STATE OF VERMONT

BEFORE THE PUBLIC SERVICE BOARD

Tariff filing of Citizens Communications)	
Company, d/b/a Citizens Energy Services,)	**Docket No. 6596**
requesting a rate increase in the amount of)	
40.02%, to take effect December 15, 2001)	

DIRECT TESTIMONY OF

PAUL CHERNICK

ON BEHALF OF

THE VERMONT DEPARTMENT OF PUBLIC SERVICE

Resource Insight, Inc.

MARCH 7, 2002

Summary: Mr. Chernick's testimony addresses prudence and excess costs in connection with Citizens Utility Company's purchase of power under the Vermont Joint Owners' contract with Hydro Québec.

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I. Identification and Qualifications

Q: State your name, occupation and business address.

A: I am Paul L. Chernick. I am the president of Resource Insight, Inc., 347 Broadway, Cambridge, Massachusetts 02139.

Q: Summarize your professional education and experience.

A: I received an SB degree from the Massachusetts Institute of Technology in June, 1974 from the Civil Engineering Department, and an SM degree from the Massachusetts Institute of Technology in February, 1978 in technology and policy. I have been elected to membership in the civil engineering honorary society Chi Epsilon, and the engineering honor society Tau Beta Pi, and to associate membership in the research honorary society Sigma Xi.

I was a utility analyst for the Massachusetts Attorney General for more than three years, and was involved in numerous aspects of utility rate design, costing, load forecasting, and the evaluation of power supply options. Since 1981, I have been a consultant in utility regulation and planning, first as a research associate at Analysis and Inference, after 1986 as president of PLC, Inc., and in my current position at Resource Insight. In these capacities, I have advised a variety of clients on utility matters. My work has considered, among other things, the cost-effectiveness of prospective new generation plants and transmission lines; retrospective review of generation planning decisions; rate-making for plant under construction; ratemaking for excess and/or uneconomical plant entering service; conservation program design; cost recovery for utility

efficiency programs; and the valuation of environmental externalities from energy production and use. My resume is available upon request.

Q: Have you testified previously in utility proceedings?

A: Yes. I have testified more than one hundred and eighty times on utility issues before various regulatory, legislative, and judicial bodies, including utility regulators in twenty-five states, New Orleans, the District of Columbia, and Ontario; the Federal Energy Regulatory Commission; the Atomic Safety and Licensing Board of the U.S. Nuclear Regulatory Commission; and various siting and environmental regulators. A detailed list of my previous testimony is contained in my resume.

Q: Have you testified previously on utility resource planning?

A: Yes. I have testified on many utility resource-planning issues, including generation, transmission, and DSM planning, in many jurisdictions in the United States and Canada. My resume details this experience.

Q: Have you testified previously before the Board?

A: Yes. I testified in the following cases:

- Docket No. 4936, on Millstone 3;
- Docket No. 5270 on DSM cost-benefit test, pre-approval, cost recovery, incentives, and related issues;
- Docket No. 5330, on the conflict between the HQ purchase and DSM;
- Docket No. 5491, on the need for HQ power and the costs of alternative purchases;
- Docket No. 5686, on the avoided costs and water-heater load-control programs of Central Vermont Public Service Corporation (CVPS or Central Vermont);

- Docket No. 5724, on CVPS's avoided costs;
- Docket No. 5835, on design of CVPS's load-management rates;
- Docket No. 5980, on electric-industry restructuring and avoided costs;
- Docket No. 5983, on the prudence of the decisions of Green Mountain Power (GMP) regarding the HQ contract, avoided costs, and distributed utility planning;
- Docket No. 6018, on the prudence of CVPS's decisions regarding the HQ contract, avoided costs, and distributed utility planning;
- Docket No. 6107, on the prudence of GMP's decisions regarding the HQ contract and distributed utility planning;
- Dockets No. 6120 and 6460, on the prudence of CVPS's decisions regarding the HQ contract;
- Docket No. 6545, on the auction of the Vermont Yankee nuclear power plant.

Q: Have you been involved in other aspects of utility planning and regulation in Vermont?

A: Yes. My other activities have included

- participation in the CVPS and Vermont Gas DSM collaboratives;
- preparation of testimony on the avoided costs of Green Mountain Power (GMP) in Docket No. 5780, not presented due to settlement of the case;
- assisting the Department of Public Service (DPS or the Department) in the power-supply negotiations of the externalities investigation;
- providing consulting support to the Vermont Senate on stranded costs and Vermont Yankee economics;

- assisting the Burlington Electric Department on distributed utility planning;
- assisting the Department of Public Service and preparing draft testimony on the Hydro Québec contract in Docket No. 6120, a Central Vermont rate proceeding;
- assisting the Department of Public Service in the statewide collaborative on distributed utility planning.

Q: Are you the author of any publications on utility planning and ratemaking issues?

A: Yes. I am the author of a number of publications on rate design, cost allocation, power-plant cost recovery, conservation-program design and cost-benefit analysis, and other ratemaking issues. These publications are listed in my resume.

II. Introduction

Q: On whose behalf are you testifying?

A: I am testifying on behalf of the Department of Public Service.

Q: What is the purpose of this testimony?

A: I address two topics related to the purchases by the Vermont Electric Division of Citizens Utilities Company ("Citizens" or "the Company"[1]) of power under Schedules B and C of the Vermont Joint Owners' contract with Hydro Québec (HQ), which I will refer to as the HQ-VJO contract or the HQ contract. The Company's purchases include both those it undertook directly and the purchases

[1]Sometimes referred to as "CUC" or "VED" by others quoted in this testimony.

contracted by the Franklin Electric Light Company ("Franklin"), which Citizens acquired in 1993. The two topics are as follows:

- The prudence of the Company and Franklin in their decisions to purchase power under the HQ-VJO contract;
- The excess cost of the HQ-VJO contract, compared to the costs of prudent resources, in the rate year for Docket No 6596 (which I assume will be July 15 2002–July 15 2003).

The Company's purchases from Hydro Québec under this contract are roughly $13.057 million annually (for the 2000 test year, with adjustments through 2001), compared to $21.45 million of total power costs for the same period, and $38.7 million of total revenue requested by Citizens in this case. (Hieber Direct at 34, 2).

A. Prudence

Q: In evaluating the prudence of the Citizens and Franklin purchases under the HQ contract, on what decision point do you focus?

A: My testimony focuses on the period in 1991, leading to the decision on August 28 to lock in the contract, that is, to give up the right to terminate the contract without penalty.

Q: Please summarize your findings about the prudence of the Company's actions in this period.

A: In 1991, Citizens failed to review the cost-effectiveness of the HQ-VJO purchase, even though the economics of the purchase were clearly deteriorating. Despite this lack of analysis, Citizens (and Franklin) committed themselves to the HQ-VJO purchase on August 28.

To make matters worse, in failing to examine the economics of the HQ-VJO contract in light of the changes in circumstances during 1991, the Company failed to comply with the Board's requirements in Docket No. 5330 and various of the sub-dockets.

The Board has already found Central Vermont and Green Mountain Power to have been imprudent in its purchase of power under the HQ-VJO contract (in, respectively, Docket Nos. 5701 and 6460, and 5983). Furthermore, in Docket No. 5983, the Board found that if Green Mountain Power and the Vermont Joint Owners had acted prudently and complied with the Board's requirements, they would have canceled the contract sometime in 1992, as the contract's economics continued to deteriorate (Docket No. 5983, Order of 2/27/98 at 240). The Board reached similar conclusions in Docket Nos. 6460 & 6120 with respect to Central Vermont.

Q: Were any of the actions of Citizens in this period imprudent?

A: Yes. Citizens was situated similarly to GMP and CVPS in 1991, and its actions were equally imprudent. I have identified the following actions (or lack of action) as imprudent:

- Failure to adequately monitor changing market conditions, as required in Docket No. 5330.
- Failure to analyze the costs and benefits of the early lock-in.
- Failure to update the economic analysis of HQ prior to the lock-in.
- Failure to develop the resource alternative to the contract, as required in Docket No. 5330-E.

- Locking in the contract three months early, without conducting the analyses listed above, and without receiving any concrete benefits from the early lock-in.

These same failures were the basis of the Board's findings that CVPS and GMP were imprudent in their commitment to the HQ contract.

Q: Was Franklin's situation different from that of Citizens?

A: I do not see any material differences. In Docket No. 5330, Franklin essentially relied on the assurances of GMP and CVPS (Deposition of Hugh Gates, 6/6/00, at 19–20).[2] There is no indication either in the documents provided by Mr. Gates or in his deposition in Docket No. 6332, that Franklin performed any economic analysis of the HQ-VJO contract with then-current values, or monitored changing market conditions, in 1991 prior to the lock-in (Deposition of Hugh Gates in Docket No. 6332, 6/6/00, at 22).

B. Differences between Citizens and Other Vermont Utilities

Q: Are the Board's findings of imprudence on the part of GMP and CVPS applicable to Citizens?

A: Yes. Citizens faced the same power market and had access to the same alternative supplies. The Company had the same opportunity to affect the lock-in decision.[3] Like CVPS and GMP, it failed to comply with Board requirements to develop an alternative supply plan and monitor changing market conditions

[2]Mr. Gates was the head of the Franklin Electric Light Company at the time of the lock-in.

[3]Citizens was not a Vermont Joint Owner, but the important decisions on the contract were made by the Participants in the HQ-VJO contract, including Citizens and Franklin.

and failed to re-evaluate the economics of the contract in 1991 before locking in to the HQ Contract.

Company Witness Richard Hieber raises several differences between Citizens, on the one hand, and CVPS and GMP, on the other (e.g., Hieber Direct at 6). Most of these considerations would have little or no effect on prudent utility planning. The only exception is Mr. Hieber's claim that transmission limitations would have restricted purchases by Citizens from the VELCo system. Were this correct, Citizens would need to purchase some power from Hydro Québec, or upgrade its transmission. Citizens has not demonstrated that these limitations require the Company to purchase even a portion of its power from Hydro Québec, let alone commit itself unquestioningly to the HQ-VJO contract. To the contrary, the evidence indicates that the Company could have relied entirely on U.S. power sources.

C. Estimating the Damages due to the Company's Imprudence

Q: How much less would the Company's power costs be today if it, or the Joint Owners as a whole, had not locked into the HQ-VJO contract?

A: That would depend on what actions Citizens, the Joint Owners, and Hydro Québec would have taken after August 1991. In Docket No. 5983, the Board found that Green Mountain Power and the rest of the Vermont Joint Owners would have canceled the contract sometime in 1992, as the contract's economics continued to deteriorate (Docket No. 5983, Order at 240).

Because of the glut of power in the Northeast, the Company would have faced many options for short- and medium-term power purchases, at costs less than those of new resources. As a result, the Company would probably have

replaced the HQ-VJO purchase with a set of contracts covering the period until sometime after 2000. These contracts might have included purchases from some combination of Northeast Utilities, United Illuminating, New England Power, New York Electric and Gas, and NiMo.[4] Once the HQ-VJO contract was cancelled, Citizens might well have negotiated a contract with Hydro Québec at prices comparable those available from New England and New York utilities.

Due to its failure to reconsider and reject the HQ-VJO contract, the Company never developed a prudent mix of resources in the period from 1992 through the present. Yet it is the extra cost of the HQ-VJO contract in the rate year, in excess of that of the prudent portfolio, that determines the cost of the Company's imprudence. Hence, as it did in Dockets No. 6107 and 6460 & 6120, the Board must select a proxy for the mix of resources that Citizens would have developed, absent imprudence.

Q: What is your estimate of damages due to the Company's imprudence?

A: I estimate that the rate-year cost of the Company's replacement power for HQ-VJO power would have been roughly $45/MWh, $3.8 million less than the cost of the HQ-VJO purchase.

[4]The Company might also have started planning to participate in a utility-owned or NUG combined-cycle plant (and perhaps a combustion turbine, as well) around 2005, but that plant would never have been built, given the change in industry structure.

III. Background

Q: Please explain how the lock-in vote came about.

A: Under a Waiver and Release negotiated in April 1991, the Vermont Joint Owners had until November 30 1991 to decide whether to back out of the contract or to be locked into it. On August 28 1991, three months before the deadline, the Participants voted in a conference call (scheduled by fax the day before) to waive their rights to terminate the contract. This vote locked the Participants into the contract. Most subsequent litigation regarding the HQ-VJO contract has focussed on this decision.

Q: How has the Board dealt with the costs of the HQ-VJO contract in prior regulatory proceedings?

A: The Board has consistently found the lock-in to be imprudent and disallowed recovery of HQ-VJO costs to CVPS and GMP in excess of the costs of alternatives.

In Docket No. 5701, Central Vermont's 1994 rate case, the Board found that CVPS management had erred in inadequately analyzing alternatives prior to the lock-in and in inadequately pursuing reduction in its HQ-VJO entitlements after the lock-in (Order at 111–112, 118–119). The Board reduced CVPS's allowed rate of return by 75 basis points. Any ambiguity in the Board's finding of imprudence were resolved in CVPS's appeal of its next rate case (Docket No. 6018), in which the Vermont Supreme Court ruled that the Board's determination of imprudence in the lock-in is final and not subject to further litigation, but that the size of future disallowances remained open. In consolidated hearings on CVPS's rate cases for 1998 (Docket No. 6120) and 2000 (Docket No. 6460), the Board found that Central Vermont should have

procured power at costs lower than the HQ-VJO contract and approved a settlement disallowing a portion of CVPS's rate-year costs.

In GMP's 1997 rate case (Docket No. 5983), the Board found that GMP had been imprudent in locking into the HQ-VJO contract and disallowed 20% of GMP's HQ-VJO contract costs in the rate year, net of the benefits of sellbacks. This brought the net imprudence disallowance down to about 4% of GMP's costs.

In Green Mountain Power' 1998 rate case (Docket No. 6107), the Board found that "a prudent mix of resources could have been purchased in 1991–1992 that, in aggregate, would have cost GMP between three and five-and-a-half cents per kWh from 1992 until the mid-2000s" (Docket No. 6107, Order at 44). The Board found (at 49) that disallowing all imprudent costs "would clearly put a significant strain upon GMP's financial viability" and imposed a smaller disallowance to avoid forcing the utility into bankruptcy.

This is the first Citizens rate case in which the prudence of the HQ-VJO costs has been litigated. The previous Citizens rate case, Docket No. 6332, was settled, with the entire rate increase dedicated to paying down deferred costs of the ice storm and DSM.

IV. Prudence of the Early Lock-in Decision

A. Background

Q: Please describe the major regulatory events related to the HQ-VJO contract in 1991.

A: In October 1990, the Board approved the overall HQ-VJO purchase. Most of the Participants, including Citizens, filed analyses justifying their shares of the contract in Docket No. 5330-A on December 12, 1990.

In September 1990, the Canadian National Energy Board issued an export license to Hydro Québec for the Joint Owners' sale, but imposed Condition 10, which linked final approval to compliance with Canadian environmental law. This condition worried both Hydro Québec and the Participants, due to uncertainties in how a future revocation of HQ's export license by the Canadian board (potentially many years into the contract) might interact with the contract's terms.

- Hydro-Québec was concerned that revocation would be considered to be government action after the lock-in dates of the contract, which would render Hydro Québec (as the party whose government required termination) liable in damages for breach of contract.
- The Participants were concerned that revocation under Condition 10 would be considered a pre–lock-in event (a "condition precedent") even if it happened years later. In that case Hydro Québec would not be liable for damages from the cancellation and would be able to keep the front-loaded payments under Schedules B and C without paying any compensation to Vermont.

The Vermont Joint Owners and Hydro Québec first negotiated Amendment 3, which would have extended the deadline for withdrawing from the contract without liability on the basis of objections to regulatory approvals to April 1992, and compensated the Participants for their front-load overpayments. That Amendment was filed with the Board on April 5, 1991.

On April 22, 1991, the Board issued an order in Docket No. 5330-E

- finding that Amendment 3 constituted a major change in the contract, which it could not consider while Docket No. 5330 was still on appeal;
- determining (at 5) that the proposed changes to the contract "favor Hydro-Québec more than they do Vermont's utilities;"
- requesting remand of Docket 5330 from the Vermont Supreme Court;
- suggesting (three times, at 3, 11, and 13–14) that the parties negotiate "an amendment that *merely* preserved the status quo for a period of forty-five days, in order to allow consideration of the merits of Amendment No. 3 following such remand" (original emphasis).

Instead of giving the Board the 45 days it requested, the Joint Owners filed a more limited Waiver and Release, and "announced that Hydro-Québec was likely to cancel the Contract if the Waiver was not executed by April 30, 1991" (Docket No. 5330-E, Order of 4/30/91), four days after this Waiver came before the Board. The Board approved the Waiver and Release, which pushed the lock-in date to December 1, 1991, and required that the Participants file any other necessary amendments to the Contract by September 15, 1991, which would give the Board the 45-day review period it had sought in the previous order.

In August the Canadian appeals court overturned Condition 10 and Hydro Québec offered to waive its potential exemption from damages were Condition

10 reinstated by the Canadian Supreme Court. Hydro Québec also concluded a sell-back agreement with Central Vermont and some other Participants, to reduce their costs in the first years of the contract. At this point, the Participants agreed to give up their rights to cancel the contract based on regulatory approvals, locking into the contract on August 28 1991, three months earlier than required. I refer to this event as the "early lock-in" or the "premature lock-in."

Q: How is the remainder of this section organized?

A: I discuss these two problems with the Company's performance in this period:

- failure to prepare for the lock-in decision, in violation of Board Orders;
- errors in the lock-in decision itself.

Q: Does the documentation provided by Citizens in this proceeding permit full review of the prudence of its HQ-VJO contract?

A: No. In many cases, instead of identifying and referencing which documents were responsive to each discovery request, the Company directs the Department to search for relevant documents among the entire set of documents "previously produced" or among the filings and transcripts in Dockets No. 5330 and 5331 (See DPS Set 3, responses 5(a)–(h), 10, 11, 25, 27, 30, 31, 33(b) and (c), 34, 35, 39, 41, 42, and 44; and DPS Set 1 in Docket No. 6332, responses 18–24, 26, 52, 53, 60, 65 and 66). The documents previously produced include more than 5,000 pages with Bates Numbers, provided in Docket No. 6332.[5] The Department has not been able to review each of the thousands of pages of testimony, exhibits, transcripts, discovery responses, and other documents in Dockets No. 5330 and 5331 to determine whether some document might be responsive to each of the

[5]I refer below to these pages as "Citizens Documents."

questions. Even for the previously-produced Citizens Documents, we cannot be sure that we have identified every page that Citizens might consider to be responsive to a particular question.

My conclusions in this testimony are based on the materials that I have reviewed, including documents to which Citizens discovery responses have directed me. It is not clear to me whether Citizens is aware of additional materials that it believes to be relevant to the issues in this proceeding.

B. Failures in Preparation for the Lock-in Decision

Q: In what ways did the Company fail to prepare for the lock-in?

A: As discussed in more detail below, the Company

- failed to develop a specific alternative supply plan for replacing the HQ-VJO purchase in the event of cancellation, as required by Board instructions in Docket No. 5330-E.
- failed to monitor changing market conditions as required by Board instructions in Dockets No. 5330.
- failed to re-examine economics of HQ-VJO contract, in light of changing market conditions.

1. Alternative Resource Plan

Q: Please describe the Company's failure to develop a specific alternative supply plan.

A: In 5330-E, the Board instructed the Participants to

> seriously explore alternatives to the HQ contract, for use in the event that Hydro-Québec does ultimately withdraw from the Contract.… [P]rudent utility managers must actively seek out other options and consider negotiations with potential alternative sources of efficiency and supply within the next few months. (Order of 4/30/91 at 18)

Yet Citizens never developed an alternative plan for use in the event of termination of the HQ-VJO contract. It is not clear from Mr. Hieber's testimony that Citizens made any attempt to search for alternatives in 1991. His description of alternatives to the HQ-VJO contract focuses on transmission issues that would have arisen "[I]f *in the 1980s* the VED had decided to buy power from U.S. sources and transport it over the VELCo system..." (Hieber Direct at 10, emphasis added). Any consideration of alternatives in 1991 was limited to short-term purchases in case of delay:

> After the VJO contract was approved by the Board, Citizens considered that power under the contract would be available and did not extensively explore other alternatives to the Hydro-Québec contract prior to the lock-in. Citizens did explore short-term alternatives (with Niagara Mohawk, Northeast Utilities and United Illuminating) *in case there were a delay in implementation*. (IR DPS 1-24 in Docket No. 6332, emphasis added)

Q: Why was seriously exploring alternatives to the HQ-VJO contract and developing an alternative plan important?

A: This omission was important for several reasons.

- The Company's obligation to its customers extends beyond meeting demand. If the HQ-VJO contract had been terminated, Citizens would have needed to have some idea about the *least-cost* alternative to HQ-VJO power. Without this alternative plan, Citizens was not prepared to move if the contract fell apart. If Hydro Québec canceled, Citizens would have been out looking to replace some 35% of its energy requirements, without any plan or guidelines (Hieber Direct at 9).

- Given the Participants' stated concern that Condition 10 might result in cancellation of the contract, it was imprudent for Citizens not to have constructed an alternative to the HQ-VJO contract.
- Development of alternatives was one of the justifications for seeking the Waiver and Release. In Docket No. 5330-E, the utilities argued that the Waiver would permit an opportunity to search for alternatives and improve their negotiating position with respect to potential alternate suppliers (Order of 4/30/91 at 3). Yet Citizens does not appear to have used the additional time provided by the Waiver and Release to develop a serious alternative plan, whether more expensive than the HQ-VJO contract or not.
- If Citizens had a feasible alternative plan available, the Company would have increased its freedom of maneuver and bargaining position with respect to Hydro Québec, and would have been able to seriously consider opposing the premature lock-in. Since the Company had not developed an alternative plan, it had no idea what the cost of losing the HQ-VJO contract would be, and therefore how much risk it faced.
- The Company's failure to comply with the Board's order to prepare for the possibility of losing the contract implies that Citizens was negligent; by its own admission, the Company assumed that the purchase was inevitable, and never considered the possibility that either party would cancel the contract, despite Board directives to prepare for that contingency.

Q: Does the Company offer any reason for its failure to develop an alternative resource plan?

A: Yes. Mr. Hieber contends that Citizens "lacked reasonable alternatives" to the HQ-VJO contract due to two problems. First, he asserts that Citizens was unable

to negotiate contracts with other utilities or with Hydro Québec that were attractively priced and had terms longer than five years. Second, Mr. Hieber claims that the transmission ties between Citizens and VELCo were too limited to permit its entire load to be met by U.S. sources, at least without additional transmission facilities (Hieber Direct at 10–12).

Q: Is the Company's alleged inability to negotiate a long-term contract a valid rationale for its failure to develop an alternative resource plan?

A: No, for four reasons.

First, Mr. Hieber is wrong on the unavailability of power contracts for more than five years. On January 16, 1991, Northeast Utilities issued an offer to sell power to New England utilities over the period March 1, 1991 through October 31, 2004, a period of over thirteen years. In a letter of April 18, 1991 to the Department, Northeast Utilities reiterated its interest in long-term sales, and offered to tailor a contract to meet the specific needs of individual Vermont utilities. Mr. Hieber's assertion that Citizens was able to negotiate only a five-year contract with NU may describe conditions in 1989, but not in 1991.[6]

Second, long-term power purchases had never been important to Citizens before. Citizens had been buying power from Hydro Québec under a series of five-year contracts for many years and had been satisfied with that arrangement. Citizens joined the HQ-VJO contract only when it became clear that Hydro Québec would not negotiate a better contract directly with Citizens, due to the "most-favored-nation" clause in Hydro Québec's contracts with the Vermont

[6]Citizens also claims to have been able to negotiate a short-term contract with United Illuminating, although as far as I can tell the details of the Northeast Utilities and United Illuminating offers were not provided on discovery.

Joint Owners and New York contracts, under which Hydro Québec might have to reduce prices to those customers if it offered better terms to any other customer. If Citizens actually limited its options by considering only *long-term* contract alternatives to the HQ-VJO contract, as Mr. Hieber claims, this was an artificial and unreasonable constraint.

Third, Citizens could and should have assembled a least-cost long-term portfolio from the options available, to compare with the HQ-VJO purchase. That portfolio would include the following:

- One or more of the best purchase deals available from the owners of existing capacity, through about 2005. This may have included purchases from a number of U.S. utilities, including Northeast Utilities, United Illuminating, New England Power, New York State Electric and Gas and/or Niagara Mohawk. A few other utilities and NUGs with uncommitted capacity might also have been potential suppliers.[7]
- New combined-cycle capacity or a NUG purchase, following the end of the period in which purchases from excess capacity were available.

My economic analyses of alternatives to the HQ-VJO contract in the Central Vermont and Green Mountain Power cases I list above in §I indicate that, given 1991 fuel-price forecasts and other market conditions, a variety of short-term purchases followed by a long-term combined-cycle or NUG entitlement would have been preferable to the HQ-VJO contract.

Fourth, the development of an alternative portfolio was not an optional exercise. The Board required that each Joint Owner develop a least-cost

[7]Until the HQ-VJO contract was cancelled, Hydro Québec was unlikely to negotiate a competitive short-term arrangement with Citizens.

alternative to the HQ-VJO contract, whether or not that was less expensive than the contract, because Hydro Québec could cancel the contract.

Fifth, even Mr. Hieber recognizes that purchases from US sources were feasible.

> If in the 1980s the VED had decided to buy power from U.S. sources and transport it over the VELCo system, the Company would either have had to pursue reinforcement of the VELCo system or to seek backup service from Hydro-Québec. The additional costs associated with upgrading the VELCo system only increased the costs of alternative supply options from New England in our least cost analysis. (Hieber Direct at 10)

Both options—upgrading the VELCo system and contracting for emergency power from Hydro Québec—were clearly feasible. It is not clear that any reinforcement on VELCo was needed, since Hydro Québec and NEPOOL (and virtually all other interconnected utilities) routinely provide one another with emergency power. Since Citizens would only need the emergency power if contingencies occurred at a time of high loads, very little of this power would have been needed and its price would not have been important in the economics of alternative supplies.[8]

Q: Is it likely that Citizens could have secured a reasonable short-term contract from Hydro Québec in the place of its participation in the HQ-VJO contract?

A: Yes. In fact, Citizens regarded its "best possible alternative" to be an independent five-year contract with Hydro Québec. However, Citizens claims (somewhat inconsistently) that this contract would either be "at a higher price"

[8]Mr. Hieber's criticism of the VELCo system serving Citizens is limited to the assertion that it is "not strong under contingencies at peak load" (Hieber Direct at 10).

that the HQ-VJO contract (IR DPS 3-31) or at a price "on a par with" the HQ-VJO contract (Hieber Direct at 6).

Had the contract been cancelled or delayed, Citizens would have been in a better bargaining position and should have been able to negotiate a lower purchase price, especially given its special relationship with Hydro Québec.

Q: Has Citizens provided documentation supporting Mr. Hieber's second claim, that transmission limitations prevented the Company from developing an alternative resource plan?

A: No. Citizens has not provided any evidence to support Mr. Hieber's assertion. The Company has not demonstrated that it needed to take *any* power from Hydro Québec (except in emergency situations), let alone *all* its power. Nor has Citizens shown that relieving any transmission limitations that might hamper its purchases from domestic sources would be prohibitively expensive, or even more expensive than the upgrade to the 120-kV line from Hydro Québec to accommodate the HQ-VJO contract.

When asked to quantify the capacity constraints to which Mr. Hieber alluded, Citizens replied, "Specific studies have not been made to quantify the firm limitation to Citizens, absent a supply from HQ" (IR DPS 3-3). Since Citizens does not know whether its ability to take power from the VELCo system is constrained, it also does not have any estimates or analyses of the cost to remove those hypothetical constraints. (IR DPS 3-4)

In fact, the evidence indicates that the Company's entire load could have been served from its VELCo ties. Back in its Proposal for Decision in Docket No. 5331, Citizens claimed:

> There is sufficient capacity in the transmission system for Citizens to take all of its power from VELCo if there were an outage on the Hydro Québec system (Transcript, October 17, 1989, at 84–86). (Citizens Documents at 1173)

Also in its Proposal for Decision in that docket, Citizens cited the record as demonstrating that the transmission upgrades associated with the Hydro Québec purchase would allow Citizens to serve 75 MW (more than its entire 2000 peak load of 60 MW) with either Hydro Québec or US power:

> The ability to switch all or part of its system between two distinct power systems comprised of different types of resources enables Citizens to utilize fully the resources available to it to take advantage of economic interchange and thus minimize power costs. Citizens' existing system is limited in transfer capability, both in size of individual load centers capable of being switched up to 55–60 MW whereas under the proposed project, Citizens will be able to switch up to 75 MW (100 MW - 25 for other Vermont utilities; Transcript, October 17, 1989, at 56–58). (Citizens Documents at 1169–1170).

The implication of this section is that Citizens could serve nearly all its current load from either Hydro Québec or VELCo without the upgrades, and considerably more with the upgrades.

In this docket, when asked whether VELCo had ever been unable to supply the entire Citizens load, the Company responded,

> VED's records would have to be searched for such an incident but VED management for this function does not recall a time when VELCo could not supply VED when HQ's deliveries were out of service. (IR DPS 3-24(a))

and

> VED believes that VELCo was able to supply sufficient power to the VED to avoid loss of firm load. (IR DPS 3-25(e))

Q: Please summarize your review of Mr. Hieber's assertions justifying the failure of Citizens to seek out alternatives to the HQ-VJO contract?

A: The first claim, that only contracts under five years duration were available, is simply wrong. His second claim, that Citizens could not purchase power from New England and New York suppliers due to transmission constraints, is certainly unsupported and is generally contradicted by statements from Citizens itself.

2. Monitoring Changing Conditions

Q: Please describe the regulatory requirement to monitor changing conditions.

A: The Public Service Board, in its Order in Docket No. 5330, required that each Joint Owner continually monitor contract economics, even after the lock-in, which was then expected to be much earlier, so that they would be ready to negotiate sellbacks (beyond those ordered by the Board) or take other actions if the contract were no longer cost-effective. As stated in the Order in Docket No. 5983 (at 15) summarized these requirements,

> a utility's obligations include continued monitoring, review, and assessment of participation in power projects, and, this continuing review and assessment process needs to be documented "so that its prudence can be evaluated when challenged."[9]

The 1988 Electric Plan (at I.2-6) also requires utilities to compile and utilize adequate information to support resource decisions:

[9]The quoted matter is attributed to Docket 5132, 83 PUR 4th 532, 566 (Vt. PSB 1987).

> [I]t is vital that an adequate flow of useful, timely information reach all decision-makers…Utility managers and regulators…must have an adequate flow of information…to make appropriate decisions.…
>
> It is essential that management understand the operating environment in depth. This understanding must be thorough and current to allow quick and knowledgeable reaction to changes in the strategic environment. Lack of understanding has led to precipitous and ill-advised commitments…in reacting to…short-lived opportunities. At a minimum, an adequate strategic analysis must include...continual monitoring.

The Company should at least have been monitoring changes in the market (such as regional economic factors, regional load and supply, and fuel price), compiling data, and alternative supply and conservation resources, especially since the cost-effectiveness of the HQ-VJO purchase was highly sensitive to market factors and the HQ-VJO contract was an immense financial commitment for Citizens and for Vermont as a whole.

Q: Did Citizens comply with this requirement?

A: No. Citizens made little effort to track changing market conditions, or even to identify the critical parameters and the values at which re-evaluation of the contract was necessary.[10]

Q: Was Citizens aware in 1991 that the costs of the HQ-VJO contract might be problematic?

A: Yes. But it appears that Citizens focused its concern on avoiding disclosure to the Board of the magnitude of HQ-VJO rate impacts. According to a hand-written document from Mr. Gates' files, which is unidentified but appears to be

[10]In response IR DPS 1-23, Citizens stated that it did monitor market conditions, and referred the Department to documents previously provided. The documents do not provide any evidence that Citizens systematically monitored and analyzed changing circumstances in 1991.

notes from a meeting regarding testimony to be filed in 5330, the following exchange took place:

> J.M. → BE EXPECTED TO SHOW SAVINGS ON RATES to customer.
> if you can project there is going to be a rate increase → Be prepared to tell them how much
> Savings in Dollars = Reduction in Rates.
>
> C.U. (Marty) → Disagrees–Show only that it is the best decision to be made of the choices.
> The rate issue might be a trapping distractor
> Do not bring it up.
>
> VPSSA—thinks there will be a rate shock.

Consistent with the notes of this meeting, Citizens did not provide an estimate of rate impacts in its 5330 testimony, but in response to an Oral Data Request (dated October 12, 1989), Mr. Hieber estimated that the HQ-VJO purchase would have increased rates 20% by 1994 (Citizens Documents, Bates No. 954).[11]

Within a few months of the lock-in, Citizens knew that the HQ-VJO purchase would result in more serious rate shock. According to an internal memo (12/31/91) from K. Perry to T. Bailey and J. Avery regarding sellback negotiations, Citizens was estimating an immediate rate increase of 33% to 35%:

[11]Mr. Hieber accepted the 20% value but downplayed his forecasted 2008 rate impact of 42.47% as "so speculative as to be of no value" (Citizens Documents at 950). Ironically, Citizens filed for a 34.5% rate increase in January 1992, nearly three-quarters more than the 20% increase Mr. Hieber had projected for 1994.

> Opponents of the HQ/VJO Contract will ridicule HQ and CUC for negotiating an agreement that will force an immediate rate increase of 33% to 35% for customers in the most economically depressed area of Vermont. (Citizens Documents at 1870)[12]

By January 1992, Citizens had filed for a 34.5% rate increase over three years. In a 1/6/92 interoffice memo, Citizens attributed this request primarily to "a step-up in price from HQ for their wholesale power" (Citizens Documents at 719).

Q: Would more-active tracking of market conditions have revealed significant changes in long-term trends?

A: Yes. There were clear signs in 1991 of long-term changes that were unfavorable to HQ, including the following:

- Fuel-price forecasts were falling.
- The NEPOOL CELT report released on April 1, 1991 dramatically reduced projected load growth in NEPOOL, moving back the need date for new capacity from 1995 to 2000 and projecting large surpluses in the mid-1990s.
- Non-utility generators previously selected in utility solicitations, such as GMP's CoGen Lime Rock and CVPS's Sheldon Springs, were having difficulty selling their remaining output, indicating that the market value of power had fallen below their formerly attractive bid prices.[13]

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[12]It is not clear from the Citizens Documents exactly when Citizens recognized that the HQ-VJO contract would drive rate increases so much larger than its 1989 estimates. I am not aware of any market changes in later 1991 that would have made a similar assessment much different in the summer of 1991 than in December.

[13]In the 1991 IRP, CVPS indicated that the Sheldon Springs project was unlikely to be completed, because "of the declining need for power in Vermont and the Northeast due to the economic downturn" and because "a preliminary Department of Public Service analysis indicates

- New York was backing out of its Hydro Québec contract.
- The New York utilities were projecting large capacity surpluses, no need for capacity until well after 2000, and sharply lower avoided costs (New York Power Pool Avoided-Cost Filing, August 30, 1991).

Q: How should these changes have affected the Company's evaluation of the HQ-VJO contract and the lock-in decision?

A: Lower fuel prices, the availability of surplus capacity and energy from New England and New York utilities, and low market prices would cut heavily into the economics of the HQ-VJO contract. In addition, the removal of New York as a serious competitor for Hydro Québec power should have reduced the pressure on the Participants to lock in the HQ-VJO contract, and generally improved the bargaining position of Vermont utilities with respect to Hydro Québec.

Q: Please describe New York's backing off from its Hydro Québec contract.

A: In 1989, some New York utilities had signed a 1,000-MW contract (through the New York Power Authority) with Hydro Québec for twenty years of purchases starting in 1995 and 1996, at prices only slightly greater than those in the HQ-VJO contract. The drop-dead or final-lock-in date for this contract was originally set for December 1991.[14]

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that the need for power has declined" (1991 IRP at VI-5). In other words, given the low cost of oil and the plentiful power supply, Sheldon Springs (and most other NUGs) were not least-cost options in the near term.

[14]New York's regulatory approval process was very different from Vermont's, in part because of NYPA's role.

The New York utilities were finding that DSM was more successful than they had anticipated, that load growth was likely to be slower than previously expected, and that the Hydro Québec contract would raise New York's 1999 reserve margin to 42%.[15]

This trend was clear as early as April 1991, when the Long Island Lighting Company announced that it was reconsidering its 218-MW share of the purchase. The mayor of New York City had also requested that the utilities serving city loads (Con Ed and the New York Power Authority) reconsider the contract. In June 1991, Richard Saudek (Counsel for the Vermont Joint Owners), in a letter to Pierre Bolduc of Hydro Québec, mentioned the likelihood of a delay in the New York lock-in date, and the likelihood that the Vermont Board would want similar treatment for the Vermont utilities.

Agreement on delaying the New York decision from December 1991 to November 1992 was announced in August 1991—the same day as the Participants' lock-in decision.

Q: Did Citizens recognize that the lagging interest of New York in its Hydro Québec purchase had implications for Vermont?

A: No. Citizens considered that development to be essentially irrelevant to the Company's decision:

> Based on our assessment that the New York utilities' situation was different than that facing utilities in Vermont, their actions did not seriously affect Citizens' assessment of Hydro-Québec's bargaining position. (IR DPS 1-66 in Docket No. 6332)

[15]Without HQ, the reserve margin would be only a couple points lower.

Q: How should the changing situation in New York have affected the Company's view of the HQ-VJO contract and the lock-in decision?

A: New York's reluctance to lock into its purchase from Hydro Québec should have influenced Citizens in the following ways:

- Since the Hydro Québec–New York sale was very similar to the HQ-VJO sale, New York's reluctance should have caused Citizens to question what the New York utilities might know that it did not.
- New York's declining interest in the Hydro Québec purchase greatly reduced the danger of Hydro Québec finding a better deal than the HQ-VJO sale and canceling its sale to Vermont.
- The reduced interest from New York should have improved Vermont's bargaining position with Hydro Québec.
- With the collapse of the New York contract, the troublesome most-favored-nation clause applied only for the HQ-VJO contract. Were the contract also cancelled, Hydro Québec would not longer have that constraint in its dealings with Citizens, and would be able to offer Citizens a competitive price.

Q: How should the sharp reductions in New York avoided costs have affected the Company's planning?

A: The New York Power Pool's avoided-cost estimates (released August 30 1991) were lower than the HQ-VJO contract, through at least 2004. If Citizens had sought out purchases from the New York utilities in this time period, it probably would have received some very attractive offers.

3. Economic Analysis of the HQ-VJO purchase in 1991

Q: Did Citizens analyze the economics of the HQ-VJO purchase in 1991 before the lock-in decision in August?

A: No. The only economic analysis the Company performed was for its filing in 5330-A, produced some time in 1990 (IR DPS 3-31, IR DPS 1-15(f) in 6332.)

Q: Have you been able to determine what the Company's analyses would have indicated about the economics of the purchase immediately prior to the lock-in?

A: Not exactly. So far as I can tell, the only analysis of the HQ-VJO contract that Citizens performed in the relevant period was for its filing in Docket No. 5330-A. Citizens has not provided any coherent documentation of this analysis, or any other power-supply analyses from 1991. I have not been able to piece together the Docket No. 5330-A analysis from the materials provides in the Citizens Documents. In any case, Citizens appears to have ignored all purchase options in its Docket No. 5330-A analysis, so it would be of little use in examining a realistic alternative in the summer or fall of 1991.

The situation is somewhat different for Central Vermont and Green Mountain Power, which prepared IRPs and other power-supply analyses in 1991. I was able to use the analyses of Central Vermont and Green Mountain Power, adjusted for changes in fuel prices and other market conditions, to compare the HQ-VJO purchase to alternatives from the 1991 perspective. I found in Dockets No. 5983, 6018, 6107, and 6460 that there were better options than the HQ-VJO purchase in 1991. The Board agreed with me, in its orders in Dockets No. 5983, 6107, and 6120 & 6460.

The result for Citizens would be similar to those for Green Mountain Power and Central Vermont. Indeed, since Citizens was buying more of its HQ-VJO power early in the contract, when the contract was most over-priced, the results of a reasonable analysis in 1991 would have shown that the Citizens purchase from the HQ-VJO contract far exceeded the cost of alternatives.

C. The Premature August Lock-in Decision

Q: Please describe the circumstances of the August lock-in decision.

A: The lock-in decision was made with unseemly haste: through a 10-AM telephone conference call with notice by fax only the day before. The participants were provided no written explanation of the decision and no analysis of the advantages and disadvantages of an early lock-in. No substantive discussion occurred among the participants.

Q: What did Citizens give up when it agreed to an early lock-in?

A: The Company gave up the benefits of delaying the final decision and an opportunity to negotiate better contract terms in exchange for its agreement to lock-in. The Company should have realized that the value of delay was enhanced by the facts that forecasts of market conditions were changing in a direction that was unfavorable to HQ, and that forecasts could fall further. Unfortunately, Citizens did not recognize that it would benefit from delaying the decision or gathering more information in the rapidly changing environment in August 1991.

Q: Before the lock-in, did Citizens analyze the benefits of delaying the decision?

A: Not so far as I have been able to determine. (IR DPS 3-30)

Q: Then what was the basis for the Company's decision to lock-in early?

A: Citizens was confident that the HQ purchase was the best option and it felt that in any event it could not affect the decisions of GMP and CVPS:

> Citizens was in the position to accept or reject what was negotiated by CVPS/GMP with Hydro-Québec. Citizens, however, needed the capacity and believed that the contract was beneficial for Citizens. (IR DPS 1-17 in Docket No. 6332)

And

> We understood at the time that, since the VJO had received regulatory approval for the contract, we were obligated to lock-in once Hydro-Québec informed us that it had obtained its regulatory approvals. Moreover, Citizens and the VJO believed it was to their benefit to lock-in. (IR DPS 1-63 in Docket No. 6332)

And

> The Company relied on HQ as stated in Mr. Hieber's testimony and needed a contract to meet load requirements was determined to be the best economic long-term alternative for the VED. (IR DPS 3-2(c), sic)

Q: Did GMP and CVPS have valid reasons for locking in early?

A: No. The Board has found that GMP and CVPS were imprudent in locking in early.

Q: Could Citizens have affected the early lock-in decision?

A: Yes. Citizens should have known that the economics of the HQ contract was in doubt in 1991. If Citizens had opposed the early lock-in on economic grounds, discussed the results of an unfavorable cost-effectiveness analysis with the other participants, or suggested to CVPS or GMP the possibility of a Board finding of imprudence in the future, it is unlikely that the Participants would have voted to lock in early.

There is no evidence that Citizens had voiced any such concerns or had any hesitation about voting for the early-lock-in (IR DPS 3-2(d)–(f)).

Q: If the Joint Owners had waited until late November to decide on the lock-in, is it likely that the Participants would have decided to lock in?

A: No. As GMP and CVPS were aware in 1991, the continuing decline in load forecasts, fuel-price forecasts, and market power costs cast doubt on the economics of the HQ contract. New York's interest in its HQ contract was also waning. In Docket No. 5983, the Board found that if Green Mountain Power had acted prudently and complied with the Board's requirements, GMP and the rest of the Vermont Joint Owners would have canceled the contract sometime in 1992, as the contract's economics continued to deteriorate:

> The evidence establishes that the lock-in should not have occurred in August 1991. The evidence also establishes that, absent the lock-in, several other events were very likely to have occurred. The first is that continued monitoring of market conditions would have revealed that the regional economic downturn, reduced fuel prices and electricity demand, and increased generating surpluses were not merely short-term phenomena, but would likely have longer-range effects. The second is that, in light of this information, the economics of the Contract would have deteriorated further. Third, the evidence supports a conclusion that HQ would have been willing to extend the lock-in date further, at least until April and probably until November 1992. And fourth, with another year's worth of market information and analysis, the Company would surely have concluded that the Contract no longer promised net benefits for ratepayers, and would have canceled it. (Docket No. 5983, Order at 240).

Q: What would have been the basis for that cancellation?

A: As the Board found in Docket No. 5983, either party could back out of the contract if it was not satisfied with a regulatory approval. In the late summer and fall of 1991, Citizens and the other Participants should have been aware that the cost-effectiveness of the contract—and hence the prospect for utilities' recovery

of the contract costs—was very much in doubt. The utilities should therefore have concluded that certain of the conditions of the approval in VPSB Docket No. 5330 were no longer satisfactory, given the factual context.

Q: Was Citizens prudent in locking into the contract, without an update to the analysis?

A: No. It was imprudent of Citizens to make a hasty commitment to a contract that it should have known was economically doubtful.

V. Estimating the Costs of Imprudence

A. The Framework for Estimating the Costs of Imprudence

Q: What is the normal process for computing the costs incurred due to an imprudent utility action or decision?

A: The general process consists of the following three findings:

- The finding that a particular decision was imprudent.
- The identification of the actions the utility would likely have taken, if it had avoided the imprudent action, and then acted prudently.
- The determination of the cost of the likely prudent course of action.

Q: Please describe the process of identifying the subsequent actions the utility would likely have taken, if it had avoided the imprudent action.

A: This task primarily involves positive or predictive analysis, rather than a normative analysis. While the original prudence analysis considers what the utility *should* have done, the identification of subsequent actions primarily concerns what the utility *would* have done, had it avoided the imprudent action.

Since the purpose is to project the utility's decisions in a situation that did not arise, the subsequent-action analysis relies primarily on the utility's standard procedures, adjusted as necessary to reflect the requirement of prudent utility management with due regard for the utility's obligation to ratepayers. Thus, the analyses should be based on the information the utility possessed, as well as any information it should have known but failed to obtain. The subsequent actions should be projected from the utility's normal evaluation, adjusted only as necessary to be consistent with prudent management and the utility's obligation to ratepayers. Specific directives from regulators may establish some assumptions and evaluation methods. Adjustments to the utility's normal decision-making criteria are justified only where those criteria were unreasonable, selected imprudently from the perspective of ratepayers, or would have led to decisions that would not have obtained required approvals from regulators.

Q: Can analysis determine exactly what the utility would have done in the past, had it not taken the imprudent action?

A: No. By their very nature, these historical "what-if" exercises are inexact. The regulators will never be able to know exactly what result the utility would have received, had it bargained hard with potential suppliers. In complicated processes, including utility supply planning, the outcome can be determined by any number of factors, including the order in which parties communicate with one another, their perceptions of one another's bargaining position, the actual and perceived influence of third parties (such as regulators) and the timing of analyses and communications.

Q: How should regulators deal with these uncertainties?

A: That depends to some extent on the range of the uncertainties. In some cases, a single outcome can be identified as being representative, and used for subsequent analysis. In other cases, regulators should examine the range of likely outcomes, and evaluate the damages for a number of those outcomes.

The actions in the same time frame of other, similarly situated, utilities that avoided the imprudent action may provide a guide to the likely actions of the imprudent utility. Using a range of prudent behaviors from other utilities avoids potential problems of dealing with vast numbers of possible actions, as well as the pitfall of assuming a perfect outcome.

In no event should regulators allow the utility to benefit from uncertainties created by the utility's own imprudence. Options that the utility imprudently failed to explore should not be eliminated from the analysis.

Q: Please describe the determination of the cost of imprudence.

A: The cost of imprudence is the difference between the cost of the actual action and the cost of the actions the utility would have taken had it avoided the imprudent action.

This cost may be greater or less than the differential that would have been estimated at the time of the imprudent action. For power-supply decisions, the costs of the alternatives today may differ from previous forecasts due to changes in fuel prices, costs of capital, and other determinants, and due to changes in contractual arrangements (such as the retirement of units that would have served unit contracts). Hence, the costs of imprudence must be determined under the conditions that actually occurred, rather than those anticipated years earlier.

Even actions that were obviously imprudent may have no current cost consequences. For example, a utility that signs an exorbitantly expensive contract for power from a new resource that is never completed, and is subsequently able to obtain replacement power at a cost comparable to that of the prudent alternatives to the original contract, may incur no extra cost. No cost-based prudence disallowance would be appropriate in such a case.[16]

The cost consequences of imprudence may vary over time; an imprudent action may increase costs dramatically for some years, but actually decrease costs in other years. The disallowance for excess costs in the short term should not exceed the total present value of the excess cost over time. It is therefore appropriate to look ahead and determine whether the consequences are likely to reverse in the future.

B. Application of the Framework to the HQ-VJO Contract

Q: What would likely have happened to the HQ-VJO contract if the participants had delayed the lock-in decision from late August to the end of November, and used the intervening three months to continue analyzing their options?

A: If the participants had prudently analyzed the costs and benefits of the HQ contract, they would have almost certainly rejected the contract as it then existed. The Burlington Electric Department had already determined that its HQ share was not cost-effective, and confirmed the same result for Washington Electric Cooperative's share in September.

[16]Nonetheless, the regulator might well decide to reflect the utility's poor planning process in some other manner, such as reducing its allowed return.

If the participants were unwilling to cancel the contract by the end of November, prudent analysis of the contract economics should at least have led the Participants to seek to extend the lock-in deadline, perhaps to the April 30, 1992 date proposed in Amendment 3. As Joint Owners' Representative Saudek observed in his June 1991 letter to Hydro Québec, any further delay in the deadline was likely to trigger a reopening of the Board's analysis of the contract. The Board might also have forced this issue on CVPS in Docket 5491, a rate case that was pending in August 1991, had the lock-in not rendered further proceedings moot.

In Docket No. 5983, the Board found that the contract would have been cancelled in early 1992.

C. The Effect of the Decision to Accept the HQ Contract on Current Costs

Q: How much lower would the Company's power costs be today if it, or the Participants as a whole, had not locked into the HQ contract?

A: That would depend on what actions Citizens, the Joint Owners, and Hydro Québec would have taken after August 1991, had Citizens and the Participants not agreed to the premature August lock-in. In Docket No. 5983, the Board found that continuing decline in load forecasts, fuel-price forecasts, and market power costs, plus likely re-examination of the contract by the Board, would have led to the termination of Schedules B and C.

In the event of termination, Citizens might conceivably have opted to replace the HQ contract with another long-term single-source contract, but few major long-term power-purchase commitments were made by New England utilities after the end of 1991. I doubt that Citizens would have been able to

contract for such a purchase and get it approved before falling market prices rendered it uneconomic. Citizens would more likely have purchased power primarily on the short- and medium-term market, or an equivalent offer from Hydro Québec.

VI. Excess Rate-Year Costs of the HQ-VJO Contract

Q: What is the Company's estimate of the excess rate-year costs of the HQ contract?

A: For a 2001 rate year, Citizens estimates market price to be $3 million less than the cost of the HQ purchase in the next 12 months, based on an assumed market price of $45/MWh, "additional benefits" of $4/MWh, and an average HQ power cost of $63.4/MWh (Hieber direct at 34).

Q: How much would Citizens have paid to replace the HQ-VJO contract in the rate year had it prudently managed its power supply in the early 1990s?

A: Depending on (1) the exact mix of base, intermediate, and peaking resources, (2) the duration of each contract, and (3) the details of contract pricing that Citizens could have negotiated, I project that prices at a 75% capacity factor of individual contracts in 2002/03 would have been between 3¢/kWh and 6¢/kWh.

Exhibit DPS-PLC-1 summarizes the costs for the 2002/03 rate year of various power supplies that Citizens could have lined up, from 1991 through today. Each alternative includes energy, capacity, and (where the data are available) transmission charges, and each alternative is at least as dispatchable as the HQ-VJO contract. The alternatives are as follows:

- In February 1991, Northeast Utilities offered Central Vermont three purchase options: a mix of specific nuclear and oil plants, slice-of-system power, and an oil block consisting of Middletown 4 and Montville 6. The NU offers would have cost about $51/MWh for the Montville-Middletown Oil Block and $48/MWh for system power. Citizens would dispatch the Oil Block at a relatively low capacity factor, and replace some of its $37/MWh energy with off-peak energy purchases at $27/MWh and on-peak energy averaging $35/MWh (less in most hours).
- In early 1992, New York State Electric and Gas (NYSEG) offered Central Vermont two choices in power-purchases. NYSEG's Offer A was less expensive than the HQ-VJO purchase and would have cost $56/MWh in 2002/03. Since the energy charge in this offer was $43/MWh, Citizens could have reduced the total cost to $47/MWh by using only economy energy, and lowered it even further by using the NYSEG energy in high-priced hours and economy purchases in the rest of the hours.
- The New Hampshire Electric Coop's 1995 contract with Central Vermont provides for a take-or-pay Base Block of 2.75 MW at an annual 54% capacity factor, with specific monthly kW and kWh deliveries, for May 1 1995 through October 1 2006. This portion of the contract will cost about $29/MWh. Supplementing the Base Block with Central Vermont's incremental energy to bring it to a 75% capacity factor would raise the price to about $30/MWh.[17]

[17]Generally, a higher capacity factor resource would have a lower price per MWh. This situation is reversed for the CVPS-NHEC contract during 2002/03.

- There were at least eleven contracts negotiated by eight New England municipal utilities in 1992 and signed in 1993 to purchase power over periods of 6–12 years from Boston Edison, NEPCo, or Northeast Utilities. The five municipal-utility contracts for which I can project a price for 2002/03 will cost $44–61/MWh.[18] These contracts are generally structured as system power purchases, although the prices are sometimes tied to fuel prices at a particular plant and availability of energy is sometimes conditioned on the availability of at least one or two of a group of plants. The inter-utility contracts also generally have greater flexibility in energy deliveries and capacity adjustments than the HQ contract. The cost of some of these resources would also be reduced by economy purchases. These contracts are described further in Exhibit DPS-PLC-2.
- In 1995, the Burlington Electric Department negotiated contracts with NU and NYSEG for purchases from May 1998 through 2007 and 2009, respectively. The contracts were signed in March 1996. The prices in these contracts for 2002/03 are equivalent to $42/MWh at the 75% capacity factor of the HQ-VJO contract. The Burlington contracts represent very flexible power-supply arrangements. There is no minimum energy take, energy is a majority of the purchase price, and energy prices vary between

[18]The other contracts are mostly based on cost of service, which I cannot project (especially for the utilities that have divested their generation). One has expired. I also excluded the sale from Northeast Utilities subsidiaries to Madison, since it had the following unusual features. First, it was an all-requirements contract, including reserves and placing the risk of load changes on the seller. Second, Central Maine Power was disputing Madison's right to change suppliers, and Northeast Utilities bore litigation risk and uncertain wheeling costs. I also excluded NEPCo's sale to Shrewsbury, which was set at the lesser of a fixed schedule and cost of service.

peak and off-peak. Burlington has the option of changing the capacity of the purchases over a wide range, on two months notice: from 2.5 MW to 7.5 MW for the NU contract, and 3 to 10 MW for the NYSEG contract. Under these circumstances, the sellers cannot count on above-market (or above-cost) prices in one year balancing below-market prices in another year; the annual prices in the contract must represent a reasonable approximation of the price at which the seller would have been willing to sell in that year, for any length contract.

- A short-term supply contract signed in February 2002 for the rate year would cost about $33/MWh, based on NatSource broker forward contract prices for energy and capacity, adjusted to match the HQ-VJO contract scheduling.

Q: How did you estimate the effect of HQ-VJO scheduling on the price of broker forward contracts that it displaces?

A: I undertook several steps. First, I reviewed the scheduling adjustment proposed by Citizens, as documented in the spreadsheet "Set3 Response 12a_1.xls." I determined that this analysis was conceptually flawed, and confirmed that Citizens has not scheduled its HQ-VJO power as efficiently as it supposes. I then computed my own estimate of the scheduling value of the HQ-VJO contract.

Citizens proposes the following adjustments to the market value of its power from the HQ-VJO purchase:

- Schedule HQ power to be delivered at 95% capacity factor in the eight months of 2000 with the highest actual average market energy prices, and 25% in the three lowest-cost months, rather than at 75% in each month.

- Schedule deliveries to the hours with the highest expected market prices (rather than equally in all hours) within each week, assuming a 75% capacity factor for each week.
- Schedule deliveries in the three low-priced months (for which he assumes 25% capacity factors) to the highest actual hours in those months, rather than in average hours.

The assumptions behind these proposed adjustments are obviously mutually inconsistent. Citizens cannot schedule power for eight months at a 95% monthly capacity factor, and then schedule within each week of those months at a 75% capacity factor. In fact, scheduling any month at 95% capacity factor would make little sense, since that would force Citizens to take about half the energy in the off-peak hours of the high-priced months, rather than the generally higher-priced peak hours of a relatively low-price month. Nor can Citizens improve the value of the Hydro Québec power in the lower-price months by scheduling it at 75% capacity factor (rather than flat through month) and also by scheduling it at 25% capacity factor.[19]

In addition, the first and third scheduling adjustments assume perfect information. Citizens did not know in August 1999 (when monthly deliveries for the November–October power year are scheduled) that October would be among the highest-price months in 2000, or that July and February would be among the lowest. The monthly schedule of HQ-VJO deliveries to Citizens in 2001 did not include the wide swings in capacity factors assumed in the scheduling analysis, and was not weighted towards the highest-priced months.

[19]The spreadsheet also indicates that Citizens became confused about which months were high-cost in 2000 and used the prices of some relatively expensive months twice.

Nor could Citizens schedule in late February the delivery of Hydro Québec power in the actual highest-priced weeks of April, since the highest-priced hours could not be identified until the end of April.[20]

Q: Should forward market prices be adjusted in any way to reflect the scheduling of HQ-VJO energy deliveries?

A: Yes. I would expect Citizens to schedule delivery of HQ-VJO power in the higher-priced peak hours, to the extent feasible. About 61% of the contract energy at 75% can be delivered in the on-peak hours. So the first adjustment to market prices is to use a 61:39 weighting of peak and off-peak energy prices, rather than a weighting based solely on the number of hours in each period (about 46% on-peak).

In addition, prices in some off-peak hours (especially weekends during the business day) tend to be predictably higher than the average for the off-peak hours, and Citizens can schedule more of the off-peak deliveries in those higher-priced periods.

Q: What is your estimate of the scheduling benefit of the HQ-VJO contract?

A: I computed the average market energy price for 2000 and 2001, weighting NEPOOL's hourly energy prices by the Company's deliveries of HQ-VJO energy in each hour. The resulting average was 3% higher than the simple 61:39 weighting of the peak and off-peak energy prices. I included this 3% adder in the cost of the market-forward contract that I reported above.

[20]Citizens certainly could not schedule delivery of March power in the highest-priced hours of September, as in the scheduling computations.

Q: Should the market price be adjusted for externalities, as Mr. Hieber suggests?

A: No. The fact that Hydro Québec is selling this power to Citizens under the HQ-VJO contract, rather than to Citizens under some other contract, or to some other customer, has no environmental benefits. The HQ-VJO contract does not change the amount of hydro-electric energy that Hydro Québec has available in 2002–2003. Regional dispatch is based on the economics of bid prices, and essentially the same plants are dispatched, regardless of system power contracts.

Mr. Hieber does not identify any actual environmental benefits that have resulted from the HQ-VJO contract.

Q: How do the prices of the alternative supplies that Citizens might have acquired since 1991 compare to what Citizens will be paying for power under the HQ-VJO contract in the 2002–2003 rate year?

A: In his testimony in this docket, Department Witness Bruce Biewald finds that Citizens will be paying $63.2/MWh in 2002 and $63.8/MWh in 2003. This is an average rate-year cost of $63.5/MWh and a total cost of $13.1 million for 206 GWh.

Q: What portion of the cost was due to the Company's imprudence?

A: If the average cost of the Company's alternative portfolio were $45/MWh (in the middle of the range I develop above), the Company would pay 29%, or $3.8 million, less than for the HQ-VJO contract.

Q: Will any these contracts exceed the cost of the HQ-VJO contract in later years?

A: I have looked at this issue in prior cases. According to my previous analyses, these contracts would remain at lower cost than the HQ contract until their termination.

Q: Are the costs of imprudence that you have estimated the same as the uneconomic costs estimated by Mr. Biewald?

A: No. Mr. Biewald's testimony concerns the long-run economic usefulness of the HQ-VJO contract using today's information about the rate year and beyond. My analysis is concerned with what Citizens would be paying in the rate year if it had been prudent in the early 1990s, while Mr. Biewald's is concerned with what Citizens would pay were it to replace the HQ-VJO contract on a forward-going basis at current expectations. Mr. Biewald thus compares the cost of the contract to a current market-price forecast, appropriately including current prices for power to be delivered in 2002 and 2003. The prices he reports for those years are different from the costs of resources that Citizens could have acquired in the early 1990s.

VII. Conclusions and Recommendations

Q: Please summarize your conclusions on the prudence of the Company's purchase from Hydro Québec.

A: The Company was imprudent in its analyses during 1991 in

- violating the Board's order to prepare an alternative plan in the event that the HQ-VJO contract was terminated.

- failing to monitor prudently the changing conditions in the markets for power and fuels.
- failing to analyze the costs and benefits of the early lock-in.
- failing to update the economic analysis of the HQ-VJO contract prior to the lock-in decision.

Q: Please summarize your conclusions about the effects of that imprudence.

A: Had Citizens contracted for a mix of market-priced purchases in the early 1990s, it would probably be paying around $45/MWh in the rate year (including capacity charges), rather than the $63.5/MWh of the HQ-VJO contract. This prudent supply mix would cost about $3.8 million less than the HQ-VJO contract.

Q: Does this conclude your direct testimony?

A: Yes.

Exhibit DPS-PLC-1:

Price Summary of Alternatives to the HQ-VJO Contract (per MWh)

Rate Year July 2002–June 2003

NU Offers to CVPS		
Oil Block (Montville & Middletown)	$50.7	Computed for 75% capacity factor. Less-expensive market energy would be substituted in some hours.
System Power	$48.5	Computed at 75% capacity factor.
New York Utility Offers to CVPS		
NYSEG	$55.7	Computed at 75% capacity factor. Use of market energy would save over $10/MWh.
Municipal Utilities' Purchases		
NEPCo to Littleton[a]	$44.1	Baseload capacity at 100% capacity factor. Cost projection is net of Newbay buyout cost.
NEPCo to Braintree[a]	$43.5	Baseload capacity at 100% capacity factor. Cost projection is net of Newbay buyout cost.
NEPCo to Taunton[a]	$44.7	Baseload capacity at 100% capacity factor. Cost projection is net of Newbay buyout cost.
CL&P & PSNH to Danvers	$61.1	50/50 mix of baseload and intermediate capacity. Baseload at 100% capacity factor; intermediate at 50%.
PSNH to Littleton	$61.1	50/50 mix of baseload and intermediate capacity. Baseload at 100% capacity factor; intermediate at 50%.
NHEC Purchase from CVPS	$29.7	Base capacity and energy with incremental energy to 75% capacity factor.
Offers to BED		
from NU	$42.3	Computed at 75% capacity factor and 63/37 on-peak/off-peak ratio.
from NYSEG	$43.4	Computed at 75% capacity factor and 63/37 on-peak/off-peak ratio.

Note:

[a] The costs of the NEPCo-Littleton, NEPCo-Braintree and NEPCo-Taunton contracts include compensation for NEPCo's payment to buy out the Newbay NUG contract; I have reduced the projected capacity cost to reflect pricing without the Newbay payment (about $60/kW-yr., or 1¢/kWh).

Exhibit DPS-PLC-2:
New England Inter-Utility Power Contracts Signed in 1993

Seller	Buyer	Contract Date	Start Date	End Date	Duration (years)	Capacity	Capacity Price	Energy Price	Flexibility	Other Notes
NEPCo	Reading	2/2/93	11/1/93	10/31/99	6	6 MW through 1994, then 15–25 MW	$138/kWh in 1992, rising with 105% of GDPIPD	W-92 NEP fuel cost	For > 15 MW, notice required by 6/1/93	
NEPCo	Shrewsbu	8/10/93	11/1/93	10/31/04	11	17 MW in Winter '97; varies by season & year	Separate base, int and peak, fixed and rises ~4X in 11 years	$15 Base, esc. with GDP. $25 Int, w/ #6 oil. $50 Peak w/ #2 oil.	Many complex options, limited by mix and basis for change.	NOT updated for Newbay buyout amendment. System power.
NEPCo	Littleton	11/10/93	11/1/94	10/31/04	10	3 MW	$255/kWh in '94 rises ~2%/yr	$15, rises w/ GDPIPD.	Option to extend to 2024	~$60 of capacity cost is for Newbay buyout
NEPCo	Braintree	11/10/93	11/1/94	10/31/04	10	2 MW	$254/kWh in '94 rises $24.75/yr	$15/MWh, rises with GDPIPD.	Option to extend to 2024	~$60 of capacity cost is for Newbay buyout
NEPCo	Taunton	11/10/93	11/1/95	10/31/05	10	10 MW	$159/kWh in '95 rises ~13%/yr	$15/MWh, rises with GDPIPD.	Option to extend to 2024	~$60 of capacity cost is for Newbay buyout
BECo	Braintree	8/19/93	11/1/94	10/31/04	10	1.7 MW to 26.6 by year	Fixed ($205/kWh in '95) rising ~4%/yr.	System average cost.	Complex. Cut 50% if needed w/ short annual notice. Etc.	Contract demand.
PSNH	Princeton	4/9/93	1/1/93	12/31/04	12	0.75 MW total (varies)	Fixed & rising fast (CT from $35 to $135/kWh; Merri 1 from $110 to $410/kWh).	Unit cost	6 mos. notice for +20% or -10%; Post-'99, 2 yrs. notice for -20%/yr. cum.	Merimac 1, 2, CT; Newington; Wyman; possible substitution
CL&P & HPEC	Princeton	4/9/93	11/1/93	12/31/04	11	1.75 MW + total (varies)	Fixed by unit (rising slowly with 2x jump in 2000)	Unit cost	see PSNH	Middletown, S. Meadow; Hydro; Millstone; Subst. possible
CL&P & WMECo	Madison	8/5/93	9/1/94	12/31/04	10	40–50MW	Fixed (rising irregularly from $45/kWh in '94 to $125/kWh in '03)	Fixed peak & off (peak rises from $32/MWh in '94 to $62/MWH in '03)	After '98, 2 yrs. notice for full or partial termination	RQ (partial, the full)
CL&P & PSNH	Danvers	8/17/93	11/1/94	10/31/04	10	Fixed base, Int; Variable peak	Separate base, int. and peak, fixed and rises 3x in 10 years	Base fixed. Int. & Peak vary with Norwalk Hbr fuel, fixed heat rate	Mix restricted, but after '99, 2 years notice to cut 20%/yr.	
CL&P & PSNH	Littleton	8/31/93	11/1/94	10/31/04	10	8-14 MW base, 7-9 MW int.	Separate base, int. and peak, fixed and rising.	Base is fixed & rises. Int. & pk vary with 1%-S. #6 oil and fixed heat rate	6 mos. notice for 30% more MW. Complex for cut w/ or w/o change in CR	A subset of certain units must operate for deliveries.