ownership and operation has become increasingly consolidated in a small number of very large corporations.

Finding No. 2 – Complex, holding companies, often including Limited Liability subsidiaries, are increasingly being used to own nuclear power plants.

Finding No. 3 – Limited Liability Companies are relatively new business structures that can enhance a parent corporation's ability to transfer funds from its subsidiaries and to shield assets from liability for financial risks.

Finding No. 4 –There continue to be significant financial and other risks associated with nuclear power plant ownership and operations.

Finding No. 5 – The NRC has expressed concern that deregulation can adversely affect the safety of operating nuclear power plants by increasing the pressure on licensees to reduce costs.

Finding No. 6 – The NRC has expressed concern that the use of holding company structures can reduce the assets that would be available for the safe operation and decommissioning of a nuclear power plant. However, the NRC does not adequately protect against the risk that an LLC subsidiary will transfer all of its operating profits to its parent company or engage in risky loans to or questionable deals with affiliated companies.

Finding No. 7 - The NRC's reviews of the financial qualifications of new nuclear power plant owners are inconsistent and may be too limited to ensure that subsidiaries will have adequate funds to safely operate and decommission their nuclear plants and pay retrospective Price-Anderson Act premiums.

Finding No. 8 – The financial guarantees that the NRC requires from prospective nuclear power plant owners may not be adequate to assure that plants are operated and decommissioned safely and that plant owners will be able to pay retrospective Price-Anderson Act insurance premiums in the event of a nuclear accident.

Finding No. 9 - The NRC has proposed to significantly reduce its review of a non-electric utility licensee's financial qualifications when it evaluates an application to renew a nuclear plant's operating license.

Finding No. 10 – The NRC does not require that parent corporations guarantee that funds will be provided to safely operate and decommission the nuclear power plants owned by their subsidiary companies.

Finding No. 11 – Taxpayers may be at risk if nuclear plant owning subsidiaries are unable to continue making safety-related or decommissioning expenditures or pay retrospective Price-Anderson Act premiums.

Finding No. 12 – The NRC has no statutory authority to require a licensee in bankruptcy to continue making safety-related or decommissioning expenditures or to pay retrospective Price-Anderson Act premiums.

Finding No. 13 – Case law indicates that it could be very difficult to hold a parent corporation responsible for the liabilities incurred by nuclear power plant-owning LLC subsidiaries in a multi-tiered holding company.

Finding No. 14 – The NRC has expressed serious doubts as to its ability to hold a parent corporation responsible for the liabilities incurred by a subsidiary.

Finding No. 15 – Shielding parent corporations from nuclear power plant operating, accident insurance, and decommissioning risks is unfair and economically inefficient.

Recommendations

1. Parent corporations should be required to guarantee that plant-owning subsidiaries and affiliates will be provided whatever funds are needed to safely operate and decommission their nuclear power plants.

2. Parent corporations should be held fully responsible for the unmet liabilities incurred by both direct and indirect nuclear power plant owning subsidiaries.

3. Congress should adopt legislation to assure that costs related to (1) safety and security (2) decommissioning assets and (3) Price-Anderson nuclear accident responsibilities receive priority in bankruptcy proceedings.

4. Reactor owners should be required to guarantee payment of their nuclear accident insurance responsibilities under the Price-Anderson Act through surety bonds,

letters of credit, sinking funds, or other comparable financial instruments that will be bankruptcy remote. This will assure that public liability claims will be paid up to the limits of the Price-Anderson Act without concern about the financial condition of the industry and without requiring a taxpayer bailout.

5. The Nuclear Regulatory Commission should not eliminate the current legal requirement that non-utility corporations must disclose their financial qualifications when applying to re-license nuclear power plants, as the agency has proposed in a recent rulemaking. Instead, the NRC should bolster its disclosure requirements concerning the character of the legal relationships between a parent corporation and its subsidiaries in the event of a bankruptcy, business failure or accident.

Finding No. 1 - Nuclear power plant ownership and operation has become increasingly consolidated in a small number of very large corporations.

In the past, a relatively large number of utilities around the nation owned nuclear power plants or, at least, were joint owners with other companies. However, as a result of industry restructuring, nuclear power plant ownership has become increasingly consolidated in a small number of large corporations. In fact, as shown in Table No. 1 below, ten corporations currently own all or part of 70 of the 103 nuclear power plants in the U.S.

Table No. 1
Concentration of Nuclear Power Plant Ownership

Parent Corporation	Number of Operating Nuclear Units Owned (in whole or in part)
Exelon Corporation	19
Entergy Corporation	10[3]
Duke Energy	6
Dominion Resources, Inc.	6
Southern Company	6
TVA	5
Progress Energy	5
FPL Group	5[4]

[3] Includes the Vermont Yankee Nuclear Station.

[4] Includes the Seabrook Nuclear Station.

Constellation Energy Group, Inc.	4
FirstEnergy	4

The six largest owners alone own part or all of 52 nuclear units, or one-half of all of the operating nuclear power plants in the nation.

At the same time, the Nuclear Management Company ("NMC") holds the NRC-issued operating licenses for eight nuclear plants in the Midwest. However, each of the utilities involved in NMC continues to own its own plants, is entitled to the energy generated by the plants, and retains the financial obligations for the plants safe operation, maintenance and decommissioning.

This industry consolidation may yield significant benefits in terms of economics, safety and reliability. However, it also raises the possibility that simultaneous extended outages of more than one nuclear plant will leave a "fleet" owner without needed revenues to fund safety-related expenses or capital expenditures at its other facilities. At the same time, the increasing consolidation of ownership also raises the possibility that an owner will have to bear Price-Anderson Act retrospective burdens measured in the hundreds, not tens, of millions of dollars, possibly without adequate revenues from which to make such payments.[5]

In fact, there have been numerous instances where two or more of a company'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.
- Northeast Utilities' Millstone Units 2 and 3 were shut down for multi-year outages between March 1996 and June 1998. Millstone Unit 1 was shutdown in November 1995 and permanently retired in 1997.

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[5] In the event of an accident at one of the nation's nuclear power plants, the Price-Anderson Act requires nuclear plant owners to make "retrospective" (i.e., post-accident) payments after the initial $200 million tier of insurance is exhausted. Under the Act's present terms, and given the number of operating plants, this obligation is a maximum of $88.085 million per unit with a maximum of $10 million per year. Consequently, an owner of multiple units could face retrospective obligations of hundreds of millions of dollars in total and tens of millions per year.

- Commonwealth Edison 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 from September 1997 through June 2000.
- Both units at the Salem Nuclear Station were shutdown for more than two years between July 1995 and August 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.

Finding No. 2 - Complex, multi-tiered holding companies, often including limited liability subsidiaries, are increasingly being used to own nuclear power plants.

Except for those power plants owned by municipal utilities and the Yankee Nuclear Plants in the Northeast, nuclear units historically were directly owned by integrated investor-owned utility companies which owned other generating facilities and had significant transmission and distribution assets as well. Over the past five to ten years, however, corporations have established multiple tiered holding companies through which they indirectly own nuclear power plants. Except for the Exelon Corporation, these new nuclear power plant owning subsidiaries generally own only a single asset, i.e., an individual nuclear power plant, or both units at a multiple unit site.[6]

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[6] The nuclear industry's interest in single asset nuclear generating companies is not new. It dates back to the 1960s, perhaps even to the 1950s, when the plans were developed for the ownership of the Yankee Rowe and Connecticut Yankee nuclear plants. Then, in the late 1980s and early 1990s, some companies, including Middle South Utilities (subsequently renamed "Entergy") and General Public Utilities, reorganized, creating specific corporate entities to operate ***but not own*** their nuclear power plants. In one notable case in Michigan, however, the Consumers Power Company proposed transferring a poorly performing nuclear plant, Palisades, to a new corporate entity, PGCo, created for the sole purpose of owning and operating the plant. This ill-conceived proposal was designed to shift nuclear-related risks away from the Company, placing them instead upon consumers and the public. For more information, see Bruce Biewald, "Do We Really Need Nuclear Generating Companies?," in Public Utilities Fortnightly, June 7, 1990. and the Direct Testimony of Bruce Biewald, submitted on behalf of the Attorney General of Michigan, April 19, 1989 in Michigan Public Service Commission Case No. U-9172.

The corporate subsidiaries included in these complex ownership chains are increasingly chartered as Limited Liability Companies ("LLCs"). As we will discuss in Finding No. 3 below, LLCs are relatively new business structures that enhance a parent corporation's ability both to transfer funds from its nuclear-power plant owning subsidiaries and to shield its other assets from liability from the financial risks associated with its nuclear operations.

The following examples illustrate the accelerating trend in the nuclear industry to use multiple tiered holding companies and LLC subsidiaries to own and operate nuclear plants. It is important to note that each of the parent corporations listed in these examples also has numerous other subsidiaries unrelated to its nuclear power plant ownership.

Exelon Corporation

Exelon Corporation was formed in 2000 by the merger of Unicom (Commonwealth Edison Company's parent) and PECO Energy Company. Commonwealth Edison's 10 operating nuclear plants have been transferred to Exelon Generation Company, LLC, ("EGC") which is a wholly owned subsidiary of Exelon Ventures Company, LLC, which, in turn, is a wholly-owned subsidiary of Exelon Corporation. PECo's Limerick and Peach Bottom nuclear plants also have been transferred to EGC, as has PECo's ownership interest in the two Salem Nuclear Plants.

PECo also owned 50 percent of the AmerGen Energy Company, LLC, ("AmerGen") which had acquired and operated three nuclear power plants in the U.S.: Three Mile Island Unit 1, Clinton, and Oyster Creek. PECo's interests in AmerGen have been transferred to EGC, LLC. Consequently, through EGC, LLC, Exelon Corporation owns and operates part or all of 16 nuclear plants and owns part of another three units.

The current organizational structure through which Exelon owns these nuclear assets is illustrated in Attachment No. 1 to this Report.

Entergy

Entergy Corporation was a pioneer in establishing separate corporate entities to own and operate nuclear power plants. Entergy today owns and operates ten nuclear units through an extensive network of wholly-owned subsidiaries.

Entergy currently owns five nuclear units in the South through five wholly-owned retail public utility companies and another wholly-owned subsidiary, System Energy Resources, Inc.[7]

Entergy also has purchased another five nuclear units in the Northeast including its just completed purchase of the Vermont Yankee nuclear plant. As shown in Attachment No. 2 to this Report, Entergy owns each of these units through a multi-tiered series of subsidiaries, many of which are limited liability companies. For example, the Indian

[7] Entergy Arkansas, Inc., Entergy Gulf States, Inc., Entergy Louisiana, Inc., Entergy Mississippi, Inc., and Entergy New Orleans, Inc.

Point 2, Indian Point 3, and Fitzpatrick nuclear units are each owned by a separate LLC.[8] In the case of Indian Point 2, the immediate owner is Entergy Nuclear IP2, LLC. This company is, in turn, owned by Entergy Nuclear Investment Company III, Inc., which is a wholly-owned subsidiary of Entergy Nuclear Holding Company #3 that, in turn is a wholly-owned subsidiary of Entergy Nuclear Holding Company. Entergy Nuclear Holding Company, Inc., is a direct subsidiary of Entergy Corporation.[9]

The structure through which Entergy owns the Indian Point 3 and Fitzpatrick units is even more complex because each of the LLCs that owns these plants is, in turn, 50 percent owned by two other indirect Entergy subsidiaries, Entergy Nuclear New York Investment Company I and Entergy Nuclear New York Investment Company II. As shown in Attachment No. 2, these two Entergy Nuclear New York Investment Companies are themselves subsidiaries of Entergy Nuclear Holding Company #1 which, in turn, is a wholly-owned subsidiary of Entergy Corporation.

Another Entergy subsidiary, Entergy Nuclear Operations, Inc. ("ENO") operates Entergy's nuclear units in the Northeast.[10] Additional services are provided by other Entergy subsidiaries such as Entergy Services, Inc. (management, administrative and support services) and Entergy Nuclear Fuels Company (nuclear fuel planning, procurement and related services).

Entergy has provided the following explanation for this tiered holding company structure:

> Entergy Nuclear Holding Company, a first tier of Entergy Corporation, has been established with the intent that it will ultimately hold all the subsidiaries associated with Entergy's nuclear operations. This will consolidate all of Entergy's unregulated nuclear operations under a single holding company, while still supporting the operational and financing demands of the individual plants. *The use of holding companies below Entergy Nuclear Holding Company allows Entergy to segregate various types of financing, investment and business activities, and by doing so, enables Entergy to better manage and control risks associated with these activities.*[11] (Emphasis added)

Remarkably, Entergy has indicated that only two of all of the subsidiaries included in Attachment 2 -- ENO and Entergy Nuclear Generation Company, which owns and operates the Pilgrim Nuclear Station -- have any employees other than officers.[12] The

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[8] Although the wholly-owned subsidiary that currently owns Entergy's Pilgrim Station is not an LLC, Entergy has said that it will seek to change the form of that subsidiary to an LLC in the near future.

[9] Entergy has said that ultimately all of subsidiaries associated with Entergy's nuclear operations will be owned by Entergy Nuclear Holding Company. Rebuttal Testimony of Connie Wells, Entergy Nuclear Vermont Yankee, LLC, in Vermont Public Service Board Docket No. 6545, at page 9.

[10] Entergy's nuclear units in the South are operated by yet another subsidiary, Entergy Operations, Inc.

[11] Rebuttal Testimony of Entergy Nuclear Vermont Yankee witness Connie Wells in Vermont Public Service Board Docket No. 6545, dated February 25, 2002, at page 9.

[12] Entergy response to Department of Public Service Information Request No. 2-10 in Vermont Public Service Board Docket No. 6545.

rest of the listed subsidiaries are merely paper organizations. In addition, the subsidiaries listed on Attachment 2 share many of the same individuals as officers.[13]

The NRC requires licensees of deregulated nuclear plants to provide certain financial guarantees that a unit would have sufficient funding to enable the licensee to continue to maintain the unit in a safe manner in case of an extended outage or a premature shutdown. Entergy's financial guarantees for its deregulated units in the Northeast are provided by two subsidiaries not listed in Attachment 2 -- Entergy International Holdings, LTD LLC and Entergy Global Investments, Inc. Both of these subsidiaries are themselves holding companies.[14]

As shown in Attachment No. 3, Entergy also has a very extensive network of other subsidiaries, in addition to those that own and operate its deregulated nuclear units in the Northeast.

Dominion

Dominion Resources, Inc. ("DRI") owns the two operating nuclear power plants at Millstone Point in Connecticut through a multi-tiered chain of subsidiaries. As shown on Attachment No. 4, DRI owns Dominion Energy Holdings, Inc. which, in turn, owns Dominion Energy Inc., LLC which owns Dominion Nuclear, Inc.. Dominion Nuclear, Inc. then owns Dominion Nuclear Marketing I, Inc, Dominion Marketing II, Inc, and Dominion Marketing III, LLC that together own Dominion Nuclear Connecticut, the direct owner of the Millstone nuclear station.[15]

Dominion also owns the four nuclear units at its North Anna and Surry stations in Virginia through the Dominion Generation Corporation which is a wholly-owned subsidiary of Dominion Energy Holdings, Inc. Dominion Generation Corporation also will own the fossil and hydro facilities that were formerly owned by Virginia Power Company.

Constellation

Constellation Energy Group, Inc. ("Constellation") purchased 100 percent of the Nine Mile Point Unit No. 1 nuclear plant and 82 percent of Nine Mile Point Unit No. 2 nuclear plant in 2001. Both of these units are located in upstate New York, near the City of Oswego. When Constellation sought NRC approval to transfer the units' licenses it also requested approval to complete a complex fourteen step corporate realignment. The nuclear-related results of this proposed realignment are shown on Attachment No. 5. The direct owner of the two Nine Mile Point nuclear plants is Nine Mile Point Nuclear Station, LLC, which is a wholly owned subsidiary of Constellation Nuclear Power Plants,

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[13] Synapse has learned greater detail about Entergy's current holding company structure through its involvement on behalf o the Vermont Department of Public Service in Vermont Public Service Board Docket No. 6545.

[14] Entergy response to Department of Public Service Information Request No. 1-42(c) in Vermont Public Service Board Docket No. 6545.

[15] Dominion's August 17, 2001 letter to the NRC concerning the Millstone Nuclear Power Station Corporate Restructuring.

Inc, which, in turn, is a wholly owned subsidiary of Constellation Nuclear, LLC. Constellation's other two nuclear plants are owned by another subsidiary of Constellation Nuclear Power Plants, Inc, Calvert Cliffs Nuclear Power Plant, LLC. Constellation also has numerous other nuclear-related subsidiaries. Constellation Nuclear, LLC is, in turn, a subsidiary of Constellation Energy Group, Inc.

The parent corporation resulting from this corporate realignment will be BGE Corporation which will own Constellation Energy Group, Inc., as an immediate subsidiary.

Other Companies

The owners of fleets of nuclear power plants are not the only corporations that have established multi-tiered holding companies to own their nuclear plants. For example, as part of its proposed reorganization to recover from bankruptcy, Pacific Gas & Electric is seeking permission to transfer its two Diablo Canyon Nuclear Plants to a new LLC subsidiary, Diablo Canyon LLC. As shown on Attachment No. 6, this subsidiary would, in turn be a wholly owned subsidiary of Electric Generation, LLC, which in turn is a subsidiary of the Newco Energy Corporation, a wholly owned subsidiary of PG&E Corporation.[16]

Another example is Public Service Enterprise Group ("PSEG") which owns and operates the Salem and Hope Creek nuclear plants and is part owner of the Peach Bottom Nuclear generation station through a line of wholly-owned subsidiaries that includes PSEG Power, LLC, and its wholly-owned subsidiary, PSEG Nuclear.

Finding No. 3 - Limited Liability Companies are relatively new business structures that are used to shield the assets of a parent corporation from liability for financial risks.

The fundamental purpose and rationale for the creation of a "corporation" is to allow investors to pool their resources to engage in a business activity while limiting the financial consequences or "liability" of each individual investor. The most typical arrangement is for an investor to purchase stock or "shares" in the corporation. The money or other value paid for the shares is the limit of that investor's personal liability. The corporation's total liability is limited to the value of its investors' shares, plus any insurance policies that may be applicable.

Partnerships, an alternative form of business organization, are characterized by the inability of the partners to limit their individual liability. Each partner is wholly and personally responsible for all debts of the business. This onerous feature of partnerships has led to the development of many variations on the partnership model, particularly the limited partnership, as a way to shield some or all of the partners from unlimited liability.

Looking only at the liability issue, one might wonder why partnerships are ever chosen as a business structure. There are two primary reasons: streamlined management and lower

[16] PG&E's November 30, 2001 Application to the NRC for License Transfers and Conforming Administrative License Amendments.

taxes. A corporation is required to have articles of incorporation, a board of directors, and a management structure separate from the board of directors. Partnerships can be much more flexible with the same individual, or group of individuals, performing both day-to-day management and decision-making functions. Tax policy significantly favors partnerships by allowing all business profits to flow directly to the partners where they are taxed on their business income along with any other personal income. Corporations, because they are considered a separate entity, must pay corporate taxes before profits can flow to its investors, who then pay taxes on their corporate income on an individual basis. This is commonly called the "double taxation" feature of corporations.[17]

The dilemma facing entrepreneurs who want to start a business is whether the business structure should be designed to protect their existing personal assets by limiting their liability (a corporation) or whether the business structure should be designed to allow them to maximize their income from this single venture through lower taxes (a partnership). As discussed below, the nuclear industry seeks to achieve both liability protection and maximum income through the use of new limited liability corporate structures.

Limited Liability Subsidiaries

Limited liability companies (LLCs) are relatively new business structures that combine features of corporations and partnerships. An LLC has the same limited liability of corporations, but has the management flexibility of a partnership. Most significantly, pursuant to an IRS ruling in 1988, an LLC is considered a partnership for federal income tax purposes.

The first LLCs in the United States were formed in Wyoming in 1977 for foreign corporations that wanted to invest in very risky mineral exploration and development. Since 1977, LLC statutes have been enacted in all fifty states. They have proven to be a particularly attractive business structure for investments in high-risk ventures. LLCs can be formed by individuals, partnerships, or corporations. They can be managed by the LLC members (owners) or by an elected group of members, or by a single member. The management choice also acts to specify the members who can legally bind the LLC through contracts with outside entities.[18]

LLCs have become a very attractive business structure for corporations that acquire nuclear power plants. By creating a separate LLC for each nuclear plant, the profits from each plant's operations can flow back to the parent corporation without any intervening tax liability. The parent corporation's liability for each plant is limited to the investment the parent corporation made in initially setting up the LLC. Also, there can be more than one LLC between the parent corporation and the most risky component of the overall

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[17] For general background on business structures, see any of a number of law school texts on business organizations. The information above is derived from "Organizing Limited Liability Companies: The Trend Continues", Richard M. Fijolek, Practicing Law Institute (1997); "A Limited Liability Company Checklist", Jerome P. Friedlander, II, Federal Lawyer (March/April 1995); and "The ABCs of LLCs, Steven Auderieth, Vermont Bar Journal and Law Digest (February, 1995).

[18] See above, Friedlander and Auderieth.

investment. For example, the technical support services for several nuclear plants can be consolidated into a separate LLC that contracts with all the individual plant LLCs. If one nuclear plant becomes unprofitable and goes into bankruptcy proceedings, in theory, only the single plant LLC assets are in jeopardy; the technical services LLC can continue to provide services to all the other single plant LLCs.

A particular concern regarding the use of LLCs is the situation where a parent corporation inserts several layers of LLCs between itself and the entity operating a high-risk business. Each of those intervening LLCs can act as a barrier to extending liability to the parent corporation that contains most of the assets. As noted in the case studies in Finding No. 2 of this Report, this approach appears to have been embraced by the parent corporations that recently have been purchasing nuclear plants. If a nuclear plant was unable to cover its liabilities, it might require several separate litigations, or a very large and complex single litigation, to pierce all the corporate veils back to the parent corporation with the bulk of the assets.

Finding No. 4 –There continue to be significant financial and other risks associated with nuclear power plant ownership and operations.

The restructuring of electricity markets has meant increased risks for owners of any deregulated electric generation facilities, whether their plants are fossil-fired or nuclear. Revenues which used to be based on traditional "cost of service" concepts and stable rates are now based instead on the actual sales from a power plant at market prices that are sometimes volatile.

At the same time, there are significant nuclear-related risks that could have a material adverse effect on nuclear power plant owners. For example, a recent Prospectus issued by Exelon Corporation for the sale of $700 million of notes by Exelon Generation Company, LLC specifically identified the following risks associated with owning and operating nuclear power plants:

> We may incur substantial cost and liabilities due to our ownership and operation of nuclear facilities. The ownership and operation of nuclear facilities involve certain risks. These risks include: mechanical or structural problems; inadequacy or lapses in maintenance protocols; the impairment of reactor operation and safety systems due to human error; the costs of storage, handling and disposal of nuclear materials; limitations on the amounts and types of insurance coverage commercially available; and uncertainties with respect to the technological and financial aspects of decommissioning nuclear facilities at the end of their useful lives. The following are among the more significant of these risks:
>
> Operational risk. Operations at any nuclear generation plant could degrade to the point where we have to shut down the plant. If this were to happen, the process of identifying and correcting the causes of the operational downgrade to return the plant to operation could require significant time and expense, resulting in both lost revenue and increased fuel and purchased power expense to meet our supply commitments. For plants operated by us but not wholly

owned by us, we could also incur liability to the co-owners. We may choose to close a plant rather than incur substantial costs to restart the plant.

Regulatory risk. The NRC may modify, suspend or revoke licenses and impose civil penalties for failure to comply with the Atomic Energy Act, the regulations under it or the terms of the licenses of nuclear facilities. Changes in regulations by the NRC that require a substantial increase in capital expenditures or that result in increased operating or decommissioning costs could adversely affect our results of operations or financial condition.

Nuclear accident risk. Although the safety record of nuclear reactors generally has been very good, accidents and other unforeseen problems have occurred both in the United States and elsewhere. The consequences of an accident can be severe and include loss of life and property damage. Any resulting liability from a nuclear accident could exceed our resources, including insurance coverages.

These same risks apply to other nuclear plants including those owned and operated by multi-tiered holding companies and LLCs.

The industry's expressed desire to build new nuclear plants also can be expected to increase the financial pressures on licensees as they may have to further reduce O&M expenditures at existing plants in order to fund the construction of new ones.

Finding No. 5 - The NRC has expressed concern that deregulation can adversely affect the safety of operating nuclear power plants by increasing the pressure on licensees to reduce costs.

Although it has been said that an efficient and economical plant is often a safe plant,[19] the NRC has expressed concern that the transition to economic deregulation can adversely affect nuclear power plant safety and may not provide the same degree of assurance that adequate funds would be provided for safe operation and decommissioning.[20]

The NRC has further explained the impact that increased competition can have on nuclear power plant economics and safety:

> As described in SECY-97-253, traditional "cost-of-service" regulation, under which virtually all NRC power reactor licensees have operated, has typically been effective in providing necessary funds for licensees to operate and decommission their nuclear plants safely. With the advent of greater competition within the electric utility industry, pressures to reduce costs and improve efficiency have increased and will almost certainly intensify as deregulation proceeds. Moreover, with deregulation of the generation sector of the industry, traditional cost-of-service regulation is likely to essentially disappear for most generators. Thus, the concept of electric utility, as

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[19] *NRC Staff Requirements Memorandum, SECY-98-153*, dated June 29, 1998, at page 3.

[20] *NRC Final Policy Statement on the Restructuring and Economic Deregulation of the Electric Utility Industry* (62 *Fed. Reg.* 44071; August 19, 1997)

currently defined in 10 CFR 50.2 may in the future no longer be meaningful for a large number of, if not all, power reactor licensees. Electricity rates set by competition in a free market may not provide the same degree of assurance of adequate funds for safe operation and decommissioning as traditional cost-of-service ratemaking. In SECY-97-253, the staff cited the example of the "Independent Safety Assessment of Maine Yankee Atomic Power Company" (NRC Staff Report: Ellis W. Merschoff, Team Lead; October 1996), which concluded, "Economic pressure to be a low-cost energy producer has limited available resources to address corrective actions and some plant improvement upgrades.

When the NRC issued its Final Policy Statement on the Restructuring and Economic Deregulation of the Electric Utility Industry (62 *Fed. Reg.* 44071; August 19, 1997), specific safety concerns with respect to rate deregulation and restructuring were identified. For example, the final policy statement discussed such safety concerns as reductions in expenditures for manpower and training and other reductions in operations and maintenance (O&M) and capital additions budgets. The issues of on-line maintenance and increased fuel burnup were also addressed.

In addition, with respect to specific plants such as Maine Yankee, Millstone, and others, the inspection process has identified several manifestations of inappropriate responses to competitive pressures. These include: increased need for corrective actions; maintenance operator work-arounds; temporary modification and procedure revision backlogs; decreased performance in operator licensing and requalification programs; increased frequency of significant operational and occupational safety events; decreased plant and system reliability; increased volume and acrimony of allegations; and increased frequency of regulatory violations and resulting penalties.

As deregulation proceeds, cost pressures may increase these types of reductions in safety margins at plants. Moreover, because the impact of budgetary reductions can cut across all plant safety-related programs, other impacts in addition to those previously identified may occur as a result of deregulation. For example a merchant plant with no assets other than the nuclear plant itself could be unable to make necessary safety expenditures after an extended outage if it did not have an adequate financial cushion to pay costs incurred during the outage. In such a situation, it is not clear that a transition from indefinite shutdown to permanent shutdown and decommissioning would be sufficiently smooth to prevent funding shortages from causing safety problems during the shutdown transition period. That is, given the requirements in 10 CFR 50.82 with respect to: (1) the limitation on the use of the trust fund for legitimate decommissioning activities; and (2) the timing of significant decommissioning trust fund withdrawals, a licensee could run out of funds for operational safety expenses before it was able to draw on its decommissioning trust fund. This, in turn, could force the NRC to

make the decision for the licensee to permanently cease operations and initiate decommissioning pursuant to 10 CFR 50.82.[21]

The nuclear industry itself has acknowledged the safety and economic risks associated with economic deregulation. For example, a former President of the industry's American Nuclear Society told the Society's Winter 2001 meeting that "Safety is the highest priority because of the impact on cost that would result from an NRC-forced shutdown" and that there is now "actually a higher focus on safety than before."[22] However, he also noted the challenges that come from deregulation and restructuring:

> With restructuring comes challenges for plant operators and regulators, Quinn continued. These challenges for operators include management focus on economics, not safety; pressure on workers to keep plants operating (because of volatility of electricity prices); pressure to reduce preventative maintenance; deferral of equipment replacements; and less investment for safety backfits. For the regulator, these include increased workload (because of mergers, license transfers, etc.); pressure to avoid requiring shutdowns of plants; and increased political pressure to reduce the regulatory burden. Challenged also is the nuclear technology infrastructure. According to Quinn, there is less cooperation among competing nuclear utilities, and less safety research and technical support for the plants.[23]

Finding No. 6 - The NRC has expressed concern that the use of holding company structures can reduce the assets that would be available for the safe operation and decommissioning of a nuclear power plant. However, the NRC does not adequately protect against the risk that an LLC subsidiary will transfer all of its operating profits to its parent company or engage in risky loans to or questionable deals with affiliates.

The NRC Staff has expressed concern that the use of holding company structures can lead to a diminution of the assets necessary for the safe operation and decommissioning of a licensee's nuclear power plant.[24] In fact, as early as March 1993 the NRC Staff expressed concern that:

> Current and potential organizational structures of many power reactor licensees and their corporate affiliates are complex and evolving. The staff believes that the public health and safety implications of such structures warrant further examination. A licensee subsidiary without assets other than

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[21] *NRC Staff Requirements Memorandum, SECY-98-153*, dated June 29, 1998, at pages 2 and 3.

[22] *ANS Winter Meetings: Nuclear Power - Attracting Notice, A Brighter Outlook,* Nuclear News, August 2001, starting at page 34.

[23] Ibid.

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

> the licensed reactor could renege on its decommissioning obligations if forced to shut down prematurely. Given that corporate law generally limits the liability of stockholders, the NRC may not have recourse to the assets of a parent company if its subsidiary defaults absent legally enforceable commitments by owners. Case law with respect to bankruptcy proceedings is also ambiguous. Although bankruptcy courts have generally directed bankruptcy trustees to make justifiable, legally required expenditures to protect public health and safety, it is not clear that these expenditures will always have a high priority relative to other claims. The staff believes that it should evaluate possible ways to increase assurance of decommissioning funds availability. An increased degree of confidence may be appropriate to assure that the problems that the Office of Nuclear Material Safety and Safeguards has had with some of its licensees abandoning materials sites prior to cleanup will not be experienced for power reactor licensees.[25]

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

> *A licensee subsidiary without assets other than the licensed reactor could renege on its decommissioning obligations if forced to shut down prematurely.*
>
> NRC Staff, March 1993

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

> Potentially, any investor-owned utility could establish a holding company to which it could transfer the bulk of its assets over time. If forced to shut down prematurely, a licensee with assets limited essentially to the shut down reactor could declare bankruptcy and renege on any unfunded decommissioning obligation. If a bankrupt licensee had insufficient assets, a bankruptcy court might be powerless to order that assets of a parent company be used to fund decommissioning, even if the court wished to do so.[26]

In the years since 1994, the NRC has not developed or adopted any policy limiting the transfer of operating profits from the subsidiary that directly owns a nuclear plant. Nor

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

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

does the NRC have any policy limiting the types or magnitudes of the loans that such an operating subsidiary can make to affiliated companies.

At most, the NRC merely conditions license transfer approvals to new holding company structures upon a requirement that the licensee not transfer to its proposed parent or any other affiliated company significant assets for the production, transmission or distribution of electric energy without first notifying the NRC. The NRC has defined "significant assets" to be facilities having a "depreciated book value exceeding 10% of the company's consolidated net utility plant."[27]

The NRC also does not have a specific policy statement or procedure on how limited liability companies or other types of licensees use financial assurance funds in the forms of lines of credit for plant operation.[28] Nor does the NRC have any specific policy statement or procedure that controls how it would consider approval of requests of limited liability companies to reduce, replace, or withdraw available lines of credit that are subject to NRC conditions. Instead, the NRC has said that it will review such requests on a case-by-case basis.[29]

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

> evaluate the reasons behind [the licensee's] drawing on the lines of credit. The staff cannot provide a detailed discussion of potential agency actions until it learns the specific reasons for the usage of such funds. Generally, if drawings on the lines of credit were made to cover short-term cash flow deficiencies that did not appear to have any significant safety ramifications, the NRC would not likely need to take any specific action. If drawing on the lines of credit were to indicate serious longer-term financial problems that appeared to potentially adversely impact protection of public health and safety, the NRC would monitor the effects of any degradation on protection of public health and safety and act appropriately.[30]

The NRC's failure to have any policy limiting the transfer of operating profits from the subsidiary that directly owns a nuclear plant or the types or magnitudes of the loans that such an operating subsidiary can make to affiliated companies is all the more significant because the new holding companies also may have not set policies governing these matters. For example, Entergy has said that there are no written procedures governing the distribution of operating profits from the subsidiaries that are the direct owners of its

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

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

[29] Ibid.

[30] Ibid.

nuclear units.[31] These subsidiaries either make distributions to their immediate parent companies or make loans to affiliated companies depending on the specific cash requirements of the parent companies or the affiliates.

Vermont Department of Public Service witness Andrea Crane has explained to the Vermont Public Service Board why it should be concerned about the ability of a parent corporation to drain the funds available to a nuclear power plant-owning subsidiary:

> ...in addition to being concerned about the availability of capital for ENVY's[32] operations, there is also a concern that Entergy Corp. may threaten the long-term financial viability of ENVY by using ENVY's earnings to fund other Entergy Corp. operations, leaving insufficient funds in ENVY for nuclear operations. Therefore, in addition to raising concerns about the availability of sufficient operating and capital funds, I am also concerned about the need to retain capital in ENVY. The Board should avoid a repeat of the situation that transpired in PG and E ... whereby funds were transferred from a successful operating entity to the holding company, leaving the operating company in dire financial straits.[33]

Ms. Crane also expressed concern about the absence of formal Entergy corporate policies governing the transfer of profits and inter-affiliate transactions:

> The lack of direct control over its internally generated funds, and the vagueness of the corporate policy, does not provide an appropriate level of financial assurance for the ownership and operation of a nuclear power plant. It leaves open the possibility that Entergy Corp could require 100% of operating earnings as dividends from its subsidiaries, including ENVY, if it needed funds to meet other priorities or emergencies, leaving the owners of the nuclear plants without sufficient capital to pursue their own immediate priorities.[34]

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[31] Entergy Response to Department of Public Service Information Request No. 2-36 in Vermont Public Service Board Docket No. 6545.

[32] ENVY is Entergy Nuclear Vermont Yankee LLC, which is the Entergy Corporation subsidiary that will own the Vermont Yankee nuclear plant if the purchase is approved by the Vermont Public Service Board.

[33] Direct Testimony of Andrea Crane on behalf of the Vermont Department of Public Service, Vermont Public Service Board Docket No. 6545, at page 9.

[34] Direct Testimony of Andrea Crane on behalf of the Vermont Department of Public Service, Vermont Public Service Board Docket No. 6545, at page 28.

Finding No. 7 - The NRC's reviews of the financial qualifications of new nuclear power plant owners are inconsistent and may be too limited to ensure that subsidiaries will have adequate funds to safely operate and decommission their nuclear plants and pay retrospective Price-Anderson Act premiums.

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

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

In reviewing the financial qualifications of a prospective licensee, the NRC requires that the new owner either meet a supply and demand test or show that it has an investment grade rating or equivalent from at least two bond-rating organizations. The supply and demand test examines whether the prospective licensee will earn sufficient revenues (either from the sale of electric power from the nuclear plant or from other sources) to cover expected operational expenses at the plant.[35] This analysis is based on the applicant's uncertain and speculative estimates of total operating revenues and costs for the first full five years following the expected completion of the license transfer.[36] At the same time, it is very unlikely that the new corporate subsidiaries that actually will own the transferred plant will have issued any securities that had received investment grade or equivalent ratings from any bond-rating organizations.

If a prospective licensee is unable to meet either the supply and demand test and or the bond rating criteria test, the NRC will consider its ability to fund a six-month outage. Although assuring the funding for a six-month outage is not required where a prospective licensee meets either of the NRC's two primary tests, in those cases where a prospective licensee voluntarily guarantees the funds to pay for a six-month outage, the Commission will accept that commitment and impose a licensee condition prohibiting the applicant from voiding or diminishing those guarantees.

The U.S. General Accounting Office ("GAO") has evaluated the NRC's review of the financial qualifications of prospective licensees to safely operate and decommission

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[35] NUREG-1577, Revision 1, at Section III.1.b.

[36] It also appears that the NRC does not consider the need to pay retrospective Price-Anderson Act premiums when it considers a prospective licensee's financial qualifications to safely operate and decommission a nuclear power plant.

nuclear power plants. The GAO concluded that for the most part, the NRC's reviews of new owners financial qualifications have enhanced the level of assurance that they will safely own and operate their plants in a deregulated environment and not need to shut them down prematurely.[37]

However, the GAO also found that the NRC did not always adequately verify the new owners' financial qualifications.[38] In particular, the GAO concluded that when the NRC reviewed the financial qualifications of Exelon to safely own and operate the largest fleet of nuclear plants in the U.S., it did not require the same additional guarantees from the parent or affiliated companies that the new owner would have sufficient revenues to cover the plants' operating costs as it had required from other proposed license transfers.[39] The NRC also did not validate the information submitted by the new owner to demonstrate that the company was financially qualified.[40] In fact, the GAO concluded that the NRC had eventually transferred the licensees to Exelon Generation Company on the basis of projected financial information that both the affected companies and the NRC knew to be inaccurate.[41]

The NRC's review of financial qualifications continues after a license is transferred. Each licensee is required to submit an annual financial report, pursuant to 10 CFR 50.71(b) and a decommissioning funding status report is required every two years.[42] The NRC Staff also monitors the general financial status of nuclear plant licensees by screening the trade and financial press reports, and other sources of information.[43]

However, it is unclear whether the NRC has the staff resources or the expertise to conduct adequate reviews of licensee's financial qualifications. For example, the NRC's Executive Director for Operations informed the Commissioners in April 1997 that the expertise of the NRC Staff in matters of finance and economic analysis were "limited."[44] At the same time, the size of the NRC Staff has been reduced by approximately ten percent since 1997.[45]

The NRC has expressed confidence in its Staff's ability to identify financial distress and has quoted approvingly a Staff member who said "severe financial distress from any of the licensees is something that's not going to be hidden from view very long."[46] However, the suddenness of ENRON's collapse and the apparent absence of public warnings of that

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[37] *Nuclear Regulation: NRC's Assurances of Decommissioning Funding During Utility Restructuring Could be Improved*, GAO-02-48, December 2001, at page 6.

[38] Ibid., at page 4.

[39] Ibid., at page 21.

[40] Ibid., at pages 21 and 31-32.

[41] Ibid., at page 33.

[42] 10 CFR50.75(f)(1).

[43] NUREG-1577, Rev 1, Section III.1.d., at page 5.

[44] NRC SECY-97-071, April 2, 1997.

[45] NUREG-1350, Vol. 13, Figure 4.

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

company's severe financial distress prior to that collapse suggest that the NRC may not have any warning about a licensee's impending financial problems.

Finally, the NRC recently has indicated its intention to reduce the regulatory burden on licensees by eliminating the requirement that licensees include financial qualifications information in license renewal applications.[47] This would mean that there would be no assessment of the financial qualifications of a licensee to safely operate a nuclear power plant for up to an additional twenty years beyond the expiration of its existing NRC-issued license.

In conclusion, there are a number of reasons to have serious concerns about the quality of the NRC's review of the financial qualifications of licensees and prospective licensees.

Finding No. 8 - The financial guarantees that the NRC requires from prospective nuclear power plant owners may not be adequate to assure that plants are operated and decommissioned safely and that plant owners will be able to pay deferred Price-Anderson Act insurance premiums in the event of a nuclear accident.

The NRC has generally accepted guarantees from prospective nuclear power plant licensees in the range of $55 to $75 million to pay for a six-month outage. However, in a number of cases the licensee has not offered and the NRC has not required the licensee to make any such guarantee.[48] For example, there appears to be guarantees in place for only three of the nuclear units owned by Exelon Generation Company, LLC. These are the three units that were originally 50 percent owned by PECO Energy Company and were transferred to Exelon Generation Company, LLC as part of the merger between Unicom and PECO Energy. The guarantees that were in place when the plants were owned by PECO Energy and British Energy were transferred along with the plants. However, it does not appear that there is any guarantee in place for the other 16 nuclear plants that are currently owned by Exelon Generation, Company, LLC.

There is no evidence that these limited $55 to $75 million guarantees will provide sufficient funds to enable power plant owners to safely shutdown their nuclear plants in case of a serious event or significant problem and to maintain the plant in a safe shutdown condition until the problem is addressed or the licensee is able to gain access to the plant's decommissioning trust fund. For example, a substantial number of nuclear power plants have been shutdown since January 1996 for outages that lasted far longer than six months:

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[47] FedNet Government News, June 5, 2002.

[48] As we will discuss in Finding No. 9, Constellation has guaranteed that its nuclear power plant-owning subsidiaries, Nine Mile Point LLC and Calvert Cliffs Nuclear Plant LLC will receive whatever cash is needed to protect the public health and safety.

Table No. 2
Nuclear Power Plant Outages
Since June 1995
That Lasted Nine Months or Longer

Plant	Period Shutdown	Outage Duration
Beaver Valley 2	December 1997 - September 1998	9 months
Clinton	September 1996 - May 1999	32 months
Cook Unit 1	September 1997 - December 2000	39 months
Cook Unit 2	September 1997 - June 2000	33 months
Indian Point 2	February 2000 - December 2000	10 months
Kewaunee	September 1996 - June 1997	9 months
LaSalle Unit 1	September 1996 - August 1998	23 months
LaSalle Unit 2	September 1996 - April 1999	31 months
Millstone Unit 2	February 1996 - May 1999	39 months
Millstone Unit 3	March 1996 - June 1998	27 months
Point Beach Unit 1	February 1997 - December 1997	10 months
Point Beach Unit 2	October 1996 - August 1997	10 months
Salem Unit 1	May 1995 - April 1998	35 months
Salem Unit 2	June 1995 - August 1997	26 months

Indeed, as Table No. 1 (in Finding No. 1 above) and Table No. 2 reveal, it is not unusual for more than one unit at a single site to be shutdown for an extended outage at the same time. These simultaneous extended outages could significantly increase the financial pressures on the units' owner in a deregulated environment when its cash flow depends on the actual sales from the plant rather than on regulated rates for an entire utility.

Moreover, it is not unreasonable to expect that a nuclear unit might be shutdown for more than six months before the ultimate parent corporation makes the decision to permanently retire the unit. After all, the full extent of the plant's problems and the expense and time it would take to repair and restart the unit might not be apparent until the plant had been shut down for a substantial period of time.

This could mean that all of the funds guaranteed by an affiliate or the parent corporation could be exhausted before the licensee would be able to gain access to the unit's decommissioning fund. For example, Millstone Unit 1 was shutdown for 31 months before Northeast Utilities decided in July 1998 to permanently retire the plant. Commonwealth Edison Company's Zion Units 1 and 2 were shutdown for eleven and sixteen months, respectively, before the Company decided in January 1998 to

permanently retire both plants. The Maine Yankee plant was shut down for eight months before its Board of Directors decided in August 1997 to permanently retire it.

But even if an outage were shorter than six months, the maintenance and/or capital expenditures required to repair a plant and restore it to service may be significantly higher than the company had projected in its application to the NRC. The limited funds pledged by a parent corporation or an affiliate could be inadequate under such circumstances.

Finding No. 9 – The NRC has proposed to significantly reduce its review of a non-electric utility licensee's financial qualifications when it evaluates an application to renew a nuclear plant's operating license.

The NRC has proposed to eliminate the requirement that non-electric utility power reactor licensees submit financial qualifications information in their license renewal applications.[49] At the same time, the NRC also has proposed to require the submission of such information when utilities reorganize and operate as "non utility" generators.

The NRC's proposal to require financial reviews when a utility recognizes with a new financial structure is important. However, the decision to reduce disclosure obligations on nuclear power plant owners when they seek renewal of operating licenses for up to 20 years creates the potential for added risk of non-performance in critical areas.

A formal and rigorous review at the time of license renewal for aging nuclear reactors is a particularly appropriate time to evaluate the financial requirements. It is at this point that a business plan can be evaluated over the proposed lifetime of a licensee's facility. The financial resources needed to address the safe and secure operations, make capital improvements to a complex 30 year old machine, meet added license conditions required after the events of September 11, 2001, and to meet decommissioning and public liability obligations under the Price Anderson Act, must be juxtaposed against the economic conditions in the electricity markets and the availability of capital and insurance.[50]

The NRC's justification for not requiring a financial qualifications review at the time of relicensing is that it can monitor licensees when changes take place in licensee's financial qualifications. These day-to-day or limited annual reviews are not substitutes for a

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[49] June 4, 2002 Federal Register, at Vol. 67, No. 104, pp. 38427.

[50] The wisdom of looking into the future was underscored in the case of USEC, Inc, which has an NRC Certificate under 10 CFR Part 76 to operate uranium enrichment plants. The NRC conducted a financial review of the USEC, Inc. Certificate when it was issued in 1998 using the threshold of a current investment grade credit rating. The NRC determined USEC was reliable and economic based on its BBB+ investment grade debt rating. However, the NRC did not look beyond the 5 year term of the certificate to evaluate USEC's financial qualifications or the company's ability to operate with an unsustainable business model. If it had, it could have readily foreseen that USEC's financial condition would deteriorate over time due to a number of factors including the declining value of its sales contract, lower market prices, increasing unit costs of output and lack of competitive technology to enrich uranium for nuclear power reactors. These factors led to multiple credit downgrades and subsequent NRC doubts about whether USEC's economic resources were sufficient to be recertified for another 5 years.

formal, rigorous and disciplined review examining all a licensee's financial ability to fulfill its obligations for safely and securely operating an aging reactor in a competitive marketplace.

Historically, the ratemaking process for a utility corporation had provided reasonable assurance that a license applicant would have funds necessary to operate a reactor. In these circumstances, a licensee could be assumed of obtaining all of the reasonable funds it needed to continue operating its aging power plant. However, non-utility generators now lack the same assured funding, and as utilities diversify into telecommunications, trading operations and high-risk financial activities, the risk that there will be insufficient capital grows. To provide a green light for 20 years of operation without a rigorous review of a licensee's financial resources and business plans invites unwelcome surprises.

Finding No. 10 - The NRC does not require that parent corporations guarantee that funds will be provided to safely operate and decommission the nuclear power plants owned by their subsidiary companies.

The NRC does not require that a parent corporation guarantee the funds that may be needed to operate and decommission safely the nuclear power plants owned by subsidiaries. Instead, the NRC Staff has included conditions requiring a parent guarantee in the orders approving license transfers as additional assurance of financial qualifications only when such a guarantee has been offered by the applicant.[51].

For example, in its reviews of the financial qualifications of Entergy Corporation to own the Pilgrim, Indian Point 2, Indian Point 3, Fitzpatrick, and Vermont Yankee nuclear plants, the NRC has accepted guarantees that would be provided through lines of credit from affiliated financial subsidiaries which may not have sufficient liquid capital when it is needed by a plant-owning affiliate. One of these credit lines is to be used for working capital, if needed. The other is not intended to be used in the normal course of business but instead would be used in the event of problems at the plant. Entergy has indicated that this line of credit would be used to pay the costs between the unplanned shutdown of a plant and the availability of funds from the plant's decommissioning trust fund.[52]

Vermont Department of Public Service witness Andrea Crane has explained the problems that can arise from the fact that neither of the Entergy subsidiaries that provide these lines of credit have any physical assets:

> The result is that these two companies are only as strong as 1) their receivables from, and investment in, associated companies, and 2) Entergy Corp's commitment to provide them with additional funds, if required. Entergy Corp, therefore, has full discretion as to whether or not to provide sufficient capital to EIHL and EGI so that these two financing vehicles can

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[51] *In the Matter of GPU Nuclear, Inc and AmerGen Energy Company, LLC*, 51 N.R.C. 193, at Footnote No. 8.

[52] Prefiled Direct Testimony of Michael R. Kansler, Entergy Nuclear Vermont Yankee, Vermont Public Service Board Docket No. 6545, at page 10.

> meet their commitments to ENVY. If Entergy Corp should choose to walk away from EIHL and EGI, there appears to be no recourse for ENVY.[53]

For this reason, Ms. Crane recommended that the parent Entergy Corporation be required to guarantee that the pledged funds actually would be available if needed:

> Entergy Corporation should be obligated to stand behind the total financial exposure occasioned by the ownership and operation of this nuclear power plant. It is not reasonable to allow Entergy Corporation to shield itself from financial responsibility with complex financial arrangements. It certainly should not be allowed to offer guarantees from subsidiaries that do not have sufficient assets to meet their obligations on a stand-alone basis, because the parent could walk away from those subsidiaries if its own interests so dictated. If Entergy Corporation intends to stand behind the guarantees of its subsidiaries, it should have no problem in making the guarantee directly.[54]

Even though the NRC had accepted the $70 million guarantee provided by the two lines of credit from Entergy Corporation subsidiaries, in response to the concerns raised by the Ms. Crane and the Vermont Public Service Board, the parent Entergy Corporation has provided an additional financial guarantee of up to $60 million.[55] As Entergy has explained:

> The intent of that guarantee is to make sure that, in the event of a premature shutdown of the Vermont Yankee Nuclear Power Station, there will be money available to bridge the gap between shutdown and the point at which ENVY is able to access the decommissioning trust fund. Thus, if either line of credit has been drawn upon, Entergy will guarantee to make up any deficiency up to a total of $60 million.[56]

Entergy also acknowledged that the parent corporation has not provided a similar guarantee in support of **any** of the other nuclear plants its subsidiaries have acquired.[57] It further noted that state and federal regulators, including the NRC, had found the smaller guarantees by affiliated companies, not the parent corporation, to be sufficient.[58]

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[53] Direct Testimony of Andrea Crane on behalf of the Vermont Department of Public Service, Vermont Public Service Board Docket No. 6545, at page 18.

[54] Direct Testimony of Andrea Crane on behalf of the Vermont Department of Public Service, Vermont Public Service Board Docket No. 6545, at page 22.

[55] Ms. Crane subsequently testified that the revised commitments by the parent Entergy Corporation adequately addressed the concerns in her Direct Testimony. Supplemental Testimony of Andrea Crane in Support of the Memorandum of Understanding in Docket No. 6545, at page 2 of 9.

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

[57] Ibid., at page 5, lines 1-5.

[58] Ibid.

Dominion has voluntarily committed $150 million from the parent corporation, DRI, to assure that Dominion Nuclear Connecticut (the new owner of the Millstone Nuclear Station) will have sufficient funds available for meeting its operating expenses for the recently acquired Millstone Units 2 and 3.[59] Dominion has explained that the subsidiary, Dominion Nuclear Connecticut, has the right to obtain such needed funds from DRI as it determines "are necessary to protect the public health and safety, meet NRC requirements, meeting ongoing operational expenses or to maintain Units 2 and 3 safely."[60] However, it does not appear that Dominion has made the same commitment to the four nuclear plants at the Surry and North Anna sites owned by the Dominion Generation Corporation.

Constellation has guaranteed that each of its nuclear power plant-owning subsidiaries, i.e., Nine Mile Point Nuclear Station LLC and Calvert Cliffs Nuclear Plant LLC, would be provided whatever cash is needed to protect the public health and safety.[61]

But it does not appear that the parent Exelon Corporation has guaranteed any funds to its power plant owning and operating subsidiary Exelon Generation Company, LLC.

Finding No. 11 – Taxpayers may be at risk if nuclear plant owning subsidiaries are unable to continue making safety-related or decommissioning expenditures or pay retrospective Price-Anderson Act premiums.

In attempting to assure the Vermont Public Service Board that the former owners of the Vermont Yankee nuclear plant and their ratepayers are unlikely to be required to pay any shortfalls in decommissioning funds, Entergy has noted that the NRC has on several occasions said that the burden of paying any such shortfalls would fall on taxpayers:

> NRC regulations do not specifically address the potential liability of other parties in the event that the licensed owner is unable to provide the funds required for decommissioning. In the past, the NRC indicated that any failure of the licensed owner to meet its decommissioning funding obligations would result in a burden on taxpayers -- presumably in the form of a publicly funded cleanup. See, e.g., SECY-94-280 (Nov. 18, 1984), at 4. ("Such action would either increase the potential risk to public health and safety of the decommissioning process or would shift the burden of decommissioning funding from ratepayers to taxpayers.") (emphasis added); 61 Fed. Reg. 15427, 15428 (Apr. 8, 1996)("The liability of the licensee to provide funding for decommissioning may adversely affect protection of the public health and safety. Also, a lack of decommissioning funds is a financial risk to taxpayers

[59] *Dominion August 31, 2000 Application for the transfer of the licenses for Millstone Units 1, 2 and 3*, at page 10.

[60] Ibid.

[61] *Calvert Cliffs Nuclear Power Plant Request for a Transfer in Control*, December 20, 2000, at page 9 and *Nine Mile Point Unit Nos. 1 & 2 NRC License Transfer Application*, February 1, 2001, at page 23.

(i.e., if the licensee cannot pay for decommissioning, taxpayers would ultimately pay the bill. (emphasis added)."[62]

In fact, there are a number of possible circumstances in which taxpayers could be asked to bear much, if not all, of the cost of a major power plant accident. First, there is no assurance that the primary tier of insurance would be available to a licensee in the event of an act of terrorism against a nuclear power plant. American Nuclear Insurers has testified that it would only have resources available to provide the primary insurance coverage to cover a single act of terrorism.[63] Thereafter, all licensees would be left without any primary insurance coverage. At that point, licensees might seek recourse in the courts for a finding that domestic terrorism is an "act of war." Acts of war are excluded from coverage under the Price-Anderson Act.[64]

At the same time, the liabilities associated with a nuclear accident are borne by every nuclear power plant owner in the U.S. as a result of the pooling of liabilities for accidents with claims in excess of $200 million. The maximum cost per reactor is $88.085 million (subject to inflation adjustments) in secondary liability. As shown on Table No. 3 below, the liability for nuclear owners with multiple plants, such as Exelon (19 units) and Entergy (10 units), could approach or exceed $1 billion.

Table No. 3
Potential Price Anderson Act Nuclear Insurance Liabilities

Parent Corporation	Maximum Potential Annual Liability	Maximum Potential Total Liability
Exelon Corporation	$163.52 million	$1,440.35 million
Entergy Corporation[65]	$99 million	$872.04 million
Duke Energy	$52.50 million	$462.45 million
Dominion Resources, Inc.	$57.03 million	$502.32 million
Southern Company	$39.16 million	$344.94 million

[62] Legal Memorandum on the "Decommissioning Liability Associated with a Power Reactor License," Goodwin Procter LLP, February 24, 2002, submitted by Entergy Corporation to the Vermont Public Service Board as Exhibit ENVY-Wells-3 to the Prefiled Rebuttal Testimony of Connie Wells in Docket No. 6545.

[63] John Quattocchi, Senior Vice-President, American Nuclear Insurers, February 15, 2002 Response to Question from Senator Reid, Hearing before the Senate Committee on Environment and Public Works, January 23, 2002.

[64] The NRC's "opinion" is that claims arising out of an act of terrorism at a nuclear power plant would not be excluded under the Price Anderson Act. February 13, 2002 NRC Answer to Question No. 3 from Senator Reid, Hearing before the Senate Committee on Environment and Public Works, January 23, 2002. However, the NRC recognizes that a "question of this nature and magnitude" would likely need to be resolved by a court in the first instance.

[65] Potential Liability figures reflect Entergy ownership of the Vermont Yankee Nuclear Station.

TVA	$60 million	$528.51 million
Progress Energy	$44.72 million	$393.87 million
FPL Group[66]	$47.33 million	$416.91 million
Constellation Energy Group, Inc.	$38.20 million	$336.49 million
FirstEnergy	$40 million	$352.34 million

However, under the Atomic Energy Act, a licensee's secondary liability can be deferred if it would constitute an undue hardship on the licensee.[67] In such a situation, the secondary liability that would have been borne by the license would become a taxpayer funded liability. It is not unreasonable to expect that power plant owners, especially those that are thinly capitalized, will try to avail themselves of this deferral should a major accident occur.

Moreover, this Report has focused on nuclear-related issues. Nuclear power plants also contain large amounts of asbestos and large volumes of toxic chemicals. Taxpayers also could be forced to bear the costs of cleaning up for these and any other non-nuclear-related pollutants if a single asset power plant-owning subsidiary was able to successfully declare bankruptcy and a court was unwilling to hold the parent corporation liable.

Finding No. 12 - The NRC has no statutory authority to require a licensee in bankruptcy to continue making safety-related or decommissioning expenditures or to pay retrospective Price-Anderson Act premiums.

NRC regulations require any nuclear power plant licensee to immediately report any filing of a voluntary or involuntary petition for bankruptcy.[68] However, the NRC has no additional financial requirements for situations where a licensee files for bankruptcy or otherwise encounters financial difficulties. Nor does the NRC have any statutory authority to require a licensee which is in bankruptcy to continue to make safety-related or decommissioning payments or to pay retrospective Price-Anderson Act premiums. The NRC must intervene in the proceedings before the bankruptcy court and petition the court to require such payments.

The NRC has acknowledged that the license transfer requirements contained in 10 CFR 50.80 do not specifically or expressly refer to a prospective licensee's ability to meet financial protection payments that may be required under the Price-Anderson Act.[69] However, the NRC has said that 10 CFR 140.21 requires reactor licensees that are covered under the Price-Anderson system to provide annual guarantees of payments of

[66] Potential Liability figures reflect FPL Group ownership of the Seabrook Nuclear Station.

[67] Atomic Energy Act Section 170(b)(2)(A) and (2)(B).

[68] 10 CFR 50.54 (cc).

[69] NRC February 13, 2002, response to Post-Hearing Question 6 from Senator Reid.

retrospective premiums and that the NRC evaluates an applicants guarantees of payment of retrospective premiums when it considers a license transfer request. [70]

The NRC has further said that it annually reviews the Price-Anderson Act guarantees for all of its power reactor licensees, including those that are LLCs.[71] All of the licensees have, to date, used the cash flow method of guarantee allowed under 10 CFR 140.21; that is, a licensee may demonstrate that it has sufficient cash flow over 3 months to meet an annual $10 million retrospective premium payment for each reactor that it owns.[72] As long as the licensee chooses that method and is able to pass the financial test for cash flow each year, no additional guarantee is required. However, if a licensee were not able to pass the cash flow test, it would have to provide some other allowable guarantee such as surety bonds, letters of credit, revolving credit/term load arrangements, maintenance of escrow deposits of government securities, or such other type of guarantee as might be approved by the NRC.[73] But there is no requirement that the parent corporation provide such a guarantee, only the subsidiary, and there is no requirement that resources be available to pay the maximum of $88.085 million per reactor.

The NRC has stated that under 10 CFR 140, a licensee is required to pay the retrospective premium, notwithstanding its financial status.[74] The NRC also has said that its has had positive experiences with bankruptcy courts that have overseen the Chapter 11 reorganizations of Public Service Company of New Hampshire (Seabrook nuclear plant), Cajun Electric Cooperative (River Bend), El Paso Electric Company (Palo Verde), and Vermont Electric Generation & Transmission Cooperative (Millstone 3).[75] According to the NRC, in each of these cases, the bankruptcy courts allowed these bankrupt licensees to pay all safety-related operational and decommissioning expenses (including, the NRC believes, Price-Anderson primary layer and on-site property insurance premium payments). The NRC also has noted that during its bankruptcy PG&E has continued to meet all safety-related expenses for its nuclear plants.

However, the NRC has acknowledged that it could potentially face a conflict with other claims in a bankruptcy proceeding "if there were an accident sufficient to trigger a retrospective premium assessment. The NRC would presumably require a licensee to pay the assessment, but the bankruptcy court could order the licensee not to pay it."[76]

In addition, the NRC's earlier experience with the bankruptcies all involved entities that owned a number of different assets. The bankruptcy of a single-asset LLC, which owns only a single nuclear power plant, would present very different circumstances and

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[70] NRC February 13, 2002, response to Post-Hearing Question 6 from Senator Reid.

[71] The NRC also requires that each licensee submit an annual financial report, 10 CFR 50.71(b) and a decommissioning fund status report every two years (and annually during the last five years of operation). 10 CFR 50.71(f)(1).

[72] A retrospective premium is insurance that is paid after an accident.

[73] NRC February 13, 2002, response to Post-Hearing Question 8 from Senator Reid.

[74] NRC February 13, 2002, response to Post-Hearing Question 9 from Senator Reid.

[75] NRC February 13, 2002, response to Post-Hearing Question 2 from Senator Inhofe.

[76] NRC February 13, 2002, response to Post-Hearing Question 9 from Senator Reid.

challenges. At the same time, as we will discuss later in this Report, given the multi-tiered holding companies (including LLCs) through which parent corporations now own many nuclear power plants, the NRC might have trouble "piercing the corporate veil" to require a parent of a bankrupt LLC subsidiary to make the required retrospective premium payments.

It is clear that there are no specific statutory or regulatory safeguards in place to ensure that retrospective premiums under the Price-Anderson Act will be available from bankrupt nuclear plant-owning subsidiaries or from their parent corporations. The NRC has sought legislation from Congress to ensure that decommissioning costs receive explicit priority in bankruptcy proceedings. But, so far, that legislation has not been enacted.[77] The NRC has further stated its willingness to support legislation to prioritize safety-related claims in bankruptcy proceedings and to avoid any potential conflict between NRC requirements to pay into the retrospective Price-Anderson Act premium pool and other claims in bankruptcy.[78]

Finding No. 13 – Case law suggests that it would be very difficult to hold a parent corporation responsible for the liabilities incurred by nuclear power plant owning LLC subsidiaries in a multi-tiered holding company.

As mentioned earlier in this Report, the multiple layers of subsidiaries, including LLCs, that have been created by parent corporations in the nuclear industry are a cause of serious concern. Even if a court concludes that the liability of the subsidiary that actually operates the nuclear plant should be extended to business structures above it (for example, if under capitalization and profit distributions have left the subsidiary unable to cover the costs of unanticipated repairs or security improvements and the subsidiary decides to cease operations), the ability of the court to find a senior business entity with sufficient capital could be complicated by multiple layers of subsidiaries and LLCs. There may be issues of jurisdiction, applicable state or federal statutes, the role of the NRC, and other myriad issues of law and fact that would need to be resolved. Given that the presumption in every state and federal statute is for the limitation of corporate liability, the burden is always on the party trying to extend that liability to show that the law, facts, and public policy all support violating the statutory presumption.[79] Courts, in

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[77] The Energy Policy Act of 2002 (HR 4), as approved by the U.S. Senate, amends the U.S. Bankruptcy Code to prevent creditors in a bankruptcy proceeding from attaching an NRC licensee's decommissioning funds until the decommissioning has been completed. The Senate enacted provision also seeks to prevent creditors from using Price-Anderson insurance and those deferred premiums held in reserve to satisfy creditors. However, neither version of the Energy Policy Act of 2002, that enacted by the House or the Senate, would require a parent corporation or other guarantor to commit resources in the event that there are not adequate resources within a bankrupt LLC to satisfy claims after a nuclear accident. Post accident liabilities could shift to taxpayers in this case.

[78] NRC February 13, 2002, response to Post-Hearing Question 9 from Senator Reid.

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

general, are reluctant to pierce the corporate veil and extend liability; when multiple corporations are involved, that reluctance only increases.

Despite the limitations on corporate liability embodied in statutes, there are numerous instances where courts have been willing to ignore those limitations under a wide range of factual circumstances. The case law varies a great deal from one state to another, but all of them involve some rationale for "piercing the corporate veil" and holding the owners of the corporation personally liable. For the purposes of this Report, it is important to note that in the nuclear power industry, the owners of a nuclear power plant-owning LLC subsidiary are most likely to be another LLC or a parent corporation. The objective of the effort to pierce the corporate veil in this situation would be to make the parent corporation responsible for the liability of the LLC subsidiary.

There is an enormous volume of litigation over the issue of extending liability through to the owners of a corporation. The case law is varied and complex and a thorough and complete review is beyond the scope of this project. What follows is a summary of the common themes that have been used by a variety of courts for extending liability.[80]

Starting from a presumption that a corporation's liability is limited, facts must be presented to justify extending liability. Some of the fact situations that have been persuasive to courts are the following:

- Corporate form is used as a front for illegal or fraudulent activity. In these cases, courts express no reluctance in holding individuals liable for the debts of the corporation since there is no public policy that seeks to support such activities under any business structure.
- Corporate form is used as a sham or a mere shell to avoid liability. In these cases, the individuals or parent corporation are aware from the start that the corporation is unlikely to ever repay its debts or liabilities and seek to acquire as much income as possible before creditors foreclose.
- Individual owners subvert the corporation for their personal gain. In these cases, the personal enrichment may or may not be based on illegal or unethical actions. If the facts establish that owners personally benefited from corporate activities (beyond the normal sharing of corporate profits), then courts are generally willing to make them personally liable. These cases often involve members of the Board of Directors or managers. Corporate owners who do not personally benefit but are aware of the enrichment of other owners can be held personally liable based on their breach of their fiduciary responsibilities to the corporation.
- Under-capitalization of the corporation. In these cases, there is a determination that at the time of incorporation, or due to subsequent management actions, there is insufficient capital available for the business activities of the corporation. Although similar to the problem of a sham corporation, the decision by the court

[80] Id., Thompson at 1063-1072; Easterbrook at 109-113.

involves a more objective analysis of appropriate levels of capitalization for similar entities engaged in similar activities.

- Improper distributions of income. These cases involve decisions by the corporate management, usually the Board of Directors, to distribute corporate income to shareholders in a financially irresponsible manner that leaves the corporation unable to meet its obligations. These are very fact-specific litigations that involve a great deal of hindsight analysis. However, if the facts show a clear pattern of irresponsibility, as opposed to poor business decisions, courts will extend liability to specific individuals or the corporation in general.
- Interference in management. These cases involve situations where owners, often large stockholders in closely held corporations, become so involved in corporate management that they look more like a managing partner than just an investor. Courts will extend liability to these "investors" on the theory that they do not deserve the normal corporate protection.
- Environmental, regulatory, or public policy. These factors are often included with one or more of the above fact patterns to support extending liability. It is unusual for a court to invoke "public policy" by itself as a justification for piercing the corporate veil.

An empirical study of court decisions where piercing the veil issues were litigated indicates that courts are very reluctant to impute liability to the shareholders of public corporations. Closely-held corporations (non-public and usually with few investors) and related corporate entities (subsidiaries, affiliates, etc.) are the forms to which courts have applied extended liability.[81]

There is very little case law involving LLCs that specifically addresses piercing the corporate veil due to the relatively short time period (fifteen years) during which LLC structures have been developed. Consequently, there is great uncertainty as to the effect that having one or more LLCs in the ownership chain within a holding company will have on the willingness of a court to pierce the corporate veil in order to hold a parent company responsible for the liabilities of its indirect nuclear power plant owning-subsidiary.

Finding No. 14 - The NRC has expressed serious doubts as to its ability to hold a parent corporation responsible for the liabilities incurred by a subsidiary.

There are two NRC cases that involved attempts to pierce the corporate veil of the operator of a nuclear power plant. In 1995, the NRC attempted to negate a transfer of assets from a licensee which, as part of a complicated corporate restructuring, had become a subsidiary to a newly created holding company because the transfer had occurred without the prior written consent of the NRC, as required by section 184 of the Atomic Energy Act. The NRC held that it could pierce the veil of corporations that

[81] Id., Thompson at 1070.

violate section 184. However, before a final adjudication, this case ended in a settlement.[82]

In 1997, the NRC tried to force a parent company to provide additional funds to the decommissioning fund for a subsidiary plant. However, prior to a final adjudication, the NRC approved a settlement that resolved the decommissioning fund issue without any specific finding as to the parent company's liability.[83] In accepting the settlement, the NRC expressed concern that there was a "substantial possibility of defeat if the case proceeds to trial [on a theory of] piercing the corporate veil."

Both cases were cited in a legal memorandum provided by the current owners of the Vermont Yankee Nuclear Power Corporation, which concluded that attempts to pierce the corporate veil of nuclear power plant subsidiaries were unlikely to succeed and have seldom been attempted.[84] Despite the numerous specific instances where courts have extended liability to parent corporations, there is great uncertainty as to whether or not courts would apply such extended liability to multi-layered nuclear power companies.

Finding No. 15 – Shielding parent corporations from nuclear power plant operating and decommissioning risks is unfair and economically inefficient.

To the extent that the organizational structures discussed above serve to successfully shield the parent company from risks, they are inequitable and undermine efficient decision-making.

As a matter of fairness, individuals and companies should take responsibility for cleaning up after themselves. If an unanticipated problem in operation causes a nuclear plant to experience an extended or permanent outage prior to the end of its operating license or if the decommissioning of a plant turns out to cost more than expected, then the parent company may decide to provide additional resources to the subsidiary in order to carry out the subsidiaries responsibilities. On the other hand, the parent company may not. If there are clean up costs which the subsidiary is unwilling to bear, then these may fall upon taxpayers. Considerations of fairness would have the company that profited (or expected to profit) from plant operation bear the costs of cleaning up the facility.

This is also a matter of economic efficiency. If a company is protected from significant risks associated with its decisions, then there is what economists call an "externality." A reasonable definition of externality is provided in a popular economics textbook as follows:

> An externality or spillover effect occurs when production or consumption inflicts involuntary costs or benefits on others; that is, costs or benefits are

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

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

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

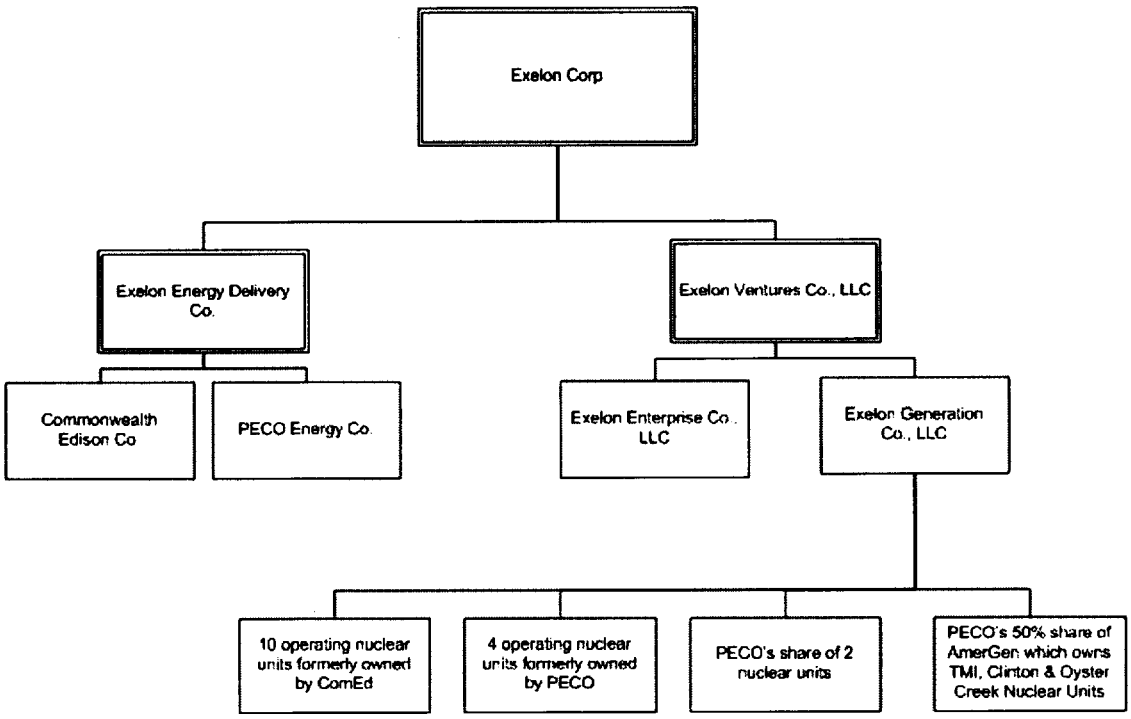
> imposed on others yet are not paid for by those who impose them or receive them. More precisely, an externality is an effect of one economic agent's behavior on another's well-being, where that effect is not reflected in dollar or market transactions.[85]

Where there are such externalities, private decision-making will be inefficient. A company will tend to undervalue (or value at zero) the costs associated with its action that are borne by others. In the case of a nuclear power plant, the protection from liability may, for example, cause the operator to make decisions that undervalue the potential for long-term radioactive waste storage costs. Or, faced with operating decisions that involve tradeoffs between cost and safety, the owner may undervalue safety and make choices that strike the wrong balance. In these situations, because some of the risks are "external," the market outcome may be an inappropriate decision from a societal perspective – or an inefficient allocation of resources. Government policy efforts should aim to internalize externalities, in order to promote appropriate private decision-making and efficient resource allocation.

[85] Samuelson, Paul A. and William D. Nordhaus. 1989. Economics, 13th Edition. McGraw-Hill, at page 770.

ATTACHMENT NO. 1

Exelon Corporation



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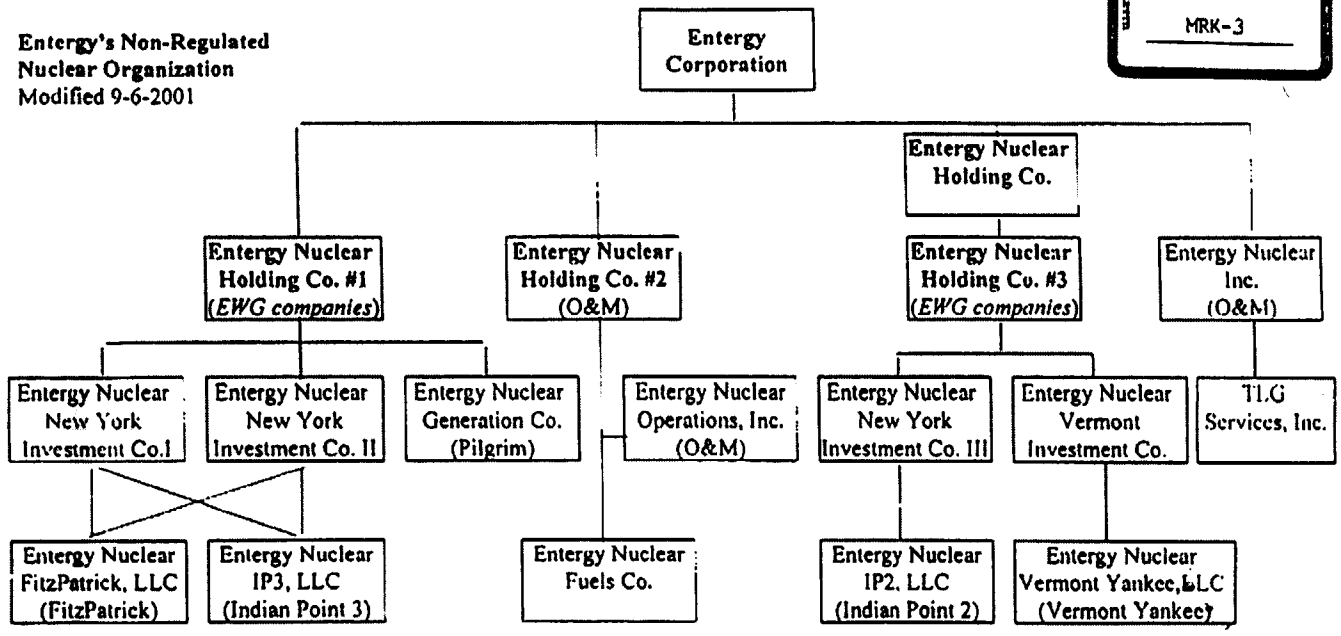
MRK-3

ATTACHMENT NO. 2

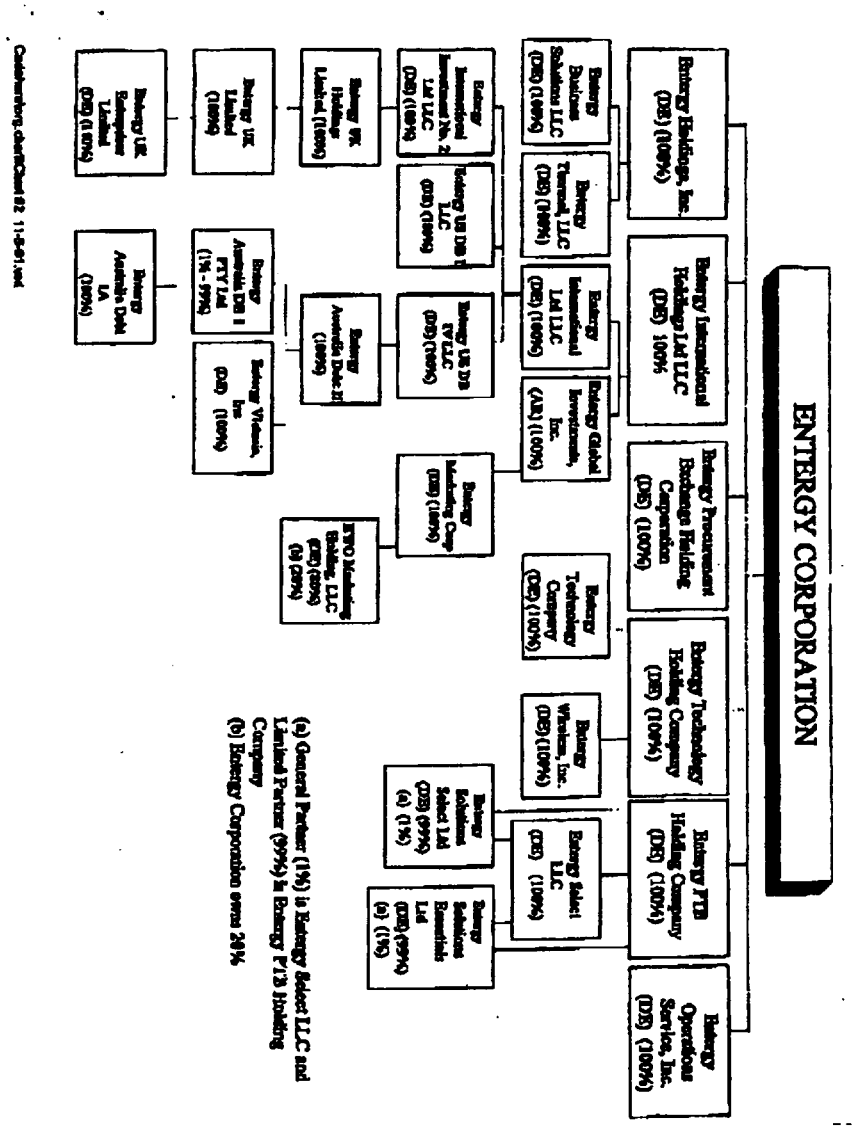
Entergy Corporation – Non-regulated Nuclear Organization



Exempt Wholesale Generator (EWG)
Operations and Maintenance (O&M)

ATTACHMENT NO. 3

Entergy Corporation



ATTACHMENT NO. 4

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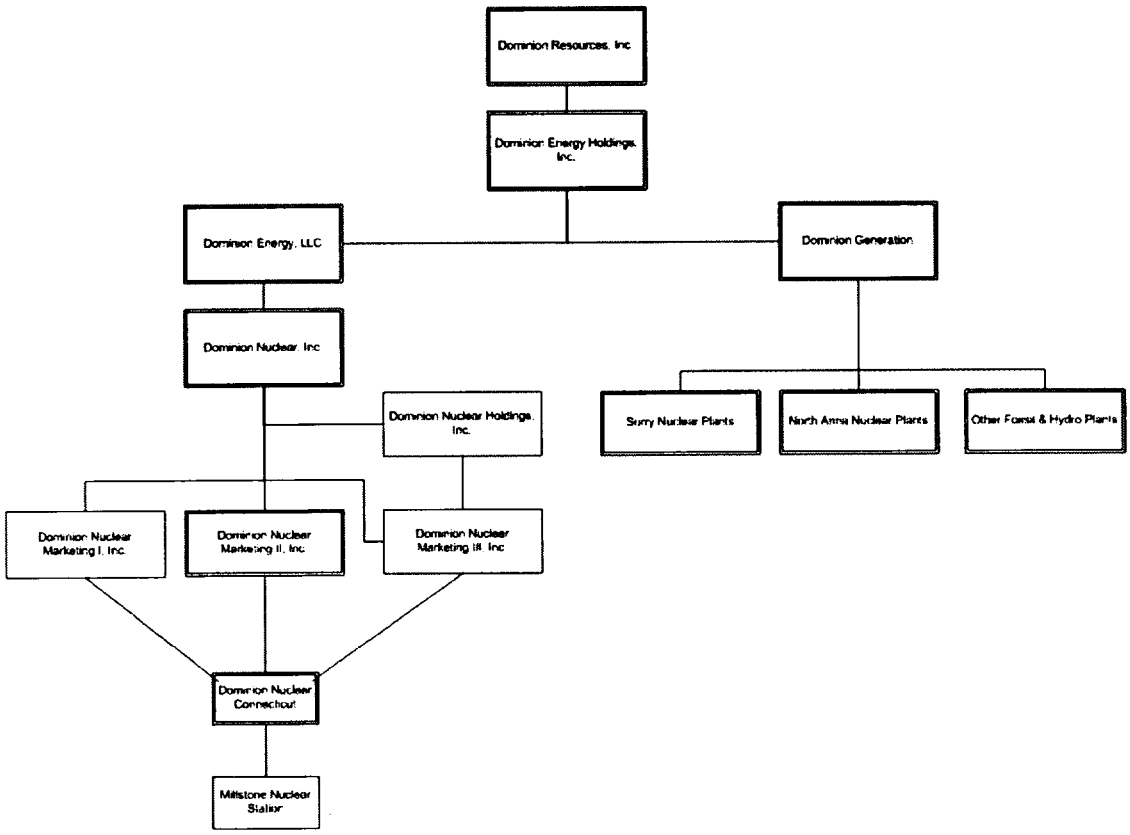

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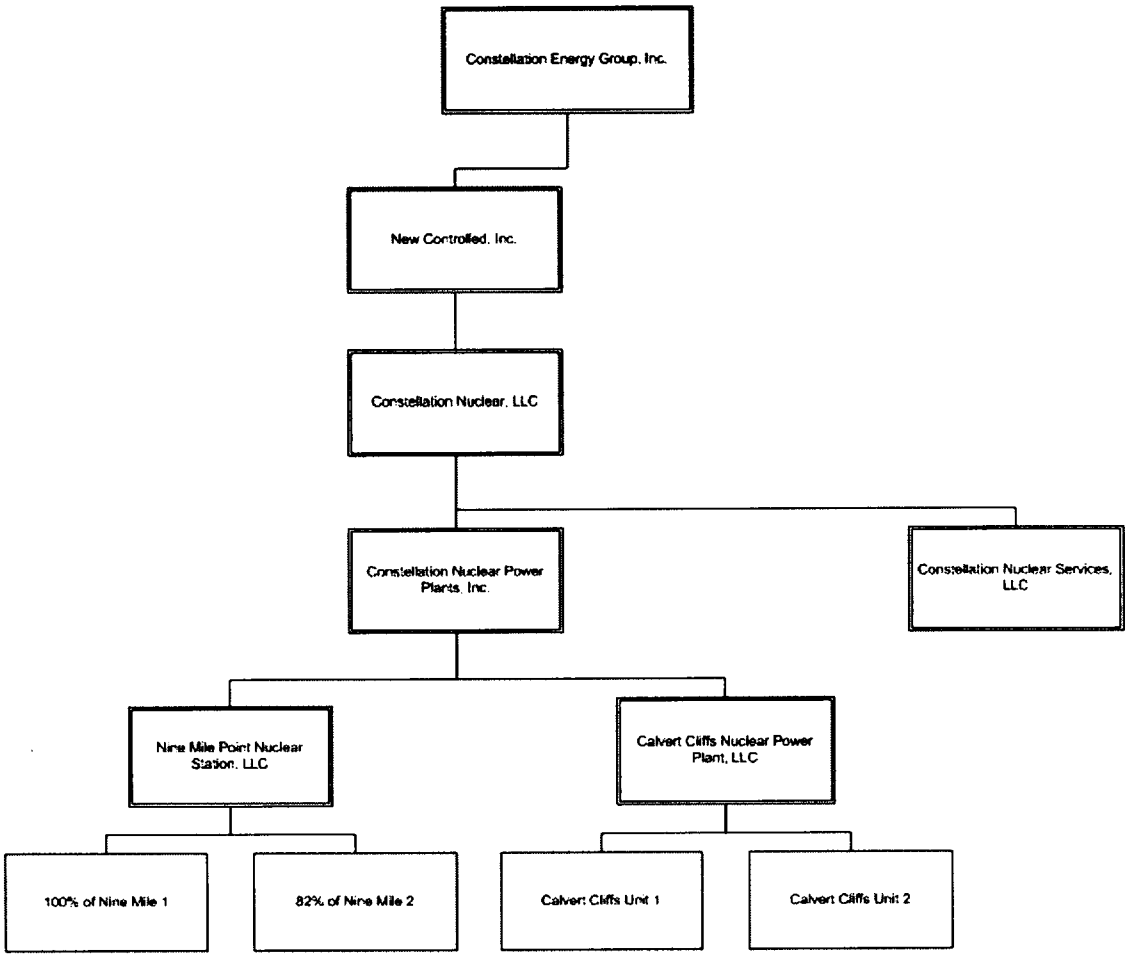
Constellation Energy Group



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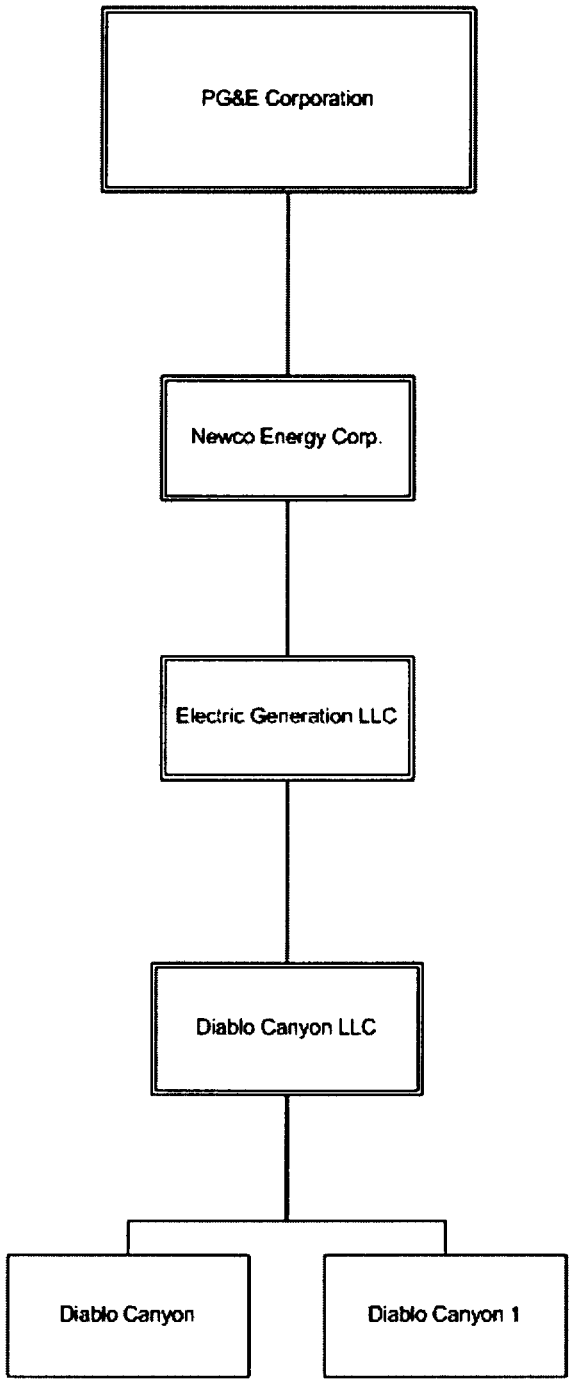
PG&E Corporation



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 7, 2002

MEMORANDUM TO: Chairman Meserve
Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan
Commissioner Merrifield

FROM: Dennis K. Rathbun, Director
Office of Congressional Affairs

SUBJECT: NY TIMES ARTICLE AND STAR FOUNDATION REPORT QUESTIONING FINANCIAL ABILITIES OF LIMITED LIABILITY COMPANIES OWNING NUCLEAR POWER PLANTS

Today's web version of the New York Times features an article by Matthew Wald reporting on a report released by the STAR Foundation entitled, "Financial Insecurity: The Increasing Use of Limited Liability Companies and Multi-Tiered Holding Companies to Own Nuclear Power Plants." The introduction is by former NRC Commissioner Peter Bradford.

The report asserts that a small number of companies owning an increasing number of nuclear power plants are structuring their corporations in such a manner as to be able to limit their liabilities in the case of bankruptcy. A case in point would be their Price-Anderson liability in the event of a nuclear accident.

A copy of the New York Times article and the STAR Foundation report are attached.

Attachments:
As stated

cc:	OEDO	RES	OIG	NMSS
	OGC	NRR	ACNW	SECY
	OGC (Cyr)	OPA	OCFO	OCAA

Contact: Tom Combs, 415-1776

August 7, 2002

Reactor Sales Are Said to Endanger Accident Payments

By MATTHEW L. WALD

The New York Times
WASHINGTON, Aug. 6 - The sale of about two dozen nuclear power reactors around the country to a small number of companies has undermined the system Congress devised to ensure compensation for people hurt by a severe nuclear accident, according to an analysis commissioned by two anti-nuclear groups in New York.

Federal law requires reactor operators to buy $200 million in conventional insurance. It also provides for about $9.3 billion in additional coverage by requiring that after an accident, each plant pay $10 million a year, up to $88 million, to compensate victims.

When the law, known as the Price-Anderson act, was approved by Congress, the idea was to spread the risk among all reactors. But as a result of recent mergers and purchases, four companies now own so many reactors that their liabilities would be more than half a billion dollars each in case of accidents.

The study, which was commissioned by Riverkeeper, a Hudson River environmental group, and the STAR Foundation, a Long Island antinuclear group, points out that in many cases, the companies bought the reactors through limited liability subsidiaries that could declare bankruptcy and permit the parent corporations to walk away unscathed. It also says that the limited liability structure jeopardizes the money set aside for decommissioning the reactors at the end of their lives.

"Price-Anderson only works if those companies are reachable in the event of an accident," said Alex Matthiessen, executive director of Riverkeeper. "These limited liability structures seem specifically designed to put them beyond reach."

The report, prepared by Synapse Energy Economics and scheduled to be officially released on Wednesday by being posted on the World Wide Web at www.noradiation.org <http://www.noradiation.org> , details layer upon layer of corporate structures used in recent reactor purchases. Robert Alvarez, program director for the Star Foundation, said that most of the holding companies had no employees and were merely "shell corporations." He called them " Enron-style subsidiaries."

Representatives for the nuclear industry scoffed at the idea that the changes in ownership threatened the insurance system. Having nuclear plants concentrated in the hands of companies that specialize in running reactors has safety benefits, they said, and may also create greater financial

responsiveness.

"If I'm a nuclear operator, I'm not going to undermine my core business to save $10 million a year," said Marvin S. Fertel, senior vice president at the Nuclear Energy Institute, a trade group. Failure to pay the fee for one reactor could jeopardize the licenses of the others, he said.

A typical 1,000-megawatt nuclear plant has fuel and operating expenses of $130 million to $140 million a year, he said, and a $10 million payment on top of that, in the unlikely event of a major accident, was a small increment. In an introduction to the report, Peter A. Bradford, a former member of the Nuclear Regulatory Commission and a former head of the public service commissions in both New York State and Vermont, agreed that the consolidation of nuclear ownership might make for safer operation. But he said he thought it also "risks the shifting of accident and decommissioning costs from the plant owners to the general public because the relatively secure financial backing of substantial utilities companies has, in many cases, been replaced by a limited liability subsidiary whose only asset is an individual nuclear power plant."

Price-Anderson, established in 1957 by Congress, expired on Aug. 1. Provisions remain in force for existing reactors but new ones would not be covered. But that point is moot, since no new reactors have been ordered since 1978.

The insurance system established by the law could be crucial for people who live within a few miles of nuclear plants because commercial property insurance does not cover radiation accidents.

In creating the program, Congress set a cap on how much would be paid to any victims of a nuclear accident. The cap is periodically adjusted for inflation; it is now about $9.5 billion, with the money coming from the $200 million in conventional insurance and the $9.3 billion that would be paid by the nuclear industry after an accident.

Opponents say the cap is a subsidy to the nuclear industry; the industry asserts that the $9.5 billion is far more than would be available for a catastrophe at a chemical plant or some other industrial site. So far, they point out, payments have totaled only about $200 million.
Whatever the merits of the arguments on both sides, the emerging structure of the industry has clearly changed the underlying assumptions behind the building of nuclear power plants. Critics agree that having a single company operate 15 or 20 reactors is probably good for safety, since plants within a company share expertise more readily than plants owned by scattered utilities.

But they also say that the new owners may lack the deep pockets of the mammoth regulated utilities that built the reactors, making an insurance scheme more necessary.

The new legal structure is radically different from what came before. For example, the Indian Point reactors, in a suburb of New York City along the Hudson River, were sold by Consolidated Edison and the New York Power Authority to Entergy a utility that built five of its own plants and has bought six more.

A spokesman for Entergy, Carl Crawford, said the structure had tax advantages. Asked if it also created a liability shield, he said, "It has that effect, too." But, he said, "anyone who thinks that a company that would spend a billion and a half of its own dollars is going to shirk a $10 million a year insurance payment, that's just not reasonable."

Synapse
Energy Economics, Inc.

FINANCIAL INSECURITY: The Increasing Use of Limited Liability Companies and Multi-Tiered Holding Companies to Own Nuclear Power Plants

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August 7, 2002

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Foreword

Where Have All the Safeguards Gone

In nuclear power's first two decades, accident insurance requirements were seriously inadequate. Decommissioning costs were overlooked entirely. The 1979 accident at Three Mile Island undermined much nuclear complacency. In the early 1980s Congress and the U.S. Nuclear Regulatory Commission made serious efforts to address these shortcomings.

The nuclear self-insurance requirement – known as the Price-Anderson Act – was increased from $560 million to the current $9.3 billion, and each plant was required to set up a dedicated decommissioning trust fund to assure that funds would be available to clean up a closed plant.

With the passage of two more decades, renewed complacency has eroded these safeguards.

This report dissects a troublesome set of developments on the cusp between economic and safety regulation, namely the rearrangement of nuclear power plant ownership into the limited liability subsidiaries of a few large companies. Because this arrangement has occurred during an era of lax and dispirited regulation, some important issues have not been pursued effectively. As a result, the consolidation of nuclear ownership – although probably a positive development if carried out wisely – now risks the shifting of accident and decommissioning costs from the plant owners to the general public because the relatively secure financial backing of substantial utility companies has in many cases been replaced by a limited liability subsidiary whose only asset is an individual nuclear power plant.

With years of reckless undermining of economic and financial regulation now exposed in a series of catastrophic financial collapses, investigators turning over rocks keep finding the same agents of decay: demands for short term "performance" in the private sector compounded by regulatory cutbacks, underqualified commission appointments, Congressional hearings harassing public protection initiatives, pressure to deregulate more and faster-a ruinous mixture of money, pressure, overconfidence, complexity and ideology.

During all those years, health and safety regulation got the same debilitating treatment from Congress and the Presidency as its financial counterparts. How long before those chickens come home to roost, and where will the roosting be?

Even in the best of times, regulation tends to be reactive, responding to events or to applications. Rarely does a regulatory commission develop a set of affirmative requirements to guide those who seek its permits. Certainly neither the Nuclear Regulatory Commission nor the several economic regulators with jurisdiction over nuclear plants ever developed a comprehensive policy to guide those seeking to transfer nuclear plant ownership. Such a policy might have required a showing that the protection of the public was in no way diminished by these transfers. Or such a requirement might have been imposed as a condition of approving the transfers.

But it was not.

In the absence of any such requirement, public protection has depended on the acumen of a Nuclear Regulatory Commission unversed in financial matters and of economic regulators unversed in health and safety issues. As has happened in financial and in utility restructuring circles, fundamental safeguards have been circumvented.

Regulating in this way is like driving drunk. On any one occasion, there may be no consequences at all. But in the nuclear field the possibilities include the undermining of the scheme that assures compensation in the event of nuclear accidents and an increased likelihood that some of the costs of decommissioning nuclear power plants will be borne by the general public. Taxpayers, utility customers and powerplant neighbors who thought themselves protected by firm requirements may one day wear the stunned expressions of Enron retirement plan holders or WorldCom investors.

Clever advisors in several professions have no doubt been well rewarded for achieving these "deregulations." As they were at Global Crossing. As they were at Qwest. As they were at Andersen Consulting. But in the nuclear realm as in the others, they have been more clever than wise. The consequences remain to be revealed. We will be fortunate if the only harm is another blow to public confidence.

Peter Bradford[1]

[1] Visiting Lecturer in Energy Policy and Environmental Protection, Yale University; Former Chair, New York State Public Service Commission and Maine Public Utilities Commission; Former Commissioner, U.S. Nuclear Regulatory Commission; Past President, National Association of Regulatory Utility Commissioners.

Introduction

In recent years corporations have increasingly owned and operated nuclear power plants through multiple tiered holding companies, which frequently include limited liability companies ("LLCs"). LLCs are new organizational forms whose liability is limited to the specific assets they directly own. More than 25 nuclear power plants are today owned by such LLCs and additional corporate reorganizations can be expected. The use of complex organizational structures involving LLCs can shield the parent corporations and their shareholders from liabilities incurred by both direct and indirect subsidiaries. In so doing, the use of multi-tiered holding companies and LLCs to own and operate nuclear power plants raises several concerns regarding security, safety and potential federal and consumer liabilities.

Nuclear power plants were traditionally constructed and operated mainly by integrated investor-owned utilities under "cost-of-service regulation" through which necessary funds were provided to operate and decommission the plants safely. Starting in the mid-1990s, however, many nuclear power plant owners began to reorganize and to sell their nuclear units to unaffiliated companies or corporate affiliates. Some of these corporate reorganizations were required or encouraged as part of state efforts to deregulate the electric utility industry and to implement industry restructuring. Other reorganizations were adopted by plant owners, on their own initiative, in order to minimize tax liabilities, maximize flexibility in corporate ownership and management, and to protect corporate assets. According to the U.S. General Accounting Office ("GAO"), the U.S. Nuclear Regulatory Commission ("NRC") has reviewed more than 60 license transfer requests in recent years, affecting more than half of the nuclear plants in the nation.[2]

Synapse Energy Economics, Inc. ("Synapse") was asked by the STAR Foundation and Riverkeeper, Inc. to survey the increasing use of complex corporate ownership structures and LLCs to own and operate nuclear power plants and to review the NRC's oversight of these developments. Synapse also was asked to identify those areas in which changes need to be made to assure that there are adequate funds available to meet NRC-imposed requirements, including post September 11, 2001 security-related requirements and Price-Anderson Act nuclear accident insurance obligations and to assure that decommissioning funds are adequate and are protected. This Report presents our findings.

Data Sources

Synapse has used publicly available documents from the following sources in the preparation of this Report: the U.S. GAO, the U.S. NRC, corporate filings at the U.S. Securities and Exchange Commission, company websites, nuclear industry publications, utility filings at state regulatory commissions and answers to post-hearing questions that arose out of the January 23, 2002 Price-Anderson Act Hearings. The specific documents on which this Report is based are identified in footnotes or the list of references.

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[2] *Nuclear Regulation: NRC's Assurance of Decommissioning Funding During Utility Restructuring Could be Improved,* U.S. GAO Report, GAO-02-48, December 2001, at page 21.

This Report also relies on detailed publicly available information about the Entergy Corporation that Synapse obtained as a result of its work in Vermont Public Service Board Docket No. 6545 in which Entergy's proposed acquisition of the Vermont Yankee nuclear plant has been examined.

Conclusion

Over the last ten years, the ownership of an increasing number of nuclear power plants has been transferred to a relatively small number of very large corporations. These large corporations have adopted business structures that create separate limited liability subsidiaries for each nuclear plant, and in a number of instances, separate operating and ownership entities that provide additional liability buffers between the nuclear plant and its ultimate owners. The limited liability structures being utilized are effective mechanisms for transferring profits to the parent/owner while avoiding tax payments. They also provide a financial shield for the parent/owner if an accident, equipment failure, safety upgrade, or unusual maintenance need at one particular plant creates a large, unanticipated cost. The parent/owner can walk away, by declaring bankruptcy for that separate entity, without jeopardizing its other nuclear and non-nuclear investments. This report examines the recent trend towards the use of limited liability corporations in the nuclear industry, often as part of multi-tiered holding companies, and identifies numerous concerns related to the use of such business structures.

Summary of Findings

The above conclusion is based on the following findings:

Finding No. 1 - Nuclear power plant ownership and operation has become increasingly consolidated in a small number of very large corporations.

Finding No. 2 – Complex, holding companies, often including Limited Liability subsidiaries, are increasingly being used to own nuclear power plants.

Finding No. 3 – Limited Liability Companies are relatively new business structures that can enhance a parent corporation's ability to transfer funds from its subsidiaries and to shield assets from liability for financial risks.

Finding No. 4 –There continue to be significant financial and other risks associated with nuclear power plant ownership and operations.

Finding No. 5 – The NRC has expressed concern that deregulation can adversely affect the safety of operating nuclear power plants by increasing the pressure on licensees to reduce costs.

Finding No. 6 – The NRC has expressed concern that the use of holding company structures can reduce the assets that would be available for the safe operation and decommissioning of a nuclear power plant. However, the NRC does not adequately protect against the risk that an LLC subsidiary will transfer all of its operating profits to its parent company or engage in risky loans to or questionable deals with affiliated companies.

Finding No. 7 - The NRC's reviews of the financial qualifications of new nuclear power plant owners are inconsistent and may be too limited to ensure that subsidiaries will have adequate funds to safely operate and decommission their nuclear plants and pay retrospective Price-Anderson Act premiums.

Finding No. 8 – The financial guarantees that the NRC requires from prospective nuclear power plant owners may not be adequate to assure that plants are operated and decommissioned safely and that plant owners will be able to pay retrospective Price-Anderson Act insurance premiums in the event of a nuclear accident.

Finding No. 9 - The NRC has proposed to significantly reduce its review of a non-electric utility licensee's financial qualifications when it evaluates an application to renew a nuclear plant's operating license.

Finding No. 10 – The NRC does not require that parent corporations guarantee that funds will be provided to safely operate and decommission the nuclear power plants owned by their subsidiary companies.

Finding No. 11 – Taxpayers may be at risk if nuclear plant owning subsidiaries are unable to continue making safety-related or decommissioning expenditures or pay retrospective Price-Anderson Act premiums.

Finding No. 12 – The NRC has no statutory authority to require a licensee in bankruptcy to continue making safety-related or decommissioning expenditures or to pay retrospective Price-Anderson Act premiums.

Finding No. 13 – Case law indicates that it could be very difficult to hold a parent corporation responsible for the liabilities incurred by nuclear power plant-owning LLC subsidiaries in a multi-tiered holding company.

Finding No. 14 – The NRC has expressed serious doubts as to its ability to hold a parent corporation responsible for the liabilities incurred by a subsidiary.

Finding No. 15 – Shielding parent corporations from nuclear power plant operating, accident insurance, and decommissioning risks is unfair and economically inefficient.

Recommendations

1. Parent corporations should be required to guarantee that plant-owning subsidiaries and affiliates will be provided whatever funds are needed to safely operate and decommission their nuclear power plants.

2. Parent corporations should be held fully responsible for the unmet liabilities incurred by both direct and indirect nuclear power plant owning subsidiaries.

3. Congress should adopt legislation to assure that costs related to (1) safety and security (2) decommissioning assets and (3) Price-Anderson nuclear accident responsibilities receive priority in bankruptcy proceedings.

4. Reactor owners should be required to guarantee payment of their nuclear accident insurance responsibilities under the Price-Anderson Act through surety bonds,

letters of credit, sinking funds, or other comparable financial instruments that will be bankruptcy remote. This will assure that public liability claims will be paid up to the limits of the Price-Anderson Act without concern about the financial condition of the industry and without requiring a taxpayer bailout.

5. The Nuclear Regulatory Commission should not eliminate the current legal requirement that non-utility corporations must disclose their financial qualifications when applying to re-license nuclear power plants, as the agency has proposed in a recent rulemaking. Instead, the NRC should bolster its disclosure requirements concerning the character of the legal relationships between a parent corporation and its subsidiaries in the event of a bankruptcy, business failure or accident.

Finding No. 1 - Nuclear power plant ownership and operation has become increasingly consolidated in a small number of very large corporations.

In the past, a relatively large number of utilities around the nation owned nuclear power plants or, at least, were joint owners with other companies. However, as a result of industry restructuring, nuclear power plant ownership has become increasingly consolidated in a small number of large corporations. In fact, as shown in Table No. 1 below, ten corporations currently own all or part of 70 of the 103 nuclear power plants in the U.S.

Table No. 1
Concentration of Nuclear Power Plant Ownership

Parent Corporation	Number of Operating Nuclear Units Owned (in whole or in part)
Exelon Corporation	19
Entergy Corporation	10[3]
Duke Energy	6
Dominion Resources, Inc.	6
Southern Company	6
TVA	5
Progress Energy	5
FPL Group	5[4]

[3] Includes the Vermont Yankee Nuclear Station.

[4] Includes the Seabrook Nuclear Station.

Constellation Energy Group, Inc.	4
FirstEnergy	4

The six largest owners alone own part or all of 52 nuclear units, or one-half of all of the operating nuclear power plants in the nation.

At the same time, the Nuclear Management Company ("NMC") holds the NRC-issued operating licenses for eight nuclear plants in the Midwest. However, each of the utilities involved in NMC continues to own its own plants, is entitled to the energy generated by the plants, and retains the financial obligations for the plants safe operation, maintenance and decommissioning.

This industry consolidation may yield significant benefits in terms of economics, safety and reliability. However, it also raises the possibility that simultaneous extended outages of more than one nuclear plant will leave a "fleet" owner without needed revenues to fund safety-related expenses or capital expenditures at its other facilities. At the same time, the increasing consolidation of ownership also raises the possibility that an owner will have to bear Price-Anderson Act retrospective burdens measured in the hundreds, not tens, of millions of dollars, possibly without adequate revenues from which to make such payments.[5]

In fact, there have been numerous instances where two or more of a company'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.
- Northeast Utilities' Millstone Units 2 and 3 were shut down for multi-year outages between March 1996 and June 1998. Millstone Unit 1 was shutdown in November 1995 and permanently retired in 1997.

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[5] In the event of an accident at one of the nation's nuclear power plants, the Price-Anderson Act requires nuclear plant owners to make "retrospective" (i.e., post-accident) payments after the initial $200 million tier of insurance is exhausted. Under the Act's present terms, and given the number of operating plants, this obligation is a maximum of $88.085 million per unit with a maximum of $10 million per year. Consequently, an owner of multiple units could face retrospective obligations of hundreds of millions of dollars in total and tens of millions per year.

- Commonwealth Edison 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 from September 1997 through June 2000.
- Both units at the Salem Nuclear Station were shutdown for more than two years between July 1995 and August 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.

Finding No. 2 - Complex, multi-tiered holding companies, often including limited liability subsidiaries, are increasingly being used to own nuclear power plants.

Except for those power plants owned by municipal utilities and the Yankee Nuclear Plants in the Northeast, nuclear units historically were directly owned by integrated investor-owned utility companies which owned other generating facilities and had significant transmission and distribution assets as well. Over the past five to ten years, however, corporations have established multiple tiered holding companies through which they indirectly own nuclear power plants. Except for the Exelon Corporation, these new nuclear power plant owning subsidiaries generally own only a single asset, i.e., an individual nuclear power plant, or both units at a multiple unit site.[6]

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[6] The nuclear industry's interest in single asset nuclear generating companies is not new. It dates back to the 1960s, perhaps even to the 1950s, when the plans were developed for the ownership of the Yankee Rowe and Connecticut Yankee nuclear plants. Then, in the late 1980s and early 1990s, some companies, including Middle South Utilities (subsequently renamed "Entergy") and General Public Utilities, reorganized, creating specific corporate entities to operate ***but not own*** their nuclear power plants. In one notable case in Michigan, however, the Consumers Power Company proposed transferring a poorly performing nuclear plant, Palisades, to a new corporate entity, PGCo, created for the sole purpose of owning and operating the plant. This ill-conceived proposal was designed to shift nuclear-related risks away from the Company, placing them instead upon consumers and the public. For more information, see Bruce Biewald, "Do We Really Need Nuclear Generating Companies?," in Public Utilities Fortnightly, June 7, 1990. and the Direct Testimony of Bruce Biewald, submitted on behalf of the Attorney General of Michigan, April 19, 1989 in Michigan Public Service Commission Case No. U-9172.

The corporate subsidiaries included in these complex ownership chains are increasingly chartered as Limited Liability Companies ("LLCs"). As we will discuss in Finding No. 3 below, LLCs are relatively new business structures that enhance a parent corporation's ability both to transfer funds from its nuclear-power plant owning subsidiaries and to shield its other assets from liability from the financial risks associated with its nuclear operations.

The following examples illustrate the accelerating trend in the nuclear industry to use multiple tiered holding companies and LLC subsidiaries to own and operate nuclear plants. It is important to note that each of the parent corporations listed in these examples also has numerous other subsidiaries unrelated to its nuclear power plant ownership.

Exelon Corporation

Exelon Corporation was formed in 2000 by the merger of Unicom (Commonwealth Edison Company's parent) and PECO Energy Company. Commonwealth Edison's 10 operating nuclear plants have been transferred to Exelon Generation Company, LLC, ("EGC") which is a wholly owned subsidiary of Exelon Ventures Company, LLC, which, in turn, is a wholly-owned subsidiary of Exelon Corporation. PECo's Limerick and Peach Bottom nuclear plants also have been transferred to EGC, as has PECo's ownership interest in the two Salem Nuclear Plants.

PECo also owned 50 percent of the AmerGen Energy Company, LLC, ("AmerGen") which had acquired and operated three nuclear power plants in the U.S.: Three Mile Island Unit 1, Clinton, and Oyster Creek. PECo's interests in AmerGen have been transferred to EGC, LLC. Consequently, through EGC, LLC, Exelon Corporation owns and operates part or all of 16 nuclear plants and owns part of another three units.

The current organizational structure through which Exelon owns these nuclear assets is illustrated in Attachment No. 1 to this Report.

Entergy

Entergy Corporation was a pioneer in establishing separate corporate entities to own and operate nuclear power plants. Entergy today owns and operates ten nuclear units through an extensive network of wholly-owned subsidiaries.

Entergy currently owns five nuclear units in the South through five wholly-owned retail public utility companies and another wholly-owned subsidiary, System Energy Resources, Inc.[7]

Entergy also has purchased another five nuclear units in the Northeast including its just completed purchase of the Vermont Yankee nuclear plant. As shown in Attachment No. 2 to this Report, Entergy owns each of these units through a multi-tiered series of subsidiaries, many of which are limited liability companies. For example, the Indian

[7] Entergy Arkansas, Inc., Entergy Gulf States, Inc., Entergy Louisiana, Inc., Entergy Mississippi, Inc., and Entergy New Orleans, Inc.

Point 2, Indian Point 3, and Fitzpatrick nuclear units are each owned by a separate LLC.[8] In the case of Indian Point 2, the immediate owner is Entergy Nuclear IP2, LLC. This company is, in turn, owned by Entergy Nuclear Investment Company III, Inc., which is a wholly-owned subsidiary of Entergy Nuclear Holding Company #3 that, in turn is a wholly-owned subsidiary of Entergy Nuclear Holding Company. Entergy Nuclear Holding Company, Inc., is a direct subsidiary of Entergy Corporation.[9]

The structure through which Entergy owns the Indian Point 3 and Fitzpatrick units is even more complex because each of the LLCs that owns these plants is, in turn, 50 percent owned by two other indirect Entergy subsidiaries, Entergy Nuclear New York Investment Company I and Entergy Nuclear New York Investment Company II. As shown in Attachment No. 2, these two Entergy Nuclear New York Investment Companies are themselves subsidiaries of Entergy Nuclear Holding Company #1 which, in turn, is a wholly-owned subsidiary of Entergy Corporation.

Another Entergy subsidiary, Entergy Nuclear Operations, Inc. ("ENO") operates Entergy's nuclear units in the Northeast.[10] Additional services are provided by other Entergy subsidiaries such as Entergy Services, Inc. (management, administrative and support services) and Entergy Nuclear Fuels Company (nuclear fuel planning, procurement and related services).

Entergy has provided the following explanation for this tiered holding company structure:

> Entergy Nuclear Holding Company, a first tier of Entergy Corporation, has been established with the intent that it will ultimately hold all the subsidiaries associated with Entergy's nuclear operations. This will consolidate all of Entergy's unregulated nuclear operations under a single holding company, while still supporting the operational and financing demands of the individual plants. *The use of holding companies below Entergy Nuclear Holding Company allows Entergy to segregate various types of financing, investment and business activities, and by doing so, enables Entergy to better manage and control risks associated with these activities.*[11] (Emphasis added)

Remarkably, Entergy has indicated that only two of all of the subsidiaries included in Attachment 2 -- ENO and Entergy Nuclear Generation Company, which owns and operates the Pilgrim Nuclear Station -- have any employees other than officers.[12] The

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[8] Although the wholly-owned subsidiary that currently owns Entergy's Pilgrim Station is not an LLC, Entergy has said that it will seek to change the form of that subsidiary to an LLC in the near future.

[9] Entergy has said that ultimately all of subsidiaries associated with Entergy's nuclear operations will be owned by Entergy Nuclear Holding Company. Rebuttal Testimony of Connie Wells, Entergy Nuclear Vermont Yankee, LLC, in Vermont Public Service Board Docket No. 6545, at page 9.

[10] Entergy's nuclear units in the South are operated by yet another subsidiary, Entergy Operations, Inc.

[11] Rebuttal Testimony of Entergy Nuclear Vermont Yankee witness Connie Wells in Vermont Public Service Board Docket No. 6545, dated February 25, 2002, at page 9.

[12] Entergy response to Department of Public Service Information Request No. 2-10 in Vermont Public Service Board Docket No. 6545.

rest of the listed subsidiaries are merely paper organizations. In addition, the subsidiaries listed on Attachment 2 share many of the same individuals as officers.[13]

The NRC requires licensees of deregulated nuclear plants to provide certain financial guarantees that a unit would have sufficient funding to enable the licensee to continue to maintain the unit in a safe manner in case of an extended outage or a premature shutdown. Entergy's financial guarantees for its deregulated units in the Northeast are provided by two subsidiaries not listed in Attachment 2 -- Entergy International Holdings, LTD LLC and Entergy Global Investments, Inc. Both of these subsidiaries are themselves holding companies.[14]

As shown in Attachment No. 3, Entergy also has a very extensive network of other subsidiaries, in addition to those that own and operate its deregulated nuclear units in the Northeast.

Dominion

Dominion Resources, Inc. ("DRI") owns the two operating nuclear power plants at Millstone Point in Connecticut through a multi-tiered chain of subsidiaries. As shown on Attachment No. 4, DRI owns Dominion Energy Holdings, Inc. which, in turn, owns Dominion Energy Inc., LLC which owns Dominion Nuclear, Inc.. Dominion Nuclear, Inc. then owns Dominion Nuclear Marketing I, Inc, Dominion Marketing II, Inc, and Dominion Marketing III, LLC that together own Dominion Nuclear Connecticut, the direct owner of the Millstone nuclear station.[15]

Dominion also owns the four nuclear units at its North Anna and Surry stations in Virginia through the Dominion Generation Corporation which is a wholly-owned subsidiary of Dominion Energy Holdings, Inc. Dominion Generation Corporation also will own the fossil and hydro facilities that were formerly owned by Virginia Power Company.

Constellation

Constellation Energy Group, Inc. ("Constellation") purchased 100 percent of the Nine Mile Point Unit No. 1 nuclear plant and 82 percent of Nine Mile Point Unit No. 2 nuclear plant in 2001. Both of these units are located in upstate New York, near the City of Oswego. When Constellation sought NRC approval to transfer the units' licenses it also requested approval to complete a complex fourteen step corporate realignment. The nuclear-related results of this proposed realignment are shown on Attachment No. 5. The direct owner of the two Nine Mile Point nuclear plants is Nine Mile Point Nuclear Station, LLC, which is a wholly owned subsidiary of Constellation Nuclear Power Plants,

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[13] Synapse has learned greater detail about Entergy's current holding company structure through its involvement on behalf o the Vermont Department of Public Service in Vermont Public Service Board Docket No. 6545.

[14] Entergy response to Department of Public Service Information Request No. 1-42(c) in Vermont Public Service Board Docket No. 6545.

[15] Dominion's August 17, 2001 letter to the NRC concerning the Millstone Nuclear Power Station Corporate Restructuring.

Inc, which, in turn, is a wholly owned subsidiary of Constellation Nuclear, LLC. Constellation's other two nuclear plants are owned by another subsidiary of Constellation Nuclear Power Plants, Inc, Calvert Cliffs Nuclear Power Plant, LLC. Constellation also has numerous other nuclear-related subsidiaries. Constellation Nuclear, LLC is, in turn, a subsidiary of Constellation Energy Group, Inc.

The parent corporation resulting from this corporate realignment will be BGE Corporation which will own Constellation Energy Group, Inc., as an immediate subsidiary.

Other Companies

The owners of fleets of nuclear power plants are not the only corporations that have established multi-tiered holding companies to own their nuclear plants. For example, as part of its proposed reorganization to recover from bankruptcy, Pacific Gas & Electric is seeking permission to transfer its two Diablo Canyon Nuclear Plants to a new LLC subsidiary, Diablo Canyon LLC. As shown on Attachment No. 6, this subsidiary would, in turn be a wholly owned subsidiary of Electric Generation, LLC, which in turn is a subsidiary of the Newco Energy Corporation, a wholly owned subsidiary of PG&E Corporation.[16]

Another example is Public Service Enterprise Group ("PSEG") which owns and operates the Salem and Hope Creek nuclear plants and is part owner of the Peach Bottom Nuclear generation station through a line of wholly-owned subsidiaries that includes PSEG Power, LLC, and its wholly-owned subsidiary, PSEG Nuclear.

Finding No. 3 - Limited Liability Companies are relatively new business structures that are used to shield the assets of a parent corporation from liability for financial risks.

The fundamental purpose and rationale for the creation of a "corporation" is to allow investors to pool their resources to engage in a business activity while limiting the financial consequences or "liability" of each individual investor. The most typical arrangement is for an investor to purchase stock or "shares" in the corporation. The money or other value paid for the shares is the limit of that investor's personal liability. The corporation's total liability is limited to the value of its investors' shares, plus any insurance policies that may be applicable.

Partnerships, an alternative form of business organization, are characterized by the inability of the partners to limit their individual liability. Each partner is wholly and personally responsible for all debts of the business. This onerous feature of partnerships has led to the development of many variations on the partnership model, particularly the limited partnership, as a way to shield some or all of the partners from unlimited liability.

Looking only at the liability issue, one might wonder why partnerships are ever chosen as a business structure. There are two primary reasons: streamlined management and lower

[16] PG&E's November 30, 2001 Application to the NRC for License Transfers and Conforming Administrative License Amendments.

taxes. A corporation is required to have articles of incorporation, a board of directors, and a management structure separate from the board of directors. Partnerships can be much more flexible with the same individual, or group of individuals, performing both day-to-day management and decision-making functions. Tax policy significantly favors partnerships by allowing all business profits to flow directly to the partners where they are taxed on their business income along with any other personal income. Corporations, because they are considered a separate entity, must pay corporate taxes before profits can flow to its investors, who then pay taxes on their corporate income on an individual basis. This is commonly called the "double taxation" feature of corporations.[17]

The dilemma facing entrepreneurs who want to start a business is whether the business structure should be designed to protect their existing personal assets by limiting their liability (a corporation) or whether the business structure should be designed to allow them to maximize their income from this single venture through lower taxes (a partnership). As discussed below, the nuclear industry seeks to achieve both liability protection and maximum income through the use of new limited liability corporate structures.

Limited Liability Subsidiaries

Limited liability companies (LLCs) are relatively new business structures that combine features of corporations and partnerships. An LLC has the same limited liability of corporations, but has the management flexibility of a partnership. Most significantly, pursuant to an IRS ruling in 1988, an LLC is considered a partnership for federal income tax purposes.

The first LLCs in the United States were formed in Wyoming in 1977 for foreign corporations that wanted to invest in very risky mineral exploration and development. Since 1977, LLC statutes have been enacted in all fifty states. They have proven to be a particularly attractive business structure for investments in high-risk ventures. LLCs can be formed by individuals, partnerships, or corporations. They can be managed by the LLC members (owners) or by an elected group of members, or by a single member. The management choice also acts to specify the members who can legally bind the LLC through contracts with outside entities.[18]

LLCs have become a very attractive business structure for corporations that acquire nuclear power plants. By creating a separate LLC for each nuclear plant, the profits from each plant's operations can flow back to the parent corporation without any intervening tax liability. The parent corporation's liability for each plant is limited to the investment the parent corporation made in initially setting up the LLC. Also, there can be more than one LLC between the parent corporation and the most risky component of the overall

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[17] For general background on business structures, see any of a number of law school texts on business organizations. The information above is derived from "Organizing Limited Liability Companies: The Trend Continues", Richard M. Fijolek, Practicing Law Institute (1997); "A Limited Liability Company Checklist", Jerome P. Friedlander, II, Federal Lawyer (March/April 1995); and "The ABCs of LLCs, Steven Auderieth, Vermont Bar Journal and Law Digest (February, 1995).

[18] See above, Friedlander and Auderieth.

investment. For example, the technical support services for several nuclear plants can be consolidated into a separate LLC that contracts with all the individual plant LLCs. If one nuclear plant becomes unprofitable and goes into bankruptcy proceedings, in theory, only the single plant LLC assets are in jeopardy; the technical services LLC can continue to provide services to all the other single plant LLCs.

A particular concern regarding the use of LLCs is the situation where a parent corporation inserts several layers of LLCs between itself and the entity operating a high-risk business. Each of those intervening LLCs can act as a barrier to extending liability to the parent corporation that contains most of the assets. As noted in the case studies in Finding No. 2 of this Report, this approach appears to have been embraced by the parent corporations that recently have been purchasing nuclear plants. If a nuclear plant was unable to cover its liabilities, it might require several separate litigations, or a very large and complex single litigation, to pierce all the corporate veils back to the parent corporation with the bulk of the assets.

Finding No. 4 –There continue to be significant financial and other risks associated with nuclear power plant ownership and operations.

The restructuring of electricity markets has meant increased risks for owners of any deregulated electric generation facilities, whether their plants are fossil-fired or nuclear. Revenues which used to be based on traditional "cost of service" concepts and stable rates are now based instead on the actual sales from a power plant at market prices that are sometimes volatile.

At the same time, there are significant nuclear-related risks that could have a material adverse effect on nuclear power plant owners. For example, a recent Prospectus issued by Exelon Corporation for the sale of $700 million of notes by Exelon Generation Company, LLC specifically identified the following risks associated with owning and operating nuclear power plants:

> We may incur substantial cost and liabilities due to our ownership and operation of nuclear facilities. The ownership and operation of nuclear facilities involve certain risks. These risks include: mechanical or structural problems; inadequacy or lapses in maintenance protocols; the impairment of reactor operation and safety systems due to human error; the costs of storage, handling and disposal of nuclear materials; limitations on the amounts and types of insurance coverage commercially available; and uncertainties with respect to the technological and financial aspects of decommissioning nuclear facilities at the end of their useful lives. The following are among the more significant of these risks:
>
> Operational risk. Operations at any nuclear generation plant could degrade to the point where we have to shut down the plant. If this were to happen, the process of identifying and correcting the causes of the operational downgrade to return the plant to operation could require significant time and expense, resulting in both lost revenue and increased fuel and purchased power expense to meet our supply commitments. For plants operated by us but not wholly

owned by us, we could also incur liability to the co-owners. We may choose to close a plant rather than incur substantial costs to restart the plant.

Regulatory risk. The NRC may modify, suspend or revoke licenses and impose civil penalties for failure to comply with the Atomic Energy Act, the regulations under it or the terms of the licenses of nuclear facilities. Changes in regulations by the NRC that require a substantial increase in capital expenditures or that result in increased operating or decommissioning costs could adversely affect our results of operations or financial condition.

Nuclear accident risk. Although the safety record of nuclear reactors generally has been very good, accidents and other unforeseen problems have occurred both in the United States and elsewhere. The consequences of an accident can be severe and include loss of life and property damage. Any resulting liability from a nuclear accident could exceed our resources, including insurance coverages.

These same risks apply to other nuclear plants including those owned and operated by multi-tiered holding companies and LLCs.

The industry's expressed desire to build new nuclear plants also can be expected to increase the financial pressures on licensees as they may have to further reduce O&M expenditures at existing plants in order to fund the construction of new ones.

Finding No. 5 - The NRC has expressed concern that deregulation can adversely affect the safety of operating nuclear power plants by increasing the pressure on licensees to reduce costs.

Although it has been said that an efficient and economical plant is often a safe plant,[19] the NRC has expressed concern that the transition to economic deregulation can adversely affect nuclear power plant safety and may not provide the same degree of assurance that adequate funds would be provided for safe operation and decommissioning.[20]

The NRC has further explained the impact that increased competition can have on nuclear power plant economics and safety:

> As described in SECY-97-253, traditional "cost-of-service" regulation, under which virtually all NRC power reactor licensees have operated, has typically been effective in providing necessary funds for licensees to operate and decommission their nuclear plants safely. With the advent of greater competition within the electric utility industry, pressures to reduce costs and improve efficiency have increased and will almost certainly intensify as deregulation proceeds. Moreover, with deregulation of the generation sector of the industry, traditional cost-of-service regulation is likely to essentially disappear for most generators. Thus, the concept of electric utility, as

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[19] *NRC Staff Requirements Memorandum, SECY-98-153*, dated June 29, 1998, at page 3.

[20] *NRC Final Policy Statement on the Restructuring and Economic Deregulation of the Electric Utility Industry* (62 *Fed. Reg.* 44071; August 19, 1997)

currently defined in 10 CFR 50.2 may in the future no longer be meaningful for a large number of, if not all, power reactor licensees. Electricity rates set by competition in a free market may not provide the same degree of assurance of adequate funds for safe operation and decommissioning as traditional cost-of-service ratemaking. In SECY-97-253, the staff cited the example of the "Independent Safety Assessment of Maine Yankee Atomic Power Company" (NRC Staff Report: Ellis W. Merschoff, Team Lead; October 1996), which concluded, "Economic pressure to be a low-cost energy producer has limited available resources to address corrective actions and some plant improvement upgrades.

When the NRC issued its Final Policy Statement on the Restructuring and Economic Deregulation of the Electric Utility Industry (62 *Fed. Reg.* 44071; August 19, 1997), specific safety concerns with respect to rate deregulation and restructuring were identified. For example, the final policy statement discussed such safety concerns as reductions in expenditures for manpower and training and other reductions in operations and maintenance (O&M) and capital additions budgets. The issues of on-line maintenance and increased fuel burnup were also addressed.

In addition, with respect to specific plants such as Maine Yankee, Millstone, and others, the inspection process has identified several manifestations of inappropriate responses to competitive pressures. These include: increased need for corrective actions; maintenance operator work-arounds; temporary modification and procedure revision backlogs; decreased performance in operator licensing and requalification programs; increased frequency of significant operational and occupational safety events; decreased plant and system reliability; increased volume and acrimony of allegations; and increased frequency of regulatory violations and resulting penalties.

As deregulation proceeds, cost pressures may increase these types of reductions in safety margins at plants. Moreover, because the impact of budgetary reductions can cut across all plant safety-related programs, other impacts in addition to those previously identified may occur as a result of deregulation. For example a merchant plant with no assets other than the nuclear plant itself could be unable to make necessary safety expenditures after an extended outage if it did not have an adequate financial cushion to pay costs incurred during the outage. In such a situation, it is not clear that a transition from indefinite shutdown to permanent shutdown and decommissioning would be sufficiently smooth to prevent funding shortages from causing safety problems during the shutdown transition period. That is, given the requirements in 10 CFR 50.82 with respect to: (1) the limitation on the use of the trust fund for legitimate decommissioning activities; and (2) the timing of significant decommissioning trust fund withdrawals, a licensee could run out of funds for operational safety expenses before it was able to draw on its decommissioning trust fund. This, in turn, could force the NRC to

make the decision for the licensee to permanently cease operations and initiate decommissioning pursuant to 10 CFR 50.82.[21]

The nuclear industry itself has acknowledged the safety and economic risks associated with economic deregulation. For example, a former President of the industry's American Nuclear Society told the Society's Winter 2001 meeting that "Safety is the highest priority because of the impact on cost that would result from an NRC-forced shutdown" and that there is now "actually a higher focus on safety than before."[22] However, he also noted the challenges that come from deregulation and restructuring:

> With restructuring comes challenges for plant operators and regulators, Quinn continued. These challenges for operators include management focus on economics, not safety; pressure on workers to keep plants operating (because of volatility of electricity prices); pressure to reduce preventative maintenance; deferral of equipment replacements; and less investment for safety backfits. For the regulator, these include increased workload (because of mergers, license transfers, etc.); pressure to avoid requiring shutdowns of plants; and increased political pressure to reduce the regulatory burden. Challenged also is the nuclear technology infrastructure. According to Quinn, there is less cooperation among competing nuclear utilities, and less safety research and technical support for the plants.[23]

Finding No. 6 - The NRC has expressed concern that the use of holding company structures can reduce the assets that would be available for the safe operation and decommissioning of a nuclear power plant. However, the NRC does not adequately protect against the risk that an LLC subsidiary will transfer all of its operating profits to its parent company or engage in risky loans to or questionable deals with affiliates.

The NRC Staff has expressed concern that the use of holding company structures can lead to a diminution of the assets necessary for the safe operation and decommissioning of a licensee's nuclear power plant.[24] In fact, as early as March 1993 the NRC Staff expressed concern that:

> Current and potential organizational structures of many power reactor licensees and their corporate affiliates are complex and evolving. The staff believes that the public health and safety implications of such structures warrant further examination. A licensee subsidiary without assets other than

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[21] *NRC Staff Requirements Memorandum, SECY-98-153*, dated June 29, 1998, at pages 2 and 3.

[22] *ANS Winter Meetings: Nuclear Power - Attracting Notice, A Brighter Outlook,* Nuclear News, August 2001, starting at page 34.

[23] Ibid.

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

> the licensed reactor could renege on its decommissioning obligations if forced to shut down prematurely. Given that corporate law generally limits the liability of stockholders, the NRC may not have recourse to the assets of a parent company if its subsidiary defaults absent legally enforceable commitments by owners. Case law with respect to bankruptcy proceedings is also ambiguous. Although bankruptcy courts have generally directed bankruptcy trustees to make justifiable, legally required expenditures to protect public health and safety, it is not clear that these expenditures will always have a high priority relative to other claims. The staff believes that it should evaluate possible ways to increase assurance of decommissioning funds availability. An increased degree of confidence may be appropriate to assure that the problems that the Office of Nuclear Material Safety and Safeguards has had with some of its licensees abandoning materials sites prior to cleanup will not be experienced for power reactor licensees.[25]

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

> *A licensee subsidiary without assets other than the licensed reactor could renege on its decommissioning obligations if forced to shut down prematurely.*
>
> NRC Staff, March 1993

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

> Potentially, any investor-owned utility could establish a holding company to which it could transfer the bulk of its assets over time. If forced to shut down prematurely, a licensee with assets limited essentially to the shut down reactor could declare bankruptcy and renege on any unfunded decommissioning obligation. If a bankrupt licensee had insufficient assets, a bankruptcy court might be powerless to order that assets of a parent company be used to fund decommissioning, even if the court wished to do so.[26]

In the years since 1994, the NRC has not developed or adopted any policy limiting the transfer of operating profits from the subsidiary that directly owns a nuclear plant. Nor

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

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

does the NRC have any policy limiting the types or magnitudes of the loans that such an operating subsidiary can make to affiliated companies.

At most, the NRC merely conditions license transfer approvals to new holding company structures upon a requirement that the licensee not transfer to its proposed parent or any other affiliated company significant assets for the production, transmission or distribution of electric energy without first notifying the NRC. The NRC has defined "significant assets" to be facilities having a "depreciated book value exceeding 10% of the company's consolidated net utility plant."[27]

The NRC also does not have a specific policy statement or procedure on how limited liability companies or other types of licensees use financial assurance funds in the forms of lines of credit for plant operation.[28] Nor does the NRC have any specific policy statement or procedure that controls how it would consider approval of requests of limited liability companies to reduce, replace, or withdraw available lines of credit that are subject to NRC conditions. Instead, the NRC has said that it will review such requests on a case-by-case basis.[29]

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

> evaluate the reasons behind [the licensee's] drawing on the lines of credit. The staff cannot provide a detailed discussion of potential agency actions until it learns the specific reasons for the usage of such funds. Generally, if drawings on the lines of credit were made to cover short-term cash flow deficiencies that did not appear to have any significant safety ramifications, the NRC would not likely need to take any specific action. If drawing on the lines of credit were to indicate serious longer-term financial problems that appeared to potentially adversely impact protection of public health and safety, the NRC would monitor the effects of any degradation on protection of public health and safety and act appropriately.[30]

The NRC's failure to have any policy limiting the transfer of operating profits from the subsidiary that directly owns a nuclear plant or the types or magnitudes of the loans that such an operating subsidiary can make to affiliated companies is all the more significant because the new holding companies also may have not set policies governing these matters. For example, Entergy has said that there are no written procedures governing the distribution of operating profits from the subsidiaries that are the direct owners of its

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

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

[29] Ibid.

[30] Ibid.

nuclear units.[31] These subsidiaries either make distributions to their immediate parent companies or make loans to affiliated companies depending on the specific cash requirements of the parent companies or the affiliates.

Vermont Department of Public Service witness Andrea Crane has explained to the Vermont Public Service Board why it should be concerned about the ability of a parent corporation to drain the funds available to a nuclear power plant-owning subsidiary:

> ...in addition to being concerned about the availability of capital for ENVY's[32] operations, there is also a concern that Entergy Corp. may threaten the long-term financial viability of ENVY by using ENVY's earnings to fund other Entergy Corp. operations, leaving insufficient funds in ENVY for nuclear operations. Therefore, in addition to raising concerns about the availability of sufficient operating and capital funds, I am also concerned about the need to retain capital in ENVY. The Board should avoid a repeat of the situation that transpired in PG and E ... whereby funds were transferred from a successful operating entity to the holding company, leaving the operating company in dire financial straits.[33]

Ms. Crane also expressed concern about the absence of formal Entergy corporate policies governing the transfer of profits and inter-affiliate transactions:

> The lack of direct control over its internally generated funds, and the vagueness of the corporate policy, does not provide an appropriate level of financial assurance for the ownership and operation of a nuclear power plant. It leaves open the possibility that Entergy Corp could require 100% of operating earnings as dividends from its subsidiaries, including ENVY, if it needed funds to meet other priorities or emergencies, leaving the owners of the nuclear plants without sufficient capital to pursue their own immediate priorities.[34]

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[31] Entergy Response to Department of Public Service Information Request No. 2-36 in Vermont Public Service Board Docket No. 6545.

[32] ENVY is Entergy Nuclear Vermont Yankee LLC, which is the Entergy Corporation subsidiary that will own the Vermont Yankee nuclear plant if the purchase is approved by the Vermont Public Service Board.

[33] Direct Testimony of Andrea Crane on behalf of the Vermont Department of Public Service, Vermont Public Service Board Docket No. 6545, at page 9.

[34] Direct Testimony of Andrea Crane on behalf of the Vermont Department of Public Service, Vermont Public Service Board Docket No. 6545, at page 28.

Finding No. 7 - The NRC's reviews of the financial qualifications of new nuclear power plant owners are inconsistent and may be too limited to ensure that subsidiaries will have adequate funds to safely operate and decommission their nuclear plants and pay retrospective Price-Anderson Act premiums.

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

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

In reviewing the financial qualifications of a prospective licensee, the NRC requires that the new owner either meet a supply and demand test or show that it has an investment grade rating or equivalent from at least two bond-rating organizations. The supply and demand test examines whether the prospective licensee will earn sufficient revenues (either from the sale of electric power from the nuclear plant or from other sources) to cover expected operational expenses at the plant.[35] This analysis is based on the applicant's uncertain and speculative estimates of total operating revenues and costs for the first full five years following the expected completion of the license transfer.[36] At the same time, it is very unlikely that the new corporate subsidiaries that actually will own the transferred plant will have issued any securities that had received investment grade or equivalent ratings from any bond-rating organizations.

If a prospective licensee is unable to meet either the supply and demand test and or the bond rating criteria test, the NRC will consider its ability to fund a six-month outage. Although assuring the funding for a six-month outage is not required where a prospective licensee meets either of the NRC's two primary tests, in those cases where a prospective licensee voluntarily guarantees the funds to pay for a six-month outage, the Commission will accept that commitment and impose a licensee condition prohibiting the applicant from voiding or diminishing those guarantees.

The U.S. General Accounting Office ("GAO") has evaluated the NRC's review of the financial qualifications of prospective licensees to safely operate and decommission

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[35] NUREG-1577, Revision 1, at Section III.1.b.

[36] It also appears that the NRC does not consider the need to pay retrospective Price-Anderson Act premiums when it considers a prospective licensee's financial qualifications to safely operate and decommission a nuclear power plant.

nuclear power plants. The GAO concluded that for the most part, the NRC's reviews of new owners financial qualifications have enhanced the level of assurance that they will safely own and operate their plants in a deregulated environment and not need to shut them down prematurely.[37]

However, the GAO also found that the NRC did not always adequately verify the new owners' financial qualifications.[38] In particular, the GAO concluded that when the NRC reviewed the financial qualifications of Exelon to safely own and operate the largest fleet of nuclear plants in the U.S., it did not require the same additional guarantees from the parent or affiliated companies that the new owner would have sufficient revenues to cover the plants' operating costs as it had required from other proposed license transfers.[39] The NRC also did not validate the information submitted by the new owner to demonstrate that the company was financially qualified.[40] In fact, the GAO concluded that the NRC had eventually transferred the licensees to Exelon Generation Company on the basis of projected financial information that both the affected companies and the NRC knew to be inaccurate.[41]

The NRC's review of financial qualifications continues after a license is transferred. Each licensee is required to submit an annual financial report, pursuant to 10 CFR 50.71(b) and a decommissioning funding status report is required every two years.[42] The NRC Staff also monitors the general financial status of nuclear plant licensees by screening the trade and financial press reports, and other sources of information.[43]

However, it is unclear whether the NRC has the staff resources or the expertise to conduct adequate reviews of licensee's financial qualifications. For example, the NRC's Executive Director for Operations informed the Commissioners in April 1997 that the expertise of the NRC Staff in matters of finance and economic analysis were "limited."[44] At the same time, the size of the NRC Staff has been reduced by approximately ten percent since 1997.[45]

The NRC has expressed confidence in its Staff's ability to identify financial distress and has quoted approvingly a Staff member who said "severe financial distress from any of the licensees is something that's not going to be hidden from view very long."[46] However, the suddenness of ENRON's collapse and the apparent absence of public warnings of that

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[37] *Nuclear Regulation: NRC's Assurances of Decommissioning Funding During Utility Restructuring Could be Improved*, GAO-02-48, December 2001, at page 6.

[38] Ibid., at page 4.

[39] Ibid., at page 21.

[40] Ibid., at pages 21 and 31-32.

[41] Ibid., at page 33.

[42] 10 CFR50.75(f)(1).

[43] NUREG-1577, Rev 1, Section III.1.d., at page 5.

[44] NRC SECY-97-071, April 2, 1997.

[45] NUREG-1350, Vol. 13, Figure 4.

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

company's severe financial distress prior to that collapse suggest that the NRC may not have any warning about a licensee's impending financial problems.

Finally, the NRC recently has indicated its intention to reduce the regulatory burden on licensees by eliminating the requirement that licensees include financial qualifications information in license renewal applications.[47] This would mean that there would be no assessment of the financial qualifications of a licensee to safely operate a nuclear power plant for up to an additional twenty years beyond the expiration of its existing NRC-issued license.

In conclusion, there are a number of reasons to have serious concerns about the quality of the NRC's review of the financial qualifications of licensees and prospective licensees.

Finding No. 8 - The financial guarantees that the NRC requires from prospective nuclear power plant owners may not be adequate to assure that plants are operated and decommissioned safely and that plant owners will be able to pay deferred Price-Anderson Act insurance premiums in the event of a nuclear accident.

The NRC has generally accepted guarantees from prospective nuclear power plant licensees in the range of $55 to $75 million to pay for a six-month outage. However, in a number of cases the licensee has not offered and the NRC has not required the licensee to make any such guarantee.[48] For example, there appears to be guarantees in place for only three of the nuclear units owned by Exelon Generation Company, LLC. These are the three units that were originally 50 percent owned by PECO Energy Company and were transferred to Exelon Generation Company, LLC as part of the merger between Unicom and PECO Energy. The guarantees that were in place when the plants were owned by PECO Energy and British Energy were transferred along with the plants. However, it does not appear that there is any guarantee in place for the other 16 nuclear plants that are currently owned by Exelon Generation, Company, LLC.

There is no evidence that these limited $55 to $75 million guarantees will provide sufficient funds to enable power plant owners to safely shutdown their nuclear plants in case of a serious event or significant problem and to maintain the plant in a safe shutdown condition until the problem is addressed or the licensee is able to gain access to the plant's decommissioning trust fund. For example, a substantial number of nuclear power plants have been shutdown since January 1996 for outages that lasted far longer than six months:

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[47] FedNet Government News, June 5, 2002.

[48] As we will discuss in Finding No. 9, Constellation has guaranteed that its nuclear power plant-owning subsidiaries, Nine Mile Point LLC and Calvert Cliffs Nuclear Plant LLC will receive whatever cash is needed to protect the public health and safety.

Table No. 2
Nuclear Power Plant Outages
Since June 1995
That Lasted Nine Months or Longer

Plant	Period Shutdown	Outage Duration
Beaver Valley 2	December 1997 - September 1998	9 months
Clinton	September 1996 - May 1999	32 months
Cook Unit 1	September 1997 - December 2000	39 months
Cook Unit 2	September 1997 - June 2000	33 months
Indian Point 2	February 2000 - December 2000	10 months
Kewaunee	September 1996 - June 1997	9 months
LaSalle Unit 1	September 1996 - August 1998	23 months
LaSalle Unit 2	September 1996 - April 1999	31 months
Millstone Unit 2	February 1996 - May 1999	39 months
Millstone Unit 3	March 1996 - June 1998	27 months
Point Beach Unit 1	February 1997 - December 1997	10 months
Point Beach Unit 2	October 1996 - August 1997	10 months
Salem Unit 1	May 1995 - April 1998	35 months
Salem Unit 2	June 1995 - August 1997	26 months

Indeed, as Table No. 1 (in Finding No. 1 above) and Table No. 2 reveal, it is not unusual for more than one unit at a single site to be shutdown for an extended outage at the same time. These simultaneous extended outages could significantly increase the financial pressures on the units' owner in a deregulated environment when its cash flow depends on the actual sales from the plant rather than on regulated rates for an entire utility.

Moreover, it is not unreasonable to expect that a nuclear unit might be shutdown for more than six months before the ultimate parent corporation makes the decision to permanently retire the unit. After all, the full extent of the plant's problems and the expense and time it would take to repair and restart the unit might not be apparent until the plant had been shut down for a substantial period of time.

This could mean that all of the funds guaranteed by an affiliate or the parent corporation could be exhausted before the licensee would be able to gain access to the unit's decommissioning fund. For example, Millstone Unit 1 was shutdown for 31 months before Northeast Utilities decided in July 1998 to permanently retire the plant. Commonwealth Edison Company's Zion Units 1 and 2 were shutdown for eleven and sixteen months, respectively, before the Company decided in January 1998 to

permanently retire both plants. The Maine Yankee plant was shut down for eight months before its Board of Directors decided in August 1997 to permanently retire it.

But even if an outage were shorter than six months, the maintenance and/or capital expenditures required to repair a plant and restore it to service may be significantly higher than the company had projected in its application to the NRC. The limited funds pledged by a parent corporation or an affiliate could be inadequate under such circumstances.

Finding No. 9 – The NRC has proposed to significantly reduce its review of a non-electric utility licensee's financial qualifications when it evaluates an application to renew a nuclear plant's operating license.

The NRC has proposed to eliminate the requirement that non-electric utility power reactor licensees submit financial qualifications information in their license renewal applications.[49] At the same time, the NRC also has proposed to require the submission of such information when utilities reorganize and operate as "non utility" generators.

The NRC's proposal to require financial reviews when a utility recognizes with a new financial structure is important. However, the decision to reduce disclosure obligations on nuclear power plant owners when they seek renewal of operating licenses for up to 20 years creates the potential for added risk of non-performance in critical areas.

A formal and rigorous review at the time of license renewal for aging nuclear reactors is a particularly appropriate time to evaluate the financial requirements. It is at this point that a business plan can be evaluated over the proposed lifetime of a licensee's facility. The financial resources needed to address the safe and secure operations, make capital improvements to a complex 30 year old machine, meet added license conditions required after the events of September 11, 2001, and to meet decommissioning and public liability obligations under the Price Anderson Act, must be juxtaposed against the economic conditions in the electricity markets and the availability of capital and insurance.[50]

The NRC's justification for not requiring a financial qualifications review at the time of relicensing is that it can monitor licensees when changes take place in licensee's financial qualifications. These day-to-day or limited annual reviews are not substitutes for a

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[49] June 4, 2002 Federal Register, at Vol. 67, No. 104, pp. 38427.

[50] The wisdom of looking into the future was underscored in the case of USEC, Inc, which has an NRC Certificate under 10 CFR Part 76 to operate uranium enrichment plants. The NRC conducted a financial review of the USEC, Inc. Certificate when it was issued in 1998 using the threshold of a current investment grade credit rating. The NRC determined USEC was reliable and economic based on its BBB+ investment grade debt rating. However, the NRC did not look beyond the 5 year term of the certificate to evaluate USEC's financial qualifications or the company's ability to operate with an unsustainable business model. If it had, it could have readily foreseen that USEC's financial condition would deteriorate over time due to a number of factors including the declining value of its sales contract, lower market prices, increasing unit costs of output and lack of competitive technology to enrich uranium for nuclear power reactors. These factors led to multiple credit downgrades and subsequent NRC doubts about whether USEC's economic resources were sufficient to be recertified for another 5 years.

formal, rigorous and disciplined review examining all a licensee's financial ability to fulfill its obligations for safely and securely operating an aging reactor in a competitive marketplace.

Historically, the ratemaking process for a utility corporation had provided reasonable assurance that a license applicant would have funds necessary to operate a reactor. In these circumstances, a licensee could be assumed of obtaining all of the reasonable funds it needed to continue operating its aging power plant. However, non-utility generators now lack the same assured funding, and as utilities diversify into telecommunications, trading operations and high-risk financial activities, the risk that there will be insufficient capital grows. To provide a green light for 20 years of operation without a rigorous review of a licensee's financial resources and business plans invites unwelcome surprises.

Finding No. 10 - The NRC does not require that parent corporations guarantee that funds will be provided to safely operate and decommission the nuclear power plants owned by their subsidiary companies.

The NRC does not require that a parent corporation guarantee the funds that may be needed to operate and decommission safely the nuclear power plants owned by subsidiaries. Instead, the NRC Staff has included conditions requiring a parent guarantee in the orders approving license transfers as additional assurance of financial qualifications only when such a guarantee has been offered by the applicant.[51].

For example, in its reviews of the financial qualifications of Entergy Corporation to own the Pilgrim, Indian Point 2, Indian Point 3, Fitzpatrick, and Vermont Yankee nuclear plants, the NRC has accepted guarantees that would be provided through lines of credit from affiliated financial subsidiaries which may not have sufficient liquid capital when it is needed by a plant-owning affiliate. One of these credit lines is to be used for working capital, if needed. The other is not intended to be used in the normal course of business but instead would be used in the event of problems at the plant. Entergy has indicated that this line of credit would be used to pay the costs between the unplanned shutdown of a plant and the availability of funds from the plant's decommissioning trust fund.[52]

Vermont Department of Public Service witness Andrea Crane has explained the problems that can arise from the fact that neither of the Entergy subsidiaries that provide these lines of credit have any physical assets:

> The result is that these two companies are only as strong as 1) their receivables from, and investment in, associated companies, and 2) Entergy Corp's commitment to provide them with additional funds, if required. Entergy Corp, therefore, has full discretion as to whether or not to provide sufficient capital to EIHL and EGI so that these two financing vehicles can

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[51] *In the Matter of GPU Nuclear, Inc and AmerGen Energy Company, LLC*, 51 N.R.C. 193, at Footnote No. 8.

[52] Prefiled Direct Testimony of Michael R. Kansler, Entergy Nuclear Vermont Yankee, Vermont Public Service Board Docket No. 6545, at page 10.

> meet their commitments to ENVY. If Entergy Corp should choose to walk away from EIHL and EGI, there appears to be no recourse for ENVY.[53]

For this reason, Ms. Crane recommended that the parent Entergy Corporation be required to guarantee that the pledged funds actually would be available if needed:

> Entergy Corporation should be obligated to stand behind the total financial exposure occasioned by the ownership and operation of this nuclear power plant. It is not reasonable to allow Entergy Corporation to shield itself from financial responsibility with complex financial arrangements. It certainly should not be allowed to offer guarantees from subsidiaries that do not have sufficient assets to meet their obligations on a stand-alone basis, because the parent could walk away from those subsidiaries if its own interests so dictated. If Entergy Corporation intends to stand behind the guarantees of its subsidiaries, it should have no problem in making the guarantee directly.[54]

Even though the NRC had accepted the $70 million guarantee provided by the two lines of credit from Entergy Corporation subsidiaries, in response to the concerns raised by the Ms. Crane and the Vermont Public Service Board, the parent Entergy Corporation has provided an additional financial guarantee of up to $60 million.[55] As Entergy has explained:

> The intent of that guarantee is to make sure that, in the event of a premature shutdown of the Vermont Yankee Nuclear Power Station, there will be money available to bridge the gap between shutdown and the point at which ENVY is able to access the decommissioning trust fund. Thus, if either line of credit has been drawn upon, Entergy will guarantee to make up any deficiency up to a total of $60 million.[56]

Entergy also acknowledged that the parent corporation has not provided a similar guarantee in support of **any** of the other nuclear plants its subsidiaries have acquired.[57] It further noted that state and federal regulators, including the NRC, had found the smaller guarantees by affiliated companies, not the parent corporation, to be sufficient.[58]

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[53] Direct Testimony of Andrea Crane on behalf of the Vermont Department of Public Service, Vermont Public Service Board Docket No. 6545, at page 18.

[54] Direct Testimony of Andrea Crane on behalf of the Vermont Department of Public Service, Vermont Public Service Board Docket No. 6545, at page 22.

[55] Ms. Crane subsequently testified that the revised commitments by the parent Entergy Corporation adequately addressed the concerns in her Direct Testimony. Supplemental Testimony of Andrea Crane in Support of the Memorandum of Understanding in Docket No. 6545, at page 2 of 9.

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

[57] Ibid., at page 5, lines 1-5.

[58] Ibid.

Dominion has voluntarily committed $150 million from the parent corporation, DRI, to assure that Dominion Nuclear Connecticut (the new owner of the Millstone Nuclear Station) will have sufficient funds available for meeting its operating expenses for the recently acquired Millstone Units 2 and 3.[59] Dominion has explained that the subsidiary, Dominion Nuclear Connecticut, has the right to obtain such needed funds from DRI as it determines "are necessary to protect the public health and safety, meet NRC requirements, meeting ongoing operational expenses or to maintain Units 2 and 3 safely."[60] However, it does not appear that Dominion has made the same commitment to the four nuclear plants at the Surry and North Anna sites owned by the Dominion Generation Corporation.

Constellation has guaranteed that each of its nuclear power plant-owning subsidiaries, i.e., Nine Mile Point Nuclear Station LLC and Calvert Cliffs Nuclear Plant LLC, would be provided whatever cash is needed to protect the public health and safety.[61]

But it does not appear that the parent Exelon Corporation has guaranteed any funds to its power plant owning and operating subsidiary Exelon Generation Company, LLC.

Finding No. 11 – Taxpayers may be at risk if nuclear plant owning subsidiaries are unable to continue making safety-related or decommissioning expenditures or pay retrospective Price-Anderson Act premiums.

In attempting to assure the Vermont Public Service Board that the former owners of the Vermont Yankee nuclear plant and their ratepayers are unlikely to be required to pay any shortfalls in decommissioning funds, Entergy has noted that the NRC has on several occasions said that the burden of paying any such shortfalls would fall on taxpayers:

> NRC regulations do not specifically address the potential liability of other parties in the event that the licensed owner is unable to provide the funds required for decommissioning. In the past, the NRC indicated that any failure of the licensed owner to meet its decommissioning funding obligations would result in a burden on taxpayers -- presumably in the form of a publicly funded cleanup. See, e.g., SECY-94-280 (Nov. 18, 1984), at 4. ("Such action would either increase the potential risk to public health and safety of the decommissioning process or would shift the burden of decommissioning funding from ratepayers to taxpayers.") (emphasis added); 61 Fed. Reg. 15427, 15428 (Apr. 8, 1996)("The liability of the licensee to provide funding for decommissioning may adversely affect protection of the public health and safety. Also, a lack of decommissioning funds is a financial risk to taxpayers

[59] *Dominion August 31, 2000 Application for the transfer of the licenses for Millstone Units 1, 2 and 3*, at page 10.

[60] Ibid.

[61] *Calvert Cliffs Nuclear Power Plant Request for a Transfer in Control*, December 20, 2000, at page 9 and *Nine Mile Point Unit Nos. 1 & 2 NRC License Transfer Application*, February 1, 2001, at page 23.

(i.e., if the licensee cannot pay for decommissioning, taxpayers would ultimately pay the bill. (emphasis added)."[62]

In fact, there are a number of possible circumstances in which taxpayers could be asked to bear much, if not all, of the cost of a major power plant accident. First, there is no assurance that the primary tier of insurance would be available to a licensee in the event of an act of terrorism against a nuclear power plant. American Nuclear Insurers has testified that it would only have resources available to provide the primary insurance coverage to cover a single act of terrorism.[63] Thereafter, all licensees would be left without any primary insurance coverage. At that point, licensees might seek recourse in the courts for a finding that domestic terrorism is an "act of war." Acts of war are excluded from coverage under the Price-Anderson Act.[64]

At the same time, the liabilities associated with a nuclear accident are borne by every nuclear power plant owner in the U.S. as a result of the pooling of liabilities for accidents with claims in excess of $200 million. The maximum cost per reactor is $88.085 million (subject to inflation adjustments) in secondary liability. As shown on Table No. 3 below, the liability for nuclear owners with multiple plants, such as Exelon (19 units) and Entergy (10 units), could approach or exceed $1 billion.

Table No. 3
Potential Price Anderson Act Nuclear Insurance Liabilities

Parent Corporation	Maximum Potential Annual Liability	Maximum Potential Total Liability
Exelon Corporation	$163.52 million	$1,440.35 million
Entergy Corporation[65]	$99 million	$872.04 million
Duke Energy	$52.50 million	$462.45 million
Dominion Resources, Inc.	$57.03 million	$502.32 million
Southern Company	$39.16 million	$344.94 million

[62] Legal Memorandum on the "Decommissioning Liability Associated with a Power Reactor License," Goodwin Procter LLP, February 24, 2002, submitted by Entergy Corporation to the Vermont Public Service Board as Exhibit ENVY-Wells-3 to the Prefiled Rebuttal Testimony of Connie Wells in Docket No. 6545.

[63] John Quattocchi, Senior Vice-President, American Nuclear Insurers, February 15, 2002 Response to Question from Senator Reid, Hearing before the Senate Committee on Environment and Public Works, January 23, 2002.

[64] The NRC's "opinion" is that claims arising out of an act of terrorism at a nuclear power plant would not be excluded under the Price Anderson Act. February 13, 2002 NRC Answer to Question No. 3 from Senator Reid, Hearing before the Senate Committee on Environment and Public Works, January 23, 2002. However, the NRC recognizes that a "question of this nature and magnitude" would likely need to be resolved by a court in the first instance.

[65] Potential Liability figures reflect Entergy ownership of the Vermont Yankee Nuclear Station.

TVA	$60 million	$528.51 million
Progress Energy	$44.72 million	$393.87 million
FPL Group[66]	$47.33 million	$416.91 million
Constellation Energy Group, Inc.	$38.20 million	$336.49 million
FirstEnergy	$40 million	$352.34 million

However, under the Atomic Energy Act, a licensee's secondary liability can be deferred if it would constitute an undue hardship on the licensee.[67] In such a situation, the secondary liability that would have been borne by the license would become a taxpayer funded liability. It is not unreasonable to expect that power plant owners, especially those that are thinly capitalized, will try to avail themselves of this deferral should a major accident occur.

Moreover, this Report has focused on nuclear-related issues. Nuclear power plants also contain large amounts of asbestos and large volumes of toxic chemicals. Taxpayers also could be forced to bear the costs of cleaning up for these and any other non-nuclear-related pollutants if a single asset power plant-owning subsidiary was able to successfully declare bankruptcy and a court was unwilling to hold the parent corporation liable.

Finding No. 12 - The NRC has no statutory authority to require a licensee in bankruptcy to continue making safety-related or decommissioning expenditures or to pay retrospective Price-Anderson Act premiums.

NRC regulations require any nuclear power plant licensee to immediately report any filing of a voluntary or involuntary petition for bankruptcy.[68] However, the NRC has no additional financial requirements for situations where a licensee files for bankruptcy or otherwise encounters financial difficulties. Nor does the NRC have any statutory authority to require a licensee which is in bankruptcy to continue to make safety-related or decommissioning payments or to pay retrospective Price-Anderson Act premiums. The NRC must intervene in the proceedings before the bankruptcy court and petition the court to require such payments.

The NRC has acknowledged that the license transfer requirements contained in 10 CFR 50.80 do not specifically or expressly refer to a prospective licensee's ability to meet financial protection payments that may be required under the Price-Anderson Act.[69] However, the NRC has said that 10 CFR 140.21 requires reactor licensees that are covered under the Price-Anderson system to provide annual guarantees of payments of

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[66] Potential Liability figures reflect FPL Group ownership of the Seabrook Nuclear Station.

[67] Atomic Energy Act Section 170(b)(2)(A) and (2)(B).

[68] 10 CFR 50.54 (cc).

[69] NRC February 13, 2002, response to Post-Hearing Question 6 from Senator Reid.

retrospective premiums and that the NRC evaluates an applicants guarantees of payment of retrospective premiums when it considers a license transfer request. [70]

The NRC has further said that it annually reviews the Price-Anderson Act guarantees for all of its power reactor licensees, including those that are LLCs.[71] All of the licensees have, to date, used the cash flow method of guarantee allowed under 10 CFR 140.21; that is, a licensee may demonstrate that it has sufficient cash flow over 3 months to meet an annual $10 million retrospective premium payment for each reactor that it owns.[72] As long as the licensee chooses that method and is able to pass the financial test for cash flow each year, no additional guarantee is required. However, if a licensee were not able to pass the cash flow test, it would have to provide some other allowable guarantee such as surety bonds, letters of credit, revolving credit/term load arrangements, maintenance of escrow deposits of government securities, or such other type of guarantee as might be approved by the NRC.[73] But there is no requirement that the parent corporation provide such a guarantee, only the subsidiary, and there is no requirement that resources be available to pay the maximum of $88.085 million per reactor.

The NRC has stated that under 10 CFR 140, a licensee is required to pay the retrospective premium, notwithstanding its financial status.[74] The NRC also has said that its has had positive experiences with bankruptcy courts that have overseen the Chapter 11 reorganizations of Public Service Company of New Hampshire (Seabrook nuclear plant), Cajun Electric Cooperative (River Bend), El Paso Electric Company (Palo Verde), and Vermont Electric Generation & Transmission Cooperative (Millstone 3).[75] According to the NRC, in each of these cases, the bankruptcy courts allowed these bankrupt licensees to pay all safety-related operational and decommissioning expenses (including, the NRC believes, Price-Anderson primary layer and on-site property insurance premium payments). The NRC also has noted that during its bankruptcy PG&E has continued to meet all safety-related expenses for its nuclear plants.

However, the NRC has acknowledged that it could potentially face a conflict with other claims in a bankruptcy proceeding "if there were an accident sufficient to trigger a retrospective premium assessment. The NRC would presumably require a licensee to pay the assessment, but the bankruptcy court could order the licensee not to pay it."[76]

In addition, the NRC's earlier experience with the bankruptcies all involved entities that owned a number of different assets. The bankruptcy of a single-asset LLC, which owns only a single nuclear power plant, would present very different circumstances and

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[70] NRC February 13, 2002, response to Post-Hearing Question 6 from Senator Reid.

[71] The NRC also requires that each licensee submit an annual financial report, 10 CFR 50.71(b) and a decommissioning fund status report every two years (and annually during the last five years of operation). 10 CFR 50.71(f)(1).

[72] A retrospective premium is insurance that is paid after an accident.

[73] NRC February 13, 2002, response to Post-Hearing Question 8 from Senator Reid.

[74] NRC February 13, 2002, response to Post-Hearing Question 9 from Senator Reid.

[75] NRC February 13, 2002, response to Post-Hearing Question 2 from Senator Inhofe.

[76] NRC February 13, 2002, response to Post-Hearing Question 9 from Senator Reid.

challenges. At the same time, as we will discuss later in this Report, given the multi-tiered holding companies (including LLCs) through which parent corporations now own many nuclear power plants, the NRC might have trouble "piercing the corporate veil" to require a parent of a bankrupt LLC subsidiary to make the required retrospective premium payments.

It is clear that there are no specific statutory or regulatory safeguards in place to ensure that retrospective premiums under the Price-Anderson Act will be available from bankrupt nuclear plant-owning subsidiaries or from their parent corporations. The NRC has sought legislation from Congress to ensure that decommissioning costs receive explicit priority in bankruptcy proceedings. But, so far, that legislation has not been enacted.[77] The NRC has further stated its willingness to support legislation to prioritize safety-related claims in bankruptcy proceedings and to avoid any potential conflict between NRC requirements to pay into the retrospective Price-Anderson Act premium pool and other claims in bankruptcy.[78]

Finding No. 13 – Case law suggests that it would be very difficult to hold a parent corporation responsible for the liabilities incurred by nuclear power plant owning LLC subsidiaries in a multi-tiered holding company.

As mentioned earlier in this Report, the multiple layers of subsidiaries, including LLCs, that have been created by parent corporations in the nuclear industry are a cause of serious concern. Even if a court concludes that the liability of the subsidiary that actually operates the nuclear plant should be extended to business structures above it (for example, if under capitalization and profit distributions have left the subsidiary unable to cover the costs of unanticipated repairs or security improvements and the subsidiary decides to cease operations), the ability of the court to find a senior business entity with sufficient capital could be complicated by multiple layers of subsidiaries and LLCs. There may be issues of jurisdiction, applicable state or federal statutes, the role of the NRC, and other myriad issues of law and fact that would need to be resolved. Given that the presumption in every state and federal statute is for the limitation of corporate liability, the burden is always on the party trying to extend that liability to show that the law, facts, and public policy all support violating the statutory presumption.[79] Courts, in

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[77] The Energy Policy Act of 2002 (HR 4), as approved by the U.S. Senate, amends the U.S. Bankruptcy Code to prevent creditors in a bankruptcy proceeding from attaching an NRC licensee's decommissioning funds until the decommissioning has been completed. The Senate enacted provision also seeks to prevent creditors from using Price-Anderson insurance and those deferred premiums held in reserve to satisfy creditors. However, neither version of the Energy Policy Act of 2002, that enacted by the House or the Senate, would require a parent corporation or other guarantor to commit resources in the event that there are not adequate resources within a bankrupt LLC to satisfy claims after a nuclear accident. Post accident liabilities could shift to taxpayers in this case.

[78] NRC February 13, 2002, response to Post-Hearing Question 9 from Senator Reid.

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

general, are reluctant to pierce the corporate veil and extend liability; when multiple corporations are involved, that reluctance only increases.

Despite the limitations on corporate liability embodied in statutes, there are numerous instances where courts have been willing to ignore those limitations under a wide range of factual circumstances. The case law varies a great deal from one state to another, but all of them involve some rationale for "piercing the corporate veil" and holding the owners of the corporation personally liable. For the purposes of this Report, it is important to note that in the nuclear power industry, the owners of a nuclear power plant-owning LLC subsidiary are most likely to be another LLC or a parent corporation. The objective of the effort to pierce the corporate veil in this situation would be to make the parent corporation responsible for the liability of the LLC subsidiary.

There is an enormous volume of litigation over the issue of extending liability through to the owners of a corporation. The case law is varied and complex and a thorough and complete review is beyond the scope of this project. What follows is a summary of the common themes that have been used by a variety of courts for extending liability.[80]

Starting from a presumption that a corporation's liability is limited, facts must be presented to justify extending liability. Some of the fact situations that have been persuasive to courts are the following:

- Corporate form is used as a front for illegal or fraudulent activity. In these cases, courts express no reluctance in holding individuals liable for the debts of the corporation since there is no public policy that seeks to support such activities under any business structure.
- Corporate form is used as a sham or a mere shell to avoid liability. In these cases, the individuals or parent corporation are aware from the start that the corporation is unlikely to ever repay its debts or liabilities and seek to acquire as much income as possible before creditors foreclose.
- Individual owners subvert the corporation for their personal gain. In these cases, the personal enrichment may or may not be based on illegal or unethical actions. If the facts establish that owners personally benefited from corporate activities (beyond the normal sharing of corporate profits), then courts are generally willing to make them personally liable. These cases often involve members of the Board of Directors or managers. Corporate owners who do not personally benefit but are aware of the enrichment of other owners can be held personally liable based on their breach of their fiduciary responsibilities to the corporation.
- Under-capitalization of the corporation. In these cases, there is a determination that at the time of incorporation, or due to subsequent management actions, there is insufficient capital available for the business activities of the corporation. Although similar to the problem of a sham corporation, the decision by the court

[80] Id., Thompson at 1063-1072; Easterbrook at 109-113.

involves a more objective analysis of appropriate levels of capitalization for similar entities engaged in similar activities.

- Improper distributions of income. These cases involve decisions by the corporate management, usually the Board of Directors, to distribute corporate income to shareholders in a financially irresponsible manner that leaves the corporation unable to meet its obligations. These are very fact-specific litigations that involve a great deal of hindsight analysis. However, if the facts show a clear pattern of irresponsibility, as opposed to poor business decisions, courts will extend liability to specific individuals or the corporation in general.
- Interference in management. These cases involve situations where owners, often large stockholders in closely held corporations, become so involved in corporate management that they look more like a managing partner than just an investor. Courts will extend liability to these "investors" on the theory that they do not deserve the normal corporate protection.
- Environmental, regulatory, or public policy. These factors are often included with one or more of the above fact patterns to support extending liability. It is unusual for a court to invoke "public policy" by itself as a justification for piercing the corporate veil.

An empirical study of court decisions where piercing the veil issues were litigated indicates that courts are very reluctant to impute liability to the shareholders of public corporations. Closely-held corporations (non-public and usually with few investors) and related corporate entities (subsidiaries, affiliates, etc.) are the forms to which courts have applied extended liability.[81]

There is very little case law involving LLCs that specifically addresses piercing the corporate veil due to the relatively short time period (fifteen years) during which LLC structures have been developed. Consequently, there is great uncertainty as to the effect that having one or more LLCs in the ownership chain within a holding company will have on the willingness of a court to pierce the corporate veil in order to hold a parent company responsible for the liabilities of its indirect nuclear power plant owning-subsidiary.

Finding No. 14 - The NRC has expressed serious doubts as to its ability to hold a parent corporation responsible for the liabilities incurred by a subsidiary.

There are two NRC cases that involved attempts to pierce the corporate veil of the operator of a nuclear power plant. In 1995, the NRC attempted to negate a transfer of assets from a licensee which, as part of a complicated corporate restructuring, had become a subsidiary to a newly created holding company because the transfer had occurred without the prior written consent of the NRC, as required by section 184 of the Atomic Energy Act. The NRC held that it could pierce the veil of corporations that

[81] Id., Thompson at 1070.

violate section 184. However, before a final adjudication, this case ended in a settlement.[82]

In 1997, the NRC tried to force a parent company to provide additional funds to the decommissioning fund for a subsidiary plant. However, prior to a final adjudication, the NRC approved a settlement that resolved the decommissioning fund issue without any specific finding as to the parent company's liability.[83] In accepting the settlement, the NRC expressed concern that there was a "substantial possibility of defeat if the case proceeds to trial [on a theory of] piercing the corporate veil."

Both cases were cited in a legal memorandum provided by the current owners of the Vermont Yankee Nuclear Power Corporation, which concluded that attempts to pierce the corporate veil of nuclear power plant subsidiaries were unlikely to succeed and have seldom been attempted.[84] Despite the numerous specific instances where courts have extended liability to parent corporations, there is great uncertainty as to whether or not courts would apply such extended liability to multi-layered nuclear power companies.

Finding No. 15 – Shielding parent corporations from nuclear power plant operating and decommissioning risks is unfair and economically inefficient.

To the extent that the organizational structures discussed above serve to successfully shield the parent company from risks, they are inequitable and undermine efficient decision-making.

As a matter of fairness, individuals and companies should take responsibility for cleaning up after themselves. If an unanticipated problem in operation causes a nuclear plant to experience an extended or permanent outage prior to the end of its operating license or if the decommissioning of a plant turns out to cost more than expected, then the parent company may decide to provide additional resources to the subsidiary in order to carry out the subsidiaries responsibilities. On the other hand, the parent company may not. If there are clean up costs which the subsidiary is unwilling to bear, then these may fall upon taxpayers. Considerations of fairness would have the company that profited (or expected to profit) from plant operation bear the costs of cleaning up the facility.

This is also a matter of economic efficiency. If a company is protected from significant risks associated with its decisions, then there is what economists call an "externality." A reasonable definition of externality is provided in a popular economics textbook as follows:

> An externality or spillover effect occurs when production or consumption inflicts involuntary costs or benefits on others; that is, costs or benefits are

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

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

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

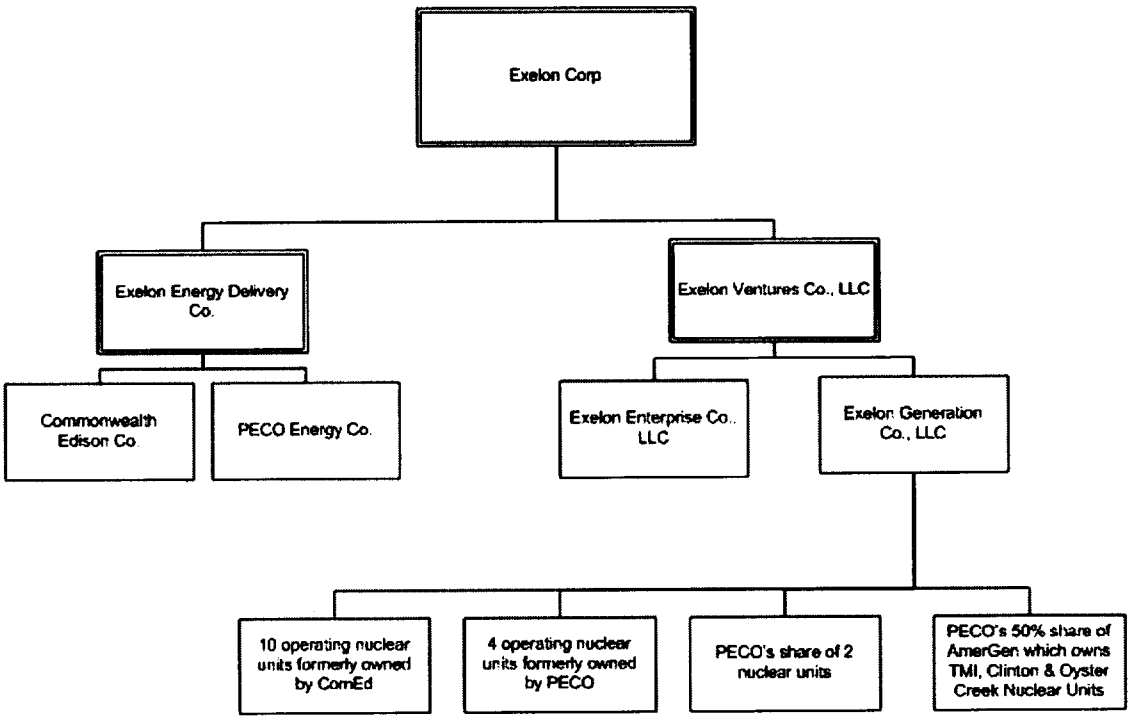
> imposed on others yet are not paid for by those who impose them or receive them. More precisely, an externality is an effect of one economic agent's behavior on another's well-being, where that effect is not reflected in dollar or market transactions.[85]

Where there are such externalities, private decision-making will be inefficient. A company will tend to undervalue (or value at zero) the costs associated with its action that are borne by others. In the case of a nuclear power plant, the protection from liability may, for example, cause the operator to make decisions that undervalue the potential for long-term radioactive waste storage costs. Or, faced with operating decisions that involve tradeoffs between cost and safety, the owner may undervalue safety and make choices that strike the wrong balance. In these situations, because some of the risks are "external," the market outcome may be an inappropriate decision from a societal perspective – or an inefficient allocation of resources. Government policy efforts should aim to internalize externalities, in order to promote appropriate private decision-making and efficient resource allocation.

[85] Samuelson, Paul A. and William D. Nordhaus. 1989. Economics, 13th Edition. McGraw-Hill, at page 770.

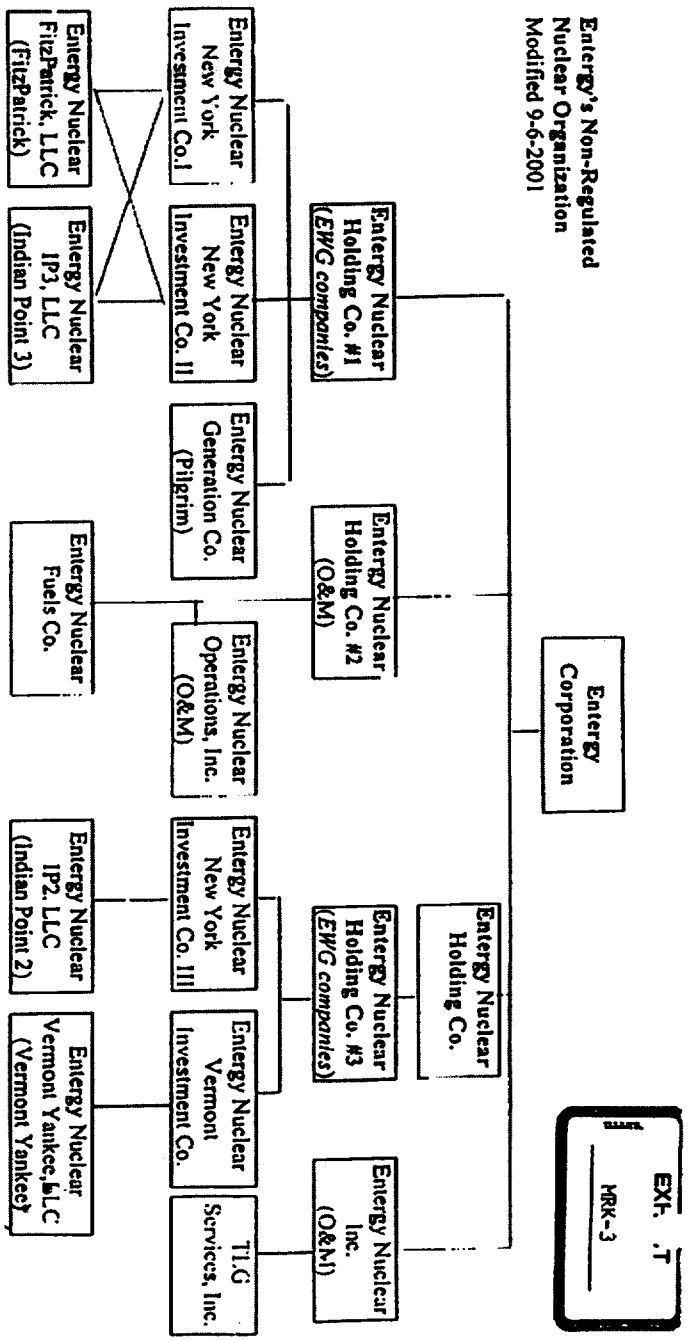
ATTACHMENT NO. 1

Exelon Corporation



ATTACHMENT NO. 2

Entergy Corporation – Non-regulated Nuclear Organization



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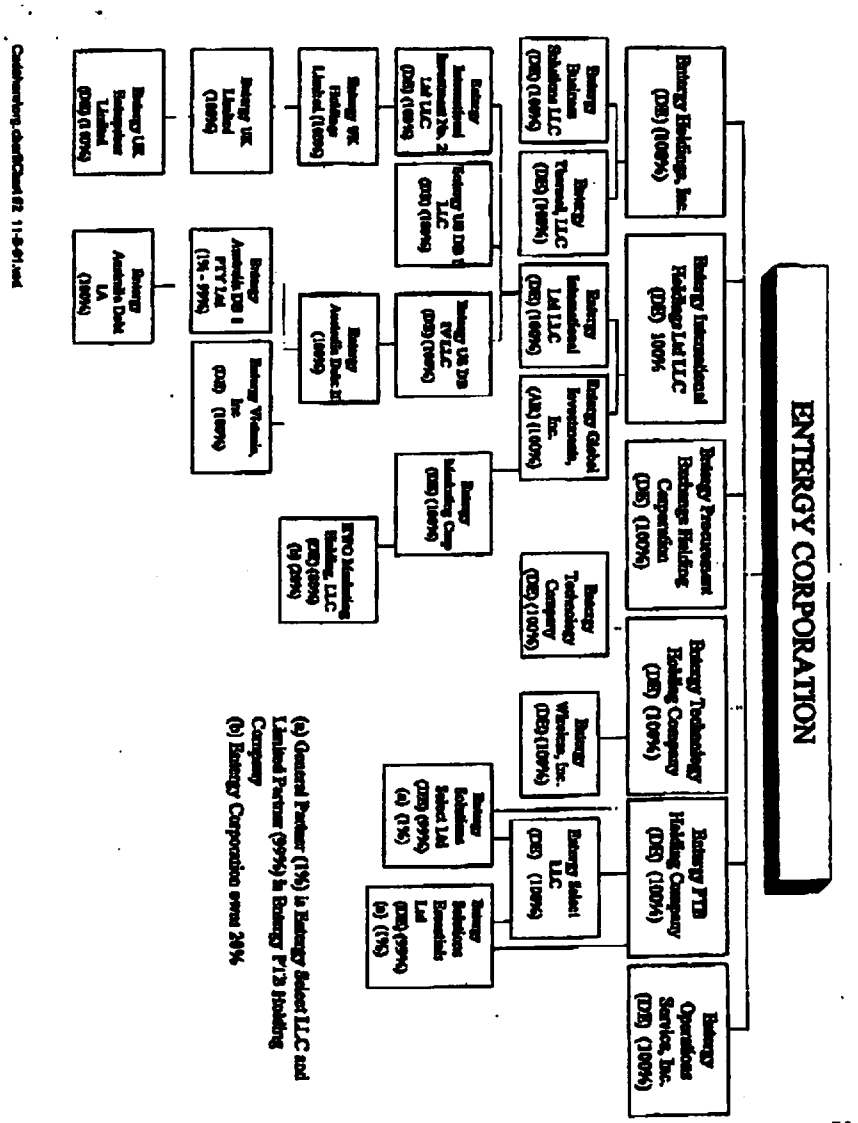
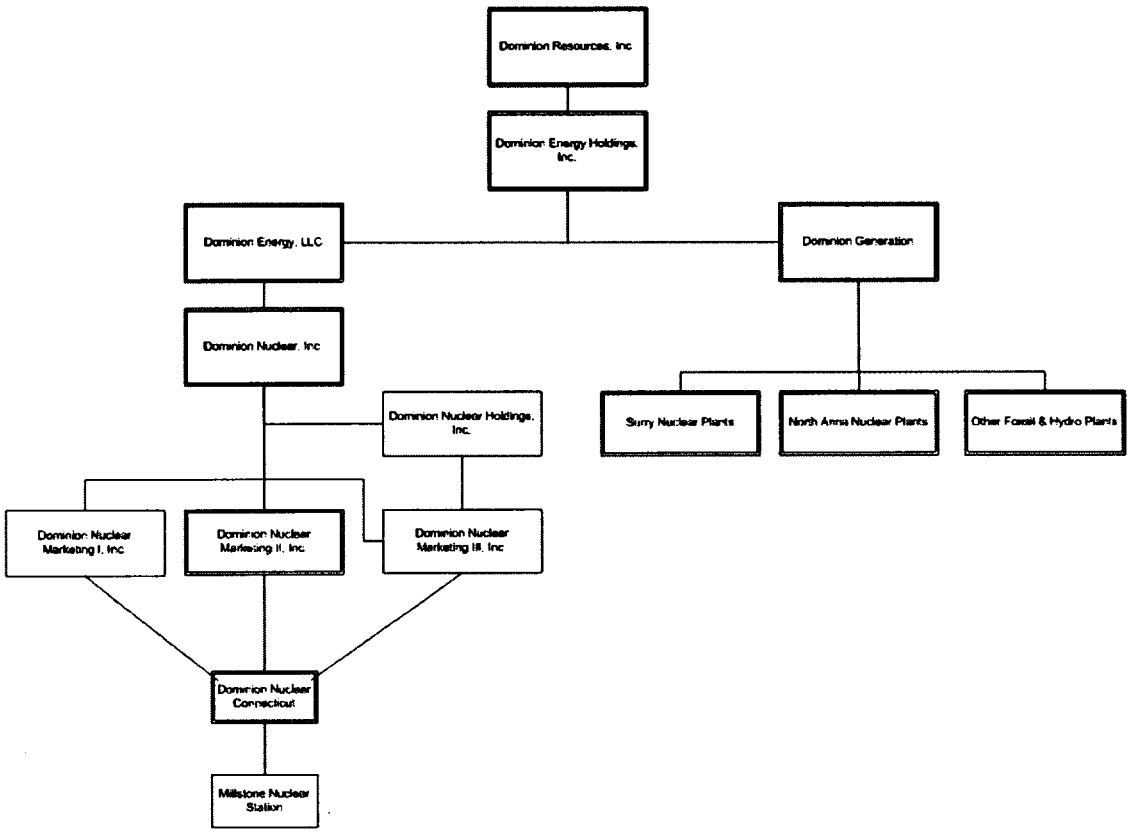
ATTACHMENT NO. 3

Entergy Corporation



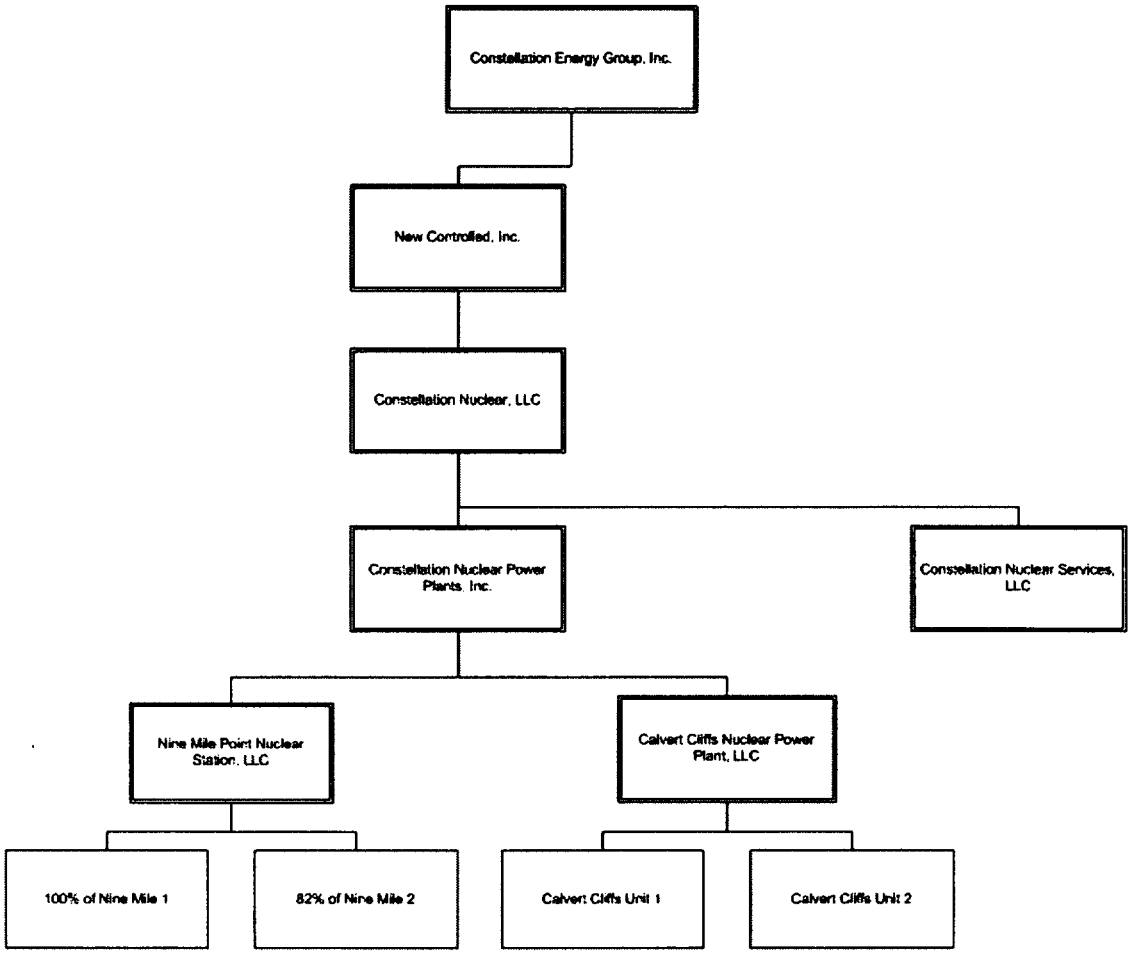
ATTACHMENT NO. 4

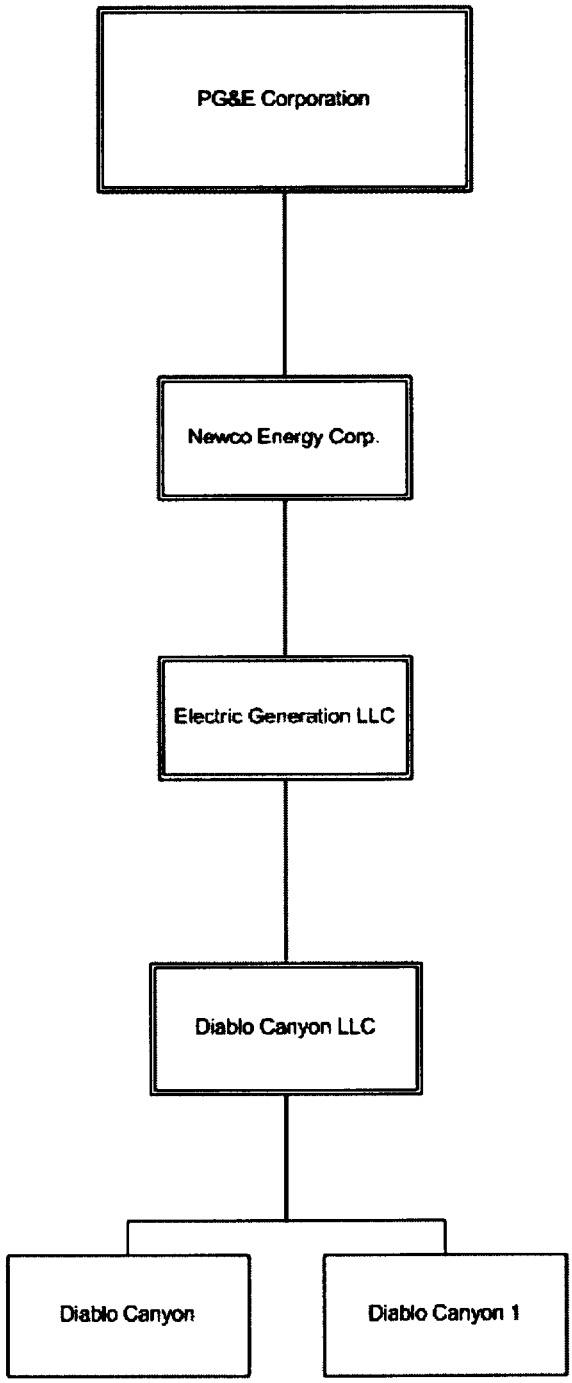
Dominion Resources, Inc.



ATTACHMENT NO. 5

Constellation Energy Group



ATTACHMENT NO. 6

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