

# 12-707-CV(L)

## 12-791-CV(XAP)

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IN THE UNITED STATES COURT OF APPEALS  
FOR THE SECOND CIRCUIT

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ENTERGY NUCLEAR VERMONT YANKEE, LLC  
and ENTERGY NUCLEAR OPERATIONS, INC.,  
*Plaintiffs – Appellees – Cross-Appellants,*

v.

PETER SHUMLIN, in his official capacity as GOVERNOR OF THE STATE OF VERMONT; WILLIAM H. SORRELL, in his official capacity as ATTORNEY GENERAL OF THE STATE OF VERMONT; and JAMES VOLZ, JOHN BURKE, and DAVID COEN, in their official capacities as members of THE VERMONT PUBLIC SERVICE BOARD,  
*Defendants – Appellants – Cross-Appellees.*

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On Appeal from the United States District Court for the District of Vermont

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<p>February 11, 2009 House Natural Resources Committee Hearing on H. 436 Testimony of Sarah Hofmann, Department of Public Service <b>Pl. Ex. 226A</b></p>	<p>[Track 1 00:26:50] SARAH HOFMANN: So, when it comes right down to it, what I told you last year and what I will tell you again today, is that there are traditional state functions that you can regulate without fear of preemption. They are things that deal with economics and that's why we talk about reliability so much when we're here in front of you because reliability is an economic issue and it's a traditional state role, and I think if you stay with something on the basis of economics or reliability, you're very well within your rights as a State. What is clearly preempted is any issues of radiological health and safety. So then you come down to, let's say you didn't like the idea of SAFSTOR. NRC says it's OK, right? They say SAFSTOR is a perfectly acceptable form of decommissioning. And let's say you, as a Legislature, say no, no SAFSTOR. Is that preempted? I can't tell you that here today. This is much broader view. It depends a lot on your reason, you know? Is it an economic decision? What is your decision based on? I can tell you that Mr. Adler is pretty sharp on this stuff as well, as well as Rebecca Ellis from the Attorney General's Office.</p>
<p>February 11, 2009 House Natural Resources Committee Hearing on H. 436 Testimony of Sarah Hofmann, Department of Public Service <b>Pl. Ex. 226B</b></p>	<p>[Track 1 00:29:29] SARAH HOFMANN: Courts are doing a number of things. Sometimes they're looking at motive for the legislation and sometimes they're not. They're actually looking at what the effect is. And then, I also include a piece on just what the Public Service Board has said so far on preemption and it's not a lot but it gives you a little bit of flavor of what Public Service Board has already dealt with. And with that, I'll just open it up to questions.</p> <p>REPRESENTATIVE: It could be in the real world?</p> <p>SARAH HOFMANN: Yes.</p> <p>REPRESENTATIVE: In the situation we're in right now.</p> <p>SARAH HOFMANN: Uh-huh.</p> <p>REPRESENTATIVE: NRC fears that like the idea we'll continue the operation of the Vermont Yankee...</p> <p>SARAH HOFMANN: Uh-huh.</p> <p>REPRESENTATIVE: Maybe we say no on our continued operation. NRC is the big guy on the block. Are they going to take a look at those gray areas we talked about that could go either</p>

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	<p>reliability or safety and tell us if, you know, you're intent was wrong on this and we've got to preempt you?</p> <p>SARAH HOFMANN: They could look on the intent. They could look at the effect on the operation and I can't tell you they're not going to. I have to say that I know NRC calls me and is very nervous about this whole process, truthfully. So I don't know. I just don't know and I know that's not a really great answer but there's a lot in preemption that's a gray area that I can't tell you. I mean, I think people in this building have become very sensitized to remembering what they're talking about. They're talking about reliability. They're talking about need for the power, alternatives for the power and that kind of thing. But, you know, there's a lot of gray area that's not settled and I think though that you have a lot of people around you who can help you with that.</p> <p>REPRESENTATIVE 1: When we went through this with you last year...</p> <p>SARAH HOFMANN: Yes.</p> <p>REPRESENTATIVE 1: You know how careful we were...</p> <p>SARAH HOFMANN: Very.</p> <p>REPRESENTATIVE 1: [Indiscernible] We want to make sure we didn't cross that line.</p> <p>SARAH HOFMANN: Yes.</p> <p>REPRESENTATIVE 1: You know, I'm clear on what my intent was and I think the committee's intent was. But, you know, I've been the big guy in the block before and I know how I get mad. I've been the little guy in the block before and I know how I get mad, okay?</p> <p>SARAH HOFMANN: Yes.</p> <p>REPRESENTATIVE 1: And...so I...yeah, we're talking the real world here. We're getting close to the cut-off time.</p> <p>SARAH HOFMANN: I mean, I just tell you, real-world experienced, which is the comprehensive reliability assessment that we've done based on the legislation that you guys passed. NRC has called me innumerable times to talk about that and I</p>
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	<p>think right now they're calm but, you know, I don't know.</p> <p>REPRESENTATIVE 2: If you know the answer to this, what do you think makes them nervous? Is it that we're stepping into their area of authority or is it that they're also nervous, I know that obviously, but are they also nervous that – about having the plant shut down?</p> <p>SARAH HOFMANN: I think it's more nervous that we're stepping in their territory. The perfect example is something I've actually used in this, one of the things out of the Act 189, is that one of the things to be looked at in the vertical side is the emergency core cooling pumps. So they get on the phone with me and say, how could...because they're...it's a safety item. OK? It is a safety item. But they say, –How could that be reliability?" And I said, –Well if you say that those can't run, the plant can't run then," and you know, they think I'm a little bit caught in my own little wheel, but that's basically what I tell them. [Laughing]</p> <p>SARAH HOFMANN: But it's a kind of question I get and I think it's a...we're stepping on their jurisdictional toes. Is really what I think it is.</p> <p>REPRESENTATIVE 3: Is this is a whole new situation for them. Is this really unprecedented?</p> <p>SARAH HOFMANN: This is very unprecedented in terms of what kind of state action we have taken. Minnesota's done a little, Wisconsin's done a little, but nobody has gone as far as we have. Most of the time it is done at the federal level and, you know, we do the federal level, too, but it's not... It's OK if we do the federal level. It's when we're trying to do this at the State level that makes them very nervous.</p>
<p>February 18, 2009                  House Natural Resources                  Committee Hearing on                  H. 436                  Testimony of John                  Warshow, Vermont                  Independent Power                  Producers Association  <b>Pl. Ex. 231A</b></p>	<p>[Track 5 00:07:58]                  JOHN WARSHOW: Why should Vermonters be forced to play Russian roulette while the president of Entergy is, by his own words, having fun, earning \$26 million a year? It's outrageous. We should be fully insured by Entergy against damage from an accident if they wish to have continued operation after 2012. Additionally, Entergy's officers and directors should be incentivized towards additional nuclear safety by assuming some personal liability in the event of a catastrophic accident.</p>
<p>February 24, 2009                  House Natural Resources</p>	<p>[Track 1 00:13:45]                  SARAH HOFMANN: The second one is something I don't think</p>

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<p>Committee Hearing on H. 436                  Testimony of Sarah Hofmann, Department of Public Service  <b>Pl. Ex. 237A</b></p>	<p>the Chairman wants to hear, but I’m going to do it anyway. And that is – it’s important to me because I believe that Vermont should honor its MOUs undertaken by state agencies on behalf of the State and approved by the Public Service Board.</p>
<p>February 24, 2009                  House Natural Resources Committee Hearing on H. 436                  Testimony of Sarah Hofmann, Department of Public Service  <b>Pl. Ex. 237B</b></p>	<p>[Track 1 00:15:06]                  SARAH HOFMANN: There is a good argument, that I thought Entergy would make today but didn’t, that this bill would abrogate contractual agreements that were approved by a Vermont court and could expose us to Vermont lawsuits. They didn’t go there even though the chairman did press a little bit. But I’m making the policy argument today.</p>
<p>March 19, 2009                  House Natural Resources Committee Hearing on H. 436                  Testimony of Peter Bradford, Public Oversight Panel  <b>Pl. Ex. 251A</b></p>	<p>[Track 1 00:06:43]                  PETER BRADFORD: After performing the reliability assessment, the NSA team’s overall conclusion was that Vermont Yankee has operated reliably and that the current level of reliability can be maintained through an extended operating period provided that the areas identified by the NSA report are effectively addressed. The panel agrees with the audit team’s principal conclusions.</p>
<p>March 19, 2009                  House Natural Resources Committee Hearing on H. 436                  Testimony of Bill Sherman, Public Oversight Panel  <b>Pl. Ex. 251B</b></p>	<p>[Track 1 00:14: 34]                  BILL SHERMAN: Thank you, Mr. Chair and Committee. I’m Bill Sherman, panel member. Our basic finding is that Vermont Yankee can be operated reliably in the future, but there must be some verification process to determine that our recommendations and that NSA’s recommendations are correctly incorporated. We found that historically Vermont Yankee is a top operator from the reliability standpoint. This is true even with the high-visibility events of the transformer fire and the cooling tower collapse. For that reason, we asked the question, are these high-profile events indications that Vermont Yankee’s good past performance is about to degrade into unacceptable performance? Our answer is no.</p>
<p>March 19, 2009                  House Natural Resources Committee Hearing on H. 436                  Testimony of Bill Sherman, Public Oversight Panel  <b>Pl. Ex. 251C</b></p>	<p>[Track 1 00:47:08]                  BILL SHERMAN: [H]aving worked with Vermont Yankee for many years, Vermont Yankee has really operated well. And they have the ability to do the right things and to operate well. So on the one hand, the things that are identified in the NSA report are things that Vermont Yankee would find its way to in order to continue it’s good operation. On the other hand, the involvement</p>

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of NSA, a team of the magnitude of NSA, is something that I, we, whatever that means, would have supported, and I believe it has definitely added value by, first, making it all more visible and getting perhaps more than Vermont Yankee would've found its way to, getting it faster than Vermont Yankee would've found its way to, so I think in that respect very beneficial.

REPRESENTATIVE KLEIN: Okay. It's – I need to continue. As long as I have you on the stage, I also wanted to ask you about that second-to-last paragraph in your statement because I found it to be quite a powerful statement. And what struck me was that, –Part of the problem was Entergy's own creation. However, by its failure to provide a power purchase agreement that reasonably balances its operating cost, expectation of some profit, and the risks incurred by Vermonters by the location of the plant within its borders." Can you describe for me what you mean by the risks?

BILL SHERMAN: Yes, I can, Chairman.

REPRESENTATIVE KLEIN: Thank you.

BILL SHERMAN: I believe that Vermont Yankee as a nuclear plant within our borders poses certain risks and demands on Vermonters. The plant is – just by virtue of the fact that the plant gets itself in the news and often on the front page of the news all the time, it – it's an impact to Vermont. But not only that. It has other risks associated with that. It – there is an obligation by the State of Vermont to provide support, police support and other homeland security support related to plant activities. There's always the area within the federal domain of nuclear accidents and the possibility of that. So whether they are small risks, which – and reasonably assured risks, they're still risks, so that's what I mean by that.

REPRESENTATIVE KLEIN: Okay. I've got one more. The problem that I have and I'm glad to hear you say that. I'd actually – you don't have to do it now – but I'd actually like those risks spelled out in further detail because I believe that's what the people of Vermont need to know about in order for the tradeoff for reasonably priced electricity that is abundantly available in other locations. So that's the balance that we're trying to assess. And we can't assess that balance unless the risks themselves are made hugely aware to the people of Vermont. One of the risks that I've been focusing on that – and I don't mean to pick on you, Bill – that I've been focusing on is, my concern is that – I'm not really concerned about a Chernobyl-like occurrence at this plant

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	<p>or a big boom, okay, although it's possible, okay. My concern is that there is an incident and with the rise of the visibility of the past incidents of the leaks and the collapsed towers, that there is a perception that is being created. It may not be valid, but perception doesn't need to be verified, okay. Once it takes hold, it's poison. And the poison for me is this. I understand that Three Mile Island, for example, if you asked anybody in this country about Three Mile Island, everybody would know what it was. Everybody considered it to be a wow event, okay, and I'm sure it was.</p>
<p>March 19, 2009                  House Natural Resources Committee Hearing on H. 436                  Statement of Representative Klein  <b>Pl. Ex. 251D</b></p>	<p>[Track 1 00:52:41]                  REPRESENTATIVE KLEIN: And what I'm concerned about is that the brand that we have in Vermont of green, of natural, of maple syrup, of skiing, of these types of things that our tradition is built upon, that that will be poisoned by some further event that in itself may not be dangerous unto itself, but has added to that environment and basically economically we'd be done.</p>
<p>March 19, 2009                  House Natural Resources Committee Hearing on H. 436                  Testimony of Bill Sherman, Public Oversight Panel  <b>Pl. Ex. 251E</b></p>	<p>[Track 1 00:53:30]                  BILL SHERMAN: There are risks or perceived risks from the plant. Those risks are evaluated. The Nuclear Regulatory Commission requires evaluation and they – and quantified to be low risks. But I'm not here to defend those risks.</p>
<p>March 20, 2009                  House Natural Resources Committee Hearing on H. 436                  Testimony of Deputy Commissioner Rich Smith, Department of Public Service  <b>Pl. Ex. 256A</b></p>	<p>[Track 3 00:02:30]                  RICH SMITH: There's an agreement that was agreed to that a board put within its order that provides for the use of SAFSTOR and in the decommissioning for Vermont Yankee. I know you've heard it before but we are really concerned about the Legislature taking an agreement between the State and another party and then saying, "Well, we don't agree with that agreement going forward." We think that is bad policy.</p>
<p>March 20, 2009                  House Natural Resources Committee Hearing on H. 436                  Statement of Representative Klein  <b>Pl. Ex. 256B</b></p>	<p>[Track 3 00:06:58]                  REPRESENTATIVE KLEIN: Okay, I will remind you that in 1997 the department actively, actively, tried to find every which way possible to break a contract with the independent power producers of the State because they felt it was costing the State too much money.                   RICH SMITH: Was that contract broken, Mr. Chairman?</p>

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	REPRESENTATIVE KLEIN: It was not broken because it was, indeed, a contract that couldn't be broken, okay. A board order is not a contract.
April 9, 2009 Senate Finance Committee Hearing on H. 436 Testimony of Steve Kimbell, lobbyist, Green Mountain Power Corp. <b>Pl. Ex. 261A</b>	[Track 1 00:27:34] STEVE KIMBELL: [I]f you start tinkering with the rule of law around an emotional issue where a lot of money's on the table, you're going to screw up our society.  ***  [Track 1 00:28:34] STEVE KIMBELL: The board approved SAFSTOR as an option for Entergy during the term of the contract, up through 2012. There have been claims that we didn't know about that, that we wouldn't have – <del>we</del> ," the Legislature – you wouldn't have approved it if you'd known about it. And I just say they're bogus. It was a public process. This order was a public document. All the MOU that led up to it was a public document.

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<p>February 2010 Senate Finance Committee Hearing on S. 289 Testimony of Kenneth Theobalds, Entergy Nuclear Vermont Yankee <b>Pl. Ex. 273A</b></p>	<p>[Track 2 00:03:22] KENNETH THEOBALDS: For example, the Comprehensive Reliability Assessment, required by Act 189, was reopened to conduct a review of the advanced off-gas system and a review of the buried pipe program at Vermont Yankee. Any vote now would take place without your knowledge of those reviews. As we speak, your joint Fiscal Committee experts are studying the effect of any Vermont Yankee decision on electric rates and jobs. You're also awaiting the results of Entergy and other investigations into tritium and groundwater at the plant, as well as progress of negotiations for a purchased power agreement. For something this important, you want information and we agree with you. And it's clear that a hasty vote would deprive you of information that you need to make the right choice. Of course, we are in favor of the continued operation of Vermont Yankee beyond 2012 and we're prepared to make the case for it. But make no mistake about this: we are also firm believers in the state and regulatory processes in place. We believe those processes should be allowed to go forward without premature legislative action that could have unintended consequences. We are not in favor of legislation that would deny the Public Service Board its right to decide on whether to issue a Certificate of Public Good.</p>
<p>February 2010 Senate Finance Committee Hearing on S. 289 Testimony of Commissioner David O'Brien, Department of Public Service <b>Pl. Ex. 273B</b></p>	<p>[Track 2 00:08:49] COMMISSIONER O'BRIEN: My name is David O'Brien. I am Commissioner in the Vermont Department of Public Service. *** [Track 2 00:09:55] COMMISSIONER O'BRIEN: Also, of course, the tritium leak on the site and not knowing the source of that at the moment. *** [Track 2 00:10:23] COMMISSIONER O'BRIEN: It's, you know, while we're getting a lot of data on a day-to-day basis, you know, we don't have anything definitive yet. *** [Track 2 00:10:44] COMMISSIONER O'BRIEN: Is there any sort of indication of that contamination readi- reaching the general public and therefore affecting public health and safety? *** [Track 2 00:11:36]</p>

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	<p>COMMISSIONER O'BRIEN: So, from our perspective, we think that a time-out is the appropriate step, as opposed to taking the action or taking up this bill that's before you.</p> <p>***</p> <p>[Track 2 00:13:37] COMMISSIONER O'BRIEN: [W]e essentially sort of view this as a question that should not be made in the environment we are presently in, with a lot of unknowns.</p> <p>***</p> <p>[Track 2 00:16:40] COMMISSIONER O'BRIEN: [A] fact remains that right now, right here, right now, the question of what do we have on the site and what sort of public health and safety issues do we need to address is sort of priority one.</p>
<p>February 2010 Senate Finance Committee Hearing on S. 289 Statement of Senator Geyer <b>Pl. Ex. 273C</b></p>	<p>[Track 2 00:32:51] SENATOR GEYER: I don't think Vermonters are comfort – comfortable with that plant. I think it makes them extremely nervous.</p> <p>***</p> <p>[Track 2 00:33:09] SENATOR GEYER: It's old technology. It's run out. And they're very uncomfortable with it. Again, what you said in terms of the comfort level.</p> <p>***</p> <p>[Track 2 00:33:30] SENATOR GEYER: And the e-mails that I'm – or, and the messages that I'm getting, people are not comfortable with the way that place is operating. And again, they don't want to sleep with one eye opening – one eye open waiting for something to happen down there that can't be controlled.</p>
<p>February 2010 Senate Finance Committee Hearing on S. 289 Testimony of Steve Kimbell, lobbyist, Green Mountain Power Corporation <b>Pl. Ex. 273D</b></p>	<p>[Track 2 00:45:08] STEVE KIMBELL: [M]y name is Steve Kimbell. I'm an attorney and lobbyist in Montpelier, here today on behalf of Green Mountain Power Corporation.</p> <p>***</p> <p>[Track 2 00:46:41] STEVE KIMBELL: [W]e would urge and recommend to the committee that it delay a decision on this bill until we all know more. There are safety studies still ongoing as a result of recent issues that have the promise of being resolved in the reasonably</p>

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	<p>near future, as I understand it.</p>
<p>February 2010                  Senate Finance Committee                  Hearing on S. 289                  Testimony of James                  Moore, Vermont Public                  Interest Research Group  <b>Pl. Ex. 273E</b></p>	<p>[Track 2 00:51:23]                  JAMES MOORE: My name is James Moore. I'm the Clean Energy Program Director with Vermont Public Interest Research Group.</p> <p style="text-align: center;">***</p> <p>[Track 2 00:53:42]                  JAMES MOORE: And Entergy made their best rate offer. And they made it public. And they filed it and put it out there in the newspapers and it wasn't deemed to be good enough. This is a situation of their making.</p> <p style="text-align: center;">***</p> <p>[Track 2 00:57:03]                  JAMES MOORE: [I]t can reasonably be assumed that as the reactor gets older, and continues to have accidents, leaks, and other mishaps, additional harm to our state's image will result.</p> <p style="text-align: center;">***</p> <p>[Track 2 00:57:34]                  JAMES MOORE: And the economic risk to our State increases exponentially as we consider a lower probability, but higher impact events, such as increased environmental contamination or serious mechanical failures at the reactor.</p>
<p>February 2010                  Senate Finance Committee                  Hearing on S. 289                  Testimony of Bob                  Stannard, Vermont                  Citizens Action Network  <b>Pl. Ex. 274A</b></p>	<p>[Track 1 00:11:38]                  BOB STANNARD: My name is Bob Stannard, for the record. I'm here on behalf of Citizens– Vermont Citizens Action Network.</p> <p style="text-align: center;">***</p> <p>[Track 1 00:12:31]                  BOB STANNARD: It's a nuclear power plant that is now leaking radioactive isotopes from aged pipes that have never been inspected because the regulators have no serious inspection program.</p>
<p>February 2010                  Senate Finance Committee                  Hearing on S. 289                  Testimony of Paul Blanch,                  State of New York                  Attorney General's Office  <b>Pl. Ex. 275A</b></p>	<p>[Track 1 00:02:20]                  PAUL BLANCH: What are you going to see next? Well, you're probably, and I can't – this is my opinion, there's probably strontium leaking into the ground. There's probably cesium, maybe some zinc, and other radioactive isotopes. Tritium is a problem. We have limits. I mentioned before I'm a smoker. Is tritium going to kill you if you take one puff of it? No. It's just going to increase your probability that your life is going to end</p>

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	<p>earlier.</p> <p style="text-align: center;">***</p> <p>[Track 1 00:03:23]                  PAUL BLANCH: This is their run-to-failure program. It is not adequate. We don't allow that for pipelines. We don't allow that for our car brake lines, and we should not allow it for a nuclear power plant here that contains, at best, hazardous material, at worst, extremely dangerous material.</p>
<p>February 2010                  Senate Finance Committee                  Hearing on S. 289                  Testimony of Paul Blanch,                  State of New York                  Attorney General's Office  <b>Pl. Ex. 275B</b></p>	<p>[Track 1 00:06:07]                  SENATOR CUMMINGS: What happens if the cables break?</p> <p>PAUL BLANCH: Well, the cables again, we're on Indian Point again public records – cables buried underground age just like buried piping does. Insulation breaks down, water intrudes, corrodes the insulation, those – it's not going to release any tritium but it could disable safety systems.</p> <p style="text-align: center;">***</p> <p>[Track 1 00:07:20]                  SENATOR CUMMINGS: Well, I think this has been helpful.</p>
<p>February 24, 2010                  Senate Floor Debate                  on S. 289                  Statement of Senator                  Cummings  <b>Pl. Ex. 276A</b></p>	<p>[Track 30 00:02:46]                  SENATOR CUMMINGS: These are not – these nuclear plants are not regulated utilities. They are merchant plants. They sell to the market. They are not owned by a utility.</p>
<p>February 24, 2010                  Senate Floor Debate                  on S. 289                  Statement of Senator                  Cummings  <b>Pl. Ex. 276B</b></p>	<p>[Track 32 00:03:52]                  SENATOR CUMMINGS: The other one is the favorable Purchase Power Agreement. Now, I understand that yesterday while I was putting my slides together there was a gift proposed for Vermont, but we've been – the utilities have been negotiating for I think two years to reach a Purchase Power Agreement. This is not something that the Legislature negotiates. They have failed to reach agreement, and Entergy has made, and I guess it's Enexus at this point, even though, the offer is coming from Enexus, even though the sale to Enexus has not been approved either here or in New York at this date. So they have made known their purchase power agreement, and they are offering us where we had 280 megawatts, they are offering us 115, about a third, and we were getting it at 4.2 cents a kilowatt hour. They're offering it at 6.1 cents a kilowatt hour. 6.1 cents is roughly the market rate –                  [Start track 33]                  – for energy right now. We can go to the market, and we can buy</p>

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	<p>electricity for 6.1 cents a kilowatt hour, so no matter what you do, depending on the mix of your utility, if we accept the offer or if we go to the market, your electric rates are going to go up 7 percent no matter what we do. There is – we are not – the option to continue under our present favorable arrangement has not been offered, so that’s there.</p>
<p>February 24, 2010                  Senate Floor Debate                  on S. 289                  Statement of Senator                  Cummings  <b>Pl. Ex. 276C</b></p>	<p>[Track 33 00:02:28]                  SENATOR CUMMINGS: We are concerned that we have not gotten the favorable purchase power agreement we had.</p>
<p>February 24, 2010                  Senate Floor Debate                  on S. 289                  Statement of Senator from                  Chittenden  <b>Pl. Ex. 276D</b></p>	<p>[Track 34 00:00:17]                  SENATOR FROM CHITTENDEN: [W]e’ve taken testimony and we’ve heard that, through the work of the independent public oversight panel, that brought – that developed the vertical audit of the plant, we have heard a variety of issues related to operational – um, operations and management at the plant, and I know that those are issues that are familiar to many people, you know, the issues of the missing fuel rods for a period of time, transformer fire, or fire in the transformer, or cracks in the steam dryer, cooling tower collapse, crane mis-operation, workers being evacuated due to irradiation, inadequate testing of spray nozzles...</p> <p>SENATOR FROM WINDSOR: Mr. President, a point of order.</p> <p>SENATOR SHUMLIN: Excuse me, Senator.</p> <p>SENATOR FROM WINDSOR: Just a point of order, Mr. President. I just would like to clarify for the body that we here in the Senate, unfortunately, we are limited to certain areas of debate, and anything dealing with the safety issue is not within our purview, and therefore I would ask that any debate be limited strictly to those issues under our purview, and safety is not one of them. I just want to make sure that the body is aware of that.</p> <p>SENATOR SHUMLIN: Thank you, Senator. Point well taken. Senator from Chittenden.</p> <p>SENATOR FROM CHITTENDEN: Thank you, Mr. President. And most recently we’ve heard of leaking pipes at the plant, which have caused radiologic liquid effluent. Now, as the Senator from Windsor has indicated, many of these areas are not within our jurisdiction. Nevertheless, they are indicative of operational</p>

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	<p>problems and concerns at the plant and indicative of an aging nuclear plant. It has been operating for 37 years of its 40-year life. And as I indicated, the vertical audit has identified 80 of these areas, issues that should be resolved before any continued operation of the plant. Current to date, four of those have been addressed by the plant, as indicated to us by our independent oversight committee.</p>
<p>February 24, 2010                  Senate Floor Debate                  on S. 289                  Statement of Senator                  Shumlin  <b>Pl. Ex. 277A</b></p>	<p>[Track 1 00:04:06]                  SENATOR SHUMLIN: The first is the price that was offered to us by Enexus.                  ***                  [Track 3 00:01:10]                  SENATOR SHUMLIN: Now there's a reason why Green Mountain Power and Central Vermont haven't come to a power purchase agreement with Entergy – Enexus, Entergy Louisiana. The reason is, they've concluded that the price is no good; that Vermonters would have to pay too much. I agree with that assessment.</p>
<p>February 24, 2010                  Senate Floor Debate                  on S. 289                  Statement of Senator                  Shumlin  <b>Pl. Ex. 277B</b></p>	<p>[Track 3 00:01:29]                  SENATOR SHUMLIN: Second, clean-up. It would cost \$1 billion, roughly, today, to return the plant to a green field as was promised by Entergy Louisiana when they bought the plant from CV and Green Mountain Power.                  ***                  [Track 3 00:01:51]                  SENATOR SHUMLIN: Despite the good judgment of two bipartisan bills passed by this Legislature to require Entergy to guarantee the fund if they're going so spin it off to another company, to guarantee that Vermonters don't get stuck with that bill. We know that the governor has vetoed both of those bills.</p>
<p>February 24, 2010                  Senate Floor Debate                  on S. 289                  Statement of Senator                  Shumlin  <b>Pl. Ex. 277C</b></p>	<p>[Track 3 00:02:37]                  SENATOR SHUMLIN: The third is the spin-off.                  ***                  [Track 3 00:04:00]                  SENATOR SHUMLIN: Then they need money to run a company, so they have to borrow and issue \$1.2 billion of junk-rated B bonds to run the thing. So what are we left with in the State of Vermont? Six aging nuclear power plants, one of which seems to be leaking.</p>

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<p>February 24, 2010                  Senate Floor Debate                  on S. 289                  Statement of Senator                  Shumlin  <b>Pl. Ex. 277D</b></p>	<p>[Track 3 00:04:40]                  SENATOR SHUMLIN: Fourth, reliability. Listen, I don't think that needs any further discussion than has been offered by our two chairs, except to say that if you don't think that leaking tritium and, I believe cobalt, into the ground water and the Connecticut River, and the                  [Start track 4]                  environment of the state of Vermont, that every single Vermonter cherishes and holds dear and we all agree is the bedrock and the foundation of the values that we hold as Vermonters. I don't know what else you can have as an indicator that reliability is a problem.</p>
<p>February 24, 2010                  Senate Floor Debate                  on S. 289                  Statement of Senator                  Shumlin  <b>Pl. Ex. 277E</b></p>	<p>[Track 4 00:00:21]                  SENATOR SHUMLIN: Finally, trust. Listen, I know that Entergy Louisiana had a press conference this morning and they issued a report that said that lawyers that they had hired from Washington had filed information with the Attorney General's Office concluding that they had not misled our regulators or our legislators in describing the underground pipes that didn't exist. As the senator from Washington, Senator Cummings, said, if you want to believe that, you should and you could. I learned in business 23 – when I was 23 years old, don't do business with someone that you can't trust because they'll eat your lunch every single time.</p> <p style="text-align: center;">***</p> <p>[Track 4 00:01:17]                  SENATOR SHUMLIN: If you can trust them, if they were in fact telling the truth that they didn't know that there were underground pipes under the plant, then the obvious question is, well, what's worse? A company that won't tell you the truth, or a company that's operating an aging nuclear power plant on the banks of the Connecticut River and doesn't know that they have pipes with radioactive water running through them that are leaking and they don't know because they didn't even know the pipes existed? Neither is very comforting.</p>
<p>February 24, 2010                  Senate Floor Debate                  on S. 289  <b>Pl. Ex. 277F</b></p>	<p>[Track 4 00:03:04]                  SENATOR 1: Thank you, Mr. President. I wonder if you might be able to – there was a point of order brought before, and I'm somewhat unclear as to what that really meant. We're talking about reliability, and we're talking about safety, and I'm wondering if you could maybe describe to us what we're supposed to base our decision on and what we're supposed to talk</p>

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	<p>and what we're not supposed to talk about in the context of safety and reliability. Is that something you can do, Mr. President?</p> <p>SENATOR 2: The chair is going to declare a brief recess and confer with the secretary of the Senate to discuss the point of order.</p> <p style="text-align: center;">***</p> <p>[Track 5 00:00:08]                  SENATOR 2: Call the Senate to order. Thank you for your patience. The Senate President has conferred with the secretary of the Senate, and the secretary of the Senate, in response to a parliamentary inquiry— it's always fun as the presiding officer to rely on our source document, the Vermont Constitution. And the secretary of the Senate has referred me, the presiding officer, to Article 14. I'm going to read it verbatim.</p> <p>The section under Article 14 is, Immunity for Words Spoken in Legislative Debate. The freedom of deliberation, speech, and debate in the Legislature is so essential to the rights of the people that it cannot be the foundation for any accusation or prosecution action, complaint or any other court or place whatsoever.</p> <p>And the question that I think the Senator was talking about is safety, reliability, what is the responsibility of this body? I would say, quoting the Article 14 of the Constitution is, it's our responsibility to talk about these things, irregardless of the fact that the Public Service Board is the – and the Nuclear Regulatory Commission has a responsibility for safety.</p>
<p>February 24, 2010                  Senate Floor Debate                  on S. 289  <b>Pl. Ex. 277G</b></p>	<p>[Track 11 00:04:27]                  SENATOR CUMMINGS: But your regular rate payers, according to what has been offered, are going to pay 7 percent more. It depends on the mix in your particular utility. They're going to pay more whether you buy it off the market, or you buy it from Entergy. Because they're not offering us a good deal.</p>
<p>February 24, 2010                  Senate Floor Debate                  on S. 289                  Statement of Senator from                  Rutland  <b>Pl. Ex. 278A</b></p>	<p>[Track 1 00:04:40]                  SENATOR FROM RUTLAND: In Section 1, if we were to vote yes, if we were to vote for the continued operation and I know a number of us won't be voting to continue that operation, but if we were, shouldn't we really be looking at the question in a way that addresses –                  [start track 2]                  – of rate payers, addresses the concerns of Vermont's work force, addresses the concerns of Vermont's future energy needs,</p>

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	addresses safety concerns, although I'm not supposed to talk about that so I won't go into detail on that, but it's certainly in everybody's mind in this room, we all know it.
February 24, 2010 Senate Floor Debate on S. 289 Statement of Senator from Rutland <b>Pl. Ex. 278B</b>	[Track 2 00:01:09] SENATOR FROM RUTLAND: So, this condition would allow acceptance only if a contract at the same amount of megawatt hours, 115, was agreed to at a rate that is no more than 125 percent of existing rates, which would put it a little over 5 cents.
February 24, 2010 Senate Floor Debate on S. 289 Statement of Senator Flory <b>Pl. Ex. 278C</b>	[Track 6 00:01:23] SENATOR FLORY: Nuclear power, at least from the time that Entergy has owned it, has been reliable. The total number of outplanned [sic] outages is 26 days. Since 2003, there have been 26 days that they were shut down for unplanned outage. That, in my mind, is fairly reliable.
February 24, 2010 Senate Floor Debate on S. 289 Statement of Senator from the Lamoille District <b>Pl. Ex. 278D</b>	[Track 11 00:01:16] SENATOR FROM LAMOILLE: For me, and then coming to the floor and in this conversation, to add to my frustration, and I know others in the body, we have to be really, really careful about what we talk about because what we have jurisdiction over is reliability. So we don't have jurisdiction over anything else. And the concern is that if we say things about other things, then our wonderful partner is going to sue us and that will be used against us. So we just kind of compound, I know it's not just my frustration. So I want to start with, I understand we do not have jurisdiction over what I'm about to talk about. And for me, the past couple of weeks, the scariest testimony has been coming from our Natural Resources Committee. And it appears to be, between all the bodies involved and the regulatory committee, that nobody has control over this. I am told that, it seems pretty evident to me, that there is an illegal discharge into the waters of the State of Vermont. But, it's nuclear, so we don't have any control over it, which truly makes me wild.
February 24, 2010 Senate Floor Debate on S. 289 Statement of Senator Scott <b>Pl. Ex. 278E</b>	[Track 13 00:00:53] SENATOR SCOTT: I cannot stand by and vote to support what I view as a blatant political maneuver. My yes vote is a reminder that there is more at stake today than scoring political points. The future of 600 jobs, affordable power, and the Vermont economy should not be decided in a rush to judgment. Unfortunately for the people of Vermont, politics came before a responsible process today. Vermonters deserve better than this.

UNITED STATES DISTRICT COURT

FOR THE

DISTRICT OF VERMONT

ENTERGY NUCLEAR VERMONT )  
YANKEE, LLC and ENTERGY NUCLEAR )  
OPERATIONS, INC., )

Plaintiffs, )

v. )

Docket No. 1:11-cv-99

PETER SHUMLIN, in his official capacity as )  
GOVERNOR OF THE STATE OF )  
VERMONT; WILLIAM SORRELL, in his )  
official capacity as the ATTORNEY )  
GENERAL OF THE STATE OF VERMONT; )  
and JAMES VOLZ, JOHN BURKE, and )  
DAVID COEN, in their official capacities as )  
members of THE VERMONT PUBLIC )  
SERVICE BOARD, )

Defendants. )

**LEGISLATIVE HISTORY APPENDIX  
TO PLAINTIFFS' PRE-TRIAL BRIEF  
VOLUME II**

**LEGISLATIVE HISTORY APPENDIX****VOLUME II****Entergy Nuclear Vermont Yankee, LLC v. Shumlin, et al.****1:11-CV-99 (jgm)**

<b>Pl. Ex. No.</b>	<b>Document Description</b>	<b>Date</b>	<b>Page</b>
Pl. Ex. 401	Draft No. 1 of S. 124, entitled "An Act Relating to the Filing of Applications to Extend the Operation of Vermont Yankee and the Related Certificate Good Process"	February 26, 2006	1
Pl. Ex. 427	Draft No. 3 of S. 269, entitled "An Act Relating to an Independent Safety Assessment of the Vermont Yankee Nuclear Facility"	February 20, 2008	7
Pl. Ex. 408	Draft No. 4 of S. 269, entitled "An Act Relating to an Independent Safety Assessment of the Vermont Yankee Nuclear Facility"	February 27, 2008	18
Pl. Ex. 410	Sarah Hofmann, "Preemption from 50,000 Feet"	March 25, 2008	31
Pl. Ex. 391	Nuclear Safety Associates, "Reliability Assessment of the Vermont Yankee Nuclear Facility" (excerpted)	December 22, 2008	35
Pl. Ex. 330	Dr. Howard J. Axelrod, "An Independent Assessment of the Environmental and Economic Impacts Associated with the Closing of the Vermont Yankee Nuclear Plant – Updated" (excerpted)	March 13, 2009	38
Pl. Ex. 376	Letter from Gov. James H. Douglas to Hon. Donald G. Milne	May 22, 2009	41
Pl. Ex. 344	ISO-New England Presentation to Senate Finance Committee, entitled "An Overview of Markets, Planning and Vermont Issues" (excerpted)	January 21, 2010	48
Pl. Ex. 329	Economic & Policy Resources, Inc., "Consensus Economic and Fiscal Impact Analyses Associated with the Future of the Vermont Yankee Power Plant" (excerpted)	March 2010	51
Pl. Ex. 387	Nuclear Safety Associates, "Supplemental Report To the Comprehensive Reliability Assessment of the Vermont Yankee Nuclear Facility" (excerpted)	April 30, 2010	57
Pl. Ex. 333	Vermont Legislative Joint Fiscal Office, "Issue Brief – Vermont Yankee Nuclear Power Facility: Taxation and Other Fees and Payments to the State – Updated" (excerpted)	February 2011	61

# **Plaintiffs' Exhibit 401**

(Draft No. 1 - S. 124)  
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TO THE HONORABLE SENATE

The Committee on Finance, to which was referred Senate Bill S. 124,  
entitled "AN ACT RELATING TO THE FILING OF APPLICATIONS TO  
EXTEND THE OPERATION OF VERMONT YANKEE AND THE  
RELALATED CERTIFICATE OF PUBLIC GOOD PROCESS"

respectfully report that they have met and considered the same and recommend  
that the bill be amended by striking all after the enacting clause and inserting  
in lieu thereof the following:

Sec. 1. 30 V.S.A. § 231(c) is added to read:

(c) No nuclear fission plant within this state may be operated beyond the  
date permitted in any certificate of public good granted pursuant to this section  
and in force as of January 1, 2006, unless the public service board finds that  
the same will promote the general good of the state and issues a certificate to  
that effect pursuant to the requirements of this section and section 248 of this  
title. An application for extension of a license of a nuclear fission plant, for re-  
licensure of a nuclear fission plant, for disposal of nuclear waste from a  
nuclear fission plant, or for any other similar activity that requires the  
operation of a nuclear fission plant in the state beyond the date permitted in

- Yankee  
renewal  
Cert. found  
with this  
section - 34  
yes ap.  
- before § 248 (R)  
was enacted  
in 1977

- Learn all  
petitions that  
depend on  
continued  
operation, a  
petition for  
operation.

- to not consider them  
piece-meal

- consolidated?  
VT LEG 201891.v1

(Draft No. 1 – S. 124)  
2/26/2006 - WPR - 2:44 pm

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(1)

any certificate of public good previously granted shall be deemed to be a petition to operate a nuclear fission plant within this state.

Sec. 2. 30 V.S.A. § 248(e) is amended to read:

(c) Before a certificate of public good is issued for the construction or operation of a nuclear fission plant within the state, the public service board shall obtain the approval of the general assembly and the assembly's determination that the construction or operation of the proposed facility will promote the general welfare.

*Then, amend § 248(e) to cover construction and operation. (which includes all practical variations)*

(1) Time of filing petition. A petition for approval of construction or operation of a nuclear fission plant within the state shall be submitted to the public service board no later than five years before the date upon which the approval may take effect.

*Time for filing - 5 years out March 12, 2012 March 12, 2007*

*file with PSB?*

(2) Notice to General Assembly. The public service board shall immediately advise the general assembly of any petition submitted under this section or section 231 of this title for the construction or operation of a nuclear fission plant within this state; by written notice delivered to the speaker of the House of Representatives and to the president of the Senate.

*- Notice to GA, immediate*

(3) Public engagement process; objectives. The board shall conduct and complete a public engagement process on the petition to operate a nuclear fission plant in the state. The objectives of the public engagement process are to facilitate public discussion of broader economic, environmental and safety

*PSB to conduct public engagement consistent with § 248 CPS process*

*§ 218(d) creates a public meeting process for plans for transmission lines.*

*taken from ① Marble Case model last fall  
② process started last year - 2005  
Least cost transmission service  
public hearing, alternatives, (after the fact)*

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issues relating to the operation of a nuclear facility in the state, to identify and assess the potential need for the operation of the facility and its risks and costs, to allow opportunity to plan and implement alternatives if feasible that may be more cost effective or otherwise advance the public welfare, and to provide a public process for the collection and presentation of information to the general assembly necessary for its determination that the construction or operation will promote the general welfare. The public engagement proceedings shall:

(A) identify and analyze issues of long term accountability and financial responsibility, such as funding for guardianship and security of nuclear waste after licensure but before removal; closure obligations, dates of completion, and escrow of funds to secure fulfillment of such closure obligations; federal obligations and escrow of funds to provide for any un-discharged federal responsibilities; funding for emergency management requirements; and financial responsibility for any periods in which the facility is out of service.

(B) Identify and analyze environmental and public health issues,

(C) Identify and analyze current economic issues, in which the operation of the nuclear fission plant beyond the date permitted in any certificate of public good currently granted is considered an entirely new and independent activity to be evaluated under present day cost-benefit assumptions and analysis and not an extension of the cost-benefit assumptions

*objecting*

*broader  
issues  
than to date  
9/2/08*

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and analysis forming the basis of the certificate of public good for the current operation of the facility.

(4) Public engagement process, conduct. In conducting the public engagement process the board shall host at least <sup>two</sup> six public meetings at which it shall facilitate a public discussion to identify and evaluate non-nuclear fission alternatives. The hearings shall be conducted to encourage and support public participation, and shall be non-technical in nature as much as feasible. The board shall encourage and support public groups and individuals seeking to present alternatives. The meetings shall be at separate locations within the state, in proximity to the nuclear fission facilities involved or as otherwise required by the board, and each shall be noticed by at least two advertisements, each occurring between one and three weeks prior to the meetings, in newspapers having general circulation within the state and within the municipalities in which the meetings are to be held. Copies of the notices shall be provided to the department of public service, any entity appointed by the public service board pursuant to subdivision 209(d)(2) of this title, the agency of natural resources, the division for historic preservation, the department of health, the scenery preservation council, the agency of transportation, the attorney general, the chair of each regional planning commission, each retail electricity provider within the state, and any public interest group that requests, or has made a standing request for, a copy of the notice. The board shall

Process is  
like §218(c)  
public  
meeting  
process on  
transmission  
[but there -  
§218 - the  
utility had  
to hold  
meeting on  
its plan and  
discuss  
alternatives.]

Notice (see  
§218(c)(2))  
Transmission  
line maps

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prepare a summary report of the proceedings containing a discussion of the principal contentions made by members of the public, by any state agency, and by any utility, and provide the same to anyone who requests it.

(5) Section 248 process. In addition to the public engagement process, the board shall conduct such other hearings as may be necessary to make findings required by this section 248 and sec 231 to grant a certificate of public good.

*must make  
§ 248 findings  
also*

(6) Report to the general assembly. No later than two years before the date upon which the approval may take effect, the board shall submit any approved petition and a proposed final order to the general assembly for its consideration, together with the summary report of the public engagement process and all other findings required for a certificate of public good under this section. The department of public service shall submit recommendations relating to the proposed plant, and shall make available to the general assembly all relevant material. The requirements of this subsection shall be in addition to the findings set forth in subsection (b) of this section.

*report to  
GA -  
at least  
2 yrs  
with  
proposed  
order*

(7) The general assembly shall consider the proposed final order and may make its approval contingent upon the final order being revised as specified by the general assembly.

*GA can  
amend  
order*

## **Plaintiffs' Exhibit 427**

(Draft No. 3 – S. 269)

2/20/2008 - WPR –10:30 am

Page 1

(3.1)

### DRAFT # 3

TO THE HONORABLE SENATE

The Committee on Finance, to which was referred Senate Bill S. 269, entitled "AN ACT RELATING TO AN INDEPENDENT SAFETY ASSESSMENT OF THE VERMONT YANKEE NUCLEAR FACILITY"

Respectfully report that they have met and considered the same and recommend that the bill be amended by striking all after the enacting clause and inserting in lieu thereof the following:

Sec. 1. COMPREHENSIVE VERTICAL AUDIT AND RELIABILITY ASSESSMENT

(a) Legislative intent and purpose. No.160 of the Acts of the 2005 Adj. Sess. (2006) vested the general assembly with the obligation and authority to examine the reliability of the nuclear power station of Entergy Nuclear Vermont Yankee (ENVY) in order to determine if it should be authorized to operate in this state beyond the expiration of its current operating license on March 21, 2012. Entergy Nuclear Vermont Yankee has had the <sup>highest percentage power increase</sup> largest uprate of any plant in the country and now is applying for a 20-year life extension beyond its 40-year design. It is the intent of the general assembly to determine on behalf of the people of the state of Vermont the reliability issues associated with operating ENVY for an additional 20 years after its scheduled closure in 2012. It is therefore the intent of the general assembly to thoroughly assess the reliability of the systems, structures and components of Entergy Nuclear Vermont Yankee facility by conducting and making public the results of an independent comprehensive vertical audit

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(3.1)

and reliability assessment in the manner provided in this act.

(b) The goals and objectives of an independent comprehensive vertical audit and reliability assessment are to:

(1) Assess the conformance of the facility to its design and licensing bases, for operating at both 100 percent and 120 percent of its originally intended power production level, including appropriate reviews at the plant's site and its corporate offices;

(2) Identify all deviations, exemptions or waivers, or any combination of these from any regulatory requirements applicable to Vermont Yankee and from any regulatory requirements applicable to new nuclear reactors, and verify whether adequate safety margins are retained despite the cumulative effect of any deviations, exemptions, or waivers for both the present licensed power level and under the proposed extended power uprate; and for the proposed period of license extension;

(3) Assess the facility's operational safety performance giving risk perspectives where appropriate;

(4) Evaluate the effectiveness of licensee self-assessments, corrective actions, and improvement plans; and

(5) Determine the cause or causes of any safety significant findings and draw conclusions on overall performance.

(c) Methodology. A comprehensive vertical audit and reliability assessment shall include a vertical slice audit of specific safety and reliability systems in order to compare and contrast the original plant design with changes in hardware, engineering, procedures, and maintenance, and in order to ascertain whether the plant is more or less reliable when generating electricity following uprate to 120 percent of its design

*operating*

*significant operational shortcomings identified*

*integral to the plants operations*

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(3.1)

capacity, and to certify that critical <sup>operating</sup> safety systems needed to <sup>holder</sup> protect the people of Vermont <sup>harmless,</sup> will perform as designed. A comprehensive vertical audit and reliability assessment requires a complete vertical slice inspection and analysis of at least seven whole plant systems as described in subsection (e) of this section. Each shall be examined and evaluated according to the five objectives set out in subsection (b) of this section and the specific audit inquiries set out in subsection (d) of this section.

(d) Specific audit inquiries. To achieve the goals and objectives of a comprehensive vertical audit and reliability assessment, the audit shall commence with an examination of the initial start-up conditions of the Vermont Yankee plant and examine the subsequent history of its modifications, maintenance, and repairs, and its current operations. The audit shall include physical and documentation examination of seven entire systems including <sup>of each systems</sup> all individual components.

(1) Initial conditions. What were the codes and standards with which the system was designed to comply and what was the design basis? Is the design of the system in keeping with the expected initial conditions and its design basis?

(2) Procurement. If there were procurement changes, were a new set of review calculations completed for those procurement changes and were those procurement changes compared against the original design and all of its calculations?

(3) Installation - "as built." Do plant records adequately represent the as-built condition of the plant? Are all changes reflected in all documents from design basis through as-built and through current operations?

(4) Operation. What changes or compensations have been made to accommodate unanticipated operations outcomes? Have those changes, compensations, and

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(3.1)

accommodations been duly noted in procedural manuals and logs? Have root cause analyses been conducted to reflect unanticipated outcomes? If a root cause analysis were not conducted in any particular instance, why not? If root cause analyses were not conducted in any particular instance, have any unanticipated system operations outcomes been duly compensated in all safety and reliability operations and procedures?

(5) Testing. When systems have undergone periodic tests, <sup>what</sup> ~~have those tests been~~ <sup>been the results of</sup> ~~successful?~~ <sup>corrective actions</sup> Are resulting <sup>changes</sup> reflected in all documents from design through as-built through current operations?

(6) Inspection. When systems have undergone periodic inspections, have those inspections been successful? Are resulting changes reflected in all documents from design through as-built through current operations?

(7) Maintenance. Has the aging management system been adequately maintained to assure it will meet its design basis? Is there a track-change system in place to determine what components have been reviewed, repaired, or replaced? Is there an accurate system in place to record when those reviews and repairs were completed? Is there a program of operations or a schedule of operations that specifically delineates what aging management systems, as identified in the industry-wide database, are being reviewed and when? Is adequate time allowed in each outage for aging management review and adequate maintenance? Are the aging factors discovered actually being repaired in a timely manner?

(8) Repairs. Have repairs been performed which assure the system will operate as expected? Are all repairs completed as soon as possible? Are repairs sufficiently in-depth that really invest in the plant and its operational safety?

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(9) Modifications. Do all modifications to the system also comply with the system's original design basis? Have all procedure manuals and operations manuals been updated to reflect the impact of any modifications made to any system?

(10) Redesign. Have changes made to the plant since original construction been reviewed to ensure that safety margins have not been reduced? Has each component modified for uprate been reviewed to assure that <sup>operational</sup> safety margins have not been reduced and to assure that design basis <sup>Identify</sup> safety redundancy has not been compromised? Have any repairs, maintenance or modifications <sup>of</sup> impacted the original design of the redundant safety systems? <sup>and verify that each</sup> Are all systems still "single failure proof" <sup>is</sup> standard.

(11) Seismic analysis. <sup>when was the next event</sup> Has a modern, computer-generated finite element seismic analysis been performed on each of the seven vertical slice systems examined in the audit? <sup>determine it</sup> in order to ascertain if ENVY remains capable of withstanding design basis events beyond the original 40-year design life of the plant and in order to reflect the age-related changes in the plant and weight changes from all modifications during the first 35 years of operation?

(12) Training. Has an adequate review and evaluation of operator training and operating procedures been conducted as a method of determining if the design criterion has been met? <sup>Has each change been</sup> Are all changes/adequately reflected in the operations procedures? Have operations personnel been adequately trained in all modifications to all systems? Are operations personnel frequently updated and trained regarding any troublesome issues other plants have uncovered which may compromise operations and safe shutdown?

(13) Corrective action programs. What corrective action programs have been established for each of the systems audited? Are reported items properly integrated

in the corrective action program? Are <sup>corrective actions taken</sup> they appropriately addressed in a timely manner? ✓

Where recorded items are deferred, are they appropriately evaluated for risks and potential consequences of deferral and appropriately tracked while awaiting resolution?

(e) Plant systems to be evaluated. The following systems, together with related structures and components, shall be subject to a comprehensive vertical audit and reliability assessment. The comprehensive vertical audit shall examine each system from the time it was designed, through the present, to <sup>the</sup> end of its life. The whole systems to be examined are:

(1) One electrical system: the back-up or stand-by electrical system, including but not limited to the diesel generators, batteries, the Vernon dam tie, and all associated electrical connections and controls.

(2) One <sup>emergency</sup> safety system: the emergency core cooling system, including but not limited to both high and low pressure safety injection systems. ✓

(3) One mechanical system: the condensate feed water system, including the condenser.

(4) One structure: the primary containment system, including all associated systems, structures, and components, such as dry well shell, torus supports, residual heat removal system, isolation valves, containment spray, and adequate suction.

(5) One heat removal system: cooling towers and alternate cooling system, including both cooling tower cells used for normal cooling and those that are <sup>emergency</sup> safety-related towers. This system shall include the <sup>emergency</sup> safety-related alternate cooling system, including dedicated cells, piping, pumps, valves, controls, water supply, make-up supply, power supply, fans, and motors. ✓

*cooling system dependent on water*  
(6) One ~~Connecticut River cooling system~~: alternate cooling system and

emergency service water.

(7) One generic issue: cable separation — separation of safety systems, including physical and electrical separation.

*At any point when an emergency*  
(f) Horizontal investigation and assessment. Where safety-related function, operability, design, performance, aging issues, or other unanalyzed or nonconforming conditions are encountered, a thorough horizontal or lateral exploration shall be conducted to determine extent-of-condition and root cause with attention to evaluating licensee performance in problem identification and resolution, testing, engineering, in-service inspection, and maintenance. *Lateral*

Sec. 2. INSPECTION TEAM, APPOINTMENT; COSTS

(a) The public service board shall empanel a team of qualified consultants, experts, and technicians to conduct the comprehensive vertical audit and reliability assessment required by this act. The inspection team shall be composed of not less than (number) members of whom:

(1) not less than (number) shall be employees of the federal Nuclear Regulatory Commission, if upon petition by the public service board, the commission consents to participate in the audit and assessment. Members who are employees of the commission shall be unaffiliated with the regional office of the commission in this region in which the plant is located.

(2) not less than (number) members who shall be independent contractors who have not worked for or at the Vermont Yankee facility, Entergy Nuclear Vermont

Yankee, or any other nuclear power plant owned and operated by Entergy Nuclear

Vermont Yankee, or any of its affiliates.

(3) not less than (number) other members appointed by the public service board.

(b) The costs incurred by the inspection team and other expenses incurred in the conduct of the comprehensive vertical audit and reliability assessment shall be charged to the petitioner for a license extension under the provisions of 30 V.S.A. §§ 20 and 21.

Sec. 3. PUBLIC OVERSIGHT, EVALUATION AND ENGAGEMENT PROCESS

(a) The comprehensive vertical audit and reliability assessment required by this act shall be conducted with the maximum amount of transparency, public oversight, and involvement. To that end, a public evaluation team is created to include:

(1) one official in the executive branch of the state government appointed by the governor; and

(2) two representatives of the Vermont general public with a demonstrated expertise in nuclear technology and/or nuclear regulation appointed by the speaker of the house and president pro tem of the senate.

(b) The inspection team, established by Sec. 2 of this act, shall perform under the general direction of the public evaluation team, and shall make available to the public evaluation team a record of all documents consulted and generated in developing and executing the diagnostic evaluation and, where it does not encroach upon security considerations, the public evaluation team shall make these documents publicly available. The evaluation team will report publicly its findings together with any solutions proposed for negative findings. The evaluation team shall submit documentation and findings to the appropriate committees of jurisdiction of the general assembly, and to the governor.

*(c) oversight like above.*

**Sec. 4. SCHEDULE; MINIMUM LEVEL OF INVOLVEMENT**

(a) The inspection team shall be appointed and impaneled as soon as possible upon the passage of this act.

(b) The inspection team shall commence work on or before July 1, 2008, in order to allow it to be on-site for the planned 2008 outage of the Vermont Yankee Nuclear facility in the fall of 2008.

(c) The general assembly intends that the comprehensive vertical audit and reliability assessment shall be thorough and extensive, and that a minimum level of involvement shall be required of the investigation team according to the following table:

**Estimated Hours for CVA**

<b>On-Site Hours</b>	<b>People</b>	<b>Weeks</b>	<b>Hours</b>	<b>Total Hours</b>
<b>Standby Electrical System Including Diesel Generator</b>	5 x	6 x	50	= 1,500
<b>Emergency Core Cooling Systems</b>	6 x	6 x	50	= 1,800
<b>Feedwater Condensate</b>	4 x	6 x	50	= 1,200
<b>Containment/ Isolation Valve</b>	5 x	6 x	50	= 1,500
<b>Cooling Tower</b>	3 x	6 x	50	= 900
<b>Alternate Cooling System &amp; Emergency Service Water</b>	5 x	6 x	50	= 1,500
<b>Cable Separation NRC</b>	1 x	6 x	50	= 300
<b>Technicians</b>	9 x	4 x	60	= 2,160
<b>Team Leader (Administrator)</b>	1 x	6 x	50	= 300

<b>Total Onsite NRC Inspectors<sup>1</sup></b>	39 people x 30 + 9	For up to 6 weeks		
<b>Total Offsite</b>	32 people x	*3 weeks to set criteria 4 weeks to report For 7* weeks Total x	40	= 3,840 = 5,120 = 8,960
<b>Total Person-hours</b>				= 20,120

(d) The inspection team shall periodically submit a report of its findings to the public evaluation team and submit its final report of the comprehensive vertical audit and reliability assessment of the audit to the public evaluation team before 2009.

(e) The public evaluation team shall present the audit report and recommendations to the public and general assembly for the purpose of its deliberations and determination of whether the Entergy Nuclear Vermont Yankee plant should be authorized to operate in the state beyond the expiration of its current license on March 21, 2012.

Sec. 5. EFFECTIVE DATE

This act shall take effect from passage.

<sup>1</sup> NRC offsite personnel exceed NRC on-site personnel because two cable separation experts are not required on-site during the outage while 9 non-NRC technicians perform cable separation inspections.

## **Plaintiffs' Exhibit 408**

## DRAFT # 4

### Changes from Draft # 3 in bold

TO THE HONORABLE SENATE

The Committee on Finance, to which was referred Senate Bill S. 269, entitled "AN ACT RELATING TO AN INDEPENDENT SAFETY ASSESSMENT OF THE VERMONT YANKEE NUCLEAR FACILITY"

Respectfully report that they have met and considered the same and recommend that the bill be amended by striking all after the enacting clause and inserting in lieu thereof the following:

#### **\*\*\* Comprehensive Vertical Audit \*\*\***

Sec. 1. COMPREHENSIVE VERTICAL AUDIT AND RELIABILITY ASSESSMENT

(a) Legislative intent and purpose. No.160 of the Acts of the 2005 Adj. Sess. (2006) vested the general assembly with the obligation and authority to examine the reliability of the nuclear power station of Entergy Nuclear Vermont Yankee (ENVY) in order to determine if it should be authorized to operate in this state beyond the expiration of its current operating license on March 21, 2012. Entergy Nuclear Vermont Yankee has had the **highest percentage power increase** of any plant in the country and now is applying for a 20-year life extension beyond its 40-year design. It is the intent of the general assembly to determine on behalf of the people of the state of Vermont the reliability issues associated with operating ENVY for an additional 20 years after its scheduled closure in 2012. It is therefore the intent of the general assembly to thoroughly

assess the reliability of the systems, structures and components of Entergy Nuclear Vermont Yankee facility by *requiring* and making public the results of an independent comprehensive vertical audit and reliability assessment in the manner provided in this act.

(b) The goals and objectives of an independent comprehensive vertical audit and reliability assessment are to:

(1) Assess the conformance of the facility to its design and licensing bases, for operating at both 100 percent and 120 percent of its originally intended power production level, including appropriate reviews at the plant's site and its corporate offices;

(2) Identify all deviations, exemptions or waivers, or any combination of these from any regulatory requirements applicable to Vermont Yankee and from any regulatory requirements applicable to new nuclear reactors, and verify whether adequate *operating* margins are retained despite the cumulative effect of any deviations, exemptions, or waivers for both the present licensed power level and under the proposed extended power uprate; and for the proposed period of license extension;

(3) Assess the facility's *operational* performance giving risk perspectives where appropriate;

(4) Evaluate the effectiveness of licensee self-assessments, corrective actions, and improvement plans; and

(5) Determine the cause or causes of any *significant operational shortcomings identified* and draw conclusions on overall performance.

(c) Methodology. A comprehensive vertical audit and reliability assessment shall include a vertical slice audit of specific *systems integral to the plant's operations* in

order to compare and contrast the original plant design with changes in hardware, engineering, procedures, and maintenance, and in order to ascertain whether the plant is more or less reliable when generating electricity following uprate to 120 percent of its design capacity, and to certify that critical *operational* systems needed to *hold harmless* the people of Vermont will perform as designed. A comprehensive vertical audit and reliability assessment requires a complete vertical slice inspection and analysis of at least seven whole plant systems as described in subsection (e) of this section. Each shall be examined and evaluated according to the five objectives set out in subsection (b) of this section and the specific audit inquiries set out in subsection (d) of this section.

(d) Specific audit inquiries. To achieve the goals and objectives of a comprehensive vertical audit and reliability assessment, the audit shall commence with an examination of the initial start-up conditions of the Vermont Yankee plant and examine the subsequent history of its modifications, maintenance, and repairs, and its current operations. The audit shall include physical and documentation examination of seven entire systems including all of *each system's* individual components.

(1) Initial conditions. What were the codes and standards with which the system was designed to comply and what was the design basis? Is the design of the system in keeping with the expected initial conditions and its design basis?

(2) Procurement. If there were procurement changes, were a new set of review calculations completed for those procurement changes and were those procurement changes compared against the original design and all of its calculations?

(3) Installation - "as built." Do plant records adequately represent the as-built condition of the plant? Are all changes reflected in all documents from design basis through as-built and through current operations?

(4) Operation. What changes or compensations have been made to accommodate unanticipated operations outcomes? Have those changes, compensations, and accommodations been duly noted in procedural manuals and logs? Have root cause analyses been conducted to reflect unanticipated outcomes? If root cause analyses were not conducted in any particular instance, why not? If root cause analyses were not conducted in any particular instance, have any unanticipated system operations outcomes been duly compensated in all safety and reliability operations and procedures?

(5) Testing. When systems have undergone periodic tests, *what have been the results?* Are resulting *corrective actions* reflected in all documents from design through as-built through current operations?

(6) Inspection. When systems have undergone periodic inspections, have those inspections been successful? Are resulting changes reflected in all documents from design through as-built through current operations?

(7) Maintenance. Has the aging management system been adequately maintained to assure it will meet its design basis? Is there a track-change system in place to determine what components have been reviewed, repaired, or replaced? Is there an accurate system in place to record when those reviews and repairs were completed? Is there a program of operations or a schedule of operations that specifically delineates what aging management systems, as identified in the industry-wide database, are being reviewed and when? Is adequate time allowed in each outage for aging management

review and adequate maintenance? Are the aging factors discovered actually being repaired in a timely manner?

(8) Repairs. Have repairs been performed which assure the system will operate as expected? Are all repairs completed as soon as possible? Are repairs sufficiently in-depth that really invest in the plant and its operational safety?

(9) Modifications. Do all modifications to the system also comply with the system's original design basis? Have all procedure manuals and operations manuals been updated to reflect the impact of any modifications made to any system?

(10) Redesign. Have changes made to the plant since original construction been reviewed to ensure that safety margins have not been reduced? Has each component modified for uprate been reviewed to assure that *operational* margins have not been reduced and to assure that design *basis redundancy* has not been compromised? Have any repairs, maintenance or modifications impacted the original design of the redundant safety systems? Are all systems still "single failure proof"?

(11) Seismic analysis. *When was the most recent* modern, computer-generated finite element seismic analysis been performed on each of the seven vertical slice systems examined in the audit? *Does* ENVY remain capable of withstanding design basis events beyond the original 40-year design life of the plant to reflect the age-related changes in the plant and weight changes from all modifications during the first 35 years of operation?

(12) Training. Has an adequate review and evaluation of operator training and operating procedures been conducted as a method of determining if the design criterion has been met? *Has each change been* adequately reflected in the operations procedures?

Have operations personnel been adequately trained in all modifications to all systems?

Are operations personnel frequently updated and trained regarding any troublesome issues other plants have uncovered which may compromise operations and safe shutdown?

(13) Corrective action programs. What corrective action programs have been established for each of the systems audited? Are reported items properly integrated in the corrective action program? Are corrective actions taken in a timely manner? Where recorded items are deferred, are they appropriately evaluated for risks and potential consequences of deferral and appropriately tracked while awaiting resolution?

*been*  
*Have corrective actions taken been*  
*Have*  
*Are corrective actions taken in a timely manner?*  
*more been*  
*more of*  
*been*

(e) Plant systems to be evaluated. The following systems, together with related structures and components, shall be subject to a comprehensive vertical audit and reliability assessment. The comprehensive vertical audit shall examine each system from the time it was designed, through the present, to the end of its life. The whole systems to be examined are:

(1) One electrical system: the back-up or stand-by electrical system, including but not limited to the diesel generators, batteries, the Vernon dam tie, and all associated electrical connections and controls.

(2) One emergency system: the emergency core cooling system, including but not limited to both high and low pressure safety injection systems.

(3) One mechanical system: the condensate feed water system, including the condenser.

(4) One structure: the primary containment system, including all associated systems, structures, and components, such as dry well shell, torus supports, residual heat

removal system, isolation valves, containment spray, and adequate suction.

(5) One heat removal system: cooling towers and alternate cooling system, including both cooling tower cells used for normal cooling and those that are emergency related towers. This system shall include the emergency alternate cooling system, including dedicated cells, piping, pumps, valves, controls, water supply, make-up supply, power supply, fans, and motors.

(6) One cooling system dependent upon Connecticut River water: alternate cooling system and emergency service water.

(7) One generic issue: cable separation — separation of safety systems, including physical and electrical separation.

(f) Horizontal investigation and assessment. At any point in the audit at which an emergency-related function, operability, design, performance, aging issues, or other unanalyzed or nonconforming conditions are encountered, a thorough horizontal or lateral exploration shall be conducted to determine extent-of-condition and root cause with attention to evaluating licensee performance in problem identification and resolution, testing, engineering, in-service inspection, and maintenance.

**\*\*\* Audit Inspection Team \*\*\***

## **Sec. 2. AUDIT INSPECTION TEAM**

(a) The Department of Public Service shall empanel a team of a sufficient number of qualified consultants, experts, and technicians to conduct the comprehensive vertical audit and reliability assessment required by this act. The inspection team shall be composed of employees of or consultants under contract with

the federal Nuclear Regulatory Commission, if upon request of the Department, the commission consents to participate in the audit and reliability assessment. Members of the inspection team who are employees or contractors of the Nuclear Regulatory Commission shall be unaffiliated with the regional office of the commission in this region in which the plant is located. The inspection team shall also include independent contractors selected by the Department who have not worked for or at the Vermont Yankee facility, Entergy Nuclear Vermont Yankee, or any other nuclear power plant owned and operated by Entergy Nuclear Vermont Yankee, or any of its affiliates.

(b) The inspection team shall be appointed and impaneled as soon as possible upon the passage of this act, and shall commence work on or before July 1, 2008, in order to allow it to be on-site for the planned 2008 outage of the Vermont Yankee Nuclear facility in the fall of 2008.

(c) The general assembly intends that the comprehensive vertical audit and reliability assessment shall be thorough and extensive, and that a minimum level of involvement shall be required of the audit investigation team according to the following table:

**Estimated Hours for CVA**

On-Site Hours	People	Weeks	Hours	Total Hours
Standby Electrical System Including Diesel Generator	5 x	6 x	50	= 1,500
Emergency Core Cooling Systems	6 x	6 x	50	= 1,800
Feedwater Condensate	4 x	6 x	50	= 1,200
Containment/ Isolation Valve	5 x	6 x	50	= 1,500

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Cooling Tower	3 x	6 x	50	= 900
Alternate Cooling System & Emergency Service Water	5 x	6 x	50	= 1,500
Cable Separation NRC	1 x	6 x	50	= 300
Technicians	[9 x	4 x	60	= 2,160
Team Leader (Administrator)	1 x	6 x	50	= 300
Total Onsite NRC Inspectors	39 people x 30 + 9	For up to 6 weeks		
Total Offsite	32 people x	*3 weeks to set criteria 4 weeks to report For 7* weeks Total x	40	= 3,840 = 5,120 = 8,960
Total Person-hours				= 20,120

(d) The audit inspection team shall periodically submit a report of its findings to the public evaluation panel and submit its final report of the comprehensive vertical audit and reliability assessment of the audit to the public evaluation panel before 2009.

**\*\*\* Public Evaluation Panel \*\*\***

**Sec.3. PUBLIC EVALUATION PANEL AUTHORIZED KIBITZERS**

(a) The comprehensive vertical audit and reliability assessment required by this act shall be conducted with the maximum amount of transparency, public oversight, and involvement. To that end, a public evaluation panel is created to include:

(1) one official in the executive branch of the state government appointed by the governor; and

(2) two representatives of the Vermont general public with a demonstrated expertise in nuclear technology or nuclear regulation appointed by the speaker of the house and president pro tem of the senate.

(b) The public evaluation panel shall oversee and direct the work of the audit inspection team established by Sec. 2 of this act. The audit inspection team shall make available to the public evaluation team a record of all documents consulted and generated in developing and executing the comprehensive vertical audit and reliability assessment, and shall report its progress and findings to the public evaluation panel at such times as requested by the panel.

(c) The public evaluation panel shall review and report publicly its evaluation of the findings and report of the audit investigation team together with any solutions proposed. The public evaluation panel shall submit documentation and findings to the appropriate committees of jurisdiction of the general assembly and the Joint Energy Committee.

**\*\*\* CVA and Public Engagement \*\*\***

**Sec. 4. PUBLIC ENGAGEMENT PROCESS.**

The evaluation and recommendations of the Public Evaluation Panel and the report and findings of the Audit Investigation Team shall be made available to the public and the general assembly for the purpose of informing the public engagement process directed by No. 160 of the Acts of 2005 directed toward determining whether the Entergy Nuclear Vermont Yankee plant should be authorized to operate in the state beyond the expiration of its current license on March 21, 2012.

**\*\*\* CVA and Certificate of Public Good \*\*\***

**Sec 5. CERTIFICATE OF PUBLIC GOOD**

The evaluation and recommendations of the Public Evaluation Panel and the report and findings of the Audit Investigation Team shall be made available to the director of public advocacy of the Department of Public Service, and may be used by the director of public advocacy as deemed appropriate by the Department to represent the interests of the public in any proceedings before the Public Service Board relating to a certificate of public good for relicensing ENVY for operation beyond March 21, 2012, or for decommissioning, or other related proceedings.

*determined by commission w/ experience and qualifications*

**Sec. 6. Expenses and Costs**

(a) The members of the public evaluation panel who are not state employees shall be entitled to receive compensation at the rate of \_\_\_\_\_ per day, and reimbursement for actual and necessary expenses related to the performance of their duties. The costs incurred by the evaluation panel in overseeing and evaluating the comprehensive vertical audit and reliability assessment shall be charged to the petitioner for a license extension under the provisions of 30 V.S.A. §§ 20 and 21.

(b) The costs incurred by the inspection team and other expenses incurred in the conduct of the comprehensive vertical audit and reliability assessment shall be charged to the petitioner for a license extension under the provisions of 30 V.S.A. §§ 20 and 21.

Sec. 7. EFFECTIVE DATE

This act shall take effect from passage.

*And, that the title of the bill be amended to read:*

***“AN ACT RELATING TO AN INDEPENDENT VERTICAL AUDIT AND  
RELIABILITY ASSESSMENT OF THE VERMONT YANKEE NUCLEAR  
FACILITY”***

## **Plaintiffs' Exhibit 410**

## PREEMPTION FROM 50,000 FEET

Prepared for House Natural Resources and Energy Committee 3/25/08

Prepared by Sarah Hofmann, DPS

**IMPORTANT NOTE:** The summary that follows is NOT a comprehensive review of the legality of any actual proposed action. It is a 50,000 foot overview of the federal preemption law as applied to nuclear power. Prior to proceeding to take specific action, whether legislatively or administratively, with respect to continued operation of a nuclear plant, a state would need a very specific analysis of the proposed action in regard to preemption.

**WHAT IS PREEMPTION?:** Preemption is a legal doctrine that gives supremacy to federal law in cases where there is a conflicting or inconsistent state law. It springs from the Supremacy Clause of the U.S. Constitution which says that the laws of the U.S. shall be the supreme law of the land. In other words Federal law trumps – or preempts - the state law in certain circumstances. Preemption can occur if one of three conditions exist: first, where Congress “explicitly” declares that its law is intended to preempt identified state laws; second, absent explicit preemption, if a state law regulates conduct in a field in which Congress intends to “occupy exclusively;” third, if application of a state law “actually conflicts with federal law.” English v. General Electric, 496 U.S. 72 (1990)

**WHAT DO WE KNOW ABOUT NUCLEAR PREEMPTION?:** Nuclear preemption stems from the Atomic Energy Act:

Congress in passing the 1954 [Atomic Energy] Act and in subsequently amending it, intended that the Federal Government should regulate the radiological safety aspects involved in the construction and operation of a nuclear plant, but that the States retain their traditional responsibility in the field of regulating electrical utilities for determining questions of need, reliability, cost, and other related state concerns.

Pacific Gas & Elec. Co. v. State Energy Resources Conservation and Dev. Comm'n., 461 U.S. 190, 205 (1983).

The Supreme Court has further noted that U.S. Nuclear Regulatory Commission’s “prime area of concern in the licensing context, . . . is national security, public health, and safety.” Vermont Yankee Nuclear Power Corporation v. NRDC, 435 U.S. 519 (1978).

**SO WHAT APPEARS TO BE PREEMPTED?:** The Court cases to date have clearly shown that issues of radiological health and safety are in the purview of the federal government and can thus preempt state law.

**AND WHAT APPEARS NOT TO BE PREEMPTED?:** Areas of traditional state authority such as economics, reliability, need for the power and alternatives, and environmental factors that are not radiological in their origin. In other words, our Certificate of Public Good criteria in 30 V.S.A. § 248 contains much of the traditional

state regulatory overview that is unlikely to be preempted as long as it is not tied to radiological health and safety..

**DO THE COURTS LOOK AT MOTIVE FOR LEGISLATION?:** They can and do. At least two cases clearly show the Federal Court looking behind the stated reason for a state or local regulation to see if there was a "hidden" motive directed at nuclear power plant safety. In one case the Court rejected the suggestion of an economic rationale for legislation because none was explicitly mentioned in the legislation. In another the court rejected a claim that the importation and storage of spent fuel was a zoning concern.

However, the Supreme Court in another case rejected the need to look behind the stated motive for the legislation to see if there was a hidden nuclear safety agenda, and instead found that even if not safety motivated, a law could be preempted depending on its "effect on nuclear safety." The Court said that to be preempted a state law "must have some direct and substantial effect on the decisions made by those who build or operate nuclear facilities concerning radiological safety levels." *English v. General Electric*, 496 U.S. 72 (1990).

**WHAT HAS THE PSB SAID ABOUT PREEMPTION THUS FAR?:**

From Docket 6545 (Sale of VY from Vermont Yankee Nuclear Power Corporation to Entergy) Order of 6/13/02 at pages 121-22 with footnotes omitted:

**Preemption**

According to CAN, because Entergy's agreement to provide financial assurances is preempted by NRC regulations, the Board must reject the MOU, as it fails to actually provide the adequate assurances that the Department deemed necessary to support approval of the sale. We find CAN's preemption argument unpersuasive. A decision by this Board based upon this state's traditional police power, limited to issues associated with the manner in which Vermont meets its energy needs, does not conflict with the Atomic Energy Act or the NRC's regulations.

In *Pacific Gas and Electric Co. v. State Energy Resources Conservation & Development Commission* ("PG&E"), the U.S. Supreme Court held that the Atomic Energy Act preempts state jurisdiction as to the "radiological safety aspects involved in the construction or operation of a nuclear plant . . ." but also that "States retain their traditional responsibility in the field of regulating electrical utilities for determining questions of need, reliability, cost and other related state concerns."

The Court explained, however, that even when a statute, such as the Atomic Energy Act, does not expressly preempt state authority, a scheme of federal regulation may be so pervasive as to make reasonable the inference that Congress left no room for states to supplement it. Upon review of the Atomic Energy Act and its legislative history, the Court concluded that the federal government occupies the entire field of nuclear-safety concerns, although it does not displace states' traditional authority over "the need for additional generating capacity, the type of generating facilities to be licensed, land use, rate-making, and the like." The Court also indicated that state regulation is preempted where it actually

conflicts with federal law, *i.e.*, in a case where compliance with both federal and state regulations is an impossibility, or when state regulations serve as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress.

The Department and the Petitioners have willingly entered into a Memorandum of Understanding designed to, among other things, ensure that ENVY is appropriately capitalized. The proposed financial assurances are designed to provide ENVY with access to credit during periods of regular operation and, if necessary, during an extended period necessary to plan and execute a shutdown of Vermont Yankee, and to prepare for full access of decommissioning trust funds.

Neither the Atomic Energy Act nor Nuclear Regulatory Commission regulations are implicated by our approval of the MOU. In the MOU, Entergy Corporation agrees to provide sufficient capitalization to its affiliate, ENVY. It is a consensual document which neither imposes safety standards upon ENVY, nor impedes ENVY's ability to meet safety standards to which it is otherwise subject. The MOU ensures that Entergy Corporation makes available a minimum amount of funding to ENVY which we have determined is in the good of the state. This requirement need have no impact on decisions by ENVY and ENO regarding radiological safety. Therefore, we conclude Entergy Corporation's voluntary agreement to capitalize ENVY to the level agreed upon in the MOU is not preempted by federal law.

From Docket 6812 (Uprate of VY) Order of 3/15/04 at pages 106-07 with footnotes omitted:

(b) *Emergency Planning*

Some members of the public raised questions about the adequacy of emergency planning. These are important issues. However, because of the limitations to the Board's authority, we have not considered, and cannot consider the adequacy of the emergency management plan for Vermont Yankee. In 1979, following the Three Mile Island nuclear power plant accident in Pennsylvania, President Carter transferred the Federal lead role in offsite radiological emergency planning and preparedness activities from the NRC to FEMA, the Federal Emergency Management Agency. It became FEMA's role to ensure public health and safety of citizens who live offsite, *i.e.*, in the area surrounding a nuclear power plant, while the NRC onsite activities continued to be the role of the NRC. Federal preemption of state authority remained, however, except to the extent that FEMA assigned roles to local and state entities. So it is FEMA's responsibility to ensure that state and local government emergency preparedness activities take place beyond the nuclear power plant boundaries. In Vermont, this authority has not been given to this Board; instead, the primary responsibility rests with the Emergency Management Division of the Department of Public Safety.

## **Plaintiffs' Exhibit 391**



# **Reliability Assessment of the Vermont Yankee Nuclear Facility**

**Provided by Nuclear Safety Associates**

**to the**

**State of Vermont Department of Public Service**

**12/22/08**

**REDACTED PUBLIC VERSION**

fleet standard organization with consistent procedures and standards. Overall, many station managerial and technical areas meet or exceed industry standards for performance. The station is operated and maintained in a reliable manner.

In addition, ENVY can be a reliable station beyond its current operating license, provided that the areas identified in the following principal conclusions are effectively addressed. Management action, oversight and follow-through are needed to ensure that these issues are addressed and resolved if ENVY is to improve its performance to top industry levels.

### ***Principal Conclusions***

The following issues are, or may be, watch areas or challenges to plant reliability.

#### **1. Procedure quality issues**

NSA review of procedures determined that, while procedures were technically correct, the current formatting did not readily support Human Performance (HU) tool usage, such as place keeping and data collection on each page. The formatting also was not up to current industry standards relative to linkage to other procedures. The existing format also lacks specific guidance at times, with 'if desired; when necessary' statements, leaving it open to interpretation and judgment by workers. As a result, there have been plant events related to procedure quality or procedure use and adherence.

Previously, ENVY had a stable workforce. However, in recent times there has been an influx of new employees, especially in the Operations Department and the Maintenance Department Electrical and Instrument and Controls sections. These newer individuals will be more dependent upon detailed procedure guidance.

In recognition of these procedure shortcomings, ENVY recently developed an action plan to improve station procedures. The plan is currently focused on developing a process to identify which procedures to upgrade on a priority basis; considering: condition reports, frequency of use, complexity, significance and other criteria. The General Manager Plant Operations stated that he intends that this new plan will supersede the procedure efforts that were previously ongoing in the Maintenance Department.

Once the full scope of procedure upgrades is identified, a detailed schedule will need to be developed to determine which procedures will be completed in order of priority. A detailed change management plan should also be developed to help manage the overall process and ensure its completion, especially in light of previous procedure projects being aborted. In recognition of the need for better procedures and the potential costs and complexity of this project, this is considered a challenge to future reliability.

## **Plaintiffs' Exhibit 330**

2008

# An Independent Assessment of the Environmental and Economic Impacts Associated with the Closing of the Vermont Yankee Nuclear Plant

Prepared by:  
Dr. Howard J. Axelrod  
Energy Strategies, Inc.

Prepared for:  
Vermont Energy Partnership

Updated -- March 13, 2009



A typical combined cycle gas turbine (CCGT) emits .213 lbs of NO<sub>x</sub> per MWh generated and .4 tons of CO<sub>2</sub> per MWh. Assuming the same level of operating performance, in a typical year the CCGT would have to generate about five million MWh. This would be an increase of approximately two million tons of CO<sub>2</sub>, a hundredfold increase from the current amounts produced by electricity generation in Vermont. The following CO<sub>2</sub> bar chart (Figure 9) illustrates the significant difference in CO<sub>2</sub> levels.

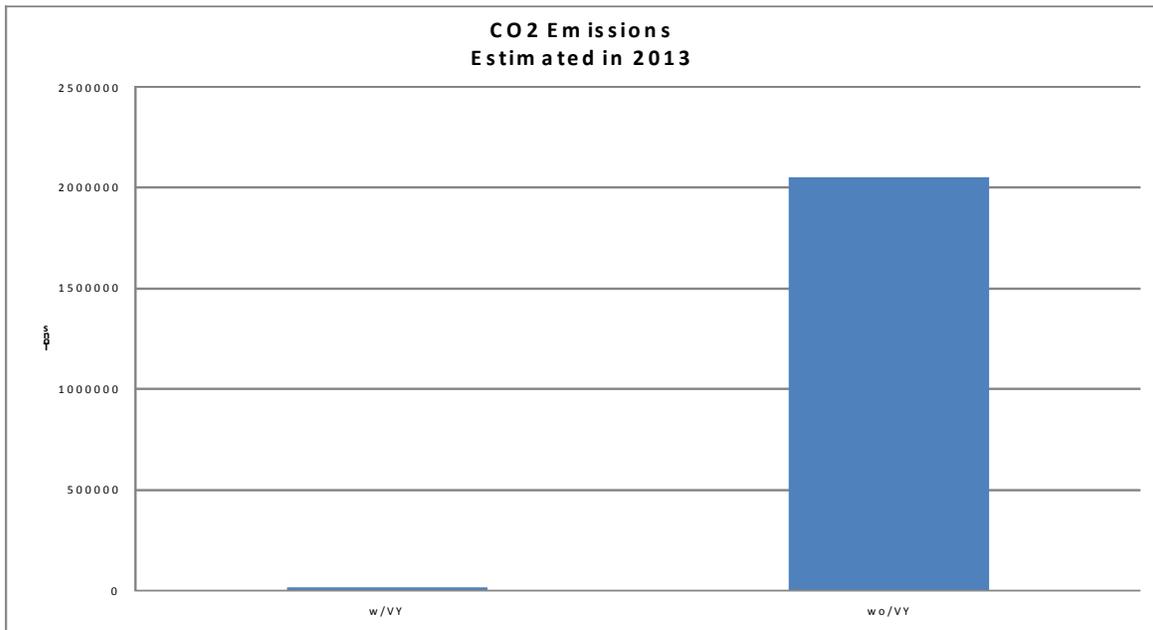


Figure 9: Increase in CO<sub>2</sub> emissions should a CCGT replace Vermont Yankee

NO<sub>x</sub> emissions will increase by 550 tons, a twofold increase from current levels. The NO<sub>x</sub> bar chart (Figure 10) illustrates the impact on NO<sub>x</sub> emissions.

## **Plaintiffs' Exhibit 376**

# House Calendar

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TUESDAY, JANUARY 5, 2010

1st DAY OF BIENNIAL SESSION

House Convenes at 10:00 A M

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ORDERS OF THE DAY

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**NOTICE CALENDAR**

**Governor's Veto**

**H. 436**

An act relating to decommissioning funds of nuclear energy generation plants.

**Text of Veto Message**

The text of the communication from His Excellency, the Governor, whereby he vetoed and returned unsigned **House Bill No. 436** to the House is as follows:

“May 22, 2009

The Honorable Donald G. Milne  
Clerk of the House of Representatives  
State House  
Montpelier, VT 05633-5401

Dear Mr. Milne:

Pursuant to Chapter II, Section 11 of the Vermont Constitution, I am returning H.436, *An Act Relating To Decommissioning Funds of Nuclear Energy Generation Plants*, without my signature because of my objections described herein.

Many Vermonters are struggling as a result of the current recession and all are facing pressure from rising costs. While I do believe there are opportunities for operational improvements at Vermont Yankee, this legislation does nothing to increase protections for Vermonters, ratepayers or our state's economy. Rather, H.436 threatens our economic recovery by unnecessarily increasing electric rates for consumers and businesses. Further, this legislation substitutes an objective process with political calculations, it breaks a promise made by the state of Vermont to a private entity and it exposes taxpayers to certain litigation.

\*\*\*

The safe and reliable operation of Vermont Yankee nuclear power station remains the most important issue surrounding the plant's future. To support

- 2 -

that goal, my administration is working diligently with the Nuclear Regulatory Commission (NRC), stakeholders and the plant's owners to ensure the highest standards are achieved. Additionally, in the relicensing case currently underway, the Public Service Department (DPS) has filed a plan to provide funding into the decommissioning fund that adequately protects Vermont interests while not excessively penalizing the owners.

The NRC has completed a lengthy examination and review of the conditions in the plant, and concluded that, subject to some modifications in procedures, it meets the standards necessary to ensure safe operation moving forward.

Similarly, the State of Vermont recently completed a Comprehensive Reliability Assessment of the plant. With the help of consulting experts and under the scrutiny of a Public Oversight Panel, the plant's reliability has been deemed to meet the standards necessary for continued reliable service if the recommendations of the Comprehensive Reliability Assessment and Public Oversight Panel are carried out by Entergy Nuclear Vermont Yankee.

As we ensure the highest levels of safety and reliability at Vermont Yankee, we must also consider the conditions under which Vermont Yankee is allowed to conduct business. It is critical, therefore, that we consider the financial benefits that are provided by the plant's operations – namely, affordable power, a favorable revenue sharing agreement, and economic support for the region and state.

Finally, we must not lose sight of the fact that Vermont Yankee provides a source of power with relatively low carbon emissions, thus helping to limit our greenhouse gas emissions. Now that the cost of carbon is a part of the price that consumers pay for electricity, losing this source of power from our regional portfolio would likely lead to higher costs for ratepayers.

\*\*\*

Vernon, Vermont has been home to the Vermont Yankee nuclear power station since 1972, and it currently provides approximately one-third of the state's power. Initially owned by a consortium of Vermont utilities, Vermont Yankee was later sold to Entergy Corporation in 2002 during which time all the financial parameters of the plant's operation until March 21, 2012 in relation to the state were established by order of the Public Service Board (PSB). The plant was sold for \$180 million and the output of the plant was sold back to Vermont utilities under an economically favorable long-term power purchase agreement.

It was understood that Entergy, pursuant to an NRC finding of fund adequacy, would not make financial contributions to the decommissioning trust account and that the SAFSTOR method of extended decommissioning was permissible. The PSB ruled that there was significant value to ratepayers by getting a lower price for power as opposed to continued contributions to the fund and in transferring the risk of increased decommissioning costs away from ratepayers.

Beyond the sale and associated benefits to ratepayers, Vermont Yankee supports the region with over 600 high paying jobs, helping to infuse money into the local, state and regional economies, as well as additional tax revenue for the state. The Clean Energy Development Fund receives millions of dollars each year from Entergy to fund renewable projects throughout the state. In addition to local impacts, Vermont Yankee is responsible for providing power to neighboring states through the regional grid.

Our state has one of the greenest and cleanest energy portfolios in the nation. Our forested lands remove more carbon than we produce. Vermont is a leader in reducing carbon emissions because of our efforts in encouraging energy efficiency and renewable energy production, along with the power purchase agreements with Hydro Quebec and Vermont Yankee.

\*\*\*

At the end of the last biennium, the general assembly passed S.373, *An Act Relating to Full Funding of Decommissioning Costs of a Nuclear Plant*, which called for the total funding for decommissioning of the Vermont Yankee nuclear power facility by 2012. At that time, I sent the legislation back without approval because the legislation was a substantial deviation from standards observed by nuclear power stations across the nation. It was clear that creating such a requirement for total decommissioning in 2012 would result in a significant increase in rates for consumers, and further threaten our already tenuous economic position.

Unfortunately, H.436 made little attempt to change the fundamental flaws in policy and substance in this iteration. Instead, it has aggravated the situation by creating unnecessarily burdensome financial pitfalls for electric ratepayers today and into the future and placing Vermont at great risk for civil liability. This legislation circumvents the existing quasi-judicial process and shortcuts an established fact-finding process, instead substituting legislative politics in their places.

\*\*\*

Our reputation as a state is on the line. Our willingness to honor our agreements not only goes to our future business relationships, but speaks

volumes of the ethical standard to which we ascribe. During my many years of public service I have seen the consequences when the state attempts to go back on its commitments. I speak of the past power purchase agreements our utilities had with Hydro Quebec, and the attempts to undo them. When all was said and done, the state was required to honor its agreement, but our relationship with a valuable trade partner was damaged, and our motives suspect. It appears the lessons learned from that experience have been forgotten, or worse – ignored. Now I need to step forward and defend the actions of a previous administration that agreed to the use of SAFSTOR as an acceptable decommissioning strategy in the name of honoring the State’s commitments.

\*\*\*

This legislation appears to have tried to avoid a breach of contract or franchise claim by making the full funding of the fund take place one day after the current license period ends. This attempt, however, is unlikely to be successful. Making the full funding provision date one day later, even if the plant shuts down, does not excuse the state from its obligations under the Memorandum of Understanding agreed to by preceding administrations. Attorneys for the State of Vermont have opined that the state will likely face litigation for breach of contract or breach of a franchise by Entergy if this legislation becomes law. Vermont Yankee’s owners very likely would claim that, since the Memorandum of Understanding was breached, the current power purchase agreement is no longer valid, which would cost ratepayers up to \$356 million.

The full funding language in this legislation, whether as a “balloon payment” or a “parental guarantee,” would require substantial financial resources, all at once. This is problematic because the amount Entergy is required to pay into the decommissioning fund may come out of the power price we will receive for consumers from a new power purchase agreement. In other words, ratepayers will get a much less favorable price on the power. The requirements of H.436 severely threaten our goal of retaining the option for Vermont consumers to get the best possible price for power generated by Vermont Yankee, subject of course to regulatory and legislative approval.

\*\*\*

H.436 does not achieve a greater level of accountability for Entergy. Rather, it is the original sale order, the NRC, and the current case on continued operation now before the PSB that are the means to achieve accountability. This legislation’s approach is a direct threat to the Vermont ratepayer and our state’s prosperity.

The department's plan currently before the PSB is a far more constructive approach that protects ratepayers. It calls for Entergy to make payments into the decommissioning fund over the course of 20 years instead of immediately. This approach preserves ratepayer benefits by lessening the effect on the power purchase agreement. Further, the department's plan mandates fund review and adjustments every two and a half years, allowing the fund to grow in a steady fashion over the license renewal period.

In contrast to the department's plan, this legislation has purposely removed the authority of the PSB to offer even a preliminary finding in this case. This approach appears designed to prevent the use of a venue that relies on objective fact-based proceedings, replacing it with biases and political consideration.

\*\*\*

It is clear that Vermont Yankee will eventually be decommissioned, whether in 2012 or afterward. How it is decommissioned is a question of great importance. This legislation's approach is to extract money in any way possible, creating a hostile business environment. I propose that we work together constructively, observe our own laws and procedures, and design a balanced solution that allows for all parties to benefit.

The question of Vermont Yankee's continued operation remains, and that should be decided by the regulatory process and legislative deliberation of the merits of an additional 20 years, not as an indirect result of ill-conceived legislation. Because this legislation threatens ratepayers, increases long-term electric rates, risks potential job losses, and creates unnecessary liability for the state – while failing to adopt a viable, workable solution – I cannot support this legislation and must return it without my signature.

Sincerely,  
/s/James H. Douglas  
Governor

JHD/hsw

#### **Ordered to Lie**

**H.R. 19** House resolution urging the agency of natural resources to retain delegated authority to administer the federal Clean Water Act in Vermont.

#### **PUBLIC HEARING**

The House Ways & Means Committee will host a session “What the Legislature Should Know—Short Term and Long Term” on Wednesday,

## **Plaintiffs' Exhibit 344**

# ISO New England – An Overview of Markets, Planning and Vermont Issues

Vermont Senate Committee on Finance  
January 21, 2010

Stephen J. Rourke  
Vice President, System Planning  
ISO New England, Inc.

# Conclusions

- Vermont Needs Assessment identifies potential future deficiencies with and without Vermont Yankee
  - Voltage control and transmission are key
  - Deficiencies more severe with VY out of service
- Potential Solutions Being Identified
  - It is likely that investments in the following will be necessary:
    - Voltage support upgrades
    - Transmission upgrades
      - Timing will be critical here
        - Northwest Reliability Project 4 -5 years
        - Southern Loop Project 3-4 years

## **Plaintiffs' Exhibit 329**



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**EPR**

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# Consensus Economic and Fiscal Impact Analyses Associated with the Future of the Vermont Yankee Power Plant

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## Executive Summary – March 2010

Prepared by  
Economic & Policy Resources, Inc. and  
Kavet, Rockler & Associates, LLC

In collaboration with  
Synapse Energy Economics, Inc., the Vermont  
Department of Public Service, Green Mountain Power  
Corp. and Central Vermont Public Service Corp.

- B) The “**Green**” scenario, which assumes VY does not operate beyond March of 2012, at which time the SAFSTOR decommissioning option is implemented, and the State adopts very aggressive legislative and agency support for the development of in-State renewable energy power generating sources and energy efficiency expenditures. Table 1 on page 5 summarizes renewable energy development and energy efficiency load reduction assumptions used in the four scenarios.
- C) The “**VY Relicense**” scenario, which assumes VY continues to operate until March of 2032, at which time the SAFSTOR decommissioning option is implemented, state utilities purchase reduced quantities of VY power at market prices between 2012 and 2032 (projected market prices were used, given that the terms of the December, 2009 offer provided by ENVY to the VT PSB have yet to be finalized), and revenues from the Revenue Sharing Agreement (RSA) are assumed to be credited to ratepayers at the 55% level.<sup>3</sup>
- D) The “**Hybrid VY Relicense Green**” scenario, combines the aggressive renewable energy development and energy efficiency expenditures of scenario B, and the VY operational assumptions and reduced levels of VY purchased power beyond 2012 by Vermont utilities, as specified in scenario C.

With each of these scenarios defined by consensus power supply assumptions, load forecasts, decommissioning assumptions<sup>4</sup> and external fuel source pricing estimates as starting points, the economists used a series of energy, pricing and economic and fiscal models to assess the impact on the Vermont economy of these alternative power supply scenarios.

## Analytic Process, Structure and Model Components

There are four major model components that work in sequence to measure total economic and fiscal impacts associated with the various scenarios: A Dispatch Model which generates wholesale electricity costs, a Wholesale to Retail Price Model, which converts these costs to retail power bills by sector, an Economic Impact Model, which incorporates output from these two models and other inputs to generate a wide range of economic impact estimates, and a Fiscal Impact Model, which uses output from the Economic Model and State-specific tax data to estimate State level fiscal impacts.

### La Capra Electricity Market Dispatch Model

One of the key economic drivers for the study is the cost of electricity to consumers in the state of Vermont. The cost of power is composed of the cost of electric *energy*, and certain costs associated with the *delivery* of the energy. The cost of energy is the part

<sup>3</sup> There is some ambiguity regarding Vermont’s share of the revenues to be derived from this agreement, which can be interpreted as either 55% or 92.5% of the RSA payments. If the final share is higher than the 55% assumed in this analysis, this would increase the benefits associated with the VY Relicense and Hybrid scenarios.

<sup>4</sup> The SAFSTOR decommissioning option was the consensus Working Group assumption for all scenarios, based on the current federal regulatory environment and the absence of any financial incentive for ENVY to immediately undertake full decommissioning upon plant shutdown. If full decommissioning is assumed for all scenarios, expenditure flows would be significantly different and higher than for SAFSTOR, with attendant economic and fiscal impacts.

cost/benefit model is a proven fiscal impact model, whose structure has been successfully employed for the past 14 years—with appropriate periodic modifications. While not specifically for this application, the model was approved by the Joint Fiscal Committee and also has undergone several audits by the State Auditor of Accounts and Joint Fiscal Office. Minor modifications were made, where appropriate, to adapt the model for assessing the fiscal impacts of the alternative energy futures involving the Vermont Yankee relicensing question.

To complete this step in the impact assessment analysis, 31 specific REMI impact model outputs for the above alternative energy scenarios were utilized to estimate State revenues and State costs for the General Fund, Transportation Fund, and Education Fund. These REMI outputs included variables such as the change in State Personal Income, the change in State Private Sector Employment, the change in the State Population, the change in the State School Age Population, the change in ten classifications of State Consumer Expenditures (and the change in those expenditure items' relative prices under each scenario), among other variables. Using these economic impacts and their relationship to State revenues and State costs, estimates of changes in the State's revenues and costs under each scenario were developed through calendar year 2040.

The last step in the fiscal impact estimating process involved taking those year-to-year changes in State revenues and State costs and discounting them to a "present value" dollar amount, assuming a 2.96% discount rate (that of a current 15 year State general obligation<sup>9</sup> bond interest rate). That "present value" dollar amount represents the total net fiscal impact (State revenues less State costs) expressed in calendar year 2010 dollars. Calendar year 2010 was selected as the base year for this estimate because calendar year 2010 is the year this impact assessment study was completed.

## Economic and Fiscal Model Output and Findings

Although voluminous data are available associated with the model runs for the initial four scenarios, broad findings associated with each, expressed relative to the VY Relicense scenario, are outlined below. Of note, the economic and fiscal impacts vary significantly by year and other time frames and care should be taken in interpreting and converting to a present value or other basis. All annual data are expressed on a calendar year basis.

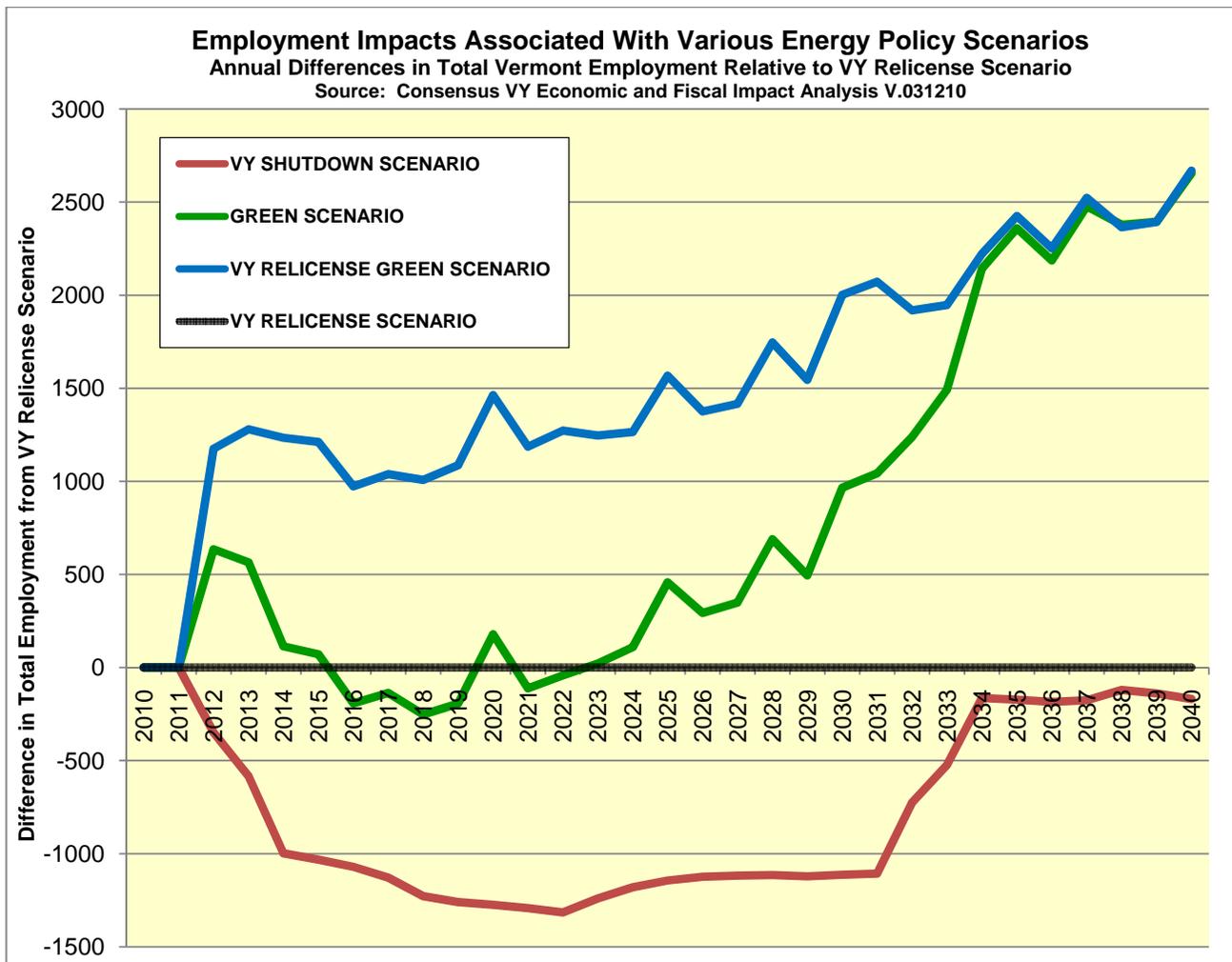
### In the VY Shutdown Scenario:

- 1) *Negative plant shutdown employment impacts are likely to be at about -1,060 jobs (2013-2031 average), relative to the VY Relicense scenario, and prior to SAFSTOR, and at about -950 jobs with the implementation of the SAFSTOR decommissioning option over the period 2013-2031. Secondary indirect and induced economic impacts would be higher, except for the fact that nearly*

<sup>9</sup> The term "general obligation" means these bonds are backed by the full faith and credit of the Vermont State government. Accordingly, the 2.96% interest rate used as the discount rate in this analysis represents a reasonable approximation of the true long term cost of money to Vermont State government.

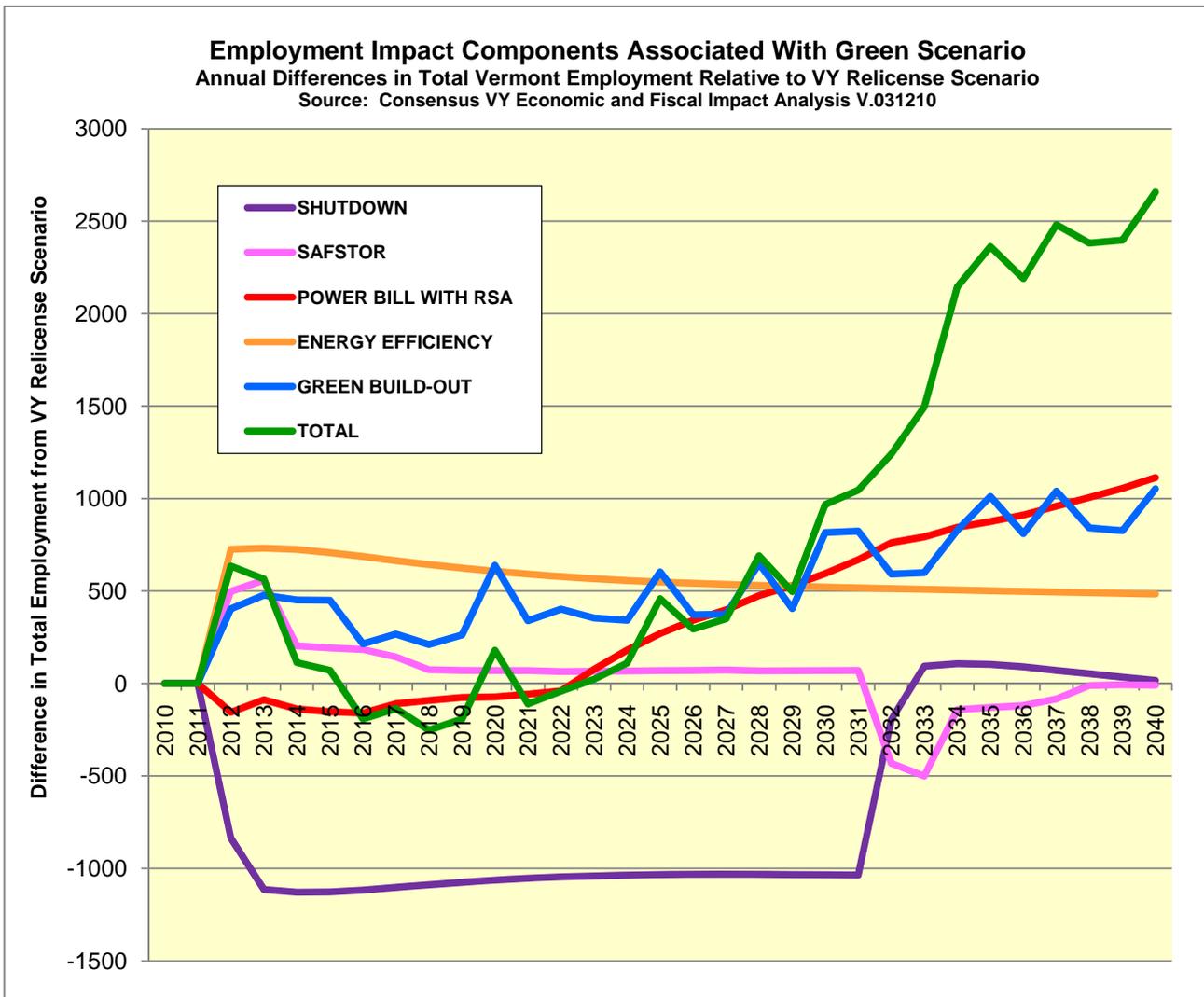
60% of VY employees reside (and spend most of their personal income) outside of Vermont – primarily in NH and MA.

- 2) Even assuming replacement power at market prices, the retail power bill is likely to be higher in the event of plant closure, resulting in additional negative economic impacts. Power bill impacts associated with the plant shutdown will further reduce employment by about 120 jobs per year and output by more than \$15 million per year in 2012 dollars.
- 3) Revenue Sharing Agreement impacts, estimated at the low end of the possible range (55%) leave the VY Shutdown scenario about 120 jobs per year below the VY Relicense scenario, during the relevant 11 year effective RSA period from 2013-2023.
- 4) Total VY Shutdown scenario impacts, relative to the Relicense scenario, result in about 1,100 fewer jobs per year and real disposable personal income levels more than \$60 million per year (in 2012 dollars) below VY Relicense levels between 2013 and 2031.



The **Green Scenario**, which includes the assumption of timely and aggressive policy action for renewable energy development:

- 1) Provides, on average, comparable employment levels relative to the VY Relicense scenario during the first decade of the analytic period and then rapidly outpaces the VY Relicense scenario over the final 17 years. Annual employment differentials relative to the VY Relicense case exceed 2,600 jobs by the end of the forecast horizon in 2040.
- 2) Retail power bills in the Green scenario are generally higher than most other scenarios in the initial 5+ years, but are substantially lower in the out years as consumers buy less power and competitive power source fuel prices (driven by projected fossil fuel price increases and national greenhouse gas limits), increase substantially in real terms. Even with additional negative RSA impacts through 2023, beneficial power bill impacts will eventually result in more than 1,000 jobs per year by 2040.
- 3) RSA impacts are negative in this scenario, as for the VY Shutdown scenario.
- 4) The economic impacts of this scenario are more irregular over the forecast period than some others due to the discrete timing of power supply build-out assumptions made by the Working Group.



## **Plaintiffs' Exhibit 387**



REDACTED VERSION

**Supplemental Report**  
**To the Comprehensive Reliability Assessment**  
**of the**  
**Vermont Yankee Nuclear Facility**

**Provided by Nuclear Safety Associates**  
**to the**  
**State of Vermont Department of Public Service**  
**April 30, 2010**

ENVY is in the process of completing a Root Cause Analysis (RCA) which should determine what actions to take for infrequently accessed and inaccessible areas. As part of the RCA analysis ENVY will identify other piping that may be susceptible to similar failure mechanisms as the AOG piping, identify all pipe tunnels, and actions to address clogged drains.

In addition, ENVY is considering the following monitoring and mitigating activities for inaccessible areas: installing cameras to provide remote visual observation; cutting access ports to provide easier entry; using Remotely Operated Vehicles to monitor difficult to enter or high radiation areas; installing timers on sump pumps which do not have them and improving sump monitoring; and, re-routing lines to provide access.

Although ENVY is considering these options, decisions will be based on the outcome of the Root Cause Evaluation. ENVY expects the decisions on how to proceed will be made in approximately 90 days from April 1, 2010.

In addition to the above actions by ENVY, the SR Assessment Team conducted a supplemental search of Condition Reports (CRs) beyond those identified under Criterion 13 – Corrective Action Program. The purpose of the search was to look for adverse trends associated with leaks and clogged drains. CRs were searched for a 10 year period starting at 2000. Search criteria were used to identify pipe leaks, clogged drains, sump debris, and underground pipes. No significant trends were identified as a result of the search.

It is not possible to determine the extent of condition for the two pipe leaks in the AOG tunnel at this time since ENVY has not completed the RCA and determined the future actions. Future monitoring activities should review and assess ENVY's corrective actions to determine if extent of condition has been adequately addressed.

### **3.7 Summary Conclusions**

Based on the reviews and interviews conducted the assessment team's conclusions concerning the AOG leak event are summarized below.

ENVY's activities related to locating and excavating the AOG leaks were timely, appropriate, and planned effectively. Significant resources were dedicated to determining the source of the leaks, and an investigative plan was developed and executed with sufficient resources to determine the source of the leak. A root cause analysis was initiated which should identify the cause of the leaks and recommend corrective actions. Management oversight was evident during the leak investigation and excavation.

An Extent of Condition evaluation is being performed by ENVY. The evaluation is scheduled to be completed by the end of June, 2010. Considering there is a unit refueling outage during that time period, the schedule appears reasonable. The Extent of Condition evaluation is intended to determine the vulnerability of the plant to similar leaks and should define the interim and long-term actions necessary to detect and prevent similar leaks in the future. The occurrence of the

leaks underscores the need to more proactively determine plant vulnerability to similar leaks. While the occurrence of the leaks is not in and of itself indicative of a lack of management oversight, more management attention needs to be applied to detect future leaks at an early stage.

Until the interim and long term corrective actions are implemented to prevent and detect similar leaks, it is the SR Assessment Team's judgment that the plant is potentially susceptible to this type of leakage and considers this a challenge to continued plant reliability.

In the 2008 NSA CRA report, contractor oversight was determined to be a watch area. During the excavation of the AOG leak contractor oversight was determined to be adequate.

In the 2008 NSA CRA report the use of the "Work at Risk" process was also determined to be a watch area. During the excavation of the AOG leak use of the "Work at Risk" process was determined to be adequately and appropriately applied.

Although the AOG leak investigation and repair was a significant event, it did not affect the overall reliability of the plant. To ensure that long term reliability is not impacted ENVY should increase its focus and improve its methods and practices for identifying plant leaks at an early stage through more effective monitoring. Specifically this is associated with all underground piping (including buried piping) and piping that is not readily accessible for inspection.

### **3.8 References**

#### **Procedures**

1. EN-DC-115, Engineering Change Process
2. EN-DC-126, Engineering Calculation Process
3. EN-DC-149, Acceptance of Vendor Documents
4. EN-IS-112, Trenching, Excavating and Ground Penetrating Activities
5. EN-MA-126, Control of Supplemental Personnel

#### **Documents**

1. Modification Package EC – 20014
2. WO- 219750-06
3. WO – 219750-11
4. WO – 219750-15

## **Plaintiffs' Exhibit 333**

# Vermont Legislative Joint Fiscal Office

1 Baldwin Street • Montpelier, VT 05633-5701 • (802) 828-2295 • Fax: (802) 828-2483

## ISSUE BRIEF

UPDATED February 2011  
Prepared by Sara Teachout

### **Vermont Yankee Nuclear Power Facility: Taxation and Other Fees and Payments to the State**

The Joint Fiscal Office has received numerous questions about the current and historical taxation of the Vermont Yankee Nuclear Power Facility. This brief contains information on the taxes and other payments made to the State of Vermont by the facility. It includes information on the Electrical Energy Tax, the Electric Generating Plant Education Property Tax, as well as payments to both the Radiological Emergency Response Fund and the Clean Energy Development Fund. It does not, however, contain information on income tax, sales and use, or other tax types paid through the normal course of business activities. Wherever possible, statutory references are included and the final table contains the revenue received since 1972 when the facility first became operational.

#### Electrical Energy Tax (32 V.S.A. §8661)

Prior to 1961, there was a tax on all manufacturers of electrical energy measured by kilowatt hours. The legislature repealed the old tax and several years later replaced it with a new tax on electric generating plants with a name-plate generating capacity of 200,000 kilowatts or more<sup>1</sup>. There is only one such facility in the state, the Vermont Yankee power plant. Between 1972 and 2004, this tax was set as a percentage of the “appraised value” of the facility. The appraised value was defined as “its original cost less depreciation as reported to the public service board for rate regulation purposes” or net book value. The rate was 1.9% between 1972 and 1991, with a deduction allowed against the state tax for the amount of taxes paid to the local municipality. In 1991, the tax rate was increased to 3.5%, and the credit for state taxes was limited to the municipal tax rate applied to the value of the facility determined by the state.<sup>2</sup> In 2000, the rate was reduced to 2.75% and the credit for municipal taxes was repealed. At the same time, the Electric Generating Plant Education Property Tax (see below) was also added. In 2002, the value of the facility for purposes of taxation, was frozen for one year while negotiations were under way for the sale of the plant.<sup>3</sup> In 2004, the electrical energy tax was restructured to the current generation tax based on the megawatt hours of electricity produced by the facility.<sup>4</sup> The tax is set at a flat amount if generation is within the historical average production range. If the facility produces additional power there is an additional charge per megawatt hour (see Table 1). The generation measure used for calculating the tax is the average of the most recent previous three calendar years, in part to provide stability because of the cycle of refueling outages.

<sup>1</sup> The original electrical energy tax was repealed in 1961, effective July 1, 1965 provided that “the emergency board finds by unanimous vote that an atomic generating plant of not less than 200,000 kilowatt capacity has been constructed in the State of Vermont and has been put into commercial operation.” (Act No. 232 of 1961 and Act No.188 of 1965) This tax was replaced in 1967 by a tax of 1.9% of the appraised value. (Act No. 376 of 1967)

<sup>2</sup> Act No. 32 of 2001

<sup>3</sup> Act No. 144 of 2002

<sup>4</sup> Act No. 50 of 2003

Table 2 - Vermont Yankee Payments to the State of Vermont

Fiscal Year	Electrical Energy Tax (General Fund)	Electric Generating Plant Education Property Tax	Radiological Emergency Response Plan Payments	Clean Energy Development Fund Payments
2013	N/A	N/A	N/A	368,000
2012	1,400,000	1,000,000	2,134,309	3,151,000
2011	2,900,000	2,100,000	1,735,454	4,085,000
2010	2,900,000	2,100,000	1,712,471	7,126,936
2009	2,828,139	2,027,286	1,737,236	6,800,404
2008	2,719,186	1,945,534	1,696,435	7,036,256
2007	2,631,403	1,900,000	1,360,440	4,252,287
2006	2,600,000	1,900,000	1,315,357	1,450,000
2005	2,600,000	1,900,000	925,683	
2004	2,767,228	1,874,420	800,000	
2003	2,577,328	1,874,419	800,000	
2002	2,809,858	2,212,646	400,000	
2001	3,117,915	2,322,486	400,000	
2000	3,274,246	2,433,400	400,000	
1999	3,575,102	2,629,820	400,000	
1998	3,351,508	2,292,773	300,000	
1997	3,258,242	2,928,663	300,000	
1996	3,484,492		300,000	
1995	3,974,270		300,000	
1994	4,206,188		300,000	
1993	4,406,455		300,000	
1992	4,662,752		300,000	
1991	2,397,873		300,000	
1990	463,680		300,000	
1989	1,148,957		250,000	
1988	1,642,272		250,000	
1987	1,915,398		250,000	
1986	1,805,381		250,000	
1985	1,761,206		250,000	
1984	2,153,383		250,000	
1983	2,244,869		250,000	
1982	2,455,854			
1981	2,593,524			
1980	2,713,792			
1979	2,733,963			
1978	2,756,293			
1977	2,868,768			
1976	3,155,279			
1975	3,207,648			
1974	3,204,411			
1973	2,171,947			

Blue are ESTIMATES

Yellow are Education Property Taxes Paid to Vernon

Sources: Vermont Department of Taxes; Department of Finance and Management, Department of Public Service; Department of Public Safety; January 2011 Consensus Revenue Forecast

U.S. DISTRICT COURT  
DISTRICT OF VERMONT  
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UNITED STATES DISTRICT COURT

FOR THE

DISTRICT OF VERMONT

ENTERGY NUCLEAR VERMONT )  
YANKEE, LLC and ENTERGY NUCLEAR )  
OPERATIONS, INC., )  
Plaintiffs )

v. )

PETER SHUMLIN, in his official capacity as )  
GOVERNOR OF THE STATE OF )  
VERMONT; WILLIAM SORRELL, in his )  
official capacity as the ATTORNEY )  
GENERAL OF THE STATE OF VERMONT; )  
and JAMES VOLZ, JOHN BURKE, and )  
DAVID COEN, in their official capacities )  
as members of THE VERMONT PUBLIC )  
SERVICE BOARD, )  
Defendants )

Docket No. 1:11-cv-99

COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF

Nature of Action

1. The Vermont Yankee Nuclear Power Station (the "Vermont Yankee Station") in Vernon, Vermont is one of New England's most important suppliers of electric energy. Its output is sufficient to meet approximately 75 percent of Vermont's energy demands, and its capacity of over 600 Megawatts ("MW") of power is almost 12 times the capacity of the next largest generator in the state. It employs approximately 650 people and has in recent years paid to Vermont approximately \$13 million per year in taxes and other fees. The Vermont Yankee Station is safe, as demonstrated by its consistent receipt of the highest color rating (green) on all

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BURLINGTON, VERMONT  
05402-0369

Performance Indicators tracked by the United States Nuclear Regulatory Commission's four-color (green, white, yellow, and red) rating system. And the Vermont Yankee Station has an outstanding operational record, having completed 532 days of continuous operation in April 2010, pausing only to refuel and to perform required maintenance, inspections, and tests. According to a 2008 study of the Vermont Yankee Station commissioned by Vermont's Department of Public Service, "Overall, many station managerial and technical areas meet or exceed industry standards for performance. The station is operated and maintained in a reliable manner." Nuclear Safety Associates, *Reliability Assessment of the Vermont Yankee Nuclear Facility*, at 2 (Dec. 22, 2008) (redacted public version).

2. On March 21, 2011, the United States Nuclear Regulatory Commission ("NRC") renewed the operating license for the Vermont Yankee Station for a 20-year period. It did so only after the NRC staff conducted "thorough and extensive safety and environmental reviews of the application" for renewal. The Renewed Facility Operating License states that "the Commission hereby licenses ... [p]ursuant to Sections 104b of the Atomic Energy Act of 1954, as amended (the Act), and 10 CFR Part 50, 'Licensing of Production and Utilization Facilities,' Entergy Nuclear Vermont Yankee, LLC to possess and use, and Entergy Nuclear Operations, Inc. to possess, use, and operate the facility as a utilization facility at the designated location on the Entergy Nuclear Vermont Yankee, LLC site." Renewed Facility Operating License No. DPR-28 (Ex. A hereto), at 2. The Renewed Facility Operating License "is effective as of the date of issuance and shall expire at midnight on March 21, 2032." *Id.* at 14. Thus, under the exclusive licensing authority conferred upon the federal government by federal law, the Vermont Yankee Station may continue to operate through March 21, 2032.

3. Alone among the fifty States, however, Vermont has enacted laws asserting its authority to control the operation of an existing federally licensed nuclear power plant in

Vermont (of which there is only one in Vermont, the Vermont Yankee Station). Vermont asserts that it has authority, irrespective of any federal license, to grant or deny a “certificate of public good” (“CPG”) to the Vermont Yankee Station, and asserts that without such a state-issued CPG the Vermont Yankee Station may not continue to operate. Vt. Stat. Ann. tit. 30, § 248(e)(2).

4. Vermont initially enacted legislation delegating to the State Public Service Board (“PSB”) the power to issue or withhold a CPG.

5. In 2006, Vermont enacted new legislation transferring authority over CPG issuance directly to its General Assembly. The 2006 statute, entitled “An Act Relating to a Certificate of Public Good for Extending the Operating License of a Nuclear Power Plant,” states that “[i]t remains the policy of the state that a nuclear energy generating plant may be operated in Vermont only with the explicit approval of the General Assembly.” 2006 Vt. Acts & Resolves No. 160 (“Act 160”). Vermont officials have announced that the legislative approval required by Act 160 to authorize the operation of the Vermont Yankee Station beyond March 21, 2012, the date on which the Vermont Yankee Station’s state CPG expires, will not be forthcoming.

6. The question presented by this case is whether the State of Vermont, either through a state administrative agency (the PSB) and/or the state legislature (the General Assembly) may effectively veto the federal government’s authorization to operate the Vermont Yankee Station through March 21, 2032. The answer is no.

7. Vermont’s attempt to shut down operations at the Vermont Yankee Station through regulatory or legislative denial of a CPG is preempted by the federal Atomic Energy Act (“AEA”), 42 U.S.C. § 2011 *et seq.*

8. Under the AEA, a State may not interfere with the federal government’s exclusive authority over the operation of a nuclear power plant. A State’s regulation of the “construction or operation of a nuclear powerplant[,] ... even if enacted out of non-safety concerns, ... directly

conflict[s] with the NRC's exclusive authority over plant construction and operation." *Pacific Gas & Elec. Co. v. State Energy Res. Conserv. & Dev. Comm'n*, 461 U.S. 190, 212 (1983) ("PG&E"). Vermont's CPG scheme, whether administered by the PSB or the General Assembly, interferes with exclusive federal authority over the continued operation of a nuclear power plant.

9. Under the AEA, a State also may not interfere with the federal government's exclusive authority over the radiological safety of nuclear power plants. Any state regulation of a nuclear power plant "grounded in safety concerns falls squarely within the prohibited field." *Id.* at 213. Vermont's CPG scheme has been employed in a way that reveals its focus on nuclear safety concerns that are entrusted exclusively to the federal government.

10. Vermont officials have further stated that they might condition any favorable exercise of the State's supposed licensing authority upon the wholesale sale of power generated by the Vermont Yankee Station to Vermont retail utilities at preferential rates compared to the rates charged to non-Vermont retail utilities. This condition coerces Plaintiff Entergy Nuclear Vermont Yankee, LLC ("ENVY") to enter into below-market power purchase agreements ("PPAs") with Vermont's retail utilities that will effectively result in ENVY and out-of-state consumers subsidizing the electricity bills of Vermont's consumers.

11. A state's attempt effectively to coerce the sale of wholesale interstate power at a certain rate is preempted by federal law. The Federal Power Act ("FPA"), 16 U.S.C. § 791a *et seq.*, vests the Federal Energy Regulatory Commission ("FERC") with exclusive authority over wholesale power sold in the interstate market. The power produced by the Vermont Yankee Station is entirely sold into the interstate wholesale market.

12. Even if not preempted, a condition on the Vermont Yankee Station's continued operation that unconstitutionally discriminates in favor of in-state over out-of-state residents violates the Commerce Clause, U.S. Const. art. I, § 8.

13. By this action, Plaintiffs ENVY, the NRC-licensed owner of the Vermont Yankee Station, and Entergy Nuclear Operations, Inc. (“ENOI”), the NRC-licensed operator of the Vermont Yankee Station, seek a declaratory judgment that Vermont may not force the cessation of federally licensed operations at the Vermont Yankee Station or regulate the Vermont Yankee Station based on radiological safety concerns.

14. By this action, ENVY and ENOI also seek a declaratory judgment that Vermont may not condition its favorable exercise of licensing authority upon ENVY’s sale of wholesale power to Vermont utilities at rates below those authorized by FERC.

15. By this action, Plaintiffs also seek a preliminary and permanent injunction prohibiting Vermont officials from taking any action to force the Vermont Yankee Station to cease operations as of March 21, 2012.

#### The Parties

16. Plaintiff ENVY is a limited liability company. ENVY’s sole member is another limited liability company named Entergy Nuclear Vermont Investment Company, LLC, which in turn has a sole member named Entergy Nuclear Holding Company #3, LLC (also a limited liability company), which in turn has a sole member named Entergy Nuclear Holding Company. Entergy Nuclear Holding Company is a corporation that is incorporated in Delaware and maintains its principal place of business in Texas.

17. Plaintiff ENOI is a corporation that is incorporated in Delaware and maintains its principal place of business in Mississippi.

18. Plaintiffs are co-holders of NRC Facility Operating License No. DPR-28 and Renewed Facility Operating License No. DPR-28.

19. Defendants James Volz, John Burke, and David Coen are the current members of the PSB, which is an agency of the State of Vermont. The PSB is authorized by Vermont law to supervise the rates, quality of service, and overall financial management of Vermont's public utilities: electric, gas, telecommunications, and private water companies. The PSB is also authorized by Vermont law to review the environmental and economic impacts of proposals to purchase energy supply or to build new energy facilities; to monitor the safety of hydroelectric dams; to review rates paid to independent power producers; and to oversee the statewide Energy Efficiency Utility.

20. Defendant Peter Shumlin is the current Governor of the State of Vermont.

21. Defendant William Sorrell is the current Attorney General of the State of Vermont.

#### Jurisdiction and Venue

22. The Court has subject matter jurisdiction over the claims asserted in this action pursuant to 28 U.S.C. § 1331 (federal question) because this action involves interpretation of the AEA, 42 U.S.C. § 2011 *et seq.*, the Nuclear Waste Policy Act ("NWPA"), 42 U.S.C. § 10101 *et seq.*, and the FPA, 16 U.S.C. § 791a, *et seq.*, as well as the Supremacy and Commerce Clauses of the United States Constitution, U.S. Const. art. VI & art. I, § 8, and because the action seeks to prevent state officials from interfering with federal rights.

23. Additionally, the Court has subject matter jurisdiction pursuant to 28 U.S.C. § 1332 (diversity) because the Plaintiffs, citizens of Delaware, Mississippi, and Texas, are completely diverse from the Defendants, citizens of Vermont, and the value of the object of the litigation, an operating nuclear power plant, exceeds \$75,000.

24. Venue is properly vested in this Court pursuant to 28 U.S.C. § 1391 because each of the Defendants resides in the State of Vermont. Venue is also properly vested in this Court because the Vermont Yankee Station is located in Vernon, Vermont, and most of the conduct that underlies this action occurred in Vermont.

25. There is a present and actual controversy between the parties.

26. The relief requested is authorized pursuant to 28 U.S.C. §§ 2201 and 2202 (declaratory judgment), 28 U.S.C. § 1651(a) (injunctive relief), and 42 U.S.C. § 1983 (declaratory and injunctive relief available for Commerce Clause violations, *see Dennis v. Higgins*, 498 U.S. 439, 440 (1991)).

#### Substantive Allegations

#### I. REGULATORY OVERSIGHT OF PRIVATE NUCLEAR REACTORS IN THE UNITED STATES

27. The Atomic Energy Act (“AEA”):

stemmed from Congress’ belief that the national interest would be served if the Government encouraged the private sector to develop atomic energy for peaceful purposes under a program of federal regulation and licensing. The Act implemented this policy decision by opening the door to private construction, ownership, and operation of commercial nuclear-power reactors under the strict supervision of the [NRC].

*English v. Gen. Elec. Co.*, 496 U.S. 72, 81 (1990). The AEA “provid[es] for licensing of private construction, ownership, and operation of commercial nuclear power reactors for energy production under strict supervision by the [NRC].” *Duke Power Co. v. Carolina Envtl. Study Group, Inc.*, 438 U.S. 59, 63 (1978).

28. The NRC in turn has created a comprehensive and rigorous licensing procedure for nuclear facilities. The NRC’s licensing process includes, *inter alia*, assessment of the processes to be performed at the facility, the operating procedures, the facility and equipment,

the use of the facility, and other technical specifications to ensure that any applicant will comply with all NRC regulations and that such operation will be conducted in a manner that protects public health and safety. In addition, the NRC assesses the financial soundness of the applicant to ensure both that the proposed facility can be successfully completed and that the applicant will have sufficient funds to decommission the proposed facility in the future. *See* 10 C.F.R. §§ 50.33, 50.40.

29. States have “traditional authority over the need for additional generating capacity, the type of generating facilities to be licensed, land use, ratemaking, and the like,” which enables them to regulate the decision whether in-state utilities selling power to in-state retail consumers should be allowed to construct new electric generating plants. *PG&E*, 461 U.S. at 212.

30. Such traditional state authority does not extend to entities that sell their electric power entirely at wholesale in the interstate market; instead, that market is under the exclusive jurisdiction and supervision of FERC. The “economic aspects of electrical generation have been regulated for many years and in great detail by the states,” but only subject to the significant “exception of the broad authority of [FERC] over the need for and pricing of electric power transmitted in interstate commerce.” *Id.* at 205-06 (citations omitted).

31. States likewise have no traditional authority over the licensing and operation of nuclear power plants. Under the AEA, the NRC has “exclusive authority over plant construction and operation,” such that any attempt by a state or local government “to regulate the construction or operation of a nuclear powerplant ... would clearly be impermissible ... even if enacted out of non-safety concerns.” *Id.* at 212; *see also id.* at 207 (“The AEC [the predecessor of the NRC] ... was given exclusive jurisdiction to license the transfer, delivery, receipt, acquisition, possession and use of nuclear materials.”).

32. Nor do States have any authority to regulate the radiological safety of nuclear power plants. “[T]he federal government has occupied the entire field of nuclear safety concerns, except the limited powers expressly ceded to the states.” *Id.* at 212. Thus, state laws are invalid if they have “some direct and substantial effect on the decisions made by those who build or operate nuclear facilities concerning radiological safety levels.” *English*, 496 U.S. at 85.

33. The AEA allows a State to enter into an agreement with the NRC whereby the State agrees to shoulder some of the burden of regulating nuclear facilities. *See* 42 U.S.C. § 2021. Even for such an “agreement state,” Congress has made clear that issues relating to “construction and operation” of nuclear facilities remain within the exclusive control of the NRC. *Id.* § 2021(c). Vermont has declined to become an agreement state.

34. In 1982, Congress enacted the Nuclear Waste Policy Act (“NWPA”), 42 U.S.C. §§ 10101-10270, which “establishe[d] a schedule for developing a permanent federal repository” of spent nuclear fuel and “[a]s an alternative to a permanent facility, ... also establishe[d] a federally-monitored temporary storage program.” *Skull Valley Band of Goshute Indians v. Nielson*, 376 F.3d 1223, 1242 (10th Cir. 2004), *cert. denied sub nom. Nielson v. Private Fuel Storage, LLC*, 546 U.S. 1060 (2005). Pursuant to the AEA and the NWPA, “the Atomic Energy Commission and the NRC have promulgated detailed regulations regarding the operation of nuclear facilities, including the storage of SNF [*i.e.*, spent nuclear fuel].” *Id.*; *see also id.* at 1250 (“Under the federal licensing scheme ..., it is not the states but rather the NRC that is vested with the authority to decide under what conditions to license an SNF storage facility.”).

35. In light of this extensive field preemption of state regulation of nuclear facilities in the areas of licensing, construction and operation, storage of spent nuclear fuel, and radiological health and safety, most states containing nuclear facilities have not sought to regulate in such areas. In those instances where states have attempted to intrude into areas

subject to NRC's exclusive authority, federal and state courts have repeatedly enforced federal preemption.

## II. REGULATORY OVERSIGHT OF THE WHOLESALE POWER MARKET

36. In the continental United States, electricity is delivered over three major networks or "grids": the "Eastern Interconnect" and the "Western Interconnect" (which are connected to each other) and the "Texas Interconnect" (which covers most of Texas). Other than in the parts of Texas covered by the "Texas Interconnect," any electricity that enters the grid in the continental United States "becomes part of a vast pool of energy that is constantly moving in interstate commerce." *New York v. FERC*, 535 U.S. 1, 8 (2002).

37. Section 201(b) of the FPA vests FERC with "exclusive authority to regulate the transmission and sale at wholesale of electric energy in interstate commerce." *New England Power Co. v. New Hampshire*, 455 U.S. 331, 340 (1982); see also 16 U.S.C. § 824(b) (providing federal jurisdiction over "the transmission of electric energy in interstate commerce and ... the sale of electric energy at wholesale in interstate commerce").

38. The FPA requires that all wholesale electricity rates be "just and reasonable," 16 U.S.C. § 824d(a), and requires regulated utilities to file compilations of their rate schedules (known as "tariffs") with FERC and to provide power to retail (distribution) electric utilities on the terms and prices set forth therein, *id.* § 824d(c).

39. In light of reforms in recent decades to develop competitive electricity markets, FERC has begun permitting certain wholesale sellers of electricity to file "market-based" tariffs that do not specify the exact rate to be charged but instead allow the seller to enter into freely negotiated contracts with purchasers or to sell into the open wholesale markets. FERC approves a market-based tariff only where a utility demonstrates that it does not have or has adequately

mitigated market power, lacks the capacity to impose other barriers to entry, and does not provide preferences to its affiliates. *See generally* Market-Based Rates for Wholesale Sales of Electric Energy, Capacity and Ancillary Services by Public Utilities, 72 Fed. Reg. 39,904 (July 20, 2007). The terms of such contracts, whether filed with the Commission or merely executed pursuant to market-based rate authority granted by the Commission, are subject to the Commission's exclusive jurisdiction and may be set aside "only if FERC concludes that the contract seriously harms the public interest." *NRG Power Mktg., LLC v. Me. Pub. Utilis. Comm'n*, 130 S.Ct. 693, 700 (2010) (quoting *Morgan Stanley Cap. Group Inc. v. Pub. Util. Dist. No. 1*, 554 U.S. 527, 530 (2008)).

40. In 1996, FERC mandated open access to the nation's transmission grid to allow, among other things, greater competition among wholesale generators. *See generally* Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities, Order No. 888, 61 Fed. Reg. 21,540 (May 10, 1996), *aff'd sub nom. Transmission Access Policy Study Group v. FERC*, 225 F.3d 667, 681 (D.C. Cir. 2000) (*per curiam*), *aff'd sub nom. New York v. FERC*, 535 U.S. 1 (2002). Later, FERC encouraged the voluntary formation of Regional Transmission Organizations ("RTOs") to administer the transmission grid on a regional basis. *See generally* Regional Transmission Organizations, Order No. 2000, 65 Fed. Reg. 810 (Jan. 6, 2000), *aff'd sub nom. Pub. Util. Dist. No. 1 v. FERC*, 272 F.3d 607, 611 (D.C. Cir. 2001) (*per curiam*). ISO New England Inc. ("ISO-NE"), an independent, non-profit corporation, is the RTO that serves Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. ISO-NE has three primary responsibilities: (1) to ensure minute-to-minute reliable operation of New England's bulk electric power system; (2) to develop, oversee, and fairly administer New England's wholesale electricity marketplace; and (3) to manage the bulk electric power system's and wholesale markets' planning processes to

address New England's future electricity needs. ISO-NE, Overview, *available at*  
[http://www.iso-ne.com/aboutiso/co\\_profile/overview/index.html](http://www.iso-ne.com/aboutiso/co_profile/overview/index.html).

41. The Vermont Yankee Station is a merchant electricity plant that sells its power only at wholesale on the interstate market, and therefore the rates charged for that power are subject to the exclusive regulation of FERC.

42. In 2002, ENVY initially applied for and received authorization from FERC to sell its power into the ISO-NE interstate market at market-based rates. FERC has periodically renewed its authorization for ENVY to sell at market-based rates so that such authorization has remained in effect without interruption from 2002 to the present date.

### III. THE VERMONT YANKEE STATION

#### A. Description of the Vermont Yankee Station and its Operations

43. The Vermont Yankee Station, the only nuclear power plant constructed or operated in the history of the State of Vermont, has been providing clean, reliable wholesale power to utilities (which in turn sell the power at retail to end-users) in Vermont and other States throughout the Northeast since 1972.

44. The Vermont Yankee Station employs approximately 650 people who live in communities throughout Vermont and the surrounding areas. It provides approximately \$100 million annually in direct and indirect economic benefit to the State of Vermont and the surrounding region through payroll, taxes, and local purchases of goods and services.

45. The Vermont Yankee Station accounts for approximately one-third of the base-load power used by Vermont electricity customers and additionally provides a substantial amount of power to out-of-state consumers. The Vermont Yankee Station operates with virtually no emission of regulated air pollutants (such as nitrogen oxides and sulfur dioxides) or

greenhouse gases (such as carbon dioxide) from its core electric generating activities. The Vermont Yankee Station has consistently operated in compliance with safety standards promulgated and enforced by the NRC, consistently receiving the highest color rating (green). NRC, *Reactor Oversight Process*, <http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/index.html> (explaining color rating system). The Vermont Yankee Station also has a proven reliability record, recently operating for 532 continuous days, after which the plant paused only to refuel and to perform required maintenance, inspections, and tests.

46. Following its construction and initial licensing, the Vermont Yankee Station was owned by Vermont Yankee Nuclear Power Corporation (“VYNPC”), a joint venture of New England retail utilities. ENVY acquired the Vermont Yankee Station from VYNPC on July 31, 2002.

47. The Vermont Yankee Station receives authorization to operate from the NRC through issuance of a license after an extensive federal review process that includes a comprehensive environmental review under the federal National Environmental Policy Act, 42 U.S.C. § 4321 *et seq.*, among other laws. On March 21, 2011, the NRC granted a 20-year renewal of the Vermont Yankee Station’s license, so that the Vermont Yankee Station is authorized to operate through March 21, 2032. Ex. A.

48. Because the power produced by the Vermont Yankee Station is sold only into the interstate wholesale market, subject to the exclusive jurisdiction of FERC, neither the Vermont General Assembly nor the Vermont PSB has the authority over the sales of power generated by the Vermont Yankee Station that those bodies might have over sales of power by state-regulated retail utilities to end-user customers.

B. Renewal of the Vermont Yankee Station's Federal License

49. The Vermont Yankee Station's original 40-year NRC license extended to March 21, 2012. On January 27, 2006, ENVY and ENOI applied to the NRC for a license extension of 20 years. This triggered an extensive, more than five-year review process by NRC into ENVY's and ENOI's continued operation of the Vermont Yankee Station. Among the actions taken by the NRC in reviewing the licensing renewal application were:

- Extensive audits of ENVY's Aging Management Programs and Aging Management Reviews to determine whether the Vermont Yankee Station can operate without undue risk to the public's health and safety after March 21, 2012;
- Extensive audit of ENVY's Scoping and Screening Methodology to ensure that ENVY is adequately reviewing its systems for any radiological health and safety risks;
- Multiple site inspections to perform NRC's own analysis of safety risks; and
- Multiple public meetings and hearings to address environmental and safety concerns about the continued operation of the Vermont Yankee Station.

A full description of the review procedures in which the NRC engaged regarding ENVY's application for licensing renewal is available on the NRC's website at

*<http://www.nrc.gov//licensing/renewal/applications/vermont-yankee.html#schedule>.*

50. On March 21, 2011, following "the NRC staff's thorough and extensive safety and environmental reviews of the application" (Press Release, NRC, NRC Will Renew Vermont Yankee Operating License For An Additional 20 Years (Mar. 10, 2011)), the NRC issued a Renewed Facility Operating License (Ex. A) for continued operation of the Vermont Yankee Station from March 22, 2012 through March 21, 2032. As a matter of federal law, therefore, the Vermont Yankee Station is fully licensed for operation for another two decades.

IV. VERMONT REGULATORS' ASSERTION OF AUTHORITY OVER THE VERMONT YANKEE STATION

51. During the summer of 2001, the then-owner of the Vermont Yankee Station, VYNPC, invited bids to buy the Vermont Yankee Station after the PSB did not approve an earlier attempted sale. Following a successful bid for ENVY to acquire the Vermont Yankee Station, VYNPC petitioned the Vermont PSB to approve the sale of the Vermont Yankee Station to ENVY. ENVY and ENOI participated in that proceeding, ultimately requesting the PSB to issue them a CPG to own and operate the Vermont Yankee Station.

52. The PSB subjected the parties, including ENVY, VYNPC, and certain of its shareholders, to a 10-month proceeding, holding multiple hearings and ordering substantial discovery about the sale. As part of its ultimate decision, the PSB considered whether to order the immediate or future shutdown of the Vermont Yankee Station. Vt. Pub. Serv. Bd., Dkt. No. 6545, Final Order, at 15-16 (June 13, 2002).

53. Faced with the PSB's assertion of authority over the fate of the Vermont Yankee Station, and the attendant risks to the successful completion of the sale of the Vermont Yankee Station, ENVY, ENOI, VYNPC, and its Vermont shareholders negotiated a Memorandum of Understanding ("MOU") with the Vermont Department of Public Service ("DPS") that resulted in ENVY making substantial monetary concessions with respect to energy rates and commitments regarding the future decommissioning of the Vermont Yankee Station, in exchange for the DPS agreeing to recommend to the PSB that the sale be approved and that the PSB issue a CPG to ENVY and ENOI.

54. As a condition of the MOU, DPS required ENVY and ENOI to agree that the CPG issued to ENVY and ENOI would authorize the operation of the Vermont Yankee Station

only until March 21, 2012 (the date of the expiration of the Vermont Yankee Station's initial NRC license), and that ENVY would be forced to seek another CPG to operate beyond that date.

55. DPS also required ENVY and ENOI to agree in the MOU "that the Board has jurisdiction under current law to grant or deny approval of operation of the [Vermont Yankee Station] beyond March 21, 2012" and "to waive any claim ... that federal law preempts the jurisdiction of the [PSB] to take the actions and impose the conditions agreed upon in this paragraph to renew, amend or extend the [CPG] to allow operation of the [Vermont Yankee Station] after March 21, 2012, or to decline to so renew, amend or extend."

56. As described in more detail in paragraphs 60-81, *infra*, Vermont later repudiated the MOU, breaching that agreement and excusing ENVY's and ENOI's obligation to further comply with its conditions (specifically, the waiver provision) by enacting statutes eliminating the PSB's "jurisdiction under current law" as set forth in the terms of the MOU and instead requiring the direct approval of the Vermont General Assembly before the PSB could issue a CPG for the Vermont Yankee Station's post-March 21, 2012 operation or for the storage of spent nuclear fuel derived from post-March 21, 2012 operation.

57. Vermont repudiated the MOU in at least one other respect: Vermont officials have made clear following the MOU's execution that radiological safety is a key focus of their efforts to regulate and indeed shut down the Vermont Yankee station. When the MOU was signed, ENVY and ENOI had no reason to contemplate that, notwithstanding the Supreme Court's clear ruling in *PG&E* that states may not regulate based on safety concerns, Vermont's PSB or its General Assembly would attempt to do so. Indeed, the PSB itself appeared to understand at the time of the MOU that, where its scope of authority was limited by federal law, its "jurisdiction cannot be created by contract or waiver." Vt. Pub. Serv. Bd., Dkt. No. 6270, Order re: Mot. for Decl. of Bd. Jurisdiction, at 46-47 (Sept. 18, 2001); *see also id.* at 21 n.24 ("To the extent that

the Board is preempted from modifying the Rule 4.100 contracts, the Board is preempted from modifying the contracts on any state-law basis, including principles of estoppel.”); *id.* at 28 (“If the Board is preempted by federal law from granting the relief that the Utilities have requested, the Utilities have not explained how—nor even asserted that—the doctrine of estoppel can reestablish jurisdiction that has been federally preempted.”).

58. The PSB ultimately decided to approve the sale to ENVY, issuing a CPG allowing ENVY to own, and ENOI to operate, the Vermont Yankee Station until March 21, 2012, and requiring ENVY and ENOI to seek a new CPG to operate the Vermont Yankee Station beyond that date. By explicitly approving the MOU (with the exception of certain terms not relevant here), the PSB also ordered that, absent the receipt of such a new CPG, ENVY and ENOI would be prohibited from operating the Vermont Yankee Station after that date, and would be permitted only to decommission the site.

V. THE VERMONT GENERAL ASSEMBLY’S ASSERTION OF AUTHORITY OVER THE VERMONT YANKEE STATION

59. As explained above, federal law preempts Vermont’s efforts, through enactment and enforcement of the multiple statutes enacted by the Vermont General Assembly directed at the Vermont Yankee Station, to regulate the licensing and operation of the Vermont Yankee Station and/or to regulate or close the Vermont Yankee Station based on radiological safety concerns. Federal law preempts Vermont’s efforts whether exercised through the PSB’s assertion of authority to issue or deny a CPG, or through the assertion by the Vermont General Assembly of authority to control whether a CPG is issued.

A. The 2005 Act

60. On June 21, 2005, the Vermont General Assembly passed a law that both codified the PSB’s purported role in the ultimate decision whether to allow the Vermont Yankee Station

to operate after March 21, 2012, and inserted the General Assembly into the process of deciding whether the Vermont Yankee Station may operate after that date (specifically, by regulating storage of spent fuel generated by operations after that date). The 2005 Act states that “[c]ompliance with the provisions of this subchapter shall not confer any expectation or entitlement to continued operation of Vermont Yankee following the expiration of its current NRC operating license on March 21, 2012. Before the owners of the generation facility may operate the generation facility beyond that date, they must first obtain a certificate of public good from the public service board under Title 30.” Vt. Stat. Ann. tit. 10, § 6522(c)(5).

61. The 2005 Act also provides that “[s]torage of spent fuel derived from the operation of Vermont Yankee after March 21, 2012 shall require the approval of the general assembly under this chapter.” *Id.* § 6522(c)(4). (Spent fuel is stored at the Vermont Yankee Station only because the federal Department of Energy (“DOE”) defaulted on a contract to remove the fuel and store it elsewhere. ENOI is actively pursuing litigation against the DOE to recover costs attributable to the agency’s default in accordance with the federal NWSA, 42 U.S.C. §§ 10101-10270.)

B. The 2006 Act

62. On May 18, 2006, mere months after ENVY and ENOI applied for license renewal with the NRC, the Vermont General Assembly passed a law that further repudiated and breached the MOU by explicitly prohibiting the operation of the Vermont Yankee Station beyond March 21, 2012 absent express approval from the General Assembly, as opposed to approval by the PSB under the then “current law” that was expressly referenced in the 2002 MOU. The 2006 Act encroached further upon the NRC’s exclusive authority over nuclear plant licensing and operation and over nuclear safety by injecting the State General Assembly itself into preempted areas of federal authority.

63. Entitled “An Act Relating to a Certificate of Public Good for Extending the Operating License of a Nuclear Power Plant,” the 2006 Act states that “[i]t remains the policy of the state that a nuclear energy generating plant may be operated in Vermont only with the explicit approval of the General Assembly.” 2006 Vt. Acts & Resolves No. 160 (“Act 160”).

The Act further provides:

No nuclear energy generating plant within this state may be operated beyond the date permitted in any certificate of public good granted pursuant to this title, including any certificate in force as of January 1, 2006, unless the general assembly approves and determines that the operation will promote the general welfare, and until the public service board issues a certificate of public good under this section. If the general assembly has not acted under this subsection by July 1, 2008, the board may commence proceedings under this section and under 10 V.S.A. chapter 157, relating to the storage of radioactive material, but may not issue a final order or certificate of public good until the general assembly determines that operation will promote the general welfare and grants approval for that operation.

Vt. Stat. Ann. tit. 30, § 248(e)(2).

64. Act 160 changed the requirements for the Vermont Yankee Station to obtain a CPG in ways that could not have been predicted when ENVY purchased the Vermont Yankee Station and signed the MOU in 2002. The MOU subjected ENVY’s and ENOI’s continued operation of the Vermont Yankee Station after March 21, 2012 to a determination to be made by the PSB under then “current law.” Because the PSB has “the powers of a court of record in the determination and adjudication of all matters over which it is given jurisdiction,” Vt. Stat. Ann. tit. 30, § 9, it is a quasi-judicial expert decision-maker, independent of legislative control, and its decisions must be supported by substantial evidence and be subject to judicial review.

65. Act 160, by contrast, supplanted this “current law” as it existed in 2002 with a decision-making process that placed ENVY’s and ENOI’s fate in the hands of elected political decision-makers, namely the State General Assembly and Governor. Under Act 160, these

decision-makers could deprive ENVY and ENOI of the authority to operate the Vermont Yankee Station beyond March 21, 2012 for unsupported, unstated, or arbitrary reasons.

66. Act 160 thus gave the Vermont General Assembly an effective veto over the NRC's federal relicensing process in contravention of the express terms of the MOU, which provided for a decision by the PSB under "current law" as it existed in 2002.

67. Act 160 also expresses legislative concern with the radiological safety of the Vermont Yankee Station. Specifically, it mandates a study of various factors to inform the General Assembly's decision whether to authorize the PSB to consider granting a CPG, including "analysis of ... public health issues." Vt. Stat. Ann. tit. 30, § 254(b)(2)(B).

68. On March 3, 2008, in an effort to accommodate Vermont's concerns and to avoid a lengthy and costly litigation over the State's authority given the restrictions imposed by federal law, ENVY and ENOI filed a petition for an amendment of its existing CPG to allow continued operation past March 21, 2012. Acknowledging that, under the 2006 Act, the PSB lacked authority even to commence a proceeding on the petition before July 1, 2008, absent legislative approval, ENVY and ENOI requested that the PSB set a timetable for proceedings to begin after July 1, 2008, and that it inform the General Assembly of its request.

C. The 2008 Act

69. On June 5, 2008, just a few months after ENVY and ENOI requested amendment of their CPG, the General Assembly passed "Act 189, An Act Relating to a Comprehensive Vertical Audit and Reliability Assessment of the Vermont Yankee Nuclear Facility." 2008 Vt. Acts & Resolves No. 189 ("Act 189"). This Act further injected the General Assembly into the Vermont Yankee Station relicensing process, encroaching further upon the NRC's exclusive authority over nuclear plant licensing and operation and over nuclear safety.

70. Act 189 stated that its purpose was to provide a full assessment of the operation of the plant: “It is the purpose of this act to provide for a thorough, independent, and public assessment of the reliability of the systems, structures, and components of the Entergy Nuclear Vermont Yankee facility.”

71. The breadth of Act 189’s encroachment on the NRC’s exclusive authority over nuclear plant licensing, operation, and safety is substantial. Among other requirements, the Act mandates a “comprehensive” state assessment of every aspect of plant operation and safety, requiring “an in-depth inspection” of all Vermont Yankee Station systems, including the plant’s “electrical system,” “emergency system,” “mechanical system,” “primary containment system,” “heat removal system,” “cooling system,” and “underground piping system that carries radionuclides.” Further, the Act sets forth the extent of the audit of each of these systems, making clear that it requires inquiry into essential aspects of plant construction, operation, and safety.

72. Act 189 requires thirteen separate areas of inquiry into each of the identified systems, including but not limited to assessment of: (1) whether the “design of the system [is] in keeping with the expected initial conditions and its design basis”; (2) whether “plant records adequately represent the as-built condition of the plant”; (3) “[w]hat changes or compensations have been made to accommodate unanticipated operations outcomes”; (4) the results of periodic testing and inspection of the systems; (5) whether “the management system for aging components [has] been adequately maintained to assure the components meet the design basis”; (6) all repairs, modifications, and redesigns to plant systems; and (7) the efficacy of plant operator training.

73. Act 189 also authorized the PSB to commence proceedings on ENVY's and ENOI's CPG petition, but *not* to grant the petition. Thus, under Act 160, further legislative action would be required before the PSB could grant the petition.

74. The PSB's subsequent relicensing proceeding under Act 189 has involved state assessment of the radiological safety of the operation of the Vermont Yankee Station in violation of NRC's exclusive authority under federal law. The PSB ordered ENVY and ENOI to produce voluminous discovery relating to the operation and safety of the Vermont Yankee Station, including extensive testimony by nuclear engineers and extensive document production relating to the various plant systems specified in Act 189, such as testimony relating to the systems containing radionuclides. The DPS evaluated this information, in addition to conducting an on-site inspection of the plant, and created a "Comprehensive Reliability Assessment" of the safety and continued operation of the Vermont Yankee Station. The proceeding has also included numerous hearings on these subjects.

75. Given that the Vermont General Assembly has not yet provided it with authorization to act, the PSB may not rule on ENVY's and ENOI's request for relicensing beyond March 21, 2012.

76. In February 2011, Governor Shumlin—citing the discovery of tritium in monitoring wells that had previously shown negative results, but without citing any basis for concern about such discovery other than radiological safety—ordered the Vermont DPS to form a "Reliability Oversight Committee" to provide "additional expertise on oversight of Vermont Yankee issues within the state's jurisdiction." Press Release, Gov. Peter Shumlin Calls for Vermont Yankee Reliability Oversight Committee, Citing Tritium Leaks (Feb. 2011), *available at* <http://governor.vermont.gov/newsroom-nuclear-oversight>.

D. The Vermont General Assembly's Further Repudiation of the MOU

77. On January 7, 2010, ENVY and ENOI confirmed that an on-site groundwater monitoring well contained detectable levels of tritium, a low-energy radionuclide that both occurs naturally in the environment and is a byproduct of nuclear power operations. ENVY and ENOI immediately notified the NRC and various Vermont agencies. After prompt attention that identified and addressed the leakage, ENVY and ENOI also undertook extensive remediation, including the removal of soil containing plant-related radionuclides and the extraction of hundreds of thousands of gallons of tritiated water.

78. Both the NRC and Vermont's State Nuclear Engineer determined that the tritium leakage had had no effect on public health, safety, or the off-site environment, and the Vermont Agency of Natural Resources ("ANR") determined that the level of tritium released to the off-site environment was orders of magnitude below the level authorized by ENVY's federal Clean Water Act permit, which ANR administers. Similarly, according to a study commissioned by Vermont's DPS, "ENVY's activities related to locating and excavating the AOG leaks were timely, appropriate, and planned effectively" (Nuclear Safety Associates, *Supplemental Report To the Comprehensive Reliability Assessment of the Vermont Yankee Nuclear Facility*, at 94 (Apr. 30, 2010) (redacted version)), and the leak "did not affect the overall reliability of the plant" (*id.* at 95).

79. Nonetheless, on February 23, 2010, weeks after discovery of the tritium leakage, the State Senate voted down multiple measures that would have permitted the PSB to consider whether to issue ENVY a CPG for operation after March 21, 2012.

80. Since the February 23, 2010 vote, legislators and officials have repeatedly stated that there is no chance the General Assembly will change its mind. For example, following the NRC's announcement on March 11, 2011, that it would renew the Vermont Yankee Station's

license for an additional 20-year period, Governor Shumlin stated: “Given the serious radioactive tritium leaks and the recent tritium test results, the source of which has yet to be determined, and other almost weekly problems occurring at this facility, I remain convinced that it is not in the public good for the plant to remain open beyond its scheduled closing in 2012.”

Dave Gram, *Vermont Yankee Gets Federal License Renewal*, BURLINGTON FREE PRESS, Mar. 11, 2011, available at <http://www.burlingtonfreepress.com/apps/pbcs.dll/article?AID=2011103110315>.

81. Even if the PSB were re-vested with authority to issue a new CPG to the Vermont Yankee Station without prior General Assembly approval, the PSB’s authority to regulate the operation and licensing of a nuclear power plant, or to regulate or close the plant based on safety concerns, is preempted by federal law. Any such redelegation of authority to the PSB would in any event confer authority that is irremediably tainted by the General Assembly’s politicization of the process through the post-2002 enactments and the repeated statements by Governor Shumlin and other elected officials insisting that the Vermont Yankee Station must be shut down for public health or safety reasons. For example, Governor Shumlin recently stated during an interview on Vermont Public Radio that “I don’t think you can convince most Vermonters today ... that Vermont’s best energy choice is to play Russian Roulette with an aging nuclear power plant.” *Yankee Owner Tries New Strategy To Win Over Vermonters*, VPR NEWS, Mar. 31, 2011, available at: [http://www.vpr.net/news\\_detail/90481/](http://www.vpr.net/news_detail/90481/). Governor Shumlin also stated that “more states should follow Vermont’s lead ...[by] ‘tak[ing] control into their own hands about aging plants.’” Alan Wirzbicki, *Vermont’s Unique Nuclear Power Veto*, BOSTON GLOBE, Mar. 23, 2011, available at: [http://www.boston.com/bostonglobe/editorial\\_opinion/blogs/the\\_angle/2011/03/vermonts\\_unique.html](http://www.boston.com/bostonglobe/editorial_opinion/blogs/the_angle/2011/03/vermonts_unique.html).

E. Vermont's Attempts to Extract Power Rates for In-State Retail Electric Utilities Below the Rates Authorized By FERC

82. As an alternative to Vermont's effort to shut down the Vermont Yankee Station as of March 21, 2012, Vermont officials have also attempted, as a condition of any continued authorization of Vermont Yankee Station's operations, to exact wholesale rate concessions from ENVY for Vermont retail utilities, thereby invading FERC's exclusive jurisdiction over wholesale interstate power sales.

83. Specifically, legislators and other Vermont officials have demanded ENVY's agreement to a PPA under which the Vermont retail electric utilities to which the wholesale power produced by the Vermont Yankee Station is sold – but not ENVY's out-of-state wholesale customers – would receive power at below-market rates. Any such agreement would expressly discriminate against out-of-state retail utilities and would result in ENVY effectively subsidizing Vermont consumers as compared to out-of-state consumers.

84. For example, Governor Shumlin, when he has not been opposing continued operation of the Vermont Yankee Station altogether, has been quoted as saying that “there's no way we're going to vote to re-license the plant unless Vermonters are getting a great deal” (Stephanie Kraft, *Vermont, Entergy Square Off*, THE VALLEY ADVOCATE (Northampton, Mass.), Jan. 22, 2009), and that “to get an affirmative vote out of this Legislature, Vermonters would have to have a very good power price” (John Dillon, *Lawmakers Set Deadline for Vermont Yankee Power Deal*, VPR NEWS, July 28, 2009). A state representative has said that any refusal by ENVY to provide favorable prices for Vermont utilities would be a “deal-breaker.” Kraft, *supra*.

85. The DPS has likewise stated that, “[i]f Entergy has any expectation for continued operation, it has to include a favorable purchase agreement. ... We would not support relicensure

until such a time that there is a PPA that is favorable to Vermonters.” Bob Audette, *DPS Approves Enexus Spinoff Plan*, BRATTLEBORO REFORMER, Oct. 8, 2009.

86. Any state-law requirement that ENVY sell wholesale power to in-state retail utilities at specified or favorable rates (compared to wholesale sales to out-of-state utilities), as a condition of continued operations, is preempted by the FPA, which gives FERC exclusive authority over power sales by a producer in the wholesale interstate market.

87. Any state-law requirement that ENVY favor in-state retail utilities over out-of-state utilities as a condition of continued operations additionally violates the Commerce Clause, U.S. Const. art. I, § 8, because it is facially discriminatory against out-of-state commerce.

#### Claims For Relief

#### COUNT I ATOMIC ENERGY ACT PREEMPTION (Declaratory Judgment and Injunctive Relief)

88. Plaintiffs incorporate by reference and re-allege each and every allegation set forth above in paragraphs 1 through 87 as if fully set forth herein.

89. The AEA vests in the NRC exclusive jurisdiction over the licensing and operation of nuclear power facilities. State laws and regulations requiring a state license for plant operation or otherwise having a direct and substantial effect on plant operation are preempted under the Supremacy Clause, U.S. Const. art. VI.

90. Vermont’s statutes and regulations asserting state authority over the operation and safety of the Vermont Yankee Station, including the authority to bar its continued operation without a state CPG, are invalid under the Supremacy Clause because they interfere with the NRC’s exclusive jurisdiction over the licensing or operation (including storage of spent nuclear fuel) of a federally licensed nuclear power station. Specifically, the PSB has asserted authority to

prohibit ENVY and ENOI from operating the Vermont Yankee Station altogether after March 21, 2012 without the PSB's approval in the form of a new CPG. And the Vermont General Assembly has asserted authority to bar the operation of the Vermont Yankee Station after March 21, 2012, unless the General Assembly passes a further measure stating that continued operation of the Vermont Yankee Station "promotes the general welfare" and thus permits the PSB to issue ENVY and ENOI a CPG. The General Assembly has already voted against measures that would permit the PSB to award a CPG to ENVY and ENOI for operations after March 21, 2012.

91. Vermont's laws and regulations asserting authority to regulate the operation of the Vermont Yankee Station and to shut down the Vermont Yankee Station as of March 21, 2012, are also preempted for the independent reason that they are aimed at safety concerns that are the exclusive province of the NRC. For example, the 2006 Act expressly requires analysis of "public health" effects of the Vermont Yankee Station, and Vermont legislators and officials, including Governor Shumlin, have frequently identified safety as their rationale for shutting down the Vermont Yankee Station as of March 21, 2012.

92. Shut-down of the Vermont Yankee Station would not provide Vermont with economic benefit or with a more reliable electricity supply. To the contrary, it would lead to higher electricity costs both inside and outside Vermont, increased risk of thermal overloads and voltage gaps, substantial job loss, diminished tax revenues, and increased greenhouse gas emissions. As former Governor Douglas observed in 2009:

[W]e must not lose sight of the fact that Vermont Yankee provides a source of power with relatively low carbon emissions, thus helping to limit our greenhouse gas emissions. Now that the cost of carbon is a part of the price that consumers pay for electricity, losing this source of power from our regional portfolio would likely lead to higher costs for ratepayers.

...

Vermont Yankee supports the region with over 600 high paying jobs, helping to infuse money into the local, state and regional economies, as well as additional tax revenue for the state. The Clean Energy Development Fund receives millions of dollars each year from Entergy to fund renewable projects throughout the state. In addition to local impacts, Vermont Yankee is responsible for providing power to neighboring states through the regional grid.

Letter from Gov. James H. Douglas, Governor of the State of Vermont, to Hon. Donald G. Milne, Clerk of the Vermont House of Representatives, at 2, 4 (May 22, 2009).

93. The present risk that Vermont will order ENVY and ENOI to shut down the Vermont Yankee Station has immediate and imminent consequences for ENVY and ENOI, which already have suffered abnormal employee attrition, must make potentially expensive decisions concerning the continued operation of the plant beginning as early as July 7, 2011, and would have to file a potentially irreversible certification of the permanent cessation of operations with the NRC on March 21, 2012, if the Vermont Yankee Station is shut down.

94. The present risk that Vermont will order ENVY and ENOI to shut down the Vermont Yankee Station also has immediate and imminent consequences for the reliability of service in Vermont and surrounding areas. ISO-NE's studies of the effect of losing Vermont Yankee Station's capacity in 2013 found:

[W]ith or without Vermont Yankee, the system in Vermont has reliability issues that must be addressed; without Vermont Yankee in service, those issues are more severe and could affect neighboring areas. The potential reliability issues could include thermal overloads on high-voltage transmission lines and voltage instability, either of which could damage equipment, compromise grid stability, or cause uncontrolled outages.

Given these reliability impacts from shutting down Vermont Yankee Station, a prompt determination of whether Vermont Yankee Station may continue to operate after March 21, 2012 is necessary so that ISO-NE will have sufficient time to take appropriate steps to try to preserve reliable service in the region.

95. Thus, an actual controversy exists between Plaintiffs and Defendants concerning whether federal law preempts Defendants, through either its PSB or its General Assembly and Governor, from stopping, interfering with, or imposing conditions upon the continued operation of the Vermont Yankee Station after March 21, 2012.

96. Plaintiffs seek a declaration that Defendants are preempted from stopping or interfering with the federally licensed operation of the Vermont Yankee Station as of March 21, 2012.

97. Plaintiffs seek a preliminary and permanent injunction against any action by Defendants to stop or interfere with the federally licensed operation of the Vermont Yankee Station as of March 21, 2012.

COUNT II  
FEDERAL POWER ACT PREEMPTION  
(Declaratory Judgment and Injunctive Relief)

98. Plaintiffs incorporate by reference and re-allege each and every allegation set forth above in paragraphs 1 through 97 as if fully set forth herein.

99. The Vermont Yankee Station is a merchant electricity plant that sells its power at wholesale on the interstate market for power. Through the FPA, Congress has vested FERC with exclusive jurisdiction to regulate wholesale power sold in the interstate market.

100. FERC has authorized wholesale sales of the Vermont Yankee Station's power at market rates at all times since ENVY purchased the Vermont Yankee Station in 2002.

101. In light of FERC's exclusive jurisdiction, neither the PSB nor any other state actor has the authority to dictate whether wholesale power is sold from the Vermont Yankee Station, much less the rates, terms, or conditions of any such sales.

102. Despite FERC's exclusive jurisdiction over power sold at wholesale from the Vermont Yankee Station, Vermont officials have sought to use legislative and regulatory CPG processes to force ENVY to sell wholesale power to Vermont wholesale customers (*i.e.*, Vermont retail utilities) at below-market prices. This condition coerces ENVY to enter into below-market PPAs with Vermont's retail utilities that will effectively result in ENVY subsidizing the electricity bills of Vermont's consumers and thus treating them preferentially as compared with out-of-state consumers.

103. The Vermont General Assembly has conditioned its vote to allow proceedings for CPG renewal on ENVY's agreement that the Vermont Yankee Station will sell wholesale power (subject to FERC's exclusive jurisdiction) to Vermont retail utilities at below-market rates.

104. Furthermore, Vermont officials have taken the position before the PSB that no renewed CPG should be issued unless ENVY agrees that the Vermont Yankee Station will sell wholesale power to Vermont retail utilities at below-market rates.

105. The present risk that Defendants will order ENVY to shut down the Vermont Yankee Station unless ENVY sells wholesale power at below-market rates has immediate and imminent consequences for ENVY, which must make potentially expensive decisions concerning the continued operation of the plant.

106. Thus, an actual controversy exists between Plaintiffs and Defendants concerning whether federal law preempts Defendants from prohibiting the operation of the Vermont Yankee Station after March 21, 2012, unless ENVY agrees to sell wholesale power at below-market rates.

107. Plaintiffs seek a declaration that federal law preempts Defendants from conditioning any state approval of the Vermont Yankee Station's continued operation after March 21, 2012 on ENVY's sale of wholesale power to Vermont retail electric utilities at

specified rates or rates favorable to those that would be charged by ENVY to out-of-state retail utilities in the wholesale interstate market.

108. Plaintiffs further seek a preliminary and permanent injunction prohibiting Defendants from ordering ENVY to shut down the Vermont Yankee Station on this preempted basis.

COUNT III  
UNCONSTITUTIONAL BURDEN ON INTERSTATE  
COMMERCE UNDER COMMERCE CLAUSE AND 42 U.S.C. § 1983  
(Declaratory Judgment and Injunctive Relief)

109. Plaintiffs incorporate by reference and re-allege each and every allegation set forth above in paragraphs 1 through 108 as if fully set forth herein.

110. Vermont officials, acting under color of state law, have repeatedly threatened that the Vermont Yankee Station will be unable to get a CPG unless and until it enters into PPAs with Vermont retail utilities that favor those utilities over out-of-state retail electric utilities by requiring ENVY to provide them with wholesale electricity at below-market rates.

111. Because the decision whether the Vermont Yankee Station receives a CPG rests with Vermont officials, their attempt to condition the grant of a CPG upon ENVY's agreement to enter into PPAs that discriminate in favor of Vermont retail utilities is coercive and places direct and substantial burdens on interstate commerce in the wholesale electricity market.

112. Defendants' impermissible burdens on the interstate wholesale electricity market have deprived Plaintiffs of their "rights, privileges and immunities" under the Commerce Clause, U.S. Const. art. I, § 8.

113. Thus, an actual controversy exists between Plaintiffs and Defendants concerning whether the Commerce Clause prevents the State of Vermont, through Defendants, from

requiring ENVY to enter into PPAs that favor Vermont retail electric utilities over out-of-state retail electric utilities as a condition of receiving a CPG for operations after March 21, 2012.

114. Plaintiffs seek a declaration that the Defendants' insistence that ENVY provide preferential wholesale electricity rates to Vermont retail electric utilities as a condition of continued operation after March 21, 2012 violates the Commerce Clause.

115. Plaintiffs further seek a preliminary and permanent injunction prohibiting Defendants from ordering ENVY and ENOI to shut down the Vermont Yankee Station on this unconstitutional basis.

Prayer For Relief

In light of the foregoing, ENVY and ENOI respectfully pray that this Court:

- A. Issue a declaratory judgment, pursuant to 28 U.S.C. § 2201, 42 U.S.C. § 1983, and Rule 57 of the Federal Rules of Civil Procedure, that:
- i. federal law preempts the Defendants from requiring ENVY and/or ENOI to receive legislative or regulatory approval of a CPG in order to operate the Vermont Yankee Station after March 21, 2012; to deliver power from that facility to the interstate grid after March 21, 2012; or to store at the Vermont Yankee Station spent nuclear fuel deriving from post-March 21, 2012 operations at the Vermont Yankee Station;
  - ii. federal law preempts Defendants from conditioning the Vermont Yankee Station's continued operation after March 21, 2012 upon ENVY's agreement to provide below-market wholesale electricity rates to Vermont retail utilities; and

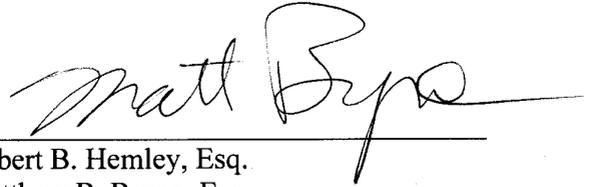
iii. the Commerce Clause prohibits Defendants from conditioning the Vermont Yankee Station's continued operation after March 21, 2012 upon agreement to provide below-market wholesale electricity rates to Vermont customers;

B. Issue a preliminary and permanent injunction, pursuant to 28 U.S.C. § 1651(a), 42 U.S.C. § 1983, and Rule 65 of the Federal Rules of Civil Procedure, (1) enjoining Defendants from enforcing Vermont statutes, regulations, or other laws (including without limitation Act 160, Act 189, and Vt. Stat. Ann. tit. 30, § 248(e)(2)) purporting to regulate the operation and licensing and/or the radiological safety of the Vermont Yankee Station, (2) further enjoining Defendants from undertaking any steps, based upon Vermont's or its officials' denial of a CPG, to shut down or make preparations to shut down the operation of the Vermont Yankee Station as of March 21, 2012, or to prevent the Vermont Yankee Station from delivering power from that facility to the interstate grid after March 21, 2012, or to prohibit the storage at the Vermont Yankee Station of spent nuclear fuel deriving from post-March 21, 2012 operation of the Vermont Yankee Station, and (3) further enjoining Defendants from conditioning the Vermont Yankee Station's continued operation after March 21, 2012 upon ENVY's agreement to provide below-market wholesale electricity rates to Vermont retail utilities;

C. Award reasonable attorneys' fees and costs;

D. Award such other relief available under the law that may be considered appropriate under the circumstances, including other fees and costs of this action to the extent allowed by the law.

Dated: Burlington, Vermont  
April 18, 2011



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

March 21, 2011

Mr. Michael Colomb  
Site Vice President  
Entergy Nuclear Operation, Inc.  
Vermont Yankee Nuclear Power Station  
185 Old Ferry Road  
P.O. Box 500  
Brattleboro, VT 05302-0500

**SUBJECT: ISSUANCE OF RENEWED FACILITY OPERATING LICENSE NO. DPR-28 FOR  
THE VERMONT YANKEE NUCLEAR POWER STATION**

Dear Mr. Colomb:

The U.S. Nuclear Regulatory Commission (NRC or the staff) has issued Renewed Facility Operating License No. DPR-28 for the Vermont Yankee Nuclear Power Station (VYNPS). The NRC issued the renewed facility operating license based on the staff's review of your application dated January 25, 2006, as supplemented by letters submitted to the NRC through February 15, 2011. The review did not result in an amendment of the technical specifications for VYNPS.

Renewed Facility Operating License No. DPR-28 expires at midnight on March 21, 2032.

The NRC sets forth the technical basis for issuing the renewed license in NUREG-1907, "Safety Evaluation Report Related to the License Renewal of the Vermont Yankee Nuclear Power Station," issued May 2008 and supplemented in September 2009 and March 2011. The results of the environmental reviews related to the issuance of the renewed license appear in NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 30, Regarding Vermont Yankee Nuclear Power Station," issued August 2007.

Documented in NUREG-1907, Entergy Nuclear Operations, Inc. (Entergy) had committed to replace its steam dryer monitoring plan during the period of extended operation for VYNPS with the inspection program guidance defined in Boiling Water Reactor Vessels and Internals Project (BWRVIP) Report 139, "Steam Dryer Inspection and Flaw Evaluation Guidelines," if BWRVIP-139 is approved by the NRC. Following discussions regarding steam dryer aging management during the Atomic Safety and Licensing Board (ASLB) hearing, that commitment has been superseded by a steam dryer license condition. The NRC has incorporated the expressed condition described in ASLB order LBP-08-25 (November 24, 2008), as a license condition for the aging management of the steam dryer at VYNPS. Commitment No. 37 in Appendix A of NUREG-1907 has been rendered null and void. Entergy will be required to apply for a license amendment if it desires to implement BWRVIP-139 at VYNPS.

M. Colomb

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Enclosure 1 contains Renewed Facility Operating License No. DPR-28. Enclosure 2 contains Appendix A to Operating License DPR-28, "Technical Specifications." Enclosure 3 is a copy of the related *Federal Register* notice of issuance of the renewed license. The original has been sent to the Office of the Federal Register for publication.

If you have any questions regarding this issue, please feel free to contact me at by telephone 301-415-3733 or by e-mail at [Robert.Kuntz@nrc.gov](mailto:Robert.Kuntz@nrc.gov).

Sincerely,



Robert F. Kuntz, Senior Project Manager  
Projects Branch 2  
Division of License Renewal  
Office of Nuclear Reactor Regulation

Docket No. 50-271

Enclosures:

1. Renewed Facility Operating License  
No. DPR-28
2. Appendix A to Operating License  
No. DPR-28, "Technical Specifications"
3. Copy of *Federal Register* notice

cc w/encls 1 and 3: Listserv

Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc.

(Vermont Yankee Nuclear Power Station)

Docket No. 50-271

Renewed Facility Operating License

Renewed Operating License No. DPR-28

The U.S. Nuclear Regulatory Commission (NRC or the Commission), having previously made the findings set forth in Facility Operating License No. DPR-28, dated February 28, 1973, has now found that:

- a. Construction of the Vermont Yankee Nuclear Power Station (the facility) has been substantially completed in conformity with the application, as amended, the Provisional Construction Permit No. CPPR-36, the provisions of the Atomic Energy Act of 1954, as amended (the Act), and the rules and regulations of the Commission as set forth in Title 10 of the *Code of Federal Regulations* (CFR) Chapter 1.; and
- b. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission; and
- c. There is reasonable assurance (1) that the activities authorized by this renewed operating license can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the rules and regulations of the Commission; and
- d. Entergy Nuclear Vermont Yankee, LLC is financially qualified and Entergy Nuclear Operations, Inc. is technically and financially qualified to engage in the activities authorized by this renewed operating license, in accordance with the rules and regulations of the Commission; and
- e. Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. have satisfied the applicable provisions of 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements" of the Commission's regulations; and
- f. The issuance of this renewed operating license will not be inimical to the common defense and security or to the health and safety of the public; and
- g. After weighing the environmental, economic, technical and other benefits of the facility against environmental costs and considering available alternatives, the issuance of this renewed operating license (subject to the conditions for

Renewed Operating License No. DPR-28

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protection of the environment set forth herein) is in accordance with 10 CFR Part 51, of the Commission's regulations and all applicable requirements of said Part 51 have been satisfied; and

- h. Actions have been identified and have been or will be taken with respect to: (1) managing the effects of aging on the functionality of structures and components that have been identified to require review under 10 CFR 54.21(a)(1) during the period of extended operation, and (2) time-limited aging analyses that have been identified to require review under 10 CFR 54.21(c), such that there is reasonable assurance that the activities authorized by this renewed operating license will continue to be conducted in accordance with the current licensing basis, as defined in 10 CFR 54.3 for the facility, and that any changes made to the facility's current licensing basis in order to comply with 10 CFR 54.29(a) are in accordance with the Act and the Commission's regulations.

Accordingly, Facility Operating License No. DPR-28, as amended, issued to Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. is superseded by Renewed Facility Operating License No. DPR-28 and is hereby amended in its entirety to read:

1. This renewed license applies to the Vermont Yankee Nuclear Power Station (the facility), a single cycle, boiling water, light water moderated and cooled reactor, and associated electric generating equipment. The facility is located on Entergy Nuclear Vermont Yankee, LLC's site, in the Town of Vernon, Windham County, Vermont, and is described in the application as amended.
2. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses:
  - A. Pursuant to Sections 104b of the Atomic Energy Act of 1954, as amended (the Act), and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," Entergy Nuclear Vermont Yankee, LLC to possess and use, and Entergy Nuclear Operations, Inc., to possess, use, and operate the facility as a utilization facility at the designated location on the Entergy Nuclear Vermont Yankee, LLC site.
  - B. Entergy Nuclear Operations, Inc., pursuant to the Act and 10 CFR Part 70, to receive, possess, and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation as described in the Final Safety Analysis Report, as supplemented and amended.
  - C. Entergy Nuclear Operations, Inc., pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use at any time any byproduct, source, and special nuclear material as sealed neutron sources for reactor startup, sealed sources for calibration of reactor instrumentation and radiation monitoring equipment, and as fission detectors in amounts as required.

Renewed Facility Operating License No. DPR-28

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- D. Entergy Nuclear Operations, Inc., pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required any byproduct, source, or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components.
  - E. Entergy Nuclear Operations, Inc., pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not to separate, such byproduct and special nuclear material as may be produced by operation of the facility.
3. This renewed license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations: 10 CFR Part 20, Section 30.34 of 10 CFR Part 30, Section 40.41 of 10 CFR Part 40, Section 50.54 and 50.59 of 10 CFR Part 50, and Section 70.32 of 10 CFR Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified below:

A. Maximum Power Level

Entergy Nuclear Operations, Inc. is authorized to operate the facility at reactor core power levels not to exceed 1912 megawatts thermal in accordance with the Technical Specifications (Appendix A) appended hereto.

B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 246, are hereby incorporated in the license. Entergy Nuclear Operations, Inc. shall operate the facility in accordance with the Technical Specifications.

C. Reports

Entergy Nuclear Operations, Inc. shall make reports in accordance with the requirements of the Technical Specifications.

D. This paragraph deleted by Amendment No. 226.

E. Environmental Conditions

Pursuant to the Initial Decision of the presiding Atomic Safety and Licensing Board issued February 27, 1973, the following conditions for the protection of the environment are incorporated herein:

1. This paragraph deleted by Amendment No. 206, October 22, 2001.
2. This paragraph deleted by Amendment 131, 10/07/91.

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3. This paragraph deleted by Amendment No. 206, October 22, 2001.
4. If harmful effects or evidence of irreversible damage in land or water ecosystems as a result of facility operation are detected by Entergy Nuclear Operations, Inc.'s environmental monitoring program, Entergy Nuclear Operations, Inc. shall provide an analysis of the problem to the Commission and to the advisory group for the Technical Specifications, and Entergy Nuclear Operations, Inc. thereafter will provide, subject to the review by the aforesaid advisory group, a course of action to be taken immediately to alleviate the problem.
5. Entergy Nuclear Operations, Inc. will grant authorized representatives of the Massachusetts Department of Public Health (MDPH) and Metropolitan District Commission (MDC) access to records and charts related to discharge of radioactive materials to the Connecticut River.
6. This paragraph deleted by Amendment No. 206, October 22, 2001.
7. This paragraph deleted by Amendment No. 206, October 22, 2001.
8. Entergy Nuclear Operations, Inc. will permit authorized representatives of the MDPH and MDC to examine the chemical and radioactivity analyses performed by Entergy Nuclear Operations, Inc.
9. Entergy Nuclear Operations, Inc. shall immediately notify MDPH, or an agency designated by MDPH, in the event concentrations of radioactive materials in liquid effluents, measured at the point of release from the Vermont Yankee facility, exceed the limit set forth in the facility Offsite Dose Calculation Manual. Entergy Nuclear Operations, Inc. will also notify MDPH in writing within 30 days following the release of radioactive materials in liquid effluents in excess of 10 percent of the limit set forth in the facility Offsite Dose Calculation Manual.
10. A report shall be submitted to MDPH and MDC by May 15 of each year of plant operation, specifying the total quantities of radioactive materials released to the Connecticut River during the previous calendar year. The report shall contain the following information:
  - (a) Total curie activity discharged other than tritium and dissolved gases.
  - (b) Total curie alpha activity discharged.
  - (c) Total curies of tritium discharged.
  - (d) Total curies of dissolved radio-gases discharged.

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- (e) Total volume (in gallons) of liquid waste discharged.
  - (f) Total volume (in gallons) of dilution water.
  - (g) Average concentration at discharge outfall.
  - (h) This paragraph deleted by Amendment No. 206, October 22, 2001.
  - (i) Total radioactivity (in curies) released by nuclide including dissolved radio-gases.
  - (j) Percent of the facility Offsite Dose Calculation Manual limit for total activity released.
11. This paragraph deleted by Amendment No. 206, October 22, 2001.
12. This paragraph deleted by Amendment No. 206, October 22, 2001.
13. Entergy Nuclear Operations, Inc. shall establish and maintain a system of emergency notification to the states of Vermont and New Hampshire, and the Commonwealth of Massachusetts, satisfactory to the appropriate public health and public safety officials of those states and the Commonwealth, which provides for:
- a. Notice of site emergencies as well as general emergencies.
  - b. Direct microwave communication with the state police headquarters of the respective states and the Commonwealth when the transmission facilities of the respective states and the Commonwealth so permit, at the expense of Entergy Nuclear Operations, Inc.
  - c. A verification or coding system for emergency messages between Entergy Nuclear Operations, Inc. and the state police headquarters of the respective states and the Commonwealth.
14. Entergy Nuclear Operations, Inc. shall furnish advance notification to MDPH, or to another Commonwealth agency designated by MDPH, of the time, method and proposed route through the Commonwealth of any shipments of nuclear fuel and wastes to and from the Vermont Yankee facility which will utilize railways or roadways in the Commonwealth.
- F. Entergy Nuclear Operations, Inc. shall implement and maintain in effect all provisions of the approved Fire Protection Program as described in the Final

Renewed Facility Operating License No. DPR-28

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Safety Analysis Report for the facility and as approved in the SER dated January 13, 1978, and supplemental SERs, dated 9/12/79, 2/20/80, 4/15/80, 7/3/80, 10/24/80, 11/10/81, 1/13/83, 7/24/84, 3/25/86, 12/1/86, 12/8/89, 11/29/90, 8/30/95, 3/23/97, 6/9/97, 8/12/97, 3/6/98, 3/31/98, 9/2/98, and 2/24/99, subject to the following provisions:

Entergy Nuclear Operations, Inc. may make changes to the approved Fire Protection Program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

G. Security Plan

Entergy Nuclear Operations, Inc. shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822), and the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans<sup>1</sup>, which contain Safeguards Information protected under 10 CFR 73.21, is entitled: "Vermont Yankee Nuclear Power Station Security Plan, Training and Qualification Plan, and Safeguards Contingency Plan, Revision 0," submitted by letter dated October 18, 2004, as supplemented by letter dated May 16, 2006.

H. This paragraph deleted by Amendment No. 107, 8/25/88.

I. This paragraph deleted by Amendment No. 131, 10/7/91.

J. License Transfer Conditions

On the closing date of the transfer of Vermont Yankee Nuclear Power Station (Vermont Yankee), Entergy Nuclear Vermont Yankee, LLC shall obtain from Vermont Yankee Nuclear Power Corporation all of the accumulated decommissioning trust funds for the facility, and ensure the deposit of such funds into a decommissioning trust for Vermont Yankee established by Entergy Nuclear Vermont Yankee, LLC. If the amount of such funds does not meet or exceed the minimum amount required for the facility pursuant to 10 CFR 50.75, Entergy Nuclear Vermont Yankee, LLC shall at such time deposit additional funds into the trust and/or obtain a parent company guarantee (to be updated annually) and/or obtain a surety pursuant to 10 CFR 50.75(e)(1)(iii) in a form acceptable to the NRC and in an amount or amounts which, when combined with the decommissioning trust funds for the facility that have been obtained and deposited as required above, equals or

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<sup>1</sup> The Training and Qualification Plan and Safeguards Contingency Plan are Appendices to the Security Plan.

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exceeds the total amount required for the facility pursuant to 10 CFR 50.75. The decommissioning trust, and surety if utilized, shall be subject to or be consistent with the following requirements, as applicable:

a. Decommissioning Trust

- (i) The decommissioning trust agreement must be in a form acceptable to the NRC.
- (ii) With respect to the decommissioning trust funds, investments in the securities or other obligations of Entergy Corporation and its affiliates, successors, or assigns shall be prohibited. In addition, except for investments tied to market indexes or other non-nuclear-sector mutual funds, investments in any entity owning one or more nuclear power plants are prohibited.
- (iii) The decommissioning trust agreement must provide that no disbursements or payments from the trust, other than for ordinary administrative expenses, shall be made by the trustee until the trustee has first given the NRC 30 days prior written notice of payment. The decommissioning trust agreement shall further contain a provision that no disbursements or payments from the trust shall be made if the trustee receives prior written notice of objection from the Director of the Office of Nuclear Reactor Regulation.
- (iv) The decommissioning trust agreement must provide that the agreement cannot be amended in any material respect without 30 days prior written notification to the Director of the Office of Nuclear Reactor Regulation.
- (v) The appropriate section of the decommissioning trust agreement shall state that the trustee, investment advisor, or anyone else directing the investments made in the trust shall adhere to a "prudent investor" standard, as specified in 18 CFR 35.32(a)(3) of the Federal Energy Regulatory Commission's regulations.

b. Surety

- (i) The surety agreement must be in a form acceptable to the NRC and be in accordance with all applicable NRC regulations.
- (ii) The surety company providing any surety obtained to comply with the Order approving the transfer shall be one of those listed by the U.S. Department of the Treasury in the most recent edition of Circular 570 and shall have a coverage limit sufficient to cover the amount of the surety.

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- (iii) Entergy Nuclear Vermont Yankee, LLC shall establish a standby trust to receive funds from the surety, if a surety is obtained, in the event that Entergy Nuclear Vermont Yankee, LLC defaults on its funding obligations for the decommissioning of Vermont Yankee. The standby trust agreement must be in a form acceptable to the NRC, and shall conform with all conditions otherwise applicable to the decommissioning trust agreement.
- (iv) The surety agreement must provide that the agreement cannot be amended in any material respect, or terminated, without 30 days prior written notification to the Director of the Office of Nuclear Reactor Regulation.

Entergy Nuclear Vermont Yankee, LLC shall take all necessary steps to ensure that the decommissioning trust is maintained in accordance with the application for approval of the transfer of this license to Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc., and the requirements of the Order approving the transfer, and consistent with the safety evaluation supporting the Order.

Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. shall take no action to cause Entergy Global Investments, Inc., or Entergy International Holdings Ltd. LLC, or their parent companies to void, cancel, or modify the lines of credit to provide funding for Vermont Yankee as represented in the application without prior written consent of the Director of the Office of Nuclear Reactor Regulation.

**K. Minimum Critical Power Ratio**

When operating at thermal power greater than 1593 megawatts thermal, the safety limit minimum critical power ratio (SLMCPR) shall be established by adding 0.02 to the cycle-specific SLMCPR value calculated using the NRC-approved methodologies documented in General Electric Licensing Topical Report NEDE-24011-P-A, "General Electric Standard Application for Reactor Fuel," as amended, and documented in the Core Operating Limits Report.

**L. Transient Testing**

1. During the extended power uprate (EPU) power ascension test program and prior to exceeding 168 hours of plant operation at the nominal full EPU reactor power level, with feedwater and condensate flow rates stabilized at approximately the EPU full power level, Entergy Nuclear Operations, Inc. shall confirm through performance of transient testing that the loss of one condensate pump will not result in a complete loss of reactor feedwater.

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2. Within 30 days at nominal full-power operation following successful performance of the test in (1) above, through performance of additional transient testing and/or analysis of the results of the testing conducted in (1) above, confirm that the loss of one reactor feedwater pump will not result in a reactor trip.

**M. Potential Adverse Flow Effects**

This license condition provides for monitoring, evaluating, and taking prompt action in response to potential adverse flow effects as a result of power uprate operation on plant structures, systems, and components (including verifying the continued structural integrity of the steam dryer).

1. The following requirements are placed on operation of the facility above the original licensed thermal power (OLTP) level of 1593 megawatts thermal (MWt):
  - a. Entergy Nuclear Operations, Inc. shall monitor hourly the 32 main steam line (MSL) strain gages during power ascension above 1593 MWt for increasing pressure fluctuations in the steam lines.
  - b. Entergy Nuclear Operations, Inc. shall hold the facility for 24 hours at 105%, 110%, and 115% of OLTP to collect data from the 32 MSL strain gages required by Condition M.1.a, conduct plant inspections and walkdowns, and evaluate steam dryer performance based on these data; shall provide the evaluation to the NRC staff by facsimile or electronic transmission to the NRC project manager upon completion of the evaluation; and shall not increase power above each hold point until 96 hours after the NRC project manager confirms receipt of the transmission.
  - c. If any frequency peak from the MSL strain gage data exceeds the limit curve established by Entergy Nuclear Operations, Inc. and submitted to the NRC staff prior to operation above OLTP, Entergy Nuclear Operations, Inc. shall return the facility to a power level at which the limit curve is not exceeded. Entergy Nuclear Operations, Inc. shall resolve the uncertainties in the steam dryer analysis, document the continued structural integrity of the steam dryer, and provide that documentation to the NRC staff by facsimile or electronic transmission to the NRC project manager prior to further increases in reactor power.
  - d. In addition to evaluating the MSL strain gage data, Entergy Nuclear Operations, Inc. shall monitor reactor pressure vessel water level instrumentation or MSL piping accelerometers on an hourly basis during power ascension above OLTP. If resonance frequencies are identified as increasing above nominal levels in proportion to strain

Renewed Facility Operating License No. DPR-28

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- gage instrumentation data, Entergy Nuclear Operations, Inc. shall stop power ascension, document the continued structural integrity of the steam dryer, and provide that documentation to the NRC staff by facsimile or electronic transmission to the NRC project manager prior to further increases in reactor power.
- e. Following start-up testing, Entergy Nuclear Operations, Inc. shall resolve the uncertainties in the steam dryer analysis and provide that resolution to the NRC staff by facsimile or electronic transmission to the NRC project manager. If the uncertainties are not resolved within 90 days of issuance of the license amendment authorizing operation at 1912 MWt, Entergy Nuclear Operations, Inc. shall return the facility to OLTP.
2. As described in Entergy Nuclear Operations, Inc. letter Bvy 05-084 dated September 14, 2005, Entergy Nuclear Operations, Inc. shall implement the following actions:
    - a. Prior to operation above OLTP, Entergy Nuclear Operations, Inc. shall install 32 additional strain gages on the main steam piping and shall enhance the data acquisition system in order to reduce the measurement uncertainty associated with the acoustic circuit model (ACM).
    - b. In the event that acoustic signals are identified that challenge the limit curve during power ascension above OLTP, Entergy Nuclear Operations, Inc. shall evaluate dryer loads and re-establish the limit curve based on the new strain gage data, and shall perform a frequency-specific assessment of ACM uncertainty at the acoustic signal frequency.
    - c. After reaching 120% of OLTP, Entergy Nuclear Operations, Inc. shall obtain measurements from the MSL strain gages and establish the steam dryer flow-induced vibration load fatigue margin for the facility, update the dryer stress report, and re-establish the steam dryer monitoring plan (SDMP) limit curve with the updated ACM load definition and revised instrument uncertainty, which will be provided to the NRC staff.
    - d. During power ascension above OLTP, if an engineering evaluation is required in accordance with the SDMP, Entergy Nuclear Operations, Inc. shall perform the structural analysis to address frequency uncertainties up to  $\pm 10\%$  and assure that peak responses that fall within this uncertainty band are addressed.
    - e. Entergy Nuclear Operations, Inc. shall revise the SDMP to reflect long-term monitoring of plant parameters potentially indicative of

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steam dryer failure; to reflect consistency of the facility's steam dryer inspection program with General Electric Services Information Letter 644, Revision 1; and to identify the NRC Project Manager for the facility as the point of contact for providing SDMP information during power ascension.

- f. Entergy Nuclear Operations, Inc. shall submit the final extended power uprate (EPU) steam dryer load definition for the facility to the NRC upon completion of the power ascension test program.
  - g. Entergy Nuclear Operations, Inc. shall submit the flow-induced vibration related portions of the EPU startup test procedure to the NRC, including methodology for updating the limit curve, prior to initial power ascension above OLTP.
3. Entergy Nuclear Operations, Inc. shall prepare the EPU startup test procedure to include the (a) stress limit curve to be applied for evaluating steam dryer performance; (b) specific hold points and their duration during EPU power ascension; (c) activities to be accomplished during hold points; (d) plant parameters to be monitored; (e) inspections and walkdowns to be conducted for steam, feedwater, and condensate systems and components during the hold points; (f) methods to be used to trend plant parameters; (g) acceptance criteria for monitoring and trending plant parameters, and conducting the walkdowns and inspections; (h) actions to be taken if acceptance criteria are not satisfied; and (i) verification of the completion of commitments and planned actions specified in its application and all supplements to the application in support of the EPU license amendment request pertaining to the steam dryer prior to power increase above OLTP. Entergy Nuclear Operations, Inc. shall provide the related EPU startup test procedure sections to the NRC by facsimile or electronic transmission to the NRC project manager prior to increasing power above OLTP.
  4. When operating above OLTP, the operating limits, required actions, and surveillances specified in the SDMP shall be met. The following key attributes of the SDMP shall not be made less restrictive without prior NRC approval:
    - a. During initial power ascension testing above OLTP, each test plateau increment shall be approximately 80 MWt;
    - b. Level 1 performance criteria; and
    - c. The methodology for establishing the stress spectra used for the Level 1 and Level 2 performance criteria.

Renewed Facility Operating License No. DPR-28

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Changes to other aspects of the SDMP may be made in accordance with the guidance of NEI 99-04.

5. During each of the three scheduled refueling outages (beginning with the spring 2007 refueling outage), a visual inspection shall be conducted of all accessible, susceptible locations of the steam dryer, including flaws left "as is" and modifications.
6. The results of the visual inspections of the steam dryer conducted during the three scheduled refueling outages (beginning with the spring 2007 refueling outage) shall be reported to the NRC staff within 60 days following startup from the respective refueling outage. The results of the SDMP shall be submitted to the NRC staff in a report within 60 days following the completion of all EPU power ascension testing.
7. The requirements of paragraph 4 above for meeting the SDMP shall be implemented upon issuance of the EPU license amendment and shall continue until the completion of one full operating cycle at EPU. If an unacceptable structural flaw (due to fatigue) is detected during the subsequent visual inspection of the steam dryer, the requirements of paragraph 4 shall extend another full operating cycle until the visual inspection standard of no new flaws/flaw growth based on visual inspection is satisfied.
8. This license condition shall expire upon satisfaction of the requirements in paragraphs 5, 6, and 7 provided that a visual inspection of the steam dryer does not reveal any new unacceptable flaw or unacceptable flaw growth that is due to fatigue.

N. Mitigation Strategy License Condition

Develop and maintain strategies for addressing large fires and explosions and that include the following key areas:

- (a) Fire fighting response strategy with the following elements:
  1. Pre-defined coordinated fire response strategy and guidance
  2. Assessment of mutual aid fire fighting assets
  3. Designated staging areas for equipment and materials
  4. Command and control
  5. Training of response personnel
- (b) Operations to mitigate fuel damage considering the following:
  1. Protection and use of personnel assets
  2. Communications
  3. Minimizing fire spread
  4. Procedures for implementing integrated fire response strategy
  5. Identification of readily-available pre-staged equipment

Renewed Facility Operating License No. DPR-28

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6. Training on integrated fire response strategy
  7. Spent fuel pool mitigation measures
- (c) Actions to minimize release to include consideration of:
1. Water spray scrubbing
  2. Dose to onsite responders
- O. The licensee shall implement and maintain all Actions required by Attachment 2 to NRC Order EA-06-137, issued June 20, 2006, except the last action that requires incorporation of the strategies into the site security plan, contingency plan, emergency plan and/or guard training and qualification plan, as appropriate.
- P. The information in the UFSAR supplement, as revised, submitted pursuant to 10 CFR 54.21(d), shall be incorporated into the next UFSAR no later than the next scheduled update required by 10 CFR 50.71(e), following the issuance of this renewed operating license. Until this update is complete, Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. may make changes to the information in the supplement without Commission approval provided that Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc., evaluates such changes pursuant to the criteria in 10 CFR 50.59 and otherwise complies with the requirements of that section.
- Q. The UFSAR supplement, as revised, submitted pursuant to 10 CFR 54.21(d), describes certain future activities to be completed prior to and/or during the period of extended operation. Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. shall complete these activities in accordance with Appendix A of Supplement 2 to NUREG-1907, "Safety Evaluation Report Related to the License Renewal of Vermont Yankee Nuclear Power Station," issued March 2011 (excluding Commitment No. 37, which is superseded by the steam dryer license condition). Entergy Nuclear Vermont Yankee, LLC or Entergy Nuclear Operations, Inc. shall notify the NRC in writing when activities to be completed prior to the period of extended operation are complete and can be verified by NRC inspection.
- R. Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. shall implement the most recent staff-approved version of the Boiling Water Reactor Vessels and Internals Project (BWRVIP) Integrated Surveillance Program (ISP) as the method to demonstrate compliance with the requirements of 10 CFR Part 50, Appendix H. Any changes to the BWRVIP ISP capsule withdrawal schedule must be submitted for NRC staff review and approval. Any changes to the BWRVIP ISP capsule withdrawal schedule which affects the time of withdrawal of any surveillance capsules must be incorporated into the licensing basis. If any surveillance capsules are removed without the intent to test them, these capsules must be stored in a manner which maintains them in a condition which would support re-insertion into the reactor pressure vessel, if necessary.

Renewed Facility Operating License No. DPR-28

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S. Steam Dryer License Condition

In accordance with Atomic Safety and Licensing Board order LBP-08-25, dated November 24, 2008, notwithstanding any other provision of this license, Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. shall continue to perform and implement the continuous parameter monitoring, moisture content monitoring, and visual inspections specified in the SDMP at the intervals specified in General Electric Services Information Letter 644, Revision 2. These shall continue for the full term of the period of extended operation unless this provision of the license is duly amended.

4. This renewed operating license is effective as of the date of issuance and shall expire at midnight on March 21, 2032.

FOR THE NUCLEAR REGULATORY COMMISSION



Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation

Enclosures:  
Appendix A - Technical Specifications

Date of Issuance: March 21, 2011

Renewed Facility Operating License No. DPR-28

A-1856

[7590-01-P]

NUCLEAR REGULATORY COMMISSION  
ENTERGY NUCLEAR OPERATIONS, INC.,  
VERMONT YANKEE NUCLEAR POWER STATION  
NOTICE OF ISSUANCE OF RENEWED FACILITY OPERATING LICENSE NO. DPR-28  
FOR AN ADDITIONAL 20-YEAR PERIOD  
RECORD OF DECISION  
DOCKET NO. 50-271  
NRC-2011-xxxx

Notice is hereby given that the U.S. Nuclear Regulatory Commission (NRC of the Commission) has issued Renewed Facility Operating License No. DPR-28 to Entergy Nuclear Vermont Yankee, LLC (Entergy VY), and Entergy Nuclear Operations, Inc. (ENO), (licensee), the operator of the Vermont Yankee Nuclear Power Station (VYNPS). Renewed Facility Operating License No. DPR-28 authorizes operation of VYNPS by the licensee at reactor core power levels not in excess of 1912 megawatts thermal (650 megawatts electric), in accordance with the provisions of the VYNPS renewed license and its technical specifications.

The notice also serves as the record of decision for the renewal of Facility Operating License No. DPR-28, consistent with Title 10 of the *Code of Federal Regulations* Section 51.103 (10 CFR 51.103). As discussed in the final supplemental environmental impact statement for VYNPS, dated August 2007, the Commission has considered a range of reasonable alternatives that included the no-action alternative. The factors considered in the record of decision can be found in the supplemental environmental impact statement (SEIS) for VYNPS.

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VYNPS is a boiling water reactor located five miles south of Brattleboro, Vermont. The application for the renewed license complied with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations. As required by the Act and the Commission's regulations in 10 CFR Chapter 1, the Commission has made appropriate findings, which are set forth in the renewed license. Prior public notice of the Commission considering the license renewal application (LRA) and of an opportunity for a hearing regarding the LRA was published in the *Federal Register* on March 27, 2006 (71 FR 15220).

For further details with respect to this action, see: (1) Entergy VY and ENO, LRA for VYNPS dated January 25, 2006, as supplemented by letters dated through February 21, 2008; (2) the Commission's safety evaluation report (SER) (NUREG-1907), published in May 2008; (3) Supplements 1 and 2 to the SER, published in September 2009 and March 2011; (4) the licensee's updated safety analysis report; and (5) the Commission's final environmental impact statement (NUREG-1437, Supplement 30), for VYNPS, published on August 1, 2007. These documents are available at the NRC's Public Document Room, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852, and can be viewed from the NRC Public Electronic Reading Room at <http://www.nrc.gov/reading-rm/adams.html>.

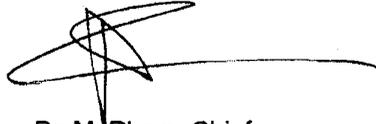
Copies of the Renewed Facility Operating License No. DPR-28, may be obtained by writing to the U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001, Attention: Director, Division of License Renewal. Copies of the VYNPS SER (NUREG-1907), supplemental SER, and the final environmental impact statement (NUREG-1437, Supplement 30) may be purchased from the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161 (<http://www.ntis.gov>), 703-605-6000, or Attention: Superintendent of Documents, U.S. Government Printing Office, P.O. Box 371954

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Pittsburgh, Pennsylvania 15250-7954 (<http://www.gpoaccess.gov>), 202-512-1800. All orders should clearly identify the NRC publication number and the requestor's Government Printing Office deposit account number or VISA or MasterCard number and expiration date.

Dated at Rockville, Maryland, this 21st day of March, 2011.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, consisting of several overlapping loops and a long horizontal stroke extending to the right.

Bo M. Pham, Chief  
Projects Branch 1  
Division of License Renewal,  
Office of Nuclear Reactor Regulation

M. Colomb

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Enclosure 1 contains Renewed Facility Operating License No. DPR-28. Enclosure 2 contains Appendix A to Operating License DPR-28, "Technical Specifications." Enclosure 3 is a copy of the related *Federal Register* notice of issuance of the renewed license. The original has been sent to the Office of the Federal Register for publication.

If you have any questions regarding this issue, please feel free to contact me by telephone at 301-415-3733 or by e-mail at [Robert.Kuntz@nrc.gov](mailto:Robert.Kuntz@nrc.gov).

Sincerely,

/RA/

Robert F. Kuntz, Senior Project Manager  
 Projects Branch 2  
 Division of License Renewal  
 Office of Nuclear Reactor Regulation

Docket No. 50-271

Enclosures:

1. Renewed Facility Operating License  
 No. DPR-28
2. Appendix A to Operating License  
 No. DPR-28, "Technical Specifications"
3. Copy of *Federal Register* notice

cc w/encls 1 and 3: Listserv

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See next page

ADAMS Accession Nos.:

- ML092110048** (Package)
- ML092110050** (Letter)
- ML092110054** (Renewed Operating License)
- ML092110065** (Appendix A)
- ML092110071** (*Federal Register* Notice)

\*concurring via e-mail

OFFICE	PM:RPB2:DLR	LA:DLR	Tech Editor*	PM:DORL:LPLI-1	BC:DORL:LPLI-1
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DATE	03/10/2011	08/04/2009	07/23/2009	03/07/2011	03/10/2011
OFFICE	BC:RPB1:DLR	D:DLR	OGC (NLO)	D:NRR	PM:RPB2:DLR
NAME	BPham	BHolian	MSpencer	ELeeds	RKuntz
DATE	03/10/2011	03/14/2011	03/10/2011	03/21/2011	03/21/2011

OFFICIAL RECORD COPY

Letter to Michael Colomb from Robert F. Kuntz dated March 21, 2011

**SUBJECT: ISSUANCE OF RENEWED FACILITY OPERATING LICENSE NO. DPR-28 FOR  
THE VERMONT YANKEE NUCLEAR POWER STATION**

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JJones, RI

UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF VERMONT

ENTERGY NUCLEAR VERMONT  
YANKEE, LLC and ENTERGY NUCLEAR  
OPERATIONS, INC.,

Plaintiffs,

v.

PETER SHUMLIN, in his official capacity as  
GOVERNOR OF THE STATE OF  
VERMONT; WILLIAM SORRELL, in his  
official capacity as the ATTORNEY  
GENERAL OF THE STATE OF VERMONT,  
and JAMES VOLZ, JOHN BURKE, and  
DAVID COEN, in their official capacities as  
members of THE VERMONT PUBLIC  
SERVICE BOARD,

Defendants.

Civil Action No.

Declaration of John T. Herron

John T. Herron, declares as follows pursuant to 28 U.S.C. § 1746:

**Introduction and Background**

1. I am President and Chief Executive Officer Nuclear Operations/Chief Nuclear Officer of Entergy Corporation (“Entergy”). In that position I am responsible for Entergy’s ten nuclear electric generating facilities located in Arkansas, Louisiana, Massachusetts, Michigan, Mississippi, New York and Vermont, as well as Entergy’s management services for the Cooper Nuclear Station in Nebraska. One of the nuclear facilities for which I am responsible is Vermont Yankee Nuclear Power Station (“Vermont Yankee Station”).

2. My nuclear operations career began many years ago at Vermont Yankee Station while it was owned by Vermont Yankee Nuclear Power Corporation (“VYNPC”). After

graduating high school and then serving in the United States Navy from 1972 to 1978. I began my career with VYNPC in 1979 as an auxiliary operator and remained there for next 15 years. My positions at Vermont Yankee Station during that period included technical services superintendant, operations manager, technical program manager, shift supervisor, supervisory control room operator and reactor operator. During part of my time at Vermont Yankee Station, I served as the President of the International Brotherhood of Electrical Workers Local 300, Unit 8.

3. In 1994, I moved from VYNPC to become plant manager at Nebraska Public Power District's Cooper Nuclear Station (long before Entergy had a management services contract to operate that plant). In 1996, I became plant manager for the Tennessee Valley Authority's Sequoyah Nuclear Plant in Tennessee and in 1999 became the site vice president for its Brown's Ferry Nuclear Plant in Alabama.

4. In February 2001, I became vice president for operations at Entergy's Waterford 3 Nuclear Plant in Louisiana. In 2002, I became senior vice president for its Indian Point Energy Center in New York. In 2003, I became Chief Operating Officer for Entergy's northeast nuclear operations. In 2007, I became senior vice president for all of Entergy's nuclear operations and in 2009, I assumed my current position.

5. In my current position, I serve on the board of directors for the Institute for Nuclear Power Operations (INPO) and on the Nuclear Strategic Issues Advisory Committee (NSIAC) of the Nuclear Energy Institute (NEI).

6. I make this declaration in support of the motion for preliminary injunction of Entergy Nuclear Vermont Yankee, LLC ("ENVY") and Entergy Nuclear Operations, Inc. ("ENOI"), the owner and operator respectively of Vermont Yankee Station. ENVY and ENOI

jointly hold Facility Operating License No. DPR-28 issued by the United States Nuclear Regulatory Commission (“NRC”), which was originally due to expire on March 21, 2012. On March 21, 2011, the NRC issued Renewed Facility Operating License No. DPR-28, authorizing Vermont Yankee Station to continue operate until March 21, 2032.

7. In this declaration, I will first provide some background on Vermont Yankee Station and its operation. I will then describe the highly trained and skilled workforce required to operate such facilities safely and reliably and explain the challenges with retaining that workforce given the uncertainties surrounding the plant’s status after March 21, 2012 under Vermont’s laws. Finally, I will describe the October 2011 refueling outage that Vermont Yankee Station has scheduled and explain the reasons why that outage cannot be postponed without significant adverse consequences and why certainty is needed by early July concerning whether the plant can continue to operate while litigation is pending.

#### **The History of Vermont Yankee Station**

8. Vermont Yankee Station is located on an approximately 125 acre site in Vernon, Vermont that is across the Connecticut River from New Hampshire and about three miles from the Vermont state border with Massachusetts. It was built by VYNPC, a company formed by a group of New England utilities. Vermont’s two largest utilities, Central Vermont Public Service Corporation and Green Mountain Power Corporation, were the lead owners, together owing slightly more than half of VYNPC. The utility owners of VYNPC shared the output from Vermont Yankee Station in percentages that approximated their respective ownership percentages.

9. In 1999, VYNPC entered into an agreement to sell Vermont Yankee Station to a company called Amergen. In 2001, the Vermont Public Service Board declined to approve that sale, finding that the purchase price did not reflect the fair market value of the facility. VYNPC then began a bid process for Vermont Yankee Station, and Entergy successfully bid to have ENVY acquire the facility for \$180 million. As part of its successful bid, ENVY also agreed to enter into a power purchase agreement (“PPA”) with VYNPC to sell power at attractive prices for the remaining term of the facility’s NRC operating license – that is, through March 21, 2012. VYNPC, in turn, entered into agreements to resell the power sold to it by ENVY to VYNPC’s owners.

10. On June 13, 2002, the Vermont Public Service Board issued an order approving the sale of Vermont Yankee Station to ENVY and a certificate of public good authorizing ENVY and ENOI to own and operate the facility. ENVY completed the acquisition of Vermont Yankee Station on July 31, 2002.

### **The Operation of Vermont Yankee Station**

11. Vermont Yankee Station is an electrical generating facility that is powered by a nuclear boiling water reactor. In a nuclear powered electrical generating facility, the nuclear chain reaction produces heat that is used to produce steam that turns a turbine generator that produces electricity.

12. Vermont Yankee Station began commercial operation in March 1972. As originally built, the facility’s net generating capacity was approximately 510 MW. After ENVY acquired the facility, it invested approximately \$100 million to increase the facility’s net generating capacity to approximately 605 MW.

13. Like other nuclear generating facilities, Vermont Yankee Station operates as a baseload generating facility. That means the facility operates at full capacity whenever possible to supply the demand for electricity, or electrical load, that is relatively constant at all times. Vermont Yankee Station has scheduled outages approximately every 18 months for refueling, a process that I will describe further below. Between refueling outages, Vermont Yankee Station tries to operate without interruption 24 hours/day and 7 days/week.

14. Vermont Yankee Station has been an extremely reliable source of power under ENVY's ownership. Over the period from 2003-2010 (approximately the period of ENVY's ownership of the plant), it has operated at an average capacity factor over 92 percent, as contrasted with an average capacity factor below 78 percent for approximately the first 30 years of the plant's life under its prior ownership. In April 2010, Vermont Yankee Station completed a 532-day uninterrupted "breaker-to-breaker" run – that is, a period of uninterrupted service from the time the facility was reconnected to the electrical grid after the completion of a refueling outage until the time the facility was disconnected from the electrical grid for the next refueling outage. This "breaker-to-breaker" run was the second such run for the facility since ENVY took over its ownership. Prior to that, Vermont Yankee Station had never had a "breaker-to-breaker" run.

15. Vermont Yankee Station, like all commercial nuclear facilities, is subject to highly demanding operational requirements. Because it is a nuclear facility, the safe, secure and reliable operation of Vermont Yankee Station is paramount in importance. As Entergy's Chief Nuclear Officer, I personally regard such operation as my first and foremost responsibility.

16. Vermont Yankee Station's operation is subject to close scrutiny and regulation by the NRC, which has a Resident Inspector and a Senior Resident Inspector on site (as it does for

all U.S. commercial nuclear plants). The NRC has detailed rules governing the operation of nuclear facilities, issues many guidance documents pertaining to operation and safety, regularly requests information from its licensees concerning operating events and compliance with regulatory requirements and works with the nuclear industry to develop standards that become incorporated into the NRC's regulations and guidance.

17. Vermont Yankee Station's operation is subject not only to the oversight and regulation of the NRC, but also to monitoring, inspections and reviews by the Institute for Nuclear Power Operations ("INPO"). INPO is a nuclear industry organization that was formed after the Three Mile Island incident in 1979 to promote the highest levels of excellence in safety and reliability in the operation of commercial nuclear facilities – levels of excellence that in fact go beyond compliance with the NRC's regulatory requirements. INPO regularly conducts on-site inspections and reviews of each U.S. commercial nuclear facility, including Vermont Yankee Station. As I mentioned earlier, I serve on the Board of Directors of INPO.

#### **The Impact of Uncertainty on Vermont Yankee's Skilled Work Force**

18. Given Vermont Yankee Station's highly demanding operational requirements, it must have a highly skilled, well trained and dedicated workforce. Vermont Yankee Station has over 600 such employees working in such disciplines as engineering (electrical, mechanical, nuclear, chemical and civil), skilled crafts (mechanical, electrical, instrument and control, and radiation protection), operations, finance, security and administration. Approximately 40 percent of them reside in Vermont with the balance residing in either New Hampshire or Massachusetts.

19. Vermont Yankee Station's operators must have either a Reactor Operator License or a Senior Reactor Operator License issued by the NRC. Because there are significant

differences among nuclear facilities, Reactor Operator Licenses and Senior Reactor Operator Licenses are specific to Vermont Yankee Station. In other words, the reactor operator license for another nuclear generating facility does not qualify the license holder to operate Vermont Yankee Station. The holder of a reactor operator license to operate another nuclear facility must first complete the requirements to obtain a Reactor Operator License or Senior Reactor Operating License for Vermont Yankee Station before he or she can be an operator there.

20. A Vermont Yankee Reactor Operator License or Senior Reactor License generally requires the applicant to have at least a year of plant experience and to successfully complete an approximately 24 month training program with a written examination, a field demonstration examination and a simulator examination which are administered by the NRC. Even after such licenses are obtained, operating crews return to the plant simulator and training facility every 6 weeks for one week of further training and requalification. Training for Vermont Yankee Station technicians is also specific to the particular position and typically requires up to 12 months of initial training with annual retraining and requalification. Vermont Yankee Station's training programs are accredited by INPO.

21. The uncertainty over whether Vermont Yankee Station will be able to continue to operate beyond March 2012 is creating increasingly serious challenges for retaining the highly specialized and skilled personnel needed to operate the plant. The commercial nuclear power industry has not been a growth industry for many decades so the number of people who have chosen to enter the industry has been limited. There are 104 operating nuclear facilities in the United States and the competition to hire the best workers is intense. Nuclear operators actively recruit talented workers on such widely-accessed web sites as Monster.com. It is not uncommon

for nuclear plant operators to offer financial incentives to entice workers to move. See Herron Exhibit 5.

22. Even for operators whose licenses are specific to Vermont Yankee Station, retention in the face of the current uncertainty over the plant's future remains a significant challenge. A Vermont Yankee Station operator may well be willing to make the training commitment required to become licensed to operate another facility because there is a reasonable expectation of longer-term job security there. By contrast, an operator at another facility is very unlikely to make the training commitment required to become licensed to operate Vermont Yankee Station when that job may no longer exist after March 21, 2012. In fact, Vermont Yankee Station has had increasing difficulty attracting seasoned nuclear employees, especially in operations, as a result of the plant's uncertain status beyond that date.

23. In my current position as President and Chief Executive Officer Nuclear Operations and in my prior position as senior vice president for nuclear operations, I periodically visit each of Energy's nuclear facilities and meet with workers, both individually and in groups, and to hear and address their questions and concerns. I held such meetings at Vermont Yankee Station in February and April 2010. A recurrent theme in the questions and concerns raised by the plant's workers was the uncertainty over the plant's future beyond March 2012 and the damaging effect that a plant shutdown would have on the workers' jobs, economic security and home values. Some workers said that they felt pressure to find new employment before the plant closed and housing values in the area collapsed.

24. The impending March 21, 2012 deadline for the potential shutdown of Vermont Yankee Station is making it increasingly difficult to retain the highly skilled workers needed to operate the plant. Over the period from 2008 through 2009, while Vermont Yankee Station's

application for a renewed NRC license and a new Vermont Certificate of Public Good (CPG) appeared to be progressing on track, the average attrition rate for the plant's employees – the percentage of employees who left the plant to work elsewhere – was approximately 6.1 percent.

25. In January 2010, tritium, a mildly radioactive form of hydrogen, was discovered in several monitoring wells due to a leak from a piping system which was quickly identified and corrected. Publicity about the tritium release, however, led to increasingly vocal calls for the plant's shutdown, highlighted by a 26-4 Vermont Senate vote in February 2010 against authorizing the state's Public Service Board to issue a new CPG for the plant's operation after March 21, 2012. With the growing questions over the plant's future, the plant's employee attrition rate jumped in 2010 by more than a third to approximately 8.4 percent. The attrition rate for 2011 is on track so far to exceed even that rate.

26. As a matter of normal business practice, departing Vermont Yankee Station employees are interviewed by members of the Human Resources Department concerning the reasons for the employees' departures. The information provided by the employees in these interviews is recorded on exit interview forms. In some cases where an interview is not possible, the departing employee is given the form to complete and returns it to the company. The form seeks the primary reason for leaving, as well as the secondary reason for leaving and also asks a series of questions related to the departing employee's experience at Vermont Yankee Station and the circumstances of departure.

27. Starting around the middle of 2010, "relicensing" became an increasingly frequent reason given for changing jobs. Over the period from July through December 2010, 4 out of 11 departing employees cited relicensing as either the primary or secondary reason for their departures, and another 3 of the departing employees cited relicensing as an issue in their

responses to some of the other questions in the form. In just the first three months of 2011, almost two-thirds of departing Vermont Yankee Station employees (8 of 13) cited “relicensing” as either the primary or secondary reason for their leaving to take another job. Their questionnaire responses are also especially revealing about the importance of this issue to the plant’s employees:

- If you are going to another job, what does the job offer you that your job at VY did not? *No issues with future security* (Herron Exhibit 1)
- If you are going to another job, what does the job offer you that your job at VY did not? *... certainty of position – they are licensed until 2029* (Herron Exhibit 2)
- What could we have done to prevent you from leaving? *No – they tried – it was a very hard decision – I waffled back and forth – what I need the company can’t supply – get relicensed* (Herron Exhibit 3)
- Would you recommend someone to VY? *Not right now – if there was re-licensing - yes* (Herron Exhibit 3)
- What could we have done to prevent you from leaving? *Relicensing* (Herron Exhibit 4)
- If you are going to another job, what does the job offer you that your job at VY did not? *Future stability* (Herron Exhibit 4)
- What could we have done to prevent you from leaving? *Relicensing sooner or providing more re-assurance – talk was everyday about relicensing and then it all stopped ... a lot of people in training are talking about leaving. Positive message about re-licensing need[s] to come more regularly and from [higher] up* (Herron Exhibit 5)
- If you are going to another job, what does the job offer you that your job at VY did not? *...primarily – stability – no worries about relicensing* (Herron Exhibit 5)
- Would you recommend someone to VY? *Right now no but if relicensing was set then yes* (Herron Exhibit 5)
- What could we have done to prevent you from leaving? *No – want to try another opportunity in my life –licensing is part of it ...* (Herron Exhibit 6)
- What did you like the most/least about working at VY? *...Least relicensing issue* (Herron Exhibit 7)

- What did you like the most/least about working at VY? ... *Recommend – company states: 1. We are going to fight this in court 2. Or we will allow Stat[e] of VT to decide and extend bonuses for people to stay* (Herron Exhibit 8)
- What could we have done to prevent you from leaving? *License extension* (Herron Exhibit 8)

28. An order by this court to keep Vermont Yankee Station operating, even if temporary and effective only for as long as this litigation continues, would provide substantial help in allaying these worker concerns. While Vermont Yankee Station workers would know that the plant could still be shut down at some point if the courts ultimately ruled against ENVY, such an order would blunt some of the immediacy of the looming March 21, 2012 deadline and help to tip the balance for those workers who are now torn between staying or leaving.

#### **Vermont Yankee Station's Fall 2011 Scheduled Refueling Outage**

29. As I previously discussed, Vermont Yankee Station has refueling outages scheduled approximately every 18 months. These outages are necessary because the nuclear fuel in the reactor core becomes depleted and cannot produce enough energy for the plant to maintain full power. The plant can continue to operate for a few weeks at reduced power, but a longer period of such operation invalidates the design requirements for the core's operation in the next operating cycle, requiring re-analysis, possibly re-design and potentially even re-fabrication of the core at additional cost. There are 368 fuel assemblies in the reactor core of Vermont Yankee Station. During each refueling outage, about one-third of the reactor core or approximately 120 fuel assemblies are replaced with new fuel assemblies.

30. Vermont Yankee Station's refueling outages typically take approximately 25 days. During that time, in addition to the replacement of fuel assemblies in the reactor core, workers also perform inspections, testing and other work on the facility that cannot be safely and

efficiently performed while the nuclear reactor is operating, including the installation of new components and the testing, rebuilding and replacement of existing equipment. Much of the work that is done during a refueling outage is necessary to comply with the facility's Technical Specifications that are a part of the NRC's operating license.

31. A nuclear plant refueling outage is an extraordinarily intense and demanding exercise. During a typical Vermont Yankee Station refueling outage, there are approximately 5,000 tasks to be performed during the approximately 25 day period. To perform these tasks, approximately 800 to 1,000 supplemental workers are brought in from other Entergy nuclear facilities, craft labor unions and outside contractors. These supplemental workers and Vermont Yankee Station's regular employees work on an around the clock basis, seven days a week during the refueling outage.

32. In order to secure the very best outside workers and specialists in unique technical areas, Vermont Yankee Station normally attempts to contract with supplemental workers as far in advance of the outage as possible. The outage procedures for Entergy's entire fleet of nuclear plants accordingly call for major contracts for personnel and resources to be placed at least nine months before the outage. Due to the uncertainty surrounding its operation beyond March 21, 2012 and the associated questions concerning nature and scope of the October 2011 outage, Vermont Yankee Station has had to refrain from contracting for supplemental workers for that outage so its ability to obtain the very best workers is already being compromised. U.S. nuclear plants have approximately 20 refueling and maintenance outages scheduled for the Fall 2011 period with at least nine of those outages at plants in the Northeastern quadrant of the country – as far west as Ohio and as far south as Virginia – where Vermont Yankee Station has in the past drawn its supply of supplemental workers.

33. Due to the large number of tasks to be performed during a refueling outage, the work must be carefully managed, coordinated, sequenced and scheduled so that workers on different tasks do not get in the way of one another and all preceding steps for each task are completed before the workers assigned to complete the next step begin their work. Even though the plant has been shut down, many plant systems must be maintained in such a way that necessary cooling and monitoring functions are available to ensure plant safety at all times.

34. Vermont Yankee Station's next refueling outage is scheduled for October 2011. Customary industry practice dictates that large generating facilities like Vermont Yankee Station are only taken out of service for such extended scheduled outages during either the spring or fall seasons when temperatures usually are milder and electricity demand is below the peak levels occurring during the summer and winter seasons. Even apart from this customary industry practice, however, Vermont Yankee Station's October 2011 scheduled outage cannot be postponed to any significant extent for several reasons.

35. *First*, as I have explained, Vermont Yankee Station schedules its refueling outages on an approximately 18 month cycle. The reactor core and fuel assemblies are specifically designed and fabricated based on that schedule. The core design includes a small allowance for changes in the outage date. If a scheduled outage is delayed outside the design allowance, the core's design for the next cycle of operation become invalidated, requiring a re-analysis of that design. With a delay of the refueling outage exceeding 30 days, the core would also have to be re-analyzed. If the extension is significantly beyond 30 days, some of the already fabricated new fuel assemblies would have to be re-designed and re-fabricated in order to meet the NRC's acceptance criteria limits for the core design and to provide sufficient power for the plant to operate at full capacity. Completing these steps would add several weeks to the

outage during which the plant would be out of operation and ENVY would be losing millions of dollars in revenues.

36. *Second*, Vermont winter weather would present major difficulties and risks if the October 2011 outage were postponed to any significant extent. I have described the huge number of supplemental workers that will be brought in to help complete the thousands of tasks to be completed during the refueling outage. Some of these workers may be unwilling to travel to and work in Vermont during the winter. Even if sufficient numbers of supplemental workers are willing to come to the plant site, Vermont winter presents major difficulties. These workers must commute to and from the site on a tightly controlled schedule in order to keep the outage work progressing on track. Large trucks and other pieces of heavy equipment also need to be moved to, from, and around the plant site during the outage. Accomplishing all of this in the highly coordinated manner needed to avoid schedule disruptions and outage delays becomes nearly impossible if there is any snow or ice to contend with. Snow and ice also presents very real safety hazards for workers, particularly when they are there in such large numbers and when many of the supplemental workers may come from areas with milder climates and lack experience with driving or even walking in Vermont winter weather conditions.

37. *Third*, Vermont Yankee Station's NRC license requires certain inspections and testing to be performed on a regularly scheduled basis. Inspections and testing that require the reactor or other systems not to be operating, or that are most safely and efficiently performed under such conditions, are scheduled to be done during the facility's refueling outages. The mandatory NRC inspections and testing now scheduled to be done during the October 2011 refueling outage cannot be postponed beyond mid-February 2012 at the very latest. The outage to perform these mandatory inspections and tests therefore cannot be postponed until winter is

over (even if there were no questions about the plant's ability to operate after March 21, 2012). Because outage logistics and prudent concerns for worker safety dictate that the completion of the outage occur before the onset of winter weather, Vermont Yankee's October 2011 scheduled refueling outage cannot realistically be postponed by more than a few weeks at the very most.

**The Near-Term Need for Certainty Concerning Whether Vermont Yankee Station Will Continue to Operate While This Litigation Is Pending**

38. While Vermont Yankee Station's next refueling outage will not take place until October, certain decisions with significant financial consequences must be made well in advance of the start of that outage. Without knowing whether the plant will be able to continue to operate for the duration of this litigation, it is extremely difficult for Entergy to determine whether to make the financial commitments necessary to proceed with an October refueling outage.

39. ENVY has already extended contractual deadlines to delay the start of fabrication of the nuclear fuel assemblies that will be installed during Vermont Yankee Station's October 2011 refueling outage. The extension will delay the start of fuel fabrication until July 7, 2011. The July 7<sup>th</sup> deadline is necessary to provide the fuel fabricator sufficient time to fabricate the fuel assemblies and ship them to Vermont Yankee Station before the October 2011 refueling outage. Once ENVY issues the fabrication order, ENVY becomes irrevocably committed contractually to pay for the fabrication services, the total cost of which falls in the range of \$5-10 million. Because fuel assemblies that are fabricated for Vermont Yankee Station are tailored to the particular operating and NRC license requirements of that plant, they cannot be used in another nuclear facility without incurring tens of millions of dollars of additional costs.

40. The costs that ENVY would incur if Vermont Yankee Station is not able to operate beyond March 21, 2012 increase substantially after the fuel assemblies are delivered to

the plant. At nuclear plants, all fuel movements into or out of the reactor are performed under water. As a result, when the fabricated fuel assemblies are delivered to Vermont Yankee Station, normally within a month of the start of the refueling outage, they are inspected and placed into the refueling pool before the start of the outage so that they are ready to be moved into the reactor core during the outage.

41. Once those fuel assemblies are placed in the refueling pool, they become mildly contaminated with radioactive compounds that are in the refueling pool water. Such contamination would make the re-use the fuel assemblies at another plant even more costly and impractical. In order to recover the enriched uranium for use at another plant, the fuel assemblies would have to be de-contaminated and de-fabricated at a cost in the millions of dollars. To dispose of the fuel assemblies would be even more costly. For example, when the owner of the Shoreham nuclear plant in New York wanted to dispose of the plant's partially irradiated fuel assemblies, it had to pay another utility in Pennsylvania \$46 million (in 1993 dollars) to take them.

42. After the fuel assemblies are loaded into the core of Vermont Yankee Station and the plant ascends to full power, the new fuel assemblies will become highly radioactive and it will become impossible to use them in any other nuclear facility. At that point, the only realistic way for ENVY to avoid losing the entire value of those fuel assemblies, which exceeds \$60 million, would be for Vermont Yankee Station to generate power and revenues to defray, insofar as possible, that fuel assembly expenditure.

43. One might ask whether Vermont Yankee Station could avoid incurring these fuel assembly costs by not purchasing new fuel assemblies and only performing mandatory NRC

inspections and testing during the scheduled October outage. ENVY would, however, still face substantial losses if it followed that approach.

44. As the fuel in Vermont Yankee Station's reactor core is depleted over time, the core reaches the point where it will not produce sufficient power to operate the plant at full capacity. Shortly before the start of the October 2011 outage, Vermont Yankee Station's power output will drop below the plant's full capacity and will continue to drop by approximately 1.5 percent per week. Even though the plant's output will be continually dropping, operating costs will remain essentially fixed. As long as the plant remains in operation, its entire workforce must remain at the plant to monitor and maintain safety systems, to provide security, and to ensure compliance with the NRC's requirements. The cost of the plant's workforce totals nearly \$70 million per year or over \$6 million per month. With shrinking revenues and large continuing operating costs, the plant will become uneconomic to operate if the October 2011 refueling does not take place.

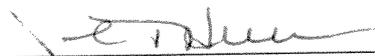
45. ENVY cannot avoid these continuing operating costs by temporarily shutting down the plant but keeping it ready to resume power production if ENVY prevails in this litigation some time after March 21, 2012, even if that option were available to it. As long as fuel remains in the core, all of the essential plant systems must remain active and the NRC's requirements necessitate that virtually the entire Vermont Yankee Station workforce remain on the job, whether or not the plant is producing power.

46. If Vermont Yankee Station is not refueled this fall, its economics will become increasingly unfavorable, and ENVY consequently will be faced before too long with a decision to permanently, and irreversibly, shut down the plant. If that decision is made, the fuel would be removed from the reactor core, eventually permitting the plant's staffing to be reduced.

Permanent shutdown, however, would mean that ENVY would lose the economic benefit of the additional 20 years of operation authorized by the NRC's renewed license should it eventually prevail in the courts. In addition to those losses, ENVY would lose the benefit of 20 years of additional growth in the balance of the NRC-regulated trust that has been established to fund Vermont Yankee Station's decommissioning.

47. Without a court order allowing Vermont Yankee Station to continue operating until this litigation is completed, ENVY will therefore suffer harm no matter what it does. It can refuel the plant, which requires making substantial fuel investments that will be at least in some substantial measure be lost if the plant must cease operation on March 21, 2012 before this litigation has been finally resolved. Alternatively, it can not refuel the plant, making the plant's continued operating uneconomic and forcing ENVY into a decision to permanently shut down the plant and denying it the benefits of the 20 years of continued operation authorized by the NRC's renewed license even if the courts eventually rule in its favor in this litigation. Additionally, in either case, the uncertainty surrounding the Vermont Yankee Station's future will make it difficult to retain and attract the highly skilled and qualified workers necessary to keep the plant operating.

48. I declare under penalty of perjury that the foregoing is true and correct. Executed on April 19, 2011.

  
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John T. Herron

UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF VERMONT

ENTERGY NUCLEAR VERMONT	)	
YANKEE, LLC and ENTERGY NUCLEAR	)	
OPERATIONS, INC.,	)	
Plaintiffs	)	
v.	)	
PETER SHUMLIN, in his official capacity as	)	Civil Action No. 11-CV-99
GOVERNOR OF THE STATE OF	)	
VERMONT; WILLIAM SORRELL, in his	)	Edward D. Kee’s Declaration in Support of
official capacity as the ATTORNEY	)	Preliminary Injunction
GENERAL OF THE STATE OF VERMONT;	)	
and JAMES VOLZ, JOHN BURKE, and	)	
DAVID COEN, in their official capacities as	)	
members of THE VERMONT PUBLIC	)	
SERVICE BOARD,	)	
Defendants.	)	

Edward D. Kee declares as follows pursuant to 28 U.S.C. § 1746:

**I. INTRODUCTION AND BACKGROUND**

1. Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc.<sup>1</sup> (“Entergy Vermont Yankee”) have filed a motion for a Preliminary Injunction that would prevent mandatory shutdown of the Vermont Yankee Nuclear Power Station (“Vermont Yankee Station”) during litigation. This affidavit is about the harm that will result if this Preliminary Injunction is not granted.

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<sup>1</sup> The Vermont Yankee Nuclear Power Station NRC Facility Operating License is issued jointly to these two parties. For the sake of brevity, I refer to these parties together as “Entergy Vermont Yankee” in the remainder of this Declaration.

**A. My Background & Qualifications**

2. My name is Edward D. Kee. I am a Vice President at NERA Economic Consulting (NERA). My business address is NERA Economic Consulting, 1255 23<sup>rd</sup> Street, NW, Washington, DC 20037.

3. I am a consultant specializing in the economics of the electricity industry with experience in nuclear power, electricity markets, restructuring, regulation, and related issues.

4. I have provided testimony as an expert witness on a range of electricity industry issues in state and federal courts, before the Federal Energy Regulatory Commission, and before other legal and regulatory bodies in the US and around the world. Examples of expert witness testimony relevant to this Affidavit include

- a. Westinghouse Electric – assisted litigation team and managed litigation support engagement during which expert witness testimony was developed and presented in a series of electric utility lawsuits seeking damages related to nuclear steam generator tube degradation.
- b. Before the State of Rhode Island, Division of Public Utilities and Carriers, on the extent to which payment obligations under an unconditional take-or-pay power purchase agreement with a nuclear power plant were the financial equivalent of debt obligations; Pascoag Fire District (Rhode Island municipal utility), Docket No. D-91-10, May 1992.

- c. Before the Court of Common Pleas of Lehigh County, Pennsylvania, Civil Division, on behalf of Pennsylvania Power & Light Company (PP&L) on whether irreparable harm to the seller of power would result if PP&L exercised certain rights under a power purchase agreement; *Pennsylvania Power & Light Company v. Schuylkill Energy Resources and Reading Anthracite Company*, File No. 95-C-2810, April 1996.
- d. Before the US Federal Energy Regulatory Commission, detailed analysis of Death Star and other Enron trading strategies to estimate the impact of these trading strategies on the western power markets during 2000 and 2001 in a series of Dockets including *Enron Power Marketing, Inc.*, Docket EL03-180, May 2005; *Enron Power Marketing, Inc.*, Docket EL02-114, February 2003; *Enron Power Marketing, Inc.*, Docket EL02-113, February 2003; *Nevada Power Company, et al v. Duke Energy Trading & Marketing et al.*, Docket EL02-28, August 2002..
- e. Before the State of California, San Francisco Superior Court, on behalf of Pacific Gas & Electric Company on issues of non-utility project feasibility and extent of lost profit damages resulting from allegedly breached power purchase agreements; Power Producers Dispute Cases (Judicial Council Coordination Proceeding No. 2654;

Contra Costa Superior Court No. C90-05398; San Francisco Superior Court No. 929-870), May 1994.

- f. Before the State of Michigan, Circuit Court, Iron County, on the level of damages resulting from Indeck's alleged breach of a contract to develop an industrial cogeneration project, AGA Corporation et al v. Indeck, Case No. I-88-3985-CK, December 1990.

5. I regularly provide strategic advice to companies and governments on issues related to the nuclear and electricity industries. I have advised various parties involved in developing new nuclear power plants on topics including economic feasibility, due diligence reviews, financing and loan guarantees, nuclear fuel cycle, national nuclear infrastructure development, and nuclear project procurement. Selected examples of relevant consulting engagements:

- a. US Department of Energy 2009-2010 – provided analysis of regulatory and market risks of proposed new US advanced nuclear power plants in support of the US DOE nuclear loan guarantee program.
- b. TNB (Tenaga Nasional Berhad) 2009 – assisted Malaysian electric utility TNB develop a long-term strategy and implementation roadmap for the Malaysian nuclear power program.
- c. CPS Energy 2008 – retained to assist CPS Energy on due diligence, Board review, and Public Consultation process related to potential

investment in South Texas Project Unit 3 & 4 nuclear power plant;  
prepared independent assessment report for CPS Energy Board; and  
assisted with US DOE loan guarantee application.

- d. J.P. Morgan 2008 – prepared an export report on valuation and an appraisal of leasehold interests in US nuclear power plant.
- e. Eskom 2008 – retained to provide business due diligence advice to Eskom related to their nuclear power plant investment program; provided advice to the Nuclear One nuclear procurement team and the Eskom Financial Director and provided an independent report to Eskom Management Committee and Board.
- f. Constellation Energy Group 2006-2007 – assisted Constellation in the development of a new nuclear power plant, including detailed comparison of power costs across technologies, analysis of the economic impact of a new nuclear plant on existing non-nuclear generation plants, and assistance with the US DOE loan guarantee program approach.

6. Prior to joining NERA, I was a Vice President at CRA International, where I led the firm's nuclear economics and litigation consulting effort. I previously held consulting positions at PA Consulting Group; Putnam, Hayes & Bartlett; and McKinsey & Company.

7. I was a merchant power plant developer before becoming a consultant. I started my career as a Naval Officer involved in nuclear engineering and nuclear power

plant construction. During my Navy service, I was qualified as Chief Engineering Officer on Nimitz-class nuclear aircraft carriers.

8. I hold an MBA from Harvard University and a BS in Systems Engineering from the US Naval Academy.

9. I have published articles on nuclear power and electricity markets and regulation in publications including The Electricity Journal, Public Utilities Fortnightly, American Nuclear Society Nuclear News, Nuclear Engineering International, and Nuclear Power International. I also speak at nuclear industry conferences.

10. My complete CV is attached as Exhibit 1.

## **II. LACK OF PRELIMINARY INJUNCTION WILL CAUSE SIGNIFICANT AND IRREPARABLE HARM**

11. If the Preliminary Injunction is not granted, Entergy Vermont Yankee will suffer significant and irreparable harm. Near-term harm is caused by current uncertainty about whether the Vermont Yankee Station will be able to operate after 21 Mar 2012. Long-term harm results from the early and permanent shutdown of Vermont Yankee Station on 21 Mar 2012 (assuming that litigation continues past this date).

### **A. Near-Term Harm**

12. The uncertainty related to the Vermont Yankee Station is causing harm to Entergy Vermont Yankee today. The current harm suffered by Entergy Vermont Yankee is due to uncertainty about the future of the station and includes, but is not limited to, the difficulties faced by Entergy Vermont Yankee in planning and implementing the October

2011 refueling and maintenance outage, the potential loss of skilled workers, and difficulty in negotiating long-term electricity sale agreements.

### **October 2011 Refueling and Maintenance Outage**

13. The current uncertainty about the continued operation of Vermont Yankee Station is making it difficult for Entergy Vermont Yankee to prepare for the October 2011 refueling and maintenance outage at the Vermont Yankee Station.<sup>2</sup> Entergy Vermont Yankee must place a firm order to start nuclear fuel fabrication no later than 7 July 2011 for the October 2011 refueling and maintenance outage.<sup>3</sup>

### **Skilled workforce**

14. The public uncertainty about the continued operation of Vermont Yankee Station is having a negative impact on the ability of Entergy Vermont Yankee to retain their skilled staff.<sup>4</sup> Several highly trained and skilled nuclear power station employees have already left.<sup>5</sup> Other Vermont Yankee Station employees are looking for jobs elsewhere. A news article in 2010 includes an interview with Vermont Yankee employee Mike Olson, who says that "...the possibility of shut-down has employees rethinking their plans." Olson also says "People are looking at other jobs, there's no doubt about it."<sup>6</sup> The training and qualification required in order to replace some key staff positions (e.g., reactor operators) is lengthy, intensive and station-specific. Once a key employee departs, Entergy Vermont

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<sup>2</sup> Declaration of John T. Herron, paragraphs 29 to 38.

<sup>3</sup> *Ibid.*, paragraph 39.

<sup>4</sup> *Ibid.*, paragraphs 18 to 28.

<sup>5</sup> *Ibid.*, paragraph 27.

<sup>6</sup> "The Shutdown of Vermont Yankee seems Inevitable. What then?" 27 Sep 2010; by Max Breiteneicher; The VT Digger (Exhibit 2).

Yankee will have difficulty in recruiting a replacement, especially if continued operation of Vermont Yankee Station is uncertain. Entergy may rely on short-term contractors or temporary staff from other nuclear sites to the extent that this is possible, given station-specific training and qualification requirements. Replacing key employees that leave in the near term will be difficult and expensive, requiring months or years of training. The Preliminary Injunction would restore some measure of certainty about the future of Vermont Yankee Station and would help Entergy Vermont Yankee retain its personnel.

### **Electricity sale contracts**

15. A significant portion (i.e., 520 megawatts (MW) of the station's total output of about 604 MW<sup>7</sup>) of the electricity produced by Vermont Yankee Station is currently sold to utilities<sup>8</sup> in the region, including Central Vermont Public Service Corporation and Green Mountain Power Corporation, under long-term electricity purchase agreements that are due to expire on 21 Mar 2012.

16. The Vermont Yankee Station is located in the wholesale electricity market operated by Independent System Operator New England (ISO-NE). The New England region went through deregulation and reform and there is now a wholesale electricity market in the region. Long-term (e.g., a term of a year or more) electricity purchase and sale agreements are a normal commercial approach in electricity markets to manage or hedge the risk from uncertain and volatile short-term electricity market prices.

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<sup>7</sup> The Vermont Yankee Station is licensed by the NRC on the basis of reactor thermal power. The amount of net electricity that the station generates at the licensed reactor thermal power varies, with the most important variable being the temperature. The Vermont Yankee Station 2009 capacity rating was 604.3 MW in summer and 620.3 MW in winter.

17. Users of wholesale electricity are, for the most part, electric utilities that serve end-use residential, commercial, and industrial electricity customers. These electric utilities buy electricity in the short-term ISO-NE wholesale electricity markets. Uncertain and volatile prices in the ISO-NE short-term electricity markets expose these electric utilities and their end-use customers to electricity price risk. These electric utilities manage this electricity market price risk and ensure more stable and predictable electricity prices for their customers by entering into long-term electricity purchase agreements for some portion of their total demand.

18. Producers of wholesale electricity, such as Entergy Vermont Yankee, sell the electricity generated by their power plants in the short-term ISO-NE wholesale electricity market. Like the utilities that use this electricity, these electricity producers are exposed to the risk of uncertain and volatile short-term wholesale electricity market prices. Electricity generators manage electricity market price risk and ensure a more stable and predictable level of revenue by entering into long-term electricity sale agreements for some portion of their total output.

19. Normally, replacement electricity purchase/sale agreements are negotiated prior to the termination of existing long-term electricity purchase/sale agreements so that the new agreements start when the existing agreements end. Entergy Vermont Yankee, with the uncertainty about the continued operation of the Vermont Yankee Station, could only enter into new electricity sale agreements if those agreements included a contingency related to

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<sup>8</sup> Entergy Vermont Yankee sells electricity to the Vermont Yankee Nuclear Power Corporation, which sells this electricity to several utilities.

the station's continued operation (i.e., the contracts would only be valid if the Vermont Yankee Station were operating). A recent news story about a proposed electricity sale agreement between Entergy Vermont Yankee and the Vermont Electric Cooperative (VEC) described such a contingency: "The deal is contingent, however, on the Vernon plant's continued operation after March 2012, and that's a big if."<sup>9</sup> This contingency is necessary because the electricity sale agreements are financially linked to the electricity generated by the station. If Entergy Vermont Yankee entered into electricity sale agreements without such a contingency and the Vermont Yankee Station were shut down during the term of the agreements, Entergy Vermont Yankee would have to buy power in the short-term electricity market to meet the obligations of the agreements and there is risk that short-term electricity market prices would be higher than the prices in the electricity sale agreements.

20. Buyers of electricity purchase agreements are seeking to manage (or hedge) their exposure to electricity market price risk. An electricity purchase agreement with a contingency related to the continued operation of the Vermont Yankee Station would expose the purchaser to electricity market price risk if the Vermont Yankee Station were shut down early. This major contingency would make such an agreement less valuable to a buyer compared to a similar agreement that did not include this major contingency. It is likely that the prices in electricity purchase agreements with this major contingency would be lower than prices in electricity purchase agreements without this major contingency. This is confirmed by the proposed electricity sale agreements between Entergy Vermont Yankee and VEC that were reported to include prices at "4.9 cents per kilowatt hour for the first year

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<sup>9</sup> "Entergy: No sale of Vermont Yankee;" 30 Mar 2011; Burlington Free Press.com; Terri Hallenbeck

of a 20-year contract and then for prices tied to market price thereafter.”<sup>10</sup> The news story notes that these prices are “below the current market price and below the 6-cent starting price utilities recently agreed to pay for Hydro-Quebec power.”<sup>11</sup>

21. Some potential buyers of long-term electricity agreements from Entergy Vermont Yankee, including those utilities that have current agreements with Entergy Vermont Yankee that expire on 21 Mar 2012, are likely to negotiate long-term electricity purchase agreements with electricity suppliers other than Entergy Vermont Yankee due to the uncertainty about the future operation of Vermont Yankee Station. Once these utilities have entered into long-term electricity purchase agreements with other electricity producers, Entergy Vermont Yankee will have lost the opportunity to make sales to these utilities. The harm to Entergy Vermont Yankee is in higher risk from volatile short-term electricity market prices (if unable to enter into agreements) and in potentially lower electricity sale agreement prices from other buyers.

## **B. Long-term Harm**

22. Failure to grant a Preliminary Injunction will lead to harm because a requirement to shut the Vermont Yankee Station down on 21 Mar 2012 is likely to result in the permanent shutdown of the station, even if Entergy succeeds in litigation. Permanent shutdown means that Entergy Vermont Yankee would suffer harm as a result of losing 20 years of Vermont Yankee Station operation.

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(Exhibit 3).

<sup>10</sup> *Ibid.*

<sup>11</sup> *Ibid.*

### **Vermont Yankee Station shutdown is likely to be permanent**

23. Without a Preliminary Injunction, the Final Order in Docket No. 6545 and Act 160 purports to require Entergy Vermont Yankee to shut down on 21 Mar 2012 and to only allow decommissioning activities after that date. This shutdown would likely be permanent, regardless of the outcome of litigation.

24. The 21 Mar 2012 shutdown would trigger NRC filings and actions. A nuclear plant licensee must submit a written certification of permanent cessation of operations to the NRC within 30 days of the date that the licensee reaches a determination to permanently cease operations.<sup>12</sup> Absent a Preliminary Injunction, the Vermont requirements for a shutdown on 21 Mar 2012 would appear to trigger such a determination and certification filing. Once a licensee's certification of permanent cessation of operations is docketed by the NRC, the nuclear power plant is no longer authorized to operate. The NRC's regulations make no explicit provision for withdrawing a certification of permanent cessation of operations after it has been submitted. The NRC Regulatory Guide on decommissioning suggests that this is possible, but there is no approved process and no precedent for returning the nuclear power plant to operation. The Regulatory Guide states that:

“Following submission of the certification of permanent cessation of operations, or at any time during the decommissioning process, if the licensee desires to again operate the facility, the licensee must notify the NRC of its intentions in writing. Approval to return the facility to operation would be

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<sup>12</sup> “Decommissioning Of Nuclear Power Reactors,” July 2000, NRC Regulatory Guide 1.184 (Exhibit 4); page 1.184-7; also 10 CFR 50.82 (Exhibit 5), Section (a)(1)(i).

handled on a case-by-case basis, and the approval would depend on the facility status at the time of the request to re-authorize operation.”<sup>13</sup>

25. Entergy Vermont Yankee may not get NRC approval for a return to operation. The NRC process to return Vermont Yankee Station to operational status after submitting a certificate of cessation of operation is not defined. No US commercial power reactor has returned a facility to operation after submitting a certificate of cessation of operation. Entergy Vermont Yankee cannot commence the process of obtaining NRC approval to return the Vermont Yankee Station to operation until the litigation is finally decided. Then, it may take a year or longer to obtain NRC approval to return the Vermont Yankee Station to operation.

**Maintaining Vermont Yankee Station in readiness for restart is not viable**

26. If there is a 21 Mar 2012 shutdown, maintaining Vermont Yankee Station in a state of readiness for a potential restart during litigation is not a viable approach for Entergy Vermont Yankee for several reasons.

27. First, Entergy Vermont Yankee may not be allowed by the Vermont Board Order in Docket No. 6445 and Act 160 to pursue this course of action. The Vermont requirements appear to only allow decommissioning after 21 Mar 2012 and may not allow Entergy Vermont Yankee to maintain Vermont Yankee Station in a state of readiness for restart.

28. Second, even if this approach is allowed, this course of action would involve significant financial risk. Entergy Vermont Yankee would incur annual expenses of more

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<sup>13</sup> *Ibid.*, page 1.184-8.

than \$70 million<sup>14</sup> to keep Vermont Yankee Station in a state of readiness for eventual restart. During any period in which the only activity is maintaining the station in a state of readiness for restart, there is no revenue from Vermont Yankee Station and the expenses during this period are losses for Entergy Vermont Yankee. In addition to the costs of maintaining the station in a state of readiness for restart, Entergy Vermont Yankee would also incur the costs of complying with the NRC requirements for studies, reports, public meetings, and other activities<sup>15</sup> that must be completed during the period that litigation will be taking place. Entergy Vermont Yankee would also incur costs after litigation ends in the NRC process to obtain approval to return the Vermont Yankee Station to operational status.

29. Third, if Entergy Vermont Yankee did not succeed in obtaining NRC approval to return the Vermont Yankee Station to operation, Entergy Vermont Yankee would have incurred losses of more than \$280 million, assuming a litigation period of about three years and an NRC restart approval process of about one year. If Entergy Vermont Yankee were successful in obtaining NRC approval to return Vermont Yankee Station to operational status, the losses of more than more than \$280 million incurred prior to the return to operation would be difficult, if not impossible, to recover from future profits.

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<sup>14</sup> IBEW Study (Exhibit 6); page i provides an estimate of the total payroll at the Vermont Yankee Station of \$68 million per year.

<sup>15</sup> "Decommissioning Of Nuclear Power Reactors," July 2000, NRC Regulatory Guide 1.184 (Exhibit 4); Figure 1 on page 1.184-4; also 10 CFR 50.82 (Exhibit 5).

### **Harm from permanent shutdown**

30. The early shutdown of the Vermont Yankee Station will result in harm to Entergy Vermont Yankee that includes, but is not limited to, higher decommissioning costs, lost profits, and lost option value.

### **Higher decommissioning costs**

31. The early shutdown of the Vermont Yankee Station will mean that decommissioning expenses will be incurred 20 years earlier, regardless of the approach to decommissioning. The magnitude of decommissioning costs means that the increased cost (in net present value terms) of moving these costs 20 years earlier is significant. A study was commissioned by the Vermont Department of Public Services to examine issues related to the proposed renewal of the Vermont Certificate of Public Good for the Vermont Yankee Station for an additional 20 years. This study involved multiple subject matter experts and was coordinated by GDS Associates, Inc. This study (the “GDS Study;” Exhibit 7), issued on 27 Feb 2009, provides an estimate of the increase in total decommissioning cost when the Vermont Yankee Station is shut down in 2012 compared to a shutdown in 2032. The GDS study shows an increase in total decommissioning cost that ranges from \$58.7 million to \$86.4 million (in 2006 dollars) across scenarios.<sup>16</sup>

### **Lost profits**

32. Early shutdown of the Vermont Yankee Station would mean that Entergy Vermont Yankee loses profits from operation during the 20-year license extension period. Projections of lost profits could be made and these projections would be based on

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<sup>16</sup> GDS Study (Exhibit 7); Table 6-1 on page 6-6.

assumptions about a range of factors over the projection period. Such projections typically examine multiple scenarios (e.g., scenarios may reflect certain key assumptions, such as a high natural gas price scenario and a low natural gas price scenario) over the projection period, with each scenario resulting in a different estimate of lost profits. The time required to develop, review, and audit a financial model for lost profits; to define and properly incorporate all relevant assumptions (and scenarios based on these assumptions) into this financial model; and to use this financial model to develop estimates of lost profits is significant. Such estimates of lost profits have not been done as a part of this Declaration.

33. The assumptions that would be necessary to estimate lost profits resulting from the early shutdown of the Vermont Yankee Station include, but are not limited to, Vermont Yankee Station's future costs (which includes labor costs, nuclear fuel costs, regulatory compliance fees, taxes, allocated overhead costs, and other costs); Vermont Yankee Station's operating performance (which includes the number and duration of forced outages, number and duration of planned refueling and major maintenance outages, level of net electricity output, and other factors); the level of New England short-term electricity market prices (which are influenced by the level of electricity demand in the region; the level of natural gas, coal, and other fuel prices; the entry of new electricity generators; the retirement of existing electricity generators; modifications to the high-voltage transmission network; the behavior of other generators; the behavior of demand-side wholesale market participants; the details of ISO-NE market rules; weather and temperature patterns; the extent and nature of any restrictions on carbon emissions; and other factors); the market outcomes and prices in the ISO-NE Forward Capacity Market (which are influenced by new

entrants; the bidding behavior of existing electricity generators and demand-side options; the level of demand; and other factors); the details, prices, terms, and magnitude (i.e., how much of the Vermont Yankee Station total capacity is under contract) of any electricity sale agreements; the operation of revenue-sharing agreements; and other factors.

### **Option value of Vermont Yankee Station is lost**

34. The Vermont Yankee Station has option value that would be lost if the station is shut down on 21 Mar 2012. Option value comes from the ability to take actions in the future when better information is available. Information available in the future may mean that future profits are different than the profits estimated today. As an example, if the value of the Vermont Yankee Station in 2022 were low or negative, the station might be shut down in 2022 for economic reasons to stop future losses. On the other hand, if the value of the Vermont Yankee Station in 2022 were high, the station would likely continue to operate. Having the ability to make decisions about the station in the future when better information is available increases the value of the station today, although quantifying the extent of this increase in value is not a simple matter. Thus, the ability (or option) of Entergy Vermont Yankee to make decisions in the future to continue operation of the station (or not) when better information is available creates option value for the Vermont Yankee Station. A requirement to shut the Vermont Yankee Station down today would remove that option value.

35. A simpler view of this option value concept is that the Vermont Yankee Station provides Entergy Vermont Yankee with an operating nuclear power station in the New England electricity market. This station has attributes (e.g., virtually no carbon

emissions and relatively low marginal cost of production) that mean that the station's value depends on assumptions about events and outcomes in the future. The profits from the Vermont Yankee Station in some favorable future scenarios (e.g., high natural gas prices and taxes on carbon emissions) would not be available to Entergy Vermont Yankee if the Vermont Yankee Station is closed on 21 Mar 2012.

### III. PUBLIC INTEREST

36. The Preliminary Injunction reduces public harm that is caused by early shutdown of the Vermont Yankee Station. I have reviewed several studies and reports that examine the economic impact of the Vermont Yankee Station, some done in connection with the Vermont Public Service Board Docket No. 7440.<sup>17</sup> For the purposes of assessing the potential public harm from the early shutdown of the Vermont Yankee Station, it is appropriate to rely upon these studies and reports. These studies and reports, included as attachments to this Affidavit, include:

- a. "Consensus Economic and Fiscal Impact Analyses Associated with the Future of the Vermont Yankee Power Plant;" Mar 2010; Executive Summary, prepared by Economic & Policy resources, Inc., and Kavet, Rockler & Associates, LLC (the "Consensus Study;" Exhibit 9). This study was done in collaboration with the Vermont Legislative Joint Fiscal Committee, Synapse Energy Economics, Inc., the Vermont Department of Public Service, Green Mountain Power

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<sup>17</sup> This Docket considered the petition of Entergy Vermont Yankee for a renewed Certificate of Public Good for the Vermont Yankee Station (Exhibit 8).

Corp, and Central Vermont Public Service Corp. I understand that the full report and a general impact model were provided to the Vermont Legislature, the Vermont Department of Public Service, other Vermont State entities, and the participating electric utilities. This full report and model do not appear to be publicly available.

- b. “The Economic Impact of the VY Station;” 31 Jan 2010; prepared for the International Brotherhood of Electricity Workers (IBEW) Local 300, South Burlington, Vermont; prepared by Richard W. Heaps, Northern Economic Consulting, Inc. (the “IBEW Study;” Exhibit 6). This study was done to estimate the impact of the Vermont Yankee Station on the economy of Windham County and on the State of Vermont in 2009. This study was conducted at the request of the IBEW Local 300, which has (according to the Fall 2010 IBEW Local 300 newsletter) about 1,200 members, of which about 160 work at the Vermont Yankee Station.
- c. “An Independent Assessment of the Environmental and Economic Impacts Associated with the Closing of the Vermont Yankee Nuclear Plant;” 13 Mar 2009; prepared by Dr. Howard J. Axelrod, Energy Strategies, Inc. (the “Axelrod Study;” Exhibit 10). This study was commissioned by the Vermont Energy Partnership (VTEP). It is an independent assessment of the environmental and economic impacts of the continued operation of the Vermont Yankee Station. This

study was conducted by Energy Strategies, Inc, and the report's author is Dr. Howard J. Axelrod. The Axelrod Study is an updated version of the study that was completed on 17 Nov 2008 (Exhibit 11). According to the VTEP website<sup>18</sup>, "The Vermont Energy Partnership is a diverse group of business, labor, and community leaders committed to finding clean, low-cost and reliable electricity solutions to ensure Vermont stays a great place to live and work."

- d. "Report to the Vermont Department of Public Service on the Vermont Yankee License Renewal;" 27 Feb 2009; prepared and submitted by: GDS Associates, Engineers and Consultants (the "GDS Study;" Exhibit 7). This study involved multiple subject matter experts that were coordinated by GDS Associates, Inc. This 485-page study was commissioned by the Vermont Department of Public Services to examine issues related to the proposed 20-year renewal of the Vermont Certificate of Public Good for the Vermont Yankee Station.
- e. "Vermont Comprehensive Energy Plan 2009 And Update to the 2005 Twenty-Year Electric Plan;" May 2008; Vermont Department of Public Service (the "2009 Vermont Energy Plan;" Exhibit 12). This is a Public Review Draft of the State of Vermont's third Comprehensive Energy Plan prepared by the State of Vermont pursuant to the

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<sup>18</sup> [www.vtep.org](http://www.vtep.org).

requirements of 30 V.S.A. §202b and the statutory timeframes established in Section 5 (10 V.S.A. § 579) of Act 92 of 2008.

- f. “Issue Brief - Vermont Yankee Nuclear Power Facility: Taxation and Other Fees and Payments to the State”; Feb 2011; Vermont Legislative Joint Fiscal Office; prepared by Sara Teachout (the “JFO Issue Brief;” Exhibit 13). This Issue Brief is an updated version of a similar Issue Brief released in June 2007 (Exhibit 14). These Issue Briefs were prepared in response to questions to the Joint Fiscal Office about the current and historical taxation of the Vermont Yankee Station.

37. The economic impact of a major change to a local economy such as the early closure of Vermont Yankee Station involves direct and indirect impacts. Direct impacts include the loss of jobs, tax revenue, and other items directly related to the early closure of the Vermont Yankee Station; these direct impacts lead to indirect impacts. Some of the studies use economic models to estimate these indirect impacts. The results of these studies vary, as expected when models are used to estimate complex issues such as these.

**A. Loss of jobs**

38. I conclude that early closure of Vermont Yankee Station would result in a significant loss of jobs, both jobs directly related to the station and jobs that are indirectly linked to the station. My conclusion is supported by several studies.

39. The IBEW Study noted that in 2009 Vermont Yankee Station had 642 employees for the station and training center and that the station also employed between 25 and 30 non-employee contractors for food services and non-nuclear construction. These jobs would be lost if the Vermont Yankee Station were shut down. The IBEW Study estimates that 1,288 jobs (the total of direct and indirect jobs) in Vermont with a \$93.3 million per year in wages<sup>19</sup> were linked to the Vermont Yankee Station in 2009. This study also notes that the average wage of workers at the Vermont Yankee Station was \$104,000 in 2009, compared to the median family income in Vermont of \$65,000 in 2009<sup>20</sup>

40. The Consensus Study concluded that a shutdown of Vermont Yankee Station would result in a loss of about 1,060 jobs on average over the period from 2013 to 2031 (prior to implementation of the SAFSTOR decommissioning<sup>21</sup> option) and a loss of about 950 jobs with the implementation<sup>22</sup> of the SAFSTOR decommissioning option.<sup>23</sup> These impacts result from a comparison of the study's VY Shutdown Scenario to the study's VY Relicense Scenario.

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<sup>19</sup> IBEW Study (Exhibit 6); page 4.

<sup>20</sup> *Ibid.*, page 9.

<sup>21</sup> The term SAFSTOR refers to one of three approaches to nuclear power plant decommissioning approved by the NRC. In general, the SAFSTOR approach involves a delay before decontamination and demolition activities are commenced, with the decommissioning process completed by 60 years after cessation of operations.

<sup>22</sup> The Consensus Study's assumptions are not fully explained in the Executive Summary. This result (i.e., loss of fewer jobs) suggests that the study assumed an early implementation of SAFSTOR decontamination and demolition activities, an approach to decommissioning that may be more consistent with the DECON option (i.e., decontamination and demolition is done shortly after the cessation of operations).

<sup>23</sup> Consensus Study (Exhibit 9); page 8.

41. The GDS Study estimated that between 1,064.9 and 1,844.2 full-time job equivalents per year (averaged over the 20 year license renewal period)<sup>24</sup> would be gained if the Vermont Yankee Station operated during the license renewal period as compared to early closure of the Vermont Yankee Station.

## **B. Lower tax revenue**

42. I conclude that early closure of Vermont Yankee Station would result in lower Vermont state tax revenue, both direct and indirect. My conclusions are based on the following items.

43. The GDS Study estimated that the positive economic impact of continued operation of the Vermont Yankee Station for the license renewal period would be an annual average of between \$76.5 million per year and \$255.1 million per year over the period from 2012 to 2032.<sup>25</sup> This amount includes Vermont state government revenues net of burdens<sup>26</sup>; value added as a result of economic activity; the Vermont Yankee Station revenue sharing agreement; potential electric rate discounts in any electricity sale agreements with Entergy Vermont Yankee; and the value added from the rate discounts.

44. The Consensus Study estimated that the total negative fiscal impact of a Vermont Yankee Station shutdown is as high as \$6 million per year with a 20-year

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<sup>24</sup> GDS Study (Exhibit 7); pages 11-4 and 11-5.

<sup>25</sup> *Ibid.*

<sup>26</sup> *Ibid.*, Section 11.3.2, pages 11-9 to 11-11. The estimated cost of these burdens is \$3.92 million per year. Burden cost is composed of Department of Public Service costs (one nuclear engineer, his support staff, and public advocacy staff), Department of Public Health costs (25% of one professional and one support person), Agency of Natural Resources costs (12% of one person's time), and the cost of state and local government services and infrastructure (e.g., roads, schools, police, libraries, etc.) used by Vermont Yankee Station employees.

cumulative total of about \$109 million by 2032.<sup>27</sup> This analysis takes the estimated year-to-year differences in Vermont State revenues and State costs between the VY Shutdown Scenario and the VY Relicense Scenario and discounts them to a present value dollar amount that represents the total net fiscal impact (State revenues less State costs) expressed in calendar year 2010 dollars.

45. The IBEW Study estimated that the Vermont Yankee Station was linked to \$7.67 million in Vermont General Fund revenue in 2009.<sup>28</sup> This estimate includes the Electrical Energy Tax (\$2.8 million per year); \$3.0 million in personal income tax payments; \$0.82 million from the retail sales and use tax; \$0.44 million from the meals and rooms tax; and \$0.61 million from all other General Fund taxes.

46. The JFO Issue Brief provides a summary of the taxes and other fees received by the State Government related to the Vermont Yankee Station. The state received tax payments related to the Electrical Energy Tax (General Fund), the Electric Generating Plant Education Property Tax, and the Radiological Emergency Response Plan Fund Payments. The total of these payments was \$6.71 million in 2010 and was estimated to be \$6.74 million in 2011.<sup>29</sup> If the Vermont Yankee Station were closed in 2012, these payments would be zero in 2013. This Issue Brief also lists other state revenue related to the Vermont Yankee Station of \$109,000 in FY2011. The Issue Brief does not include income taxes, sales and use taxes, or other tax types paid through the normal course of business activities that would be lost if the Vermont Yankee Station is closed early.

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<sup>27</sup> Consensus Study (Exhibit 9); page 11.

<sup>28</sup> IBEW Study (Exhibit 6); page 16.

### C. Higher electricity prices

47. I conclude that the early closure of Vermont Yankee Station would mean higher electricity prices for the region. My conclusion is supported by several studies and other sources.

48. The harm from higher electricity prices is greater for households with low income levels. Retail electricity customers with lower household incomes have fewer appliances (and a lower financial ability to replace those appliances) and use less electricity. As a consequence, these lower income customers are less able to respond to electricity price increases compared to customers with higher incomes (who have a greater ability to reduce electricity use in response to higher prices). When electricity prices increase, residential customers at lower incomes levels typically face higher electricity bills that impose a financial burden on the household.<sup>30</sup> The financial burden on lower income households is large, because residential electricity costs are a greater portion of after-tax income for these households.<sup>31</sup>

49. The increase in end-user electricity costs as a result of the closure of the Vermont Yankee Station is confirmed by the Axelrod Study, which concludes that statewide Vermont average retail electricity prices might increase by as much as 19.3% if Vermont Yankee Station were closed and the electricity from that station was replaced with electricity

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<sup>29</sup> JFO Issue Brief (Exhibit 13); Table 2.

<sup>30</sup> "Electricity Prices and the Poor: What are the Effects and What can we do?" Mar 1980, by Jan Paul Acton, RAND Paper Series P6456 (Exhibit 15); page 15.

<sup>31</sup> "Energy Cost Impacts on American Families;" January 2011; American Coalition for Clean Coal Electricity; prepared by Eugene M. Trisko (Exhibit 16); Appendix Table 1.

from a natural gas fired combined-cycle gas turbine power plant.<sup>32</sup> This study concluded that the increase in electricity costs would be even higher if the electricity produced by the Vermont Yankee Station was replaced by electricity produced by renewable generation sources that are more expensive than a gas-fired combined cycle gas turbine plant.<sup>33</sup>

50. The Consensus Study confirms that closing the Vermont Yankee Station would cause an increase in electricity prices. The Executive Summary that is available to me does not provide the details of the analysis, but provides a brief summary of the retail electricity price impact. This study notes that even if the electricity now generated by the Vermont Yankee Station were replaced with electricity at market prices, retail electricity bills are likely to be higher and these higher retail electricity bills would have negative impacts on the economy.<sup>34</sup>

51. IBM Corporation, in meetings with the Vermont Legislature, indicated that they had estimated that electricity prices in Vermont might be 25% higher if Vermont Yankee Station were shut down.<sup>35</sup> The details of this estimate are not available.

52. There are at least four reasons why retail electricity prices would be higher if the Vermont Yankee Station was closed.

### **Higher wholesale electricity market prices**

53. The first reason is that retail electricity prices would be higher is that wholesale electricity market prices would be higher. The ISO-NE electricity market (and

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<sup>32</sup> Axelrod Study (Exhibit 10); page 30.

<sup>33</sup> *Ibid.*, page 31.

<sup>34</sup> Consensus Study (Exhibit 9); page 9.

the Vermont pricing region in particular) would lose the low-marginal-cost electricity from the Vermont Yankee Station, so that ISO-NE wholesale electricity market prices would be higher and these higher prices would, to the extent not hedged with electricity purchase contracts, be passed on to utility customers.

54. The ISO-NE electricity market is an organized market with locational marginal prices at each of over 900 nodes determined in each trading period. The electricity market price is set by the marginal, or market clearing, price and is applied to all electricity bought or sold in that trading period. The locational marginal prices apply to sellers into the wholesale electricity market. Buyers in the wholesale electricity market pay prices in each of eight pricing regions, one of which is the state of Vermont. The marginal price in each trading period is the most expensive offer to sell electricity, subject to system constraints and other factors, that is dispatched to meet demand in that trading period. When electricity demand is high (e.g., in the middle of the day), more expensive units are dispatched and the market clearing price is higher. When electricity demand is low (e.g., in the middle of the night), less expensive units are dispatched and the market clearing price is lower. If the Vermont Yankee Station is closed, more expensive units (compared to the market with the Vermont Yankee Station in operation) would likely set the market clearing price in some (or even all) hours and the result would be an increase wholesale electricity market prices.

55. ISO-NE confirms that the closure of the Vermont Yankee Station would increase wholesale electricity market prices. ISO-NE noted that the alternatives to replace Vermont Yankee Station "... could include interim solutions such as emergency generation

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<sup>35</sup> "IBM warns lawmakers about the loss of Vt. Yankee;" 26 Jan 2011; WCAX.Com (Exhibit 17).

brought into Vermont temporarily, more expensive generation from outside Vermont, and demand-side resources. Long-term solutions would include transmission line upgrades as well as other possible solutions, such as private development of new generation, increased energy efficiency, and new sources of imported electricity. All these options will come at an additional cost.”<sup>36</sup> ISO-NE also indicated, in a 2010 memo, that without Vermont Yankee Station, “... there will likely be an impact on the need for and cost of power.”<sup>37</sup>

### **Higher Prices in Electricity Agreements**

56. The second reason is that long-term electricity purchase agreements may have higher prices if the Vermont Yankee Station is closed. The existing electricity purchase agreements between utilities<sup>38</sup> and Entergy Vermont Yankee will expire on 21 Mar 2012 if the Vermont Yankee Station is closed. The electricity purchase agreements that Vermont electric utilities would enter into with other suppliers would likely have higher prices than the current electricity purchase agreements with Entergy Vermont Yankee and would also likely have higher prices than the future electricity purchase agreements that might be obtained from Entergy Vermont Yankee if the Vermont Yankee Station is not closed. These higher prices would be passed to the utility’s customers.

57. The GDS Study supports my conclusion that early closure of the Vermont Yankee Station would result in higher prices for electricity purchase agreements. The GDS

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<sup>36</sup> “Final Capacity Auction Results: Surplus Resources Available for 2013–2014; Alternatives Sought for Generators Unable to Withdraw from Fourth Auction Due to Reliability Concerns;” 30 Aug 2010, ISO-NE (Exhibit 18), page 2.

<sup>37</sup> Memo to Consumer Liaison Group Coordinating Committee from Carolyn O’Connor of ISO-NE on the subject of “Answers to Questions on Vermont Yankee and Kleen Energy,” 5 May 2010 (Exhibit 19).

<sup>38</sup> Entergy Vermont Yankee sells electricity to the Vermont Yankee Nuclear Power Corporation, which sells this electricity to several utilities.

Study examined the situation that might exist in Vermont if the Vermont Yankee Station were closed. The study concluded that “Under a Vermont Yankee retirement scenario (post 2012), replacement power would need to be procured and the cost for that power would likely be higher than what would result under a scenario where the Vermont Yankee plant was relicensed.”<sup>39</sup> The GDS study also considered the potential for the existing electricity purchase agreements with the Vermont Yankee Station to be replaced with electricity purchase agreements with Hydro Quebec: “While Hydro Quebec (HQ) imports stand as one of the most accessible replacements for electricity currently being purchased from Vermont Yankee, such imports will likely be more expensive.”<sup>40</sup> The GDS study also considered the potential for Vermont utilities to build new power stations that would replace the electricity purchase agreements with the Vermont Yankee Station and concluded that “... most alternatives will likely have higher production prices than imports from Quebec, with the exception of some larger coal plant options.”<sup>41</sup>

58. The 2009 Vermont Energy Plan also confirms that the electricity agreements with Entergy Vermont Yankee are an important part of managing exposure to wholesale electricity market price risk. The Plan concludes that Vermont may be exposed to more price uncertainty and volatility associated with wholesale electricity when the current electricity purchase agreements with Entergy Vermont Yankee end in 2012.<sup>42</sup>

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<sup>39</sup> GDS Study (Exhibit 7); page 12-10.

<sup>40</sup> *Ibid.*

<sup>41</sup> *Ibid.*, page 12-11.

<sup>42</sup> 2009 Vermont Energy Plan (Exhibit 12); page III-33.

### **Cost of transmission upgrades**

59. The third reason for higher electricity prices is that the closure of the Vermont Yankee Station would likely require upgrades to the high-voltage transmission system and the costs of these upgrades would be passed on to utility customers.

60. ISO-NE acknowledges that the closure of the Vermont Yankee Station would likely require some transmission system upgrades to address reliability issues (see section below on the potential reliability issues) and to facilitate imports of electricity (e.g., from Hydro Quebec) to replace the electricity generated by the Vermont Yankee Station. However, the detailed study of these upgrades has not been completed.<sup>43</sup> The costs of these transmission upgrades would be allocated, at least in part, to Vermont electric utilities and would increase regulated electricity rates to consumers.

### **Loss of RGGI income**

61. The fourth reason that electricity prices would be higher is the impact on Vermont's participation in the Regional Greenhouse Gas Initiative (RGGI) if clean electricity produced by the Vermont Yankee Station were no longer available.

62. RGGI is a voluntary emissions cap and trade program with 10 member states (Connecticut, Delaware, Massachusetts, Maryland, Maine, New Hampshire, New Jersey, New York, Rhode Island, and Vermont). The RGGI carbon cap and trade mechanism gives money to states that have low carbon emissions and collects money from carbon emitting utilities. If Vermont Yankee Station were shut down, the result would be higher carbon

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<sup>43</sup> Memo to Consumer Liaison Group Coordinating Committee from Carolyn O'Connor of ISO-NE on the subject of "Answers to Questions on Vermont Yankee and Kleen Energy," 5 May 2010 (Exhibit 19).

emissions in Vermont with two RGGI-related impacts. Vermont revenues from RGGI would likely be lower. These revenues are used to fund energy efficiency programs that are aimed at reducing energy use and energy bills; half of the revenues are used in programs for low-income consumers.<sup>44</sup> Vermont electric utilities may see higher costs that would be passed on to utility customers, depending on the source of electricity that replaces the electricity now produced by the Vermont Yankee Station. Vermont currently receives about \$3 million per year in net payments under the Regional Greenhouse Gas Initiative (RGGI) program.<sup>45</sup> These RGGI revenues are due to the state's low level of carbon emissions which are, in large part, due to the operation of the Vermont Yankee Station.

#### **D. Lower electricity system reliability**

63. The early closure of the Vermont Yankee Station would likely mean lower bulk electricity system reliability in New England. A lower level of bulk power system reliability means that the possibility of an interruption of power (i.e., a blackout) for customers in the region is higher. The costs of a blackout can be large.

64. The bulk power system, sometimes referred to as the high-voltage electricity system, is maintained at a high level of reliability. The bulk power system is the combination of the electric power generation facilities (e.g., the Vermont Yankee Station) and the high-voltage transmission system that links electricity generation facilities to electricity load centers and allows imports and exports of electricity between regions. This includes the entire electricity system except for low-voltage electricity facilities that are

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<sup>44</sup> "Investment of Proceeds from RGGI CO<sub>2</sub> Allowances;" February 2011; RGGI, Inc. (Exhibit 20); page 52.

owned and operated by local electricity distribution utilities. The North American Electric Reliability Corporation (NERC) is an international, independent, not-for-profit organization, whose mission is to ensure the reliability of the bulk power system in North America. NERC's definition of a reliable bulk power system is that it "... is able to meet the electricity needs of end-use customers even when unexpected equipment failures or other factors reduce the amount of available electricity."<sup>46</sup> Reliability is the combination of having adequate resources to meet customer demand, even during scheduled and reasonably expected unscheduled outages of generation facilities and transmission equipment, and the ability of the bulk power system to "withstand sudden, unexpected disturbances such as short circuits, or unanticipated loss of system elements due to natural causes."<sup>47</sup> A primary responsibility of ISO-NE is to ensure reliable operation of New England's bulk power generation and transmission system.

65. There are several indications that the bulk power system in the New England region would have a lower level of reliability if Vermont Yankee Station were shut down early.

#### **Potential system reliability problems without Vermont Yankee Station**

66. Lower system reliability if the Vermont Yankee Station closes is confirmed by ISO-NE. ISO-NE has, as a part of its role in ensuring the reliable operation of the New England bulk power system, conducted initial studies to understand the impact of the closure

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<sup>45</sup> "Vermont and the Regional Greenhouse Gas Initiative," 3 Aug 2009; Guy Page; Vermont Energy Partnership (Exhibit 21).

<sup>46</sup> NERC website; <http://www.nerc.com>; FAQ (Exhibit 22).

<sup>47</sup> *Ibid.*

of the Vermont Yankee Station. ISO-NE studies of Vermont Yankee Station closure impact on reliability showed that, without the Vermont Yankee Station, reliability issues are more severe and could affect neighboring areas and could include “thermal overloads on high-voltage transmission lines and voltage instability, either of which could damage equipment, compromise grid stability, or cause uncontrolled outages.”<sup>48</sup> The issues identified by ISO-NE (e.g., thermal line overloads<sup>49</sup> and voltage instability<sup>50</sup>) mean that there is a higher potential for a loss of electricity in the region.

67. Lower system reliability without the Vermont Yankee Station is also confirmed by an ISO-NE report on simulations of the New England bulk power system without the Vermont Yankee Station. This report showed that potential thermal overloads and voltage violations in Vermont, New Hampshire, and parts of Massachusetts might be more widespread and more severe (and might result in a loss of electricity) without the Vermont Yankee Station.<sup>51</sup> The study notes that the continued operation of Vermont

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<sup>48</sup> “Final Capacity Auction Results: Surplus Resources Available for 2013–2014; Alternatives Sought for Generators Unable to Withdraw from Fourth Auction Due to Reliability Concerns;” 30 Aug 2010, ISO-NE (Exhibit 18).

<sup>49</sup> Thermal overloads on high-voltage transmission lines may cause the line to sag; sagging lines increase the potential for contact with trees; contact with trees is likely to lead to a protective trip of the transmission line. A tripped line can overload other lines that also trip; this can lead to a cascade of overloaded and tripped transmission lines that results in a widespread blackout. The 14 Aug 2003 Northeast blackout was initiated by transmission lines that came into contact with trees in Ohio. Major blackouts in the Western US in July and August of 1996 were triggered by transmission lines that came into contact with trees.

<sup>50</sup> Voltage instability can lead to system voltage collapse and to a blackout. Voltage collapse was a factor in the major blackouts in the US in 2003 and 1996.

<sup>51</sup> “Summary of Vermont/New Hampshire Transmission System 2010 Needs Assessment;” 17 Feb 2011, ISO-NE (Exhibit 23).

Yankee is a significant benefit to the overall reliability of the New England bulk power system.<sup>52</sup>

68. ISO-NE noted the lower system reliability without the Vermont Yankee Station in a memo responding to questions about the impact of Vermont Yankee Station closure. This memo noted that there is an increased potential for load shedding in some scenarios.<sup>53</sup> Load shedding is the practice of involuntarily disconnecting the electric service for some customers in order to maintain bulk power system stability.

69. ISO-NE briefed the Vermont Senate Committee on Finance on the impact of Vermont Yankee Closure, explaining that Vermont without Vermont Yankee Station faces potential bulk power system deficiencies including transmission line overloads; low voltage violations; and loss of load in portions of Vermont.<sup>54</sup>

**Vermont Yankee Station not allowed to de-list from ISO-NE capacity market**

70. Another indication of the importance of the Vermont Yankee Station to the reliability of the New England bulk power system is that Energy Vermont Yankee was not allowed to withdraw from the ISO-NE forward capacity auction for 2013 and 2014.

71. The ISO-NE Forward Capacity Market is an auction to procure electricity generating capacity to ensure reliable system operation in future years. Existing generating units in New England participate in the Forward Capacity Market auction unless they choose

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<sup>52</sup> *Ibid.*

<sup>53</sup> Memo to Consumer Liaison Group Coordinating Committee from Carolyn O'Connor of ISO-NE on the subject of "Answers to Questions on Vermont Yankee and Kleen Energy," 5 May 2010 (Exhibit 19).

<sup>54</sup> "ISO New England –An Overview of Markets, Planning and Vermont Issues;" 21 Jan 2010; presentation to the Vermont Senate Committee on Finance by Stephen J. Rourke, Vice President, System Planning, ISO New England, Inc. (Exhibit 24).

to (and are allowed to) withdraw, or de-list, from the auction. Capacity markets are necessary to ensure investment in electricity generating capacity because the level of current and expected wholesale electricity market prices may not be high enough to ensure sufficient investment in electricity generating capacity. This is an issue when the level of peak wholesale electricity market prices are capped or otherwise limited. The additional revenue from Forward Capacity Market sales compensates existing and new electricity generating plants for the revenues that are lost due to the capping of short-term wholesale electricity market prices.

72. When an electricity generator, such as the Vermont Yankee Station, is selected in the ISO-NE Forward Capacity Market, it assumes Capacity Supply Obligations. Unless these obligations are transferred to another party (i.e., through a bilateral agreement or in the ISO-NE Forward Capacity Market Re-configuration Auctions), the obligations remain. An electricity generator that is not planning to be in operation during the period covered by the Forward Capacity Market auction would submit a de-list bid in the auction. A de-list bid would, if accepted, allow the generator to avoid the Capacity Supply Obligations that would result if the generator were selected in the auction. ISO-NE reviews each de-list bid to determine, among other things, if the capacity associated with the bid is needed for reliability during the period covered by the auction. If ISO-NE system reliability studies show that a capacity resource is needed to ensure system reliability, the de-list bid for that capacity resource is not accepted and the capacity remains in the auction.<sup>55</sup>

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<sup>55</sup> ISO-NE filing in FERC Docket No. ER10-2477-000; 30 Aug 2010; Attachment B - Testimony of Mr. Stephen J. Rourke (Exhibit 25a); pages 7 to 9.

73. The ISO-NE fourth Forward Capacity Auction was held to procure capacity for the 2013-2014 Commitment Period. The uncertainty about the status of the Vermont Yankee Station (i.e., whether the station would be operating after 21 Mar 2012) led Entergy Vermont Yankee to submit a de-list bid for the Vermont Yankee Station in the ISO-NE fourth Forward Capacity Auction because the period covered by this auction was after the potential shutdown date of the station. ISO-NE rejected this de-list bid due to reliability concerns.<sup>56</sup> ISO-NE rejected the Vermont Yankee Station de-list bid because loss of the station's capacity would result "...in overloads of transmission facilities in the Vermont, New Hampshire, and Western/Central Massachusetts Load Zones."<sup>57</sup> ISO-NE reliability analysis confirmed that the Vermont Yankee Station is required for regional reliability because "...no other generation in New England would mitigate the overloads."<sup>58</sup> The Federal Energy Regulatory Commission (FERC) accepted the ISO-NE Fourth Forward Capacity Auction results, including the rejection of the Vermont Yankee de-list bid.<sup>59</sup> Energy Vermont Yankee capacity remained in the Forward Capacity Auction and cleared the auction. Entergy Vermont Yankee now has a Capacity Supply Obligation related to the Vermont Yankee Station in 2013-2014, even if the Vermont Yankee Station is not operating.

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<sup>56</sup> ISO-NE filing in FERC Docket No. ER10-2477-000; 30 Aug 2010; (Exhibit 25b) page 3.

<sup>57</sup> ISO-NE filing in FERC Docket No. ER10-2477-000; 30 Aug 2010; Attachment B - Testimony of Mr. Stephen J. Rourke (Exhibit 25a); page 30.

<sup>58</sup> *Ibid.*

<sup>59</sup> FERC Docket No. ER10-2477-000, ISO New England Inc.; 133 FERC ¶ 61,230; 16 Dec 2010 (Exhibit 25c); paragraph 8.

**E. Increased emissions of carbon dioxide and other pollutants**

74. An early shutdown of Vermont Yankee Station would result in higher emissions. The Vermont Yankee Station emits virtually no carbon dioxide, allowing Vermont to have the lowest carbon emissions from electricity generation of any US state.<sup>60</sup> Vermont's 2009 state carbon emissions from electricity generation were 6,583 tons. Vermont's 2009 carbon emissions from electricity generation were less than 20% of the 2009 carbon emissions from electricity generation from the next highest state (DC, with 35,752 tons) and are miniscule compared to the 2009 US state average of 44.5 million tons.

75. The Axelrod Study confirms my conclusion that emissions would increase as a result of the closure of the Vermont Yankee Station. This study concludes that Vermont's carbon dioxide emissions would increase by about two million tons per year if Vermont Yankee Station were closed and all electricity that had been produced by the Vermont Yankee Station were replaced with electricity generated by a gas-fired combined-cycle gas turbine power plant.<sup>61</sup> The Axelrod Study assumes that the electricity to be replaced is based on a total Vermont Yankee Station capacity of 620 MW.

76. The GDS Study also confirms my conclusion that emissions would increase as a result of the closure of the Vermont Yankee Station. This study includes a table that presents the emissions impacts from various sources of electricity that might replace the electricity that is generated by the Vermont Yankee Station and used in Vermont. The GDS Study assumes that the amount of Vermont Yankee Station electricity used in Vermont that

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<sup>60</sup> "State Ranking 6. Carbon Dioxide Emissions by the Electric Power Industry, 2009 (metric tons)"; 2009; US Energy Information Administration (Exhibit 26).

<sup>61</sup> Axelrod Study (Exhibit 10); page 21.

must be replaced is 277 MW. If this replacement electricity comes from a natural gas-fired combined cycle gas turbine power plant, carbon dioxide emissions would increase by 845,661 tons<sup>62</sup> per year, with an increase in other pollutants.<sup>63</sup> If this replacement electricity comes from imports, carbon dioxide emissions would increase by 597,800 tons per year with an increase in other pollutants.<sup>64</sup> The GDS Study also includes a scenario with no increase in carbon emissions where the replacement electricity is provided by Renewable Portfolio Additions. The study notes that the Renewable Portfolio Addition scenario may not happen if renewable investments are based on market entry of new generators; would result in higher retail electricity rates; would be more expensive than the new fossil fuel generation scenario; would likely require transmission investments to connect wind generators on remote ridgeline sites; and would require additional investment in capacity (compared to other options) because of the low (e.g., 43%) average capacity factor assumed for the renewable portfolio.<sup>65</sup>

77. The 2009 Vermont Energy Plan notes that Vermont has the smallest carbon footprint of any state and one of the smallest on the basis of per capita emissions. The

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<sup>62</sup> This amount is lower than the two million tons per year amount estimated in the Axelrod Study because the two studies assume different amounts of Vermont Yankee Station power will be replaced – 620 MW in the Axelrod Study and 277 MW in the GDS Study.

<sup>63</sup> GDS Study (Exhibit 7); Table 3 on page 12-26.

<sup>64</sup> *Ibid.*

<sup>65</sup> Capacity factor is a measure of how much electricity a power plant actually generates over a period of time relative to the amount of electricity that the power plant could generate if it operated continuously at 100% of rated output over the period. The assumed Renewable Portfolio Addition capacity factor of 43% means that the renewable generators in the portfolio produce less electricity in a year than generators of the same capacity that have higher capacity factors (e.g., the Vermont Yankee Station). The GDS Study (Exhibit 7), in Table 3 on page 12-26, includes assumptions for gas-fired combined-cycle gas turbine unit capacity factor (85%) and for Vermont Yankee Station capacity factor (87%).

Energy Plan acknowledged that Vermont may face challenges in maintaining its low carbon profile if the Vermont Yankee Station is closed.<sup>66</sup>

#### **F. Loss of contributions to regional charities**

78. Entergy Vermont Yankee makes contributions to local charities that would likely be lost if Vermont Yankee Station is closed early. This conclusion is confirmed by several sources. A 2007 news story described a forum held to discuss the impact of a Vermont Yankee Station closure.<sup>67</sup> One aspect of this forum was the extent to which Vermont Yankee Station contributed to local charities. Windham County nonprofits noted that Entergy Vermont Yankee and its employees contribute a significant portion of their annual revenue. The United Way of Windham County's annual revenue from Entergy was reported to be \$80,000. A 2010 Entergy Press release reported that more than 100 local non-profit organizations received contributions from Entergy Vermont Yankee in 2010, with more than \$300,000 in total 2010 contributions.<sup>68</sup> The GDS Study notes that a negative consequence of early closure of the Vermont Yankee Station would be the loss of charitable contributions, with Entergy Vermont Yankee reporting contributions to local charities at a level of \$380,000 per year, or \$7.6 million total over 20 years.<sup>69</sup> The GDS study did not include this loss of charitable contributions in estimates of economic impact.

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<sup>66</sup> 2009 Vermont Energy Plan (Exhibit 12); page I-7.

<sup>67</sup> "Forum mulls area post-VY;" 24 Feb 2011, Brattleboro Reformer (Exhibit 27).

<sup>68</sup> "Entergy Vermont Yankee charitable contributions program supported more than 100 local community nonprofit organizations in 2010"; 3 Feb 2011; Entergy Press Release (Exhibit 28).

<sup>69</sup> GDS Study (Exhibit 7); page 11-30.

## **G. Case Studies from other major closures**

79. The economic impact that may result from the early closure of the Vermont Yankee Station is confirmed by the earlier closure of other nuclear power plants in New England. There are two other nuclear power plant closures in New England that help to put the public harm of Vermont Yankee Station closure into perspective. The first is the 1992 closure of the Yankee Rowe nuclear power plant and the second is the 1997 closure of the Maine Yankee nuclear power plant. These two nuclear power plants were closed before the end of their NRC operating licenses. Both of these nuclear power stations are located in New England, like the Vermont Yankee Station. Both are located in relatively small and rural communities that are similar to the community where the Vermont Yankee Station is located. Both of these nuclear power plants were major contributors of jobs and taxes to the local economy, similar to the contribution of the Vermont Yankee Station to its local community.

### **Yankee Rowe closure**

80. The impact of the Yankee Rowe closure confirms the estimates of public harm from the early closure of the Vermont Yankee Station. The closure of the Yankee Rowe nuclear power station in 1992 resulted in a significant loss of jobs and tax revenue to the local community.

81. The significant negative impact of the Yankee Rowe nuclear station closure is confirmed by a University of Massachusetts at Amherst study<sup>70</sup> that provides a view of

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<sup>70</sup> "The Closing of the Yankee Rowe Nuclear Power Plant: The Impact on a New England Community;" UMASS Amherst; 1997; Mullin, John R. and Kotval, Zenia, Landscape Architecture & Regional Planning Faculty Publication Series, Paper 25 (Exhibit 29).

what may happen to the community surrounding the Vermont Yankee Station. “The basic economic effect of the closing will ultimately be the loss of 260 permanent jobs and of a payroll greater than \$12.5 million. Our calculation of the employment and personal income multipliers shows that the local economy will eventually have lost the means of producing 225 additional jobs and \$9,950,073 in additional personal income.” The study notes the negative impact on local governments: the town of Heath had an estimated \$6 million decline in property values, mainly due to the closing of Yankee Rowe; Rowe raised property taxes from \$4.86 per thousand of assessed value in 1993 to \$5.50 per thousand for 1996; Heath raised its tax rates from \$16.43 per thousand in 1993 to \$20.04 in 1994; and Monroe was expected to request a bailout from the Commonwealth. The study notes that “It is clear that, without assistance from government or the utility companies, such communities will then struggle economically for years and possibly decades.” The closure of Yankee Rowe provides a preview of the impact of the early closure of the Vermont Yankee Station.

### **Maine Yankee closure**

82. The impact of the closure of the Maine Yankee nuclear power station confirms the estimates of the public harm that may arise from the early closure of the Vermont Yankee Station. When the Maine Yankee nuclear power station closed in 1997, the impacts included loss of jobs and loss of tax revenue.

83. Maine Yankee was a significant source of tax revenue (estimated at 96 percent) for Wiscasset, Maine. In 1998, the amount of annual tax revenue from Maine Yankee dropped to about \$6 million from nearly \$13 million prior to closing, with the lost tax revenue made up by a combination of higher local taxes and spending cuts. Maine

Yankee had 480 full-time employees when it was operating; this was reduced to 166 by 1998.<sup>71</sup> Wiscasset Select Board member Bob Blagden, explained the impact of the Maine Yankee closure to a Vermont State Senate Committee in March 2011.<sup>72</sup> He said that his town had "... lost its tax base, had to cut its police force and raise taxes on residents, even as people moved out." Another report of the same meeting quotes Blagden as saying "The impact in the town was pretty dramatic." "We're still experiencing difficulties and will for some time."<sup>73</sup>

84. I declare under penalty of perjury that the foregoing is true and correct.

Executed on 21 April 2011.

A handwritten signature in black ink, appearing to read 'EOK', written over a horizontal line.

Edward D. Kee

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<sup>71</sup> "In a Post-Nuclear Town, Some Adjustments Hurt;" 12 July 1998; New York Times (Exhibit 30).

<sup>72</sup> "Can Vermont Learn from Maine Yankee's Closing?" 18 Mar 2011; WCAX.com local news, reporter Kristin Carlson (Exhibit 31).

<sup>73</sup> "Vermont Lawmakers hope to learn from Maine about closing Vermont Yankee;" 18 Mar 2011; www.fox44now.com (Exhibit 32).

UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF VERMONT

ENTERGY NUCLEAR VERMONT  
YANKEE, LLC and ENTERGY NUCLEAR  
OPERATIONS, INC.,

Plaintiffs,

v.

PETER SHUMLIN, in his official capacity as  
GOVERNOR OF THE STATE OF  
VERMONT; WILLIAM SORRELL, in his  
official capacity as the ATTORNEY  
GENERAL OF THE STATE OF VERMONT,  
and JAMES VOLZ, JOHN BURKE, and  
DAVID COEN, in their official capacities as  
members of THE VERMONT PUBLIC  
SERVICE BOARD,

Defendants.

Civil Action No. 11-cv-99

Reply Declaration of John T. Herron

John T. Herron, declares as follows pursuant to 28 U.S.C. § 1746:

1. I am President and Chief Executive Officer Nuclear Operations/Chief Nuclear Officer of Entergy Corporation (“Entergy”). I make this declaration to respond to several of the points raised in the Declaration of Bruce E. Hinckley (“Hinckley Dec.”) submitted in support of Defendants’ Memorandum of Law in Opposition to Plaintiffs’ Motion for Preliminary Injunction.

**Employee Attrition at the Vermont Yankee Station**

2. Mr. Hinckley states that at meetings he attended over the past two years, including one held on March 2, 2011, “Entergy officials have consistently stated that staffing is not a problem that affects reliability at the plant and that the plant is not experiencing any

unusual attrition.” (Hinckley Dec. ¶ 6) Mr. Hinckley, however, does not address or contradict the fact that Vermont Yankee Station’s attrition is a serious problem for the future operation of the plant. Moreover, Mr. Hinckley misconstrues the statements and other documents that he references.

3. *First*, the staffing information discussed at the March 2, 2011 meeting only covered the period through the end of 2010 and did not take account of attrition in 2011. (Hinckley Exhibit C at QEVY00000169) As I explained in my previous declaration (“Herron Dec.” at ¶ 25), it is the escalating attrition rate in 2011 – particularly, as I will explain, for the key areas of Operations and Operations Training – that is the real threat to the ability of Entergy Nuclear Vermont Yankee, LLC (“ENVY”) and Entergy Nuclear Operations, Inc. (“ENOI”) to continue operating the plant in the coming months.

4. *Second*, Mr. Hinckley misinterprets the Management Review Meeting (“MRM”) documents that he cites. Although “Site Total” figures exceed “Site Budget” figures on these documents (*e.g.*, Hinckley Exhibit B at QEVY00000108, -114, -174), that does not show the plant is adequately staffed as he suggests. The “Site Budget” figure is not based on an operational analysis, but rather represents the number of staff in the budget based on the existing baseline and forecasted changes. The MRM documents compare that “Site Budget” figure to the “Site Cost Center” figure (the number of employees at the site whose functions are included in the “Site Budget”) and to the “Site Total” figure (the total number of employees at the site, including employees in functions that for various reasons are not included in the “Site Budget”). The MRM documents show the plant’s staffing performance from a budgetary and financial perspective, not an operational perspective.

5. Similarly, Mr. Hinckley misinterprets the “green” or “good” status indicator on these MRM documents. The green indicator does not mean that the plant is adequately staffed to meet its operational needs. It simply means that the “Site Cost Center” staffing figure is less than or equal to the “Site Budget” staffing figure – that is, the “Site Cost Center” staffing is not over budget.

6. *Third*, Mr. Hinckley incorrectly concludes from looking at the total staffing for the plant that attrition is not a serious concern. (Hinckley Dec. ¶¶ 7-14) His reliance on total plant staffing, however, ignores employee attrition in particular areas even though such information is specifically shown in the MRM documents that he cites.

7. The staffing area of greatest concern at a nuclear plant is Operations. From October 2010 through April 2011, seven employees in Operations have resigned (on top of two retirements and one termination) and two Operations Instructors (one Senior) in Training have also resigned. (Hinckley Exhibit B-2 at QEVY00000116, QEVY00000176<sup>1</sup>) Over that same period, there were 11 new hires in Operations, but these were all lower-level Auxiliary Operator I positions (*id.* at QEVY00000115). Two of the vacated Operations positions were filled by promotions. (*Id.* at QEVY00000117) However, one of these two departures was an employee who left had many years of experience and a NRC license which the employee promoted to fill that position does not have. Moreover, the two promotions themselves created vacancies for experienced employees that cannot be filled by the new hires. As a result, even with the 11 new hires, Operations and Operations Training are still under-staffed as a result of the nine departures of more senior and experienced employees since October 2010.

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<sup>1</sup> These two MRM slides show eight resignations from Operations (on top of the two retirements and one termination). However, one of the resignations on QEVY00000176 incorrectly shows the resigning employee as a Reactor Operator II when he was actually at Instrumentation & Controls Technician II, a position that is not in Operations.

8. As I explained (Herron Dec. ¶ 22), it is extremely difficult to attract individuals with the qualifications and experience required to fill higher-level Operations and Operations Training positions given the uncertainty about whether the Vermont Yankee Station will be able to continue operating beyond March 21, 2012. While, as Mr. Hinckley notes, the plant maintains a “pipeline” of employees being trained to fill essential positions, this pipeline only replaces lower-level positions and only has enough people to fill *planned* departures through retirement and normal attrition. Unplanned attrition in Operations Training in recent months has left Vermont Yankee Station with five currently unfilled positions in that function, including two resignations in 2011.

9. *Fourth*, it is very significant that of these nine employees in Operations and Operations Training who left between October 2010 and April 2011, six identified relicensing uncertainty on their exit interview forms as either the primary or secondary reason for leaving. (Herron Exhibits 3, 5, 7, 8, 9, 10<sup>2</sup>) As I explained (Herron Dec. ¶ 21), experienced Operations and Operations Training employees have qualifications and training that are in high demand in the industry and will have attractive opportunities to pursue other employment. While it is true, as Mr. Hinckley, says (Hinckley Dec. ¶ 13), that Vermont Yankee Station’s Operations staffing currently satisfies the requirements of the Nuclear Regulatory Commission (“NRC”), the more serious issue is the plant’s future staffing if the March 21, 2012 deadline for terminating its operation is not addressed by the court in the next few weeks.

10. *Fifth*, Mr. Hinckley compares Vermont Yankee’s Station’s 2010 attrition to industry data from the Nuclear Energy Institute, from which he calculates an expected retirement

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<sup>2</sup> Herron Exhibits 1 through 8 are appended to the Declaration of John Herron filed with the motion for preliminary injunction on April 22, 2011. Herron Exhibits 9 through 12 are appended to this declaration.

rate of 7.6% and an expected attrition rate due to other reasons of 2%. (Hinckley Dec. ¶ 14) In fact, Vermont Yankee Station's attrition in 2010 for reasons other than retirement was 7.0%, a level more than three times higher than Mr. Hinckley's 2% industry average. Mr. Hinckley also notes that Vermont Yankee Station's attrition in 2007 was 11.4%. (*Id.*) That level, however, reflects turnover from a major fleet-wide reorganization and alignment by Entergy covering all 10 of its nuclear facilities. That project included a complete review and analysis of staffing at each facility, the elimination of unnecessary positions, and a process to move nuclear employees into the positions for which they were best suited. That process involved opening up for application most positions at Vermont Yankee Station and Entergy's other nuclear facilities that were not covered by a collective bargaining agreement. As a result of this process, there was substantial turnover throughout Entergy's nuclear organization and attrition percentages (which include transfers out to other positions within the organization) were much higher than normal. The reorganization did not, however, result in the type of key personnel loss that Vermont Yankee Station now faces.

11. Mr. Hinckley's conclusions about Vermont Yankee Station's attrition numbers do not address something far more telling – the actual statements by departing employees in their exit interviews. One cannot read statements like – “If you are going to another job, what does the job offer you that your job at VY did not? ... *certainty of position – they are relicensed until 2029*” (Herron Exhibit 2) or “What could we have done to prevent you from leaving? *No – they tried – it was a very hard decision – I waffled back and forth – what I need the company can't supply – get relicensed*” (Herron Exhibit 3; see also Herron Dec. ¶ 27) – and dismiss concern over the plant's future as a real factor driving the rising attrition in recent months.

12. The risk of further employee departures has become serious enough that on May 18, 2011, I sent a letter to each and every employee at Vermont Yankee Station (Herron Exhibit 11) to re-assure them that in the event that the plant can no longer operate, Entergy Nuclear is committed to supporting their careers and will make every reasonable effort to provide other employment opportunities for any employees who are willing and able to relocate. This reflects my concern that Entergy take whatever steps it can to stem the tide of departing skilled employees from Vermont Yankee Station. I remain very concerned, however, that my assurances will not be sufficient to retain the plant's essential employees without the court's intervention in the next few weeks.

#### **Nuclear Plant Operations and Shutdown**

13. Mr. Hinckley states that "a number of nuclear power facilities have been shut down for extended periods of time and then restarted." (Hinckley Dec. ¶ 15) The nuclear plant operating experience that he cites (Brunswick 1 & 2, Browns Ferry and Davis Besse), however, does not apply to Vermont Yankee Station's current circumstances. These plants were either owned by regulated utilities, or in the case of Browns Ferry by a federal government agency (the Tennessee Valley Authority), which could sustain the facility financially during the extended outage. Vermont Yankee Station, however, is a non-utility wholesale generator that depends solely upon the revenues from the sale of power that it generates to sustain itself financially. Vermont Yankee Station will not be economically viable if it is out of service for an extended period of time.

14. Mr. Hinckley does not dispute that Vermont Yankee Station's Fall 2011 scheduled refueling is an extremely costly undertaking that cannot be postponed into the winter

months, and that requires initial financial commitments as early as July 2011. (Herron Dec. ¶¶ 29-47) He asserts, however, that all plants with fixed term licenses face uncertainty regarding whether they will be relicensed, and that this uncertainty may include the decision whether to refuel before license expiration. (Hinckley Dec. ¶ 17) Without the court's intervention, the Vermont Yankee Station, however, faces uncertainty that is entirely different from that faced by other nuclear facilities. For other nuclear facilities, license renewal lies solely within the control of the NRC which has yet to deny a renewed license and in almost all cases has issued the renewed license well in advance of the expiration of the original license. Moreover, the NRC has a "timely renewal" rule that provides that if an application for a renewed license is filed at least five years before the expiration of the existing license, "the existing license will not be deemed to have expired until the application [for a renewed license] has been finally determined." 10 C.F.R. § 2.109(b). Given this rule and the NRC's track record, the uncertainty faced by other facilities from the NRC's license renewal and their ability to plan for refueling and other operational requirements is quite manageable. Without the court's prompt intervention, the uncertainty faced by Vermont Yankee Station regarding refueling is orders of magnitude greater.

15. Mr. Hinckley asserts that if Vermont Yankee Station is not refueled this fall, "it is highly likely that Entergy could operate the plant until March 21, 2012 ... by adjusting its core management actions as necessary to stay within its NRC license requirements while producing power at reduced levels." (Hinckley Dec. ¶ 18) That assertion, however, is not supported by any analysis or documentation. Moreover, Mr. Hinckley's assertion that Vermont Yankee Station could continue to operate until March 21, 2012 without refueling ignores another fundamental fact. As I explained (Herron Dec. ¶¶ 44-47), a plant that is not refueled will have declining

output and revenues which, together with its essentially fixed operating costs, will soon make it uneconomic to operate.

16. Even more importantly, cancelling this fall's scheduled refueling as Mr. Hinckley proposes, would be seen by the plant's workforce as a decision that a permanent shutdown in March 2012 is a foregone conclusion. In that event, I believe that the already substantial difficulties retaining the necessary personnel to keep Vermont Yankee Station operating would escalate dramatically. The plant's employees would see the cancellation of refueling as concrete evidence that Entergy's commitment to the plant's continued operation beyond March 21, 2012 was waning.

17. Mr. Hinckley's suggestion that Vermont Yankee Station operate until March 21, 2012 without refueling also fails to take account of all of the actions that must be undertaken long before that final deadline. The termination of operations required by Vermont on March 21, 2012 is not something that can be implemented in just a few days or weeks. That deadline requires ENVY and ENOI to begin taking actions before Fall 2011 at the very latest. As the "Maine Yankee Decommissioning Experience Report," prepared by Maine Yankee and the Electric Power Research Institute (EPRI), explains:

If permanent shutdown is a planned evolution, pre-shutdown activities should begin in earnest approximately a year before shutdown with a dedicated team of site and corporate individuals with experience in licensing, stakeholder interaction, engineering, project management, financial analysis, accounting and budgeting, health physics/radiation protection and human resources.  
(Herron Exhibit 12, p. 2-1)

The report notes that the pre-shutdown planning would include:

- Drafting the Post Shutdown Decommissioning Activities Report (PSDAR);
- Beginning development of a range of exemption requests to be submitted to the NRC. These exemption requests include reductions in emergency planning

requirements, reduction in insurance requirements, and changes in technical specifications for the plant;

- Review of the previous decommissioning cost estimate;
- Initial assessment of the decommissioning approach – whether to self manage the project, to contract for project management services or (as an option that has become available since the Maine Yankee report) to transfer the plant, license and decommissioning fund to a third party like EnergySolutions that assumes responsibility for the decommissioning;
- Initial assessment of required stakeholder interactions. (*Id.* at 2-2 to 2-3)

18. For Vermont Yankee Station, some work has already been done on a few of these items, such as drafting of the PSDAR and development of the decommissioning cost estimate, as a result of various requirements of Vermont and the NRC. This work, however, will have to be reviewed, analyzed, refined and in some cases fleshed out in greater detail if the plant is to terminate operation on March 21, 2012. Although a full year may not be required for Vermont Yankee Station to complete these preparations given the work already done, ENVY and ENOI cannot wait until late 2011 or early 2012 to begin and complete the necessary preparatory work if they are to meet the March 21, 2012 deadline. Without the court's intervention in the next few weeks, ENVY and ENOI would need to begin taking actions to prepare for the March 21, 2012 termination of operations before Fall 2011 at the very latest.

19. As soon as a team is formed to begin preparations to terminate Vermont Yankee Station's operations, that fact will unavoidably become known to the plant's workforce. The team's formation will be interpreted by many members of Vermont Yankee Station's workforce as a sign that a permanent shutdown in March 2012 is likely. The team's formation would also likely become known quickly to the rest of the industry, leading other nuclear operators to aggressively recruit Vermont Yankee Station's most experienced and valuable employees.

20. Even with the assurances in my May 18, 2011 letter, I expect that that ENVY and ENOI would face extreme difficulty retaining the personnel required to continue operating the plant under these circumstances. A number of employees at Vermont Yankee Station have already expressed concern to me about the adverse effect that the plant's closure would have on home values in the area. Once a team was formed to prepare for the termination of operations, I expect that the most experienced and marketable employees would leave quickly to try to relocate to new jobs ahead of that drop in home prices.

21. While the March 21, 2012 deadline for Vermont Yankee Station to terminate its operation is still months away, the deadline therefore has far more immediate consequences that, if not addressed by this court until late 2011 or early 2012, would in my judgment likely lead to the early departure of employees essential to keep the plant operating and threaten a permanent closure of the plant before the court acts. Even though a preliminary injunction that remains in effect only until the court issues a final ruling would not remove all uncertainty, I believe that it would give Vermont Yankee Station's employees, and particularly those key employees in Operations and Operations Training, enough confidence in the plant's future to allow ENVY and ENOI to continue operating the plant until at least March 21, 2012.

#### **Other Matters**

22. On March 30, 2011, Richard J. Smith, the President of Entergy's Wholesale Commodities Business (which is responsible for Vermont Yankee Station and Entergy's other non-utility nuclear facilities) and I, along with other Entergy representatives, met with Vermont Governor Peter Shumlin to try to resolve the dispute over Vermont Yankee Station's continued operation after March 21, 2012 without resorting to litigation.

23. In my prior declaration, I explained that there was a July 7, 2011 deadline for starting fabrication of the fuel assemblies for Vermont Yankee Station's Fall 2011 outage, which carries with it significant financial commitments for ENVY. (Herron Dec. ¶ 39) That date has now been briefly pushed back for reasons that I will now explain.

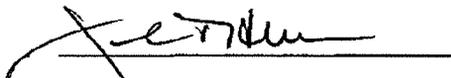
24. During the second week of May, I attended an industry conference in Washington, D.C. where I happened to meet a representative from the fuel fabricator and we had a quick informal discussion about Vermont Yankee Station. He said that he had heard that Vermont Yankee Station might want to delay the start of fuel fabrication and suggested that he could swap Vermont Yankee Station with another plant on the fabricator's schedule, which would push back the start of fuel fabrication for Vermont Yankee Station until later in July. I responded that the responsible engineers at our respective companies should discuss this proposal further in order to better understand the details and consequences of the proposal.

25. Subsequent telephone conversations with the fuel fabricator determined that the start of fuel fabrication for Vermont Yankee Station could be delayed from July 7<sup>th</sup> until July 22<sup>nd</sup> or 23<sup>rd</sup>. The delay, however, would entail some operational risk. The fuel fabrication schedule cannot be compressed so the later date for starting fuel fabrication would mean a later date of delivery of the fuel assemblies. The later delivery date would mean that there is no margin for error in the fuel fabrication, delivery, inspection, resolution of any issues discovered in the inspection, and loading of the fuel assemblies into the refueling pool in preparation for the refueling outage. Any unanticipated problems with any of these steps could delay the scheduled start of the outage, which would in all likelihood be quite costly.

26. Entergy's management team has evaluated the offer to delay the start of fuel fabrication, taking into account this operational risk and the court's statement at the May 5, 2011

status conference that it would likely be unable to rule on the preliminary injunction motion by July 7, 2011. The team decided that given the likelihood that the court would be unable to rule by July 7<sup>th</sup> and the substantial financial commitment associated with starting fuel fabrication, Entergy should accept the fuel fabricator's offer to delay the start of fuel fabrication. Accordingly, ENVY will notify the fuel fabricator that it is accepting the fabricator's offer to delay the start of fuel fabrication until July 22<sup>nd</sup> or 23<sup>rd</sup>. This delay only briefly postpones one commitment that must be made if Vermont Yankee Station's refueling outage is to proceed in October 2011 as scheduled. As I explained in my prior declaration (Herron Dec. ¶¶ 30-33, 37), there are numerous other decisions and commitments that must be made in the next couple of months at the very latest if that outage to go forward as scheduled.

27. I declare under penalty of perjury that the foregoing is true and correct. Executed on May 31, 2011.

  
John T. Herron

UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF VERMONT

ENTERGY NUCLEAR VERMONT	)	
YANKEE, LLC and ENTERGY NUCLEAR	)	
OPERATIONS, INC.,	)	
Plaintiffs	)	
v.	)	
PETER SHUMLIN, in his official capacity as	)	Civil Action No. 11-CV-99
GOVERNOR OF THE STATE OF	)	
VERMONT; WILLIAM SORRELL, in his	)	Edward D. Kee's Declaration in Support of
official capacity as the ATTORNEY	)	Preliminary Injunction
GENERAL OF THE STATE OF VERMONT;	)	
and JAMES VOLZ, JOHN BURKE, and	)	
DAVID COEN, in their official capacities as	)	
members of THE VERMONT PUBLIC	)	
SERVICE BOARD,	)	
Defendants.	)	

Edward D. Kee declares as follows pursuant to 28 U.S.C. § 1746:

1. This Declaration is submitted in response to the Defendants' Memorandum of Law in Opposition to Plaintiffs' Motion for Preliminary Injunction (Brief) filed on 23 May 2011 and the Declarations of Seth Parker and Robert Stein filed on 23 May 2011 in support of the Defendants' Brief.

2. The Parker and Stein Declarations do not change the conclusions in my Initial Declaration that there will be actual, significant and imminent harm to Entergy Vermont Yankee and to the public if the Vermont Yankee Station is closed early. In this Declaration, I respond to issues raised in the Parker Declaration, the Stein Declaration, and

the Defendants' Brief and provide an overview of electricity industry reform and restructuring.

## **I. DECLARATION OF SETH PARKER**

3. In this section, I respond to issues in Mr. Parker's Declaration as they appear. However, I first raise general issues that apply to multiple parts of the Parker Declaration. My comments on emissions and bulk power electricity reliability appear in later sections.

### **A. General**

4. Mr. Parker asserts, in ¶10, that "many of the studies" that support my Initial Declaration contain "defects." The studies that support my Initial Declaration are recent, with most of them completed in the last few years. These studies were done by experienced and independent consultants. These studies are focused on relevant issues related to the impacts of early closure of the Vermont Yankee Station. These studies typically involved significant effort, detail and review. Some of these studies were done in the context of Vermont Public Service Board Docket 7440, where continued operation of the Vermont Yankee Station was considered. Some were done by the State of Vermont (e.g., the Fiscal Office Study) or were commissioned and overseen by the Vermont Department of Public Service (e.g., the GDS Study and the Consensus Study). Other studies were done in the normal course of business by independent entities with significant expertise and responsibility for relevant electricity industry issues (e.g., ISO-NE reliability studies). The studies use different approaches, different methodologies, and different models. Despite these differences, the conclusions of these studies provide a consistent and compelling view of the negative impacts of the early closure of the Vermont Yankee Station. These studies

provide solid support for the conclusions in my Initial Declaration and also provide the Court with detailed and unbiased evidence.

5. Mr. Parker asserts, in ¶11, that the use of qualifiers such as “may” and “likely” in the studies, and in some conclusions in those studies, raises “questions” about these studies. Mr. Parker’s comments about the use of qualifiers in the studies and in my references to those studies does not change the conclusion that there are significant, actual, and imminent negative impacts from the early closure of the Vermont Yankee Station. The researchers and analysts who prepared these studies use qualifiers to reflect uncertainty as to the precise levels and magnitudes of the negative impacts of an early closure of the Vermont Yankee Station, not uncertainty about the existence of these negative impacts. Based on my experience in the electricity industry, projections of future outcomes in electricity markets involve complicated models and a large number of assumptions and inputs. The level of future electricity market prices is linked to many factors, including the unpredictable behavior of market participants. Projections of future electricity market prices are not something that could, or should, be reported with certainty. Mr. Parker reflects this inherent uncertainty about future electricity market prices when he himself uses qualifiers to describe future electricity market prices (Parker ¶21 “...short-term [electricity] market prices *may be* more volatile...”; “...they [short-term electricity market prices] would *likely* also be higher...”; and Parker ¶40 “...electricity prices *may be* lower...”; emphasis added). The use of these qualifiers reflects normal practice when describing the inherent uncertainty about forecasts of future outcomes in the electricity industry, not defects in the studies.

6. Mr. Parker makes a number of criticisms of and comments on the Consensus Study. The Consensus Study was done over a period of sixteen months by a group of energy and economic experts, including experts that were retained by, or were employees of, the Vermont General Assembly's Joint Fiscal Committee, the Vermont Public Service Board, the Vermont Agency of Administration, and Vermont electric utilities. I was only able to review the March 2010 Executive Summary of the Consensus Study. This Executive Summary states (on page 1 and 2) that the model developed for the study "is now available to the Legislature, DPS, other state entities, and the participating utilities." Because Mr. Parker's list of "limitations" in the Consensus Study (see Parker ¶35) appears to be based on a lack of detailed information that should be in the complete report and model, I assume that he too only reviewed the Executive Summary.

7. As a general matter, Mr. Parker, in ¶12 and in many other parts of his Declaration, suggests that my Initial Declaration and several studies "fail to take into account" that "...no (sic) market solutions, such as new merchant generation, occur." Mr. Parker presents no evidence to support this assertion. Mr. Parker suggests that the negative impacts of an early closure of the Vermont Yankee Station may mean that there is a market response that includes new merchant generation. However, such market-based new generation investment "solutions" in the ISO-NE market will not be direct replacements for the closed Vermont Yankee Station (as Mr. Parker suggests multiple times). As a general matter, Mr. Parker, in ¶30 to ¶61, argues that the actual and imminent harm from early closure of the Vermont Yankee Station is somehow negated because it might be mitigated by the impact of hypothetical future actions and investments that *could occur* (Parker ¶12,

¶30, ¶31, ¶32, ¶37, and ¶52). Further, it is hard to reconcile Mr. Parker's reliance on new market-based power plant investments to mitigate the negative impacts of an early closure of the Vermont Yankee Station with Mr. Parker's suggestion that the primary drivers of new market-based generation investment, wholesale electricity market prices (Parker ¶46) and electricity market contact prices (Parker ¶47 to ¶50), will not be higher due to the early closure of the Vermont Yankee Station.

8. Mr. Parker continues to use the hypothetical future resource argument in ¶7 above as he describes his view of the Consensus Study. His arguments are based on a fallacy that is repeated multiple times. I refer to this as the Green Scenario Fallacy (i.e., the discussion in ¶7, ¶8, ¶9, and ¶10). The first part of this fallacy is in Mr. Parker's description, in ¶34 and ¶35, of the VY Shutdown Scenario as "without any replacement capacity" and as an "unrealistic case" where the Vermont Yankee Station "is shut down and no replacement resources are implemented." This description is incorrect and misleading. The VY Shutdown Scenario does include new market-based generation capacity additions. The Consensus Study covers a period of 30 years (i.e., 2010 to 2040) and the Executive Summary states (see page 5) that the analysis is based on, among other things, an electricity market model for New England. I do not have access to this model as discussed above (e.g., ¶6), but note that any credible long-range electricity market model would include new investments in generation that are made as generating units retire and as market demand grows. Mr. Parker, in his definition of this scenario, wrongly suggests that this 30-year simulation model of the New England electricity market includes no new generation capacity.

9. The second part of this fallacy is Mr. Parker's description, in ¶34 and other places, of the Green Scenario as one where the Vermont Yankee Station is "retired and *replaced* by renewable resources and energy efficiency measures. [emphasis added]" This description mistakenly assumes either that the Green Scenario will happen if and only if there is early closure of the Vermont Yankee Station or that the Green Scenario is caused by the early closure of the Vermont Yankee Station. The Green Scenario may be pursued whether or not the Vermont Yankee Station is closed early. The Consensus Study actually includes two Green Scenarios, one with the early closure of the Vermont Yankee Station, and one where the Vermont Yankee Station operates until 2032. The Green Scenario involves Vermont state efforts to use non-market incentives to encourage new generation capacity. Any new generation capacity that is built as a result of non-market incentives in the Green Scenario would only coincidentally "replace" the capacity lost from early closure of the Vermont Yankee Station. The activities and initiatives in the Green Scenario are unrelated to the fate of the Vermont Yankee Station.

10. The final part of the fallacy is what happens under the Green Scenario. Aside from the logical disconnect between the VY Shutdown Scenario and the Green Scenario, these scenarios are also different in other important aspects. The early closure of the Vermont Yankee Station is a specific sudden event that has real and imminent impacts. Green Scenario activities and any benefits from these activities occur over time and in the future, rather at a single and imminent time. The Green Scenario is a collection of dissimilar activities and initiatives, rather than a single event. Green Scenario activities are not required or mandatory. The state of Vermont may decide to undertake only some or even

none of these activities and even if these activities are started, the state of Vermont may decide later to discontinue them. The Green Scenario depends on the state of Vermont incurring significant and prolonged costs. Finally, it is uncertain that even if the Green Scenario activities are undertaken, these activities will deliver the results that are claimed.

**B. Negative impact on electricity sale contract market**

11. My Initial Declaration describes my conclusions that the early closure of the Vermont Yankee Station will have a negative impact on the electricity sale contract market and that the current uncertainty about the future operation of the Vermont Yankee Station will result in imminent harm to Entergy Vermont Yankee related to electricity sale contracts. Mr. Parker's Declaration does not change my conclusions, as I explain below.

12. In ¶13, Mr. Parker mentions the wholesale power contract options available to Vermont utilities and the efforts of these utilities to plan for early closure of the Vermont Yankee Station. However, there will be a negative impact on the wholesale power contract market from the closure of a large low-marginal cost, baseload nuclear power plant, regardless of the options Mr. Parker mentions. As I explain in my Initial Declaration (Kee ¶56), the loss of a large supplier of baseload power contracts in Vermont will mean fewer options for these utilities and will likely mean higher prices.

13. In ¶16, Mr. Parker discusses the issue of contingency that I explain in my Initial Declaration (Kee ¶19 and 20). Power contracts may be "unit contingent," in that the financial commitments in the power contract are linked to operation of the underlying power plant. Such unit contingent contracts mean that the buyer is put in the same position as the owner of the power plant with respect to planned and unplanned outages. The magnitude of

such normal operating contingencies for the Vermont Yankee Station is low, with few unplanned outages in recent years (e.g., 94% capacity factor over the last five years; 100% capacity factor in 2009; and two breaker-to-breaker runs<sup>1</sup> in the last five years) and refueling and maintenance outages that are scheduled about every 18 months in off-peak months. Mr. Parker asserts that a unit-contingent contract would receive lower prices than a non-contingent contract, but he presents no evidence to support his conclusion.

14. Mr. Parker, in ¶16, suggests that the unit-contingent contract issue is similar to the major contingency issue I describe in my Initial Declaration (Kee ¶19 and 20). The concepts are very different. A unit-contingency clause related to planned and unplanned outages is very different from a power contract that is contingent on the very existence of the power plant (i.e., a long-term contract signed in 2011 that anticipated that the Vermont Yankee Station might be permanently closed shortly afterwards). The significant differences between a unit-contingent contract and a contract with this major shutdown contingency will mean that there also a significant differences in the perception of value by buyers.

15. In ¶17, ¶18, ¶19 and ¶20; Mr. Parker fails to provide evidence that the major Vermont Yankee Station shutdown contingency formed no part of the price difference between the VEC and Hydro Quebec power contracts or that this major contingency did not constitute a significant part of the price difference between these contracts. Simply pointing out that there are multiple factors that explain price differences between power contracts

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<sup>1</sup> In the nuclear power industry, a breaker-to-breaker run is when the nuclear plant starts up after a regular refueling and maintenance outage and runs continually until it shuts down for the next refueling and maintenance outage about 18 to 24 months later. Only the best-performing nuclear plants achieve this level of performance.

does not provide any insight into the magnitude of the impact from each of these factors. As I discuss below (in ¶16), there is recent and convincing evidence that this major shutdown contingency is a significant negative factor in the power contract market that has already resulted in harm to Entergy Vermont Yankee.

16. In ¶22, Mr. Parker suggests that “alleged harm of not being able to enter into long-term contracts is speculative.” To the contrary, events since my Initial Declaration confirm that this harm is actual and imminent. On 24 May 2011, Green Mountain Power (GMP), a current indirect purchaser of power from the Vermont Yankee Station, agreed to a 23-year power purchase agreement with the Seabrook Station nuclear power plant (“Seabrook”) located in New Hampshire. According to news stories about this transaction, GMP decided to consider alternatives to the Vermont Yankee Station because of the “uncertainty about the future of Vermont Yankee, which the state [of Vermont] is pushing to close when its state license expires next March.”<sup>2</sup> The CEO of GMP, Mary Powell, said “...right now, they [Entergy Vermont Yankee] aren’t viable for long-term power contracts.”<sup>3</sup> Further confirmation of this view is reflected in a redacted customer bill from GMP (Exhibit 34) from May 2011 that includes the following statements:

“Some customers have asked about our future energy costs if we do not purchase power from Vermont Yankee after its current license expires in 2012 [sic].”

“We have not signed an agreement with Entergy for Vermont Yankee output because the price and other terms were not sufficiently attractive and because

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<sup>2</sup> VT utility to buy power form NH’s Seabrook, John Curran, Associated Press, [www.boston.com](http://www.boston.com), 24 May 2011 (Exhibit 33).

<sup>3</sup> *Ibid.*

*we need confidence that Vermont Yankee will operate* [emphasis added]  
before we make a commitment to buy power from it.”

The loss of this customer is real harm to Entergy Vermont Yankee that confirms that the harm discussed in my Initial Declaration (Kee ¶21) is not speculative.

17. In ¶21, Mr. Parker asserts that the higher risk Entergy Vermont Yankee faces from volatile short-term electricity market prices (i.e., due to the inability to sign long-term contracts) “may well have a corresponding benefit” for Entergy Vermont Yankee. Mr. Parker speculates here that Entergy Vermont Yankee may be better off because short-term market prices “may well be higher and more lucrative.” In effect, Mr. Parker is saying is that gambling is okay because the gambler “may well” win. Aside from the real possibility that short-term market prices may be *lower* than long-term contract prices, the risk of short term prices imposes costs. Exposure to short-term market price risk means that Entergy Vermont Yankee’s revenues and profits will change from period to period and that these revenues and profits will be difficult to predict. Market risk causes financial risk and imposes costs on Entergy Vermont Yankee regardless of the level of short-term market prices.

18. In ¶23, Mr. Parker asserts that the granting of a Preliminary Injunction will not remove the major shutdown uncertainty that is already causing real harm to Entergy Vermont Yankee, “...because potential buyers understand that such an injunction does not mean that the Court will ultimately rule in ENVY’s favor.” Mr. Parker provides no evidence for this assertion about the views that might be held by “potential buyers.” The Court’s granting of the Preliminary Injunction would indicate that the Court agrees that the Plaintiff’s legal case has a likelihood of success. The granting of the Preliminary Injunction

would remove several major current uncertainties, allowing the Vermont Yankee Station to conduct a normal refueling and maintenance outage in October 2011 and ensuring that the Vermont Yankee Station could operate during litigation.

### **C. Lost profits and lost real options**

19. My Initial Declaration describes my conclusion that the early closure of the Vermont Yankee Station will result in lost profits and lost real option value for Entergy Vermont Yankee. Mr. Parker's Declaration does not change my conclusion, as I explain below.

20. In ¶25, Mr. Parker asserts that the lack of a quantitative estimate of lost profits in my Initial Declaration makes "it impossible to consider this alleged harm in a concrete way." This is no requirement, so far as I know, for estimates of harm from lost profits to meet the "concrete" standard suggested by Mr. Parker. Mr. Parker does not dispute that Entergy Vermont Yankee would suffer lost profits if the Vermont Yankee Station were closed early. My Initial Declaration (Kee ¶32 and ¶33) describes significant lost profits and explains how such lost profits could be estimated. As an illustration of the magnitude of lost profits, the Vermont Yankee Station generates electricity in one hour with a value of about \$30,000.<sup>4</sup> Losing a week of this revenue would be significant and material. Losing 20 years of the net profits associated with this level of revenue would be very significant.

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<sup>4</sup> This is an illustrative example that is based on \$27, 392, calculated by multiplying the plant output of 628 MW by a price of \$43.57/MWh. 628 MW is the most recent Vermont Yankee Station winter seasonal claimed capability, from the May 2011 ISO-NE report on Generator Seasonal Capability (Exhibit 35). \$43.57/MWh is the April 2011 all-hours average real-time locational marginal price in the VT pricing region, from the ISO-NE April 2011 Monthly Market Report (Exhibit 36). Because short-term market prices are volatile and uncertain and the actual output of the Vermont Yankee Station in any hour is determined by multiple factors, this is only an illustrative amount and does not represent the actual revenue from any actual hour of operation.

21. In ¶26, Mr. Parker wrongly concludes that there should be no lost profits after the end of the 10 year power purchase contract that was part of the 2002 Vermont Yankee Station purchase. Entergy Vermont Yankee's actions after the purchase of the Vermont Yankee Station are clear indicators of their expectation that operation and profits would continue after the end of this 10-year power contract. Mr. Parker ignores the significant and successful investment in improving the performance of the Vermont Yankee Station over the period since the purchase; ignores the significant effort and investment by Entergy Vermont Yankee in obtaining a power uprate for the Vermont Yankee Station; ignores the significant effort and investment in the successful NRC license renewal application for the Vermont Yankee Station; and ignores the efforts of Entergy Vermont Yankee in PSB docket 7440.

22. In ¶27, Mr. Parker refers to his earlier argument (Parker ¶25) that absent a quantitative estimate of lost real option value, it is "impossible to consider this alleged harm in a concrete way." This is not a requirement and the significant harm from lost option value outlined in my Initial Declaration (Kee ¶34 and ¶35) remains. Mr. Parker's suggestion that because the future operation of the Vermont Yankee Station is "contingent upon future regulatory decisions" there can be no lost future real option value is not valid.

23. In ¶28, Mr. Parker's discussion ignores the real option concept that I explain in my Initial Declaration (Kee ¶34 and 35). Instead, he creates his own alternate version of option value that is based on power plant operating flexibility and economic dispatch. Mr. Parker concludes that his alternate concept of option value has little or no value, largely based on his mistaken assertion that "[n]uclear plants are not designed with this kind of

operational flexibility.” While his alternate version of option value is not relevant, I note that most nuclear power plants *are* capable of operational flexibility. Nuclear power plants in the US operate in baseload mode because they have low marginal costs, not because of design limitations. The Columbia Generating Station in Washington is operated flexibly because it operates in an electricity system with a large amount of hydroelectric capacity. Nuclear power plants in France operate flexibly in the normal course of business due to the large percentage of nuclear generating capacity in France.

#### **D. Lost jobs**

24. My Initial Declaration describes my conclusion that the early closure of the Vermont Yankee Station will result in lost jobs. Mr. Parker’s Declaration does not change my conclusion, as I explain below.

25. In ¶30, Mr. Parker states that “certain power investments *to replace* Vermont Yankee *could* lead to a substantial gain in employment.” The Green Scenario Fallacy (e.g., ¶7, ¶8, ¶9, and ¶10) applies here. As a general matter, there is no requirement “to replace” the Vermont Yankee Station; the timing, size, location, and number of jobs from any new market-based power plant investments will only coincidentally replace any jobs lost from early closure of the Vermont Yankee Station. These hypothetical market-based investments in new power plants are uncertain and any new jobs from these investments are speculative at best. The certain, significant and imminent loss of jobs from early closure of the Vermont Yankee Station are an actual and imminent impact of the early closure of the Vermont Yankee Station.

26. In ¶31, Mr. Parker notes that the loss of jobs if the Vermont Yankee Station is closed early would be, to some extent, “counteracted” by the jobs that may be present at the closed nuclear power plant site. Even with such an offset, there will be a significant loss of jobs from early closure of the Vermont Yankee Station. Such offsets were included in some of the studies (e.g., the Consensus Study, page 8). The jobs at the Vermont Yankee Station site after closure will also be lower-paying jobs than the jobs at the operating Vermont Yankee Station.

27. In ¶32, Mr. Parker asserts that “jobs would be created by any replacement resources” after the Vermont Yankee Station is shut down. The Green Scenario Fallacy (e.g., ¶7, ¶8, ¶9, and ¶10) applies here. There is no requirement for any new power plants to be built in Vermont to replace the Vermont Yankee Station. Mr. Parker identifies no specific replacement resources that would happen as a result of the early closure of the Vermont Yankee Station. The generator type, location, size, and mode of operation of any new power plant investments will depend on a wide range of factors. The number, timing, location, and type of jobs that would result from these hypothetical resource investments are speculative. Mr. Parker’s view that wholesale electricity market prices (Parker ¶46) and electricity market contact prices (Parker ¶47 to ¶50) would not be higher as a result of the early closure of the Vermont Yankee Station is inconsistent with his views that this early closure will be linked to new market-based power plant investments. If current electricity market prices are high enough to provide incentives for new power plant investments, this may happen whether or not the Vermont Yankee Station is closed early. Mr. Parker’s suggestion here that an ISO-NE “reliability solution could entail new generation” is not

relevant, but is also not consistent with Mr. Stein's statement (Stein ¶33) that ISO-NE "will not pursue an emergency generation RFP" as a part of the actions that may be taken to address reliability issues caused by early closure of the Vermont Yankee Station.

28. In ¶33, Mr. Parker states that the IBEW Study is "incomplete" because it does not include "jobs that would be needed post-shutdown." Mr. Parker is mistaken. The purpose of the IBEW Study was to estimate the 2009 contributions of the Vermont Yankee Station (see IBEW Study, page 1). This type of study would not include the items that Mr. Parker considers missing. Nevertheless, the IBEW Study estimate of Vermont Yankee Station contributions does provide another estimate of lost jobs that would result from the early closure of the Vermont Yankee Station.

29. In ¶36, Mr. Parker uses his own description of Consensus Study scenarios to argue that "job growth" in the Green Scenario was ignored in my Initial Declaration. The Green Scenario Fallacy (e.g., ¶7, ¶8, ¶9, and ¶10) applies here. The job losses in the Consensus Study VY Shutdown Scenario, not the Green Scenario, are an appropriate estimate of the real and imminent job losses that would result from early closure of the Vermont Yankee Station.

30. In ¶37, Mr. Parker asserts that the GDS Study estimates of job losses as a result of the early closure of the Vermont Yankee Station are suspect because the GDS Study does not include future jobs from hypothetical generation projects. The Green Scenario Fallacy (e.g., ¶7, ¶8, ¶9, and ¶10) applies to Mr. Parker's assertion here. The real, significant and imminent job losses from the Vermont Yankee Station are quite different from speculative jobs that may come at some time in the future from the activities that Mr.

Parker mentions (e.g., “local renewable resources”). To the extent that there are future jobs in Vermont from new “local renewable resource” investments, these jobs would only coincidentally be related to the jobs lost as a result of the early shutdown of the Vermont Yankee Station. Ignoring the speculative jobs mentioned by Mr. Parker is the appropriate approach.

#### **E. Lost tax revenue**

31. My Initial Declaration describes my conclusion that the early closure of the Vermont Yankee Station will result in lost tax revenue for Vermont. Mr. Parker’s Declaration does not change my conclusion, as I explain below.

32. In ¶38, Mr. Parker asserts that hypothetical new generation capacity built in Vermont will bring future tax revenue. The Green Scenario Fallacy (e.g., ¶7, ¶8, ¶9, and ¶10) applies to Mr. Parker’s assertion here. The certain, significant and imminent loss of tax revenue resulting from the early closure of the Vermont Yankee Station is quite different from speculative future increases in tax revenue from hypothetical new power plant investments that may not even be located in Vermont.

33. In ¶39, Mr. Parker asserts that the Green Scenario will provide future tax revenue. The Green Scenario Fallacy (e.g., ¶7, ¶8, ¶9, and ¶10) applies to Mr. Parker’s assertion here. Mr. Parker confirms his adoption of the Green Scenario Fallacy here, stating that “a shutdown of Vermont Yankee *would result* in ... higher tax revenues in the long-term. [emphasis added]” The certain, significant and imminent loss of tax revenue from the early closure of the Vermont Yankee Station should not be confused with speculative future

impacts (negative or positive) on Vermont tax revenue from hypothetical and unrelated activities.

#### **F. Higher end-user electricity prices**

34. My Initial Declaration describes my conclusion that the early closure of the Vermont Yankee Station will result in higher electricity prices for end-use electricity customers in Vermont. Mr. Parker's Declaration does not change my conclusion, as I explain below.

35. Mr. Parker suggests, in ¶40, that there is evidence "that electricity prices *may* be lower if Vermont Yankee shuts down." Future electricity prices will be the result of many factors; my Initial Declaration (Kee ¶33) has a list of these factors. Scenarios might be constructed that show future electricity prices that are lower than current electricity prices. However, the existence of such scenarios does not mean that closing the Vermont Yankee Station early will *cause* lower electricity prices. A proper analysis of future electricity prices would examine scenarios with and without the Vermont Yankee Station in operation. Such an analysis would, I expect, show that electricity prices are lower with Vermont Yankee Station compared to prices without Vermont Yankee Station. Loss of the low marginal cost base-load electricity from the Vermont Yankee Station would have the effect of raising prices in any realistic scenario for the ISO-NE market.

36. In ¶41, Mr. Parker asserts that the Axelrod Study is "fatally flawed" because Dr. Axelrod assumed "that the electricity from Vermont Yankee would be replaced, hour-by-hour, by an equal amount of electricity from a replacement CCGT plan." Mr. Parker's assertion seems to be mistaken, despite his detailed explanation (Parker ¶42 and ¶43). My

Initial Declaration (Kee ¶49 and footnote 32) specifically refers to page 30 of the Axelrod Study to support my conclusion that electricity prices would be higher as a result of early closure of the Vermont Yankee Station. The cited section of the Axelrod Study concerns estimates of long-term power contract prices. The term “hour-by-hour” (or its equivalent) does not appear in this section of the Axelrod Study. Further, the long-term power contracts at issue in this section of the Axelrod Study are financial instruments that hedge exposure to short-term market prices and are quite different from the physical side of the market (e.g., the actual generator dispatch and hourly output).

37. Mr. Parker’s attempt, in ¶44, to re-do an analysis in the Axelrod Study with new assumptions is not credible. Mr. Parker’s revised calculations appear to be based on the premise that a power plant developer builds a new CCGT power plant and enters into a long-term power contract, but contains at least two flaws. First, Mr. Parker assumes that a developer would make the CCGT power plant investment based on natural gas prices that stay at a low level of \$4.50/MMBtu for the life of the power plant. This is speculative. Second, Mr. Parker assumes that the CCGT power plant investor/owner would enter into a long-term power contract that is based on plant costs rather than power market prices; so that the low natural gas price is reflected in the power contract price. This is inconsistent with practice in the industry, as noted in the GDS Study (page 12-13) and discussed below (e.g., ¶41). These flaws suggest that Mr. Parker’s new version of the Axelrod Study analysis is not credible.

38. In ¶45, Mr. Parker relies on the Green Scenario to support his view that the Consensus Study “did not confirm” that early closure of the Vermont Yankee Station would

likely increase electricity prices. The Green Scenario Fallacy (e.g., ¶7, ¶8, ¶9, and ¶10) applies here. To reiterate, the Green Scenario is not caused by or linked to early closure of the Vermont Yankee Station; the Green Scenario may not happen; and outcomes from the Green Scenario are uncertain, speculative, and appear (if they appear at all) in the future. My reliance on the VY Shutdown Scenario is appropriate.

39. Mr. Parker asserts, in ¶46, that ISO-NE statements do not support my view that wholesale electricity prices will be higher if the Vermont Yankee Station is closed. To the contrary, the judgment of the electricity market operator (i.e., ISO-NE) that early closure of the Vermont Yankee Station will come at an additional cost is relevant, significant, and credible. While not disputing the ISO-NE statement about additional cost, Mr. Parker suggests two hypothetical options, “energy efficiency” and “baseload imported power,” that might initially cost more, but eventually result in lower electricity market prices. He does not provide any details of these hypothetical options, does not provide any evidence that these hypothetical options are feasible, and does not show that his speculative future price decreases would actually happen. As in the Green Scenario Fallacy (e.g., ¶7, ¶8, ¶9, and ¶10), the options Mr. Parker mentions here are uncertain, may happen whether or not the Vermont Yankee Station is closed early, and may not provide the cost decreases that Mr. Parker describes. These speculative options do not change the higher market prices that will result from early closure of the Vermont Yankee Station.

#### **G. Higher electricity contract prices**

40. My Initial Declaration describes my conclusion that the early closure of the Vermont Yankee Station will result in higher prices for long-term electricity contracts for

Vermont utilities, with these higher costs passed on to end-use electricity customers in Vermont. Mr. Parker's Declaration does not change my conclusion, as I explain below.

41. In ¶47 and ¶48, Mr. Parker presents an analysis intended to refute the GDS Study conclusion that power contract prices would be higher with the early closure of the Vermont Yankee Station. Mr. Parker's analysis is not credible because it contains two significant flaws. First, he calculates his own high (e.g., \$100.84/MWh) estimate of the "levelized market power price." He then adopts the GDS Study (see page 11-39) assumption that the Vermont Yankee Station power offers power contracts to Vermont utilities at prices that are "below market" prices. But, because of Mr. Parker's high estimate of power market prices, even his discounted Entergy Vermont Yankee power contract prices are unrealistically high. Second, Mr. Parker compares his own high Vermont Yankee Station power contract price to the costs of Portfolio 1 and 2 (i.e., from Section 12 of the GDS Study). In this comparison, Mr. Parker wrongly implies that Portfolio 1 and 2 "costs" are power contract prices. This is not correct, as the Portfolio 1 and 2 costs are for power plants built and owned by state-regulated Vermont electric utilities. Power plant ownership costs for state-regulated utilities not the same as market-based power contract prices. As the GDS Study explains, if merchant power developers rather than Vermont state-regulated utilities own the power plants in Portfolio 1 and 2, "merchant plant owners will likely seek a market based price for their product from potential purchasers, regardless of their fuel type or all-in cost for the plant." (GDS Study page 12-13).

42. In ¶50, Mr. Parker states that uncertainty and volatility can lead to "lower prices and well as higher prices." Mr. Parker's focus on the level of short-term prices

observes the costs that will be added by the higher volatility and risk of reliance on the short-term electricity market, regardless of the level of prices in that market. This added cost can come from increased cost of capital and other factors that are a result of increased volatility and uncertainty of a company's revenue and profits.

#### **H. Costs of ISO-NE actions to maintain reliability**

43. My Initial Declaration describes my conclusion that the early closure of the Vermont Yankee Station will result in higher costs for end-use electricity customers in Vermont as a result of costs incurred by ISO-NE. Mr. Parker's Declaration does not change my conclusion, as I explain below.

44. In ¶51, Mr. Parker suggests that there are some transmission upgrades that may take place whether or not the Vermont Yankee Station closes early. However, my Initial Declaration (see ¶59 and ¶60) clearly refers only to those transmission upgrades that are required by early closure of the Vermont Yankee Station, not to transmission upgrades that would be implemented whether or not the Vermont Yankee Station is closed early. In ¶51, Mr. Parker also asserts that I "cannot claim that transmission upgrades are due to Vermont Yankee's retirement." My position that upgrades (and other actions) would be implemented due to the early closure of the Vermont Yankee Station is consistent with the ISO-NE reports cited in my Initial Declaration, consistent with the set of "quick fixes" and upgrades described in the Declaration of Mr. Stein (Stein ¶31 to ¶34), and consistent with Mr. Parker (Parker ¶56), where he cites ISO-NE plans to "take whatever actions are necessary to maintain reliability of the New England electric system" if the Vermont Yankee Station is closed early. Actions taken by ISO-NE to prepare for or respond to the negative

impact on system reliability caused by early closure of the Vermont Yankee Station will result in costs that will ultimately increase electricity prices for customers.

## **I. Higher prices under RGGI**

45. My Initial Declaration describes my conclusion that the early closure of the Vermont Yankee Station will result in higher costs for end-use electricity customers in Vermont as a result of the RGGI program. Mr. Parker's Declaration does not change my conclusion, as I explain below.

46. Mr. Parker's discussion in ¶¶53 to ¶55 ignores the impact on retail rates as a result of replacing the current contracts for nuclear-generated electricity. Vermont utilities that currently have contracts for power from the Vermont Yankee Station will, if the Vermont Yankee Station is closed early, have to obtain new power contracts from other sources. These replacement power contracts may be with other utilities or power plants that have carbon emissions, so that Vermont utilities will have higher levels of attributed carbon emissions. These higher attributed carbon emissions will mean that these Vermont utilities will be required to incur additional costs to purchase RGGI allowances. The cost of these allowances will result in higher electricity retail prices.

## **II. LOWER BULK POWER SYSTEM RELIABILITY**

47. My Initial Declaration describes my conclusion that the early closure of the Vermont Yankee Station will result in lower bulk power system reliability in ISO-NE, with potential negative impacts on electricity customers in Vermont. The Declarations of Mr. Parker and Mr. Stein do not change my conclusion, as I explain below.

48. As a general matter, Mr. Parker (Parker ¶58) and Mr. Stein (Stein ¶16, ¶21, ¶22) both trivialize the serious, mandatory, and important ISO-NE bulk power system reliability analysis and planning process by referring to specific tests or assumptions as “unlikely,” “conservative,” and “extreme.” These characterizations wrongly suggest that ISO-NE reliability analyses are not appropriate because they consider stress conditions and that the real and imminent negative impact on system reliability that these ISO-NE analyses show as a result of the early closure of the Vermont Yankee Station can be ignored.

**A. Parker Declaration**

49. In ¶12, Mr. Parker suggests that my Initial Declaration and several studies “fail to take into account the fact that ISO-NE will implement a reliability solution” to address the negative impacts on system reliability caused by the early closure of the Vermont Yankee Station. First, my Initial Declaration (Kee ¶59 and 60) does discuss actions, and the costs of these actions, that may be taken by ISO-NE to address the negative reliability impact of an early shutdown of the Vermont Yankee Station. Second, negative impacts on system reliability caused by early closure of the Vermont Yankee Station are real and significant, even if actions are taken before or after shutdown to mitigate these impacts. Third, Mr. Parker’s use of the term “will implement” misrepresents the situation. ISO-NE is only now conducting a process to identify actions to address the actual and imminent negative reliability impact of an early closure of the Vermont Yankee Station (Stein ¶31 to ¶34). Mr. Stein’s description of this process reveals that that there is not yet an agreed plan for ISO-NE to address the negative impact of the early closure of the Vermont Yankee Station and that some actions that may be included in any plan (i.e., some transmission line

additions and “reconductoring”) will be completed prior to 2020, but not completed prior to the summer of 2012 (Stein ¶34).

50. Mr. Parker asserts, in ¶56, that my Initial Declaration “does not properly account for ISO-NE’s responsibility to maintain the reliability of the New England bulk power system.” To the contrary, my Initial Declaration (Kee ¶64) explains this responsibility. Actions will be taken by ISO-NE that are intended to prevent, mitigate and minimize the real and significant negative impacts on system reliability caused by the early closure of the Vermont Yankee Station. These ISO-NE actions are caused by the early closure of the Vermont Yankee Station and the costs of these actions are, as discussed above (e.g., ¶44), are part of the real and imminent harm from early closure of the Vermont Yankee Station. It is now unclear what specific actions will be taken by ISO-NE to prepare for the early closure of the Vermont Yankee Station and also unclear whether these actions will be able to maintain bulk power system reliability at required levels (see my discussion of the Stein Declaration in ¶55 below). Even if ISO-NE is able to maintain bulk power system reliability after the early closure of the Vermont Yankee Station, local system reliability may suffer and parts of Vermont may experience power outages. Mr. Stein’s “quick fixes” (Stein ¶31) include ISO-NE operating procedures to “shift” load and to “shed” load to maintain larger bulk power system reliability requirements. If load shifting or load shedding is done to maintain bulk power system reliability, this will result in some Vermont electricity customers losing electricity for some period of time.

51. In ¶58, Mr. Parker suggests that “Vermont Yankee Station is required for reliability only” in “unlikely” and “extreme” situations. By saying this, Mr. Parker

trivializes ISO-NE's important and mandatory reliability responsibility in his effort to put the negative reliability impact of early closure of the Vermont Yankee Station into "perspective." ISO-NE reliability analyses and the scenarios used in those analyses are required to determine "whether the system is in compliance with the applicable reliability criteria"(Stein ¶19) and these reliability analyses are done by testing how the system would respond to stress conditions.

## **B. Stein Declaration**

52. Mr. Stein, in ¶2, corroborates my conclusion that the early closure of the Vermont Yankee Station will have an impact on bulk power electric system reliability in New England. I respond to other issues in Mr. Stein's Declaration in the order that they appear.

53. In ¶3, Mr. Stein mentions that the ISO-NE operations department is "currently developing" short-term solutions to the negative reliability impact of an early closure of the Vermont Yankee Station. He also concludes that "it is feasible" for these yet-to-be-determined short-term solutions "to be completed by June 2012." Because the ISO-NE short-term solutions are not yet developed and agreed, Mr. Stein's conclusions about the feasibility of implementing these solutions by June 2012 seems inappropriate.

54. In ¶12, Mr. Stein confirms that the two ISO-NE studies on which I rely identify reliability issues that would arise as a result of an early shutdown of the Vermont Yankee Station. The significant, actual and imminent nature of this negative impact is not lessened because ISO-NE may identify measures that may be implemented at some cost to mitigate this impact.

55. In ¶13, Mr. Stein explains his conclusion in ¶3, that the yet-to-be-identified ISO-NE actions to address the actual and imminent negative system reliability impact of an early Vermont Yankee Station closure will be completed by June 2012. Mr. Stein's conclusion is not supported by the items that he mentions here. First, he notes "the feasibility of implementing an upgrade identified in the 2020 Vermont/NH Solutions study." Mr. Stein provides no identification of the particular upgrade and does not explain why he thinks that this particular upgrade is feasible. Mr. Stein includes no exhibit here and I assume that Mr. Stein is referring to the "Summary of Vermont/New Hampshire Transmission System 2010 Needs Assessment" (Kee Exhibit 23). If so, this document is a four-page, high-level public summary that does not identify or provide information on specific upgrades. Second, he notes "the results of ISO operational studies that have identified actions needed near-term to maintain a reliably system that can be in place by June 2012." Mr. Stein does not provide any documents (i.e., a copy of the study mentioned) to support this statement. Finally, he notes "the ISO's timely implementation of needed short-term measures in other areas of the system in recent years." Mr. Stein seems to be saying here that because ISO-NE has implemented some unidentified "short-term measures" (i.e., these may or may be the same as the "quick fix" items he mentions later) that were implemented in other places in the system at some time in the past, he has faith that ISO-NE will be able to implement the "quick fixes" and will do so in a timely manner.

56. In ¶14 to ¶24, Mr. Stein provides background and context about the ISO-NE approach to bulk power system reliability. I highlight several points in this discussion. Mr. Stein corroborates, as I explain in my Initial Declaration (Kee ¶64), that bulk power system reliability is a well-defined issue. Mr. Stein states in ¶19, “the applicable standard is whether the system is in compliance with the applicable reliability criteria” and that ISO-NE has a responsibility to ensure that reliability standards (e.g., Stein ¶20) are met. Mr. Stein describes ISO-NE planning studies that normally include analyses of the bulk power system under stress conditions. However, Mr. Stein (Stein ¶16, ¶21, and ¶22) trivializes the serious, mandatory, and important ISO-NE bulk power system reliability analysis and planning process by referring to tests or assumptions used in the normal and routine process of system reliability analysis and planning as “unlikely,” “conservative,” and “extreme.” The ISO-NE reliability analyses, including testing under stress conditions, are a part of its mandatory<sup>5</sup> obligations to maintain bulk power system reliability.

57. In ¶25 to ¶29, Mr. Stein corroborates my conclusion that the ISO-NE rejection of the Vermont Yankee delist bid in the 2010 forward capacity auction was the result of ISO-NE planning studies that showed a significant and imminent negative impact on system reliability as a result of an early shutdown of the Vermont Yankee Station.

58. In ¶30, Mr. Stein notes that one of the actions that ISO-NE may use to “maintain reliability” of the bulk power system is to “develop procedures for shedding load.” Mr. Stein does not explain load shedding. Load shedding is when the transmission system operator disconnects some parts of system load; in this instance, local load shedding

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<sup>5</sup> Mandatory Reliability Standards for the Bulk-Power System, 18 CFR Part 40, FERC Docket No. RM06-16-000, FERC

would be done to reduce the stress on the larger bulk power system. Customers impacted by load shedding will experience a power outage. Shedding of significant load (large areas and many customers) may be required to help ensure bulk power system reliability. While ISO-NE properly views local load shedding as an operational action that can be used to maintain larger bulk power system reliability, customers that experience sudden and prolonged power outages in a load shedding event will experience significant negative impacts.

59. In ¶31, Mr. Stein notes that he has “learned that the ISO has done a high-level analysis of potential quick fixes.” Mr. Stein seems to refer here to non-public ISO-NE working group sessions and provides no documents or other supporting evidence that the information in these paragraphs is accurate or reliable. Mr. Stein mentions these so-called “quick fixes” in several places (Stein ¶17, ¶29, ¶30, ¶31, and ¶34). Mr. Stein asserts, with no real support (see ¶55 above), that the “quick fixes” will “be in service by June 2012”.

60. There are several items in Stein ¶31 to ¶34 that, if accurate, strongly support my view that there will be a significant and imminent negative impact on reliability from the early closure of the Vermont Yankee Station. First, in ¶31, Mr. Stein describes a process he refers to as “load shift” where customers will experience a “momentary outage.” Mr. Stein suggests that this load shift process would impose a “momentary outage” on the customers whose load is shifted. Even a momentary outage would have a significant negative impact on customers that depend on high-quality power (e.g., large industrial customers such as IBM). Second, Mr. Stein also describes a process where ISO-NE may shed load, as discussed above (¶58), for some period in order to prevent larger system reliability issues.

Third, Mr. Stein notes, in ¶32, that ISO-NE has the authority to procure emergency resources (e.g., a portable fast-start generator or a contract for a customer to reduce load when requested) that would “come at a cost to the customers whose reliability is improved.” However, Mr. Stein, in ¶33, seems to indicate that an ISO-NE “emergency generation RFP” is not, “to date,” included in the ISO-NE set of “quick fixes.”

61. Mr. Stein’s declaration corroborates my conclusion that early closure of the Vermont Yankee Station will cause significant and imminent harm as a result of lower system reliability. The negative impact on reliability from early closure of the Vermont Yankee Station will lead to additional costs to implement “quick fixes” to attempt to reduce the negative impact on reliability. Vermont electricity customers will face the prospect of power outages due to load shift or load shedding procedures that are included in the set of ISO-NE “quick fixes.” If the ISO-NE “quick fixes” are not fully implemented or are not adequate, ISO-NE may have a lower level of reliability during the summer of 2012, despite the costs incurred to implement these “quick fixes.”

### **III. EMISSIONS**

62. My Initial Declaration describes my conclusion that the early closure of the Vermont Yankee Station will result in increased emissions of carbon dioxide and other pollutants. Mr. Parker’s Declaration and the Defendants’ Brief do not change my conclusion, as I explain below.

63. In ¶60, Mr. Parker is critical of Dr. Axelrod’s approach to estimating the increase in carbon dioxide emissions that will be caused by early closure of the Vermont Yankee Station. First, Mr. Parker’s criticism here is linked to his earlier, potentially invalid,

criticism of Dr. Axelrod's methodology (see ¶36 above). Second, Mr. Parker suggests that the availability of a more complicated "dispatch simulation model" approach means that the simpler approach in the Axelrod Study is not credible. Mr. Parker does not present the output of such a "dispatch simulation model." Such a "dispatch simulation model" might not provide a different result than the Axelrod Study approach, yet would require a significant amount of work, inputs, and assumptions. The simple approach used in the Axelrod Study is reasonable. Such an approach is not, as Mr. Parker states, "required to reasonably estimate" the increase in carbon dioxide emissions due to the early closure of the Vermont Yankee Station.

64. In ¶61, Mr. Parker states that "Vermont Yankee uses once-through cooling," wrongly implying that this is the only approach to cooling used at the Vermont Yankee Station. Mr. Parker ignores the two mechanical draft cooling towers that are a part of the Vermont Yankee Station. Cooling water for the Vermont Yankee Station main condenser can be circulated through the station in one of three modes of operation: open-cycle, hybrid-cycle, or closed-cycle. The mode of operation is selected to stop or limit the amount of water discharged to the Connecticut River based on factors including seasonal variations in the flow rate and water temperature of the river.

65. The Defendants' Brief (on page 59) includes a discussion of an article related to greenhouse gas (GHG) emissions from nuclear power plants (Kolber Exhibit 25). Kolber Exhibit 25 (on page 3 of 5) provides a summary of "ratios for mean full-fuel-lifecycle" GHG emissions. These ratios are: 1,010 for coal, 443 for natural gas, 66 for nuclear, 32 for solar, and 9 for wind. These ratios are generally consistent with the results of other studies of

lifecycle GHG emissions. These ratios show much lower lifecycle GHG emissions for nuclear, solar and wind compared to the lifecycle GHG emissions for coal and natural gas generation. Lifecycle GHG emissions are intended to include all direct and indirect GHG emissions over the life of a generating unit, including construction, decommissioning, and upstream GHG emissions for fuel (e.g., natural gas production and pipeline losses, coal mining and transport, and uranium mining and enrichment). Lifecycle GHG emissions are different from marginal GHG emissions, with marginal GHG emissions including real-time in-plant emissions. Marginal GHG emissions for nuclear, wind and solar are typically (and reasonably) assumed to be zero.

#### **IV. ELECTRICITY INDUSTRY REFORM**

66. The Defendants' Brief fails to recognize that the US electricity industry has changed significantly since the 1970s. In this section of my Declaration, I provide a high-level discussion of relevant features of the US electricity industry and how this industry has changed in the past four decades.

67. In the 1970s, the US electricity sector was dominated by private sector investment in utilities. These investor-owned electric utilities were vertically integrated companies that owned and operated generation (i.e., power plants) and power lines (i.e., transmission and distribution facilities) and sold retail electricity service to end-use electricity customers. These vertically-integrated investor-owned electric utilities were typically awarded an exclusive franchise area in which the electric utility was the monopoly provider of electricity (i.e., there was no competition). In return for being granted a

monopoly franchise area, the electric utility made a commitment to meet customer demand and provide reliable electricity to all customers.

68. State utility regulators addressed the potential for monopoly price issues in this approach by economic regulation to set prices (also referred to as rates) for the sale of electricity to end-use customers. State-regulated electricity rates were typically based on allowing the regulated electric utility to recover administrative expenses, the costs of generating (or buying) and providing electricity, and a fair rate of return on the electric utility investment in the facilities needed to provide electric service (e.g., power plants and power lines). This state regulatory approach also had features to control the type and amount of electric utility investments on which returns were allowed, including processes to review and approve new electric utility investments (e.g., in power plants and power lines).

69. A typical state regulatory review of proposed electric utility investments required that the electric utility show that a new investment was necessary and appropriate. Such a review and approval process was necessary to replace the market discipline on investor-owned electric utilities that was removed because of the regulated monopoly approach. The state regulator's approval of a proposed electric utility investment (e.g., a new power plant) would be issued in the form of a "Determination of Need," a "Certificate of Public Convenience and Necessity," or, as in Vermont, a "Certificate of Public Good." After approval to make the investment was received, the electric utility would then construct the power plant. State regulators might then hold a rate case that formally allowed the regulated utility to include the cost of the power plant investment in rate base (e.g., the total assets on which the utility is allowed to earn a return). After the power plant was placed in

operation and the power plant investment was included in rate base, regulated end-user electricity rates would include the costs to operate the new power plant and a return on the investment in the new power plant. This traditional approach to electricity industry structure and state economic regulation of electric utilities remains in some parts of the US.

70. Starting in the 1990s, the US electricity industry was reformed and restructured. A key feature of this reform and restructuring was the creation of a new electricity industry entity, the independent wholesale generator.<sup>6</sup> These independent wholesale generators sell wholesale electricity to electric utilities that serve end-use customers and to electricity markets (see below ¶71). These independent wholesale generators are not part of a state-regulated vertically-integrated electric utility entity, have no monopoly franchise area, have no end-use customers, and are not subject to economic regulation by state utility regulators. An independent wholesale generator may own power plants that were built as market-based power plant projects. An independent wholesale generator may also acquire power plants that were originally built by state-regulated utilities and then sold to the independent wholesale generator.<sup>7</sup> These independent wholesale generators sell power at market prices, not at rates set by a state regulator, and earn returns in the wholesale electricity market, not from regulated rates. These independent generators face market discipline with respect to new investments; if an investment in a new power

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<sup>6</sup> I use the term “independent wholesale generator” to refer to the “Exempt Wholesale Generator” or EWG entity created by the Energy Policy Act of 1992. In FERC terminology, an EWG is a corporate entity and an EWG-owned power plant is referred to as an “eligible facility.” An EWG is an independent power company that owns and operates eligible facilities that generate electricity for sale in wholesale power markets at market-based rates. Other terms used to describe these entities include “merchant generators” and “independent power producers.”

<sup>7</sup> This is the situation with the Vermont Yankee Station, which was acquired in 2002 by Entergy Vermont Yankee, a FERC-approved EWG. The State of Vermont Public Service Board recognized that the Vermont Yankee Station power plant would be transferred to an EWG and would no longer be a power plant asset subject to state economic regulation in the 13 Jun 2002 Final Order in Docket 6545, in footnote 66 and on page 127.

plant by an independent wholesale generator results in losses, the investors in that new power plant project lose money. Unlike a regulated utility investment, there are no end-use ratepayers to cover those losses.

71. In some states and regions, the US reform and restructuring of the electricity industry included the establishment of organized and formal competitive wholesale electricity markets regulated by FERC<sup>8</sup> (e.g., the ISO-NE market). These wholesale electricity markets manage the operation (e.g., hourly dispatch) of independent wholesale generators and provide an organized market for wholesale electricity transactions. There are some common features of these wholesale electricity markets. FERC regulates these wholesale electricity markets by approving the market rules and other aspects of these markets. FERC generally regards the market prices resulting from the operation of an approved wholesale electricity market as acceptable. In these wholesale electricity markets, an independent system operator (ISO) such as ISO-NE is responsible for, among other things, operating the transmission system, managing real-time system dispatch, maintaining bulk power system reliability, and operating electricity markets.

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<sup>8</sup> This move to organized electricity markets followed the provisions in EPAct of 1992 that provided independent wholesale generators with non-discriminatory open access to the high voltage transmission grid. There are multiple FERC Orders related to the transition to organized electricity markets in the US, including, but not limited to, Order 888 (24 Apr 1996), Order 888-A (4 Mar 1997), and Order 2000 (20 Dec 1999).

72. As a result of these changes in the electricity industry since the 1970s, the role formerly played by state utility regulators in regulating the need for, cost of, and other economic aspects of electric generation facilities has been displaced, in the case of independent wholesale generators, by the creation of competitive wholesale electricity markets regulated by FERC.

I declare under penalty of perjury that the foregoing is true and correct. Executed on 31 May 2011



Edward D. Kee

**IN THE UNITED STATES DISTRICT COURT  
FOR THE  
DISTRICT OF VERMONT**

**ENERGY NUCLEAR VERMONT  
YANKEE, LLC, and ENERGY NUCLEAR  
OPERATIONS, INC.,**

**Plaintiffs**

**v.**

**Civil Action No. 11-cv-99**

**PETER SHUMLIN IN HIS OFFICIAL  
CAPACITY AS GOVERNOR OF THE  
STATE OF VERMONT, ET ALS,**

**Defendants**

**DECLARATION OF MICHAEL COURTEMANCHE**

Michael Courtemanche, Chair of the Selectboard of the Town of Vernon,  
declares as follows:

1. I am Michael Courtemanche, Chair of the Selectboard of the Town of Vernon. This Declaration reflects my personal understanding, and is based on my own personal knowledge, conversations with other Board members, and their conversations with realtors, property owners, Entergy employees, Vernon business owners, Town employees including department heads, and numerous other citizens of Vernon.
2. At the present time, due to the uncertainty over whether or not Vermont Yankee will be forced to close in 2012, I am aware of the following:
  - a. Some Vermont Yankee employees have already found work in other states and have left the area, before knowing for certain whether the plant will close, because they fear that in 2012 there may be a glut of former Vermont Yankee employees seeking work in the nuclear industry.
  - b. Both the citizens of Vernon and the Town government, including the Selectboard and Town department heads, are unable to plan effectively because of uncertainty about the local tax rate, property valuations, and the

local economy in general. For example, the Selectboard is currently unwilling to set aside funds for compensation of the Town's volunteer firefighters because of the uncertainty of future revenues.

- c. The Selectboard is unable to plan effectively for any future projects due to the uncertainty of future Town revenues. Several spending articles were voted down at Town Meeting due to the uncertainty of what would happen to Vermont Yankee. For example, the Town opted not to add more funding for the Town Office foyer project.
- d. The Town has incurred and is continuing to incur significant expense to retain a utility appraiser/consultant to assist us in understanding and anticipating what the impact on property valuation and tax rates will be, because of uncertainty about the fate of Vermont Yankee

3. In the event that Vermont Yankee is forced to close in 2012, I anticipate that the following would be some of the more significant impacts on the Town. This is by no means a comprehensive list:

- a. Most Vermont Yankee employees will have to leave the area, which will cause a glut in the real estate market, and consequent devaluation of property. Those Yankee employees who stay in the area will be unlikely to find comparable employment, which may result in an increased rate of foreclosure, and an increased demand for public services.
- b. A number of the teachers at the Vernon Elementary School are the spouses of Vermont Yankee employees. It is likely that many of these families would leave the area, causing significant disruption to the operation of the school.
- c. The elementary school population would decrease, resulting in layoffs, and discontinuance of educational programs and services, which would be detrimental to the education of those children remaining in Vernon.
- d. The tax rate would increase so drastically that many people who are not employed at Vermont Yankee would no longer be able to afford to live in Vernon.
- e. The tax base would decrease so drastically that it would be necessary to lay off Town employees, or in some cases to consolidate or abolish entire departments, such as the Police Department.
- f. Many Vermont Yankee employees and their families currently volunteer in every aspect of the Town. If they were obliged to relocate, the Town would

lose many of its volunteer firefighters, EMS first responders, school sports coaches and volunteers in the school and library.

- g. Other businesses in the Town of Vernon and surrounding areas would lose revenue, putting at least some in jeopardy of being unable to continue to operate.
- h. Vermont Yankee currently contributes large sums to non-profit and charitable organizations in Vernon and the surrounding area. If the plant closes, these contributions will cease, making it more difficult for these organizations to operate, and placing a greater strain on public services and resources.
- i. Vermont Yankee currently sponsors or makes substantial contributions to Town events and celebrations, such as the yearly Town picnic and fireworks around the 4<sup>th</sup> of July, which are significant to maintain a sense of community. If the plant is forced to close, these contributions and sponsorships would stop, and there are no apparent sources of funds to replace them.
- j. I declare under penalty of perjury that the foregoing is true and correct.

DATED AT Vernon, Vermont this 31<sup>st</sup> day of May, 2011.

  
Michael Courtemanche

**STANDARD  
& POOR'S**

# Global Credit Portal<sup>(a)</sup> RatingsDirect<sup>(b)</sup>

June 28, 2011

## Research Update:

# Outlook On Entergy Corp. Is Revised To Negative Amid Relicensing Uncertainties; Ratings Are Affirmed

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**Research Update:**

# Outlook On Entergy Corp. Is Revised To Negative Amid Relicensing Uncertainties; Ratings Are Affirmed

## Overview

- Entergy Corp. is encountering difficulties in renewing the operating licenses for three of its six merchant nuclear units, resulting in an increase in business risk and potentially weakening the financial risk profile.
- We have affirmed the corporate credit and issue ratings on Entergy and its operating subsidiaries but revised the outlook on the ratings to negative from stable.
- The rating affirmation incorporates Entergy's currently strong business risk profile and significant financial risk profile while accounting for weakness in both that could result from difficulties with the license renewals.

## Rating Action

On June 28, 2011, Standard & Poor's Ratings Services affirmed its corporate credit and issue ratings on Entergy Corp. and its subsidiaries Entergy Arkansas Inc., Entergy Gulf States Louisiana LLC, Entergy Louisiana LLC, Entergy Mississippi Inc., Entergy New Orleans Inc., Entergy Texas Inc., and System Energy Resources Inc. At the same time, we revised the outlook on the ratings to negative from stable.

## Rationale

We base the ratings affirmation on Entergy's strong business risk profile and significant financial risk profile. (For more on business risk and financial risk, see "Business Risk/Financial Risk Matrix Expanded," published May 27, 2009, on RatingsDirect on the Global Credit Portal.) The strong business risk profile reflects Entergy's regulated utility operations, which provide about 70% of operating income, and its merchant generation operations, which provide the balance of operating income and which we view as having higher business risk than the regulated utility operations. While the regulated utility operations have improved over time, Entergy is experiencing difficulties in renewing the operating licenses for three of its six merchant nuclear plants: Vermont Yankee, and Indian Point Units 2 and 3.

The operating license for Vermont Yankee expires in March 2012, and while the plant has received a license extension from the Nuclear Regulatory Commission (NRC), it still needs to receive a certificate of public good from the State

of Vermont in order to continue operating. In April 2011, Entergy filed a complaint in the U.S. District Court for the District of Vermont seeking a declaratory judgment and injunctive relief to prevent the State of Vermont from forcing Vermont Yankee to cease operations on March 21, 2012.

The operating licenses for Indian Point Units 2 and 3 expire in September 2013 and December 2015, respectively, and Entergy is in the process of obtaining updated water intake and discharge permits for the two plants as part of the license renewal process with the NRC. While Vermont Yankee by itself is not a material contributor to Entergy's total operating income, together with Indian Point Units 2 and 3, it provides about 10% to 15% of operating income, depending on the level of wholesale prices in their respective power markets.

Even though New York State has no formal authority over the license extension of Indian Point Units 2 and 3, as Vermont has over Vermont Yankee, a successful shutdown of Vermont Yankee could provide further momentum to opponents of the New York plants. Importantly, the uncertainty regarding the license extension of Vermont Yankee and Indian Point units could impede Entergy's historically successful hedging efforts as the license expiration date approaches. The lack of an ongoing successful hedging program, which increases business risk, combined with the ongoing moderation of wholesale power prices in the Northeast power markets, could lead not only to cash flow volatility but also to declining cash flow generation for the merchant nuclear units. If this happens, we could lower the ratings, because Entergy's strong business risk profile would erode and its significant financial risk profile would weaken.

The negative outlook reflects the potential for lower ratings over the next 12 to 24 months as there is more clarity on the relicensing process for Vermont Yankee and Indian Point Units 2 and 3. We expect that over the intermediate term, as Entergy's current hedges expire and the company sells incrementally more of the merchant output at spot prices, combined with the ongoing softness in the wholesale power markets, adjusted funds from operations (FFO) to interest coverage will decline to about 4.0x, adjusted FFO to total debt will trend toward 20%, and adjusted debt leverage will remain at about 60%. A material reduction in cash flow could result from the shutdown of Vermont Yankee and Indian Point Units 2 and 3 by their respective license expiration dates, which could drive credit metrics below this forecast, move the consolidated financial risk profile to the aggressive category, and lead to a downgrade of one notch. However, if Entergy succeeds in renewing the operating licenses for Indian Point Units 2 and 3, preserves its historically consistent hedging program, and maintains the improvements accomplished in the regulated utility operations, then we will revise the outlook to stable.

The ratings on Entergy reflect the consolidated business risk and financial risk profiles of its regulated electric utility and its merchant generation operations, which are dominated by nuclear exposure. Entergy's strong business risk profile incorporates regulated utility operations that have demonstrated a measure of steady improvement over time, but this strength is offset by significant exposure to merchant generation operations. Entergy owns Entergy

*Research Update: Outlook On Entergy Corp. Is Revised To Negative Amid Relicensing Uncertainties; Ratings Are Affirmed*

Louisiana LLC (ELL), Entergy Gulf States Louisiana LLC (EGSL), Entergy Texas Inc. (ETI), Entergy Arkansas Inc. (EAI), Entergy Mississippi Inc. (EMI), Entergy New Orleans Inc. (ENOI), System Energy Resources Inc. (a regulated wholesale generation company), and a merchant generation business with operations primarily in the Northeast. The merchant operations contribute about one-third of operating income, but we expect their contribution to decline somewhat in light of continuing low wholesale power prices, especially in the northeastern U.S.

The regulated utility companies serve about 2.743 million customers in Louisiana, Texas, Mississippi, and Arkansas. While certain of Entergy's subsidiaries in Louisiana and Texas have been severely affected by hurricanes in the past, these subsidiaries have been able to recover storm costs through securitizations, albeit after some delay.

Entergy's Louisiana and Mississippi utilities operate under formula rate plans that enable the companies to adjust rates in a timely manner in order to earn returns within their allowed return bands, provide for timely recovery of fuel costs, and have allowed recovery of storm costs through securitizations. The regulated operations in Texas and Arkansas remain under traditional ratemaking frameworks, necessitating regular rate filings, and we view the Texas regulatory framework in particular as being in the less-credit-supportive category.

After Entergy's electric deliveries declined 2% in 2009, total retail sales bounced back in 2010, increasing by more than 7% for the year. In addition, Entergy's customer base expanded by about 1%.

Entergy has been experiencing difficulties in renewing the operating licenses for Vermont Yankee and Indian Point Units 2 and 3, three of its six merchant nuclear plants. In our view, the uncertainty regarding the relicensing effort, in addition to potentially disrupting Entergy's hedging program and introducing cash flow volatility, also increases Entergy's business risk. Furthermore, unlike nuclear power plants operating under rate regulation, Entergy's merchant nuclear plants need to rely on market prices to recover costs relating to any incremental NRC-imposed regulations, which could further strain their cash flow generation when wholesale market conditions are weak.

We view Entergy's consolidated financial risk profile as significant. For the 12 months ended March 31, 2011, adjusted FFO was about \$3.7 billion, while capital expenditures totaled \$2.6 billion, leading to adjusted FFO interest coverage of about 5.1x and adjusted FFO to total debt of 28.1%. Adjusted debt leverage remains in the aggressive category, at just over 60% for the period.

### **Liquidity**

Entergy's liquidity is adequate under Standard & Poor's corporate liquidity methodology, which describes a company's liquidity in five standard categories. (For more on liquidity, see "Standard & Poor's Standardizes Liquidity Descriptors For Global Corporate Issuers," published July 2, 2010.)

*Research Update: Outlook On Entergy Corp. Is Revised To Negative Amid Relicensing Uncertainties; Ratings Are Affirmed*

Entergy's adequate liquidity supports its 'BBB' corporate credit rating. Projected sources of liquidity, mainly operating cash flow and available bank lines, cover projected uses, mainly necessary capital expenditures, debt maturities, share repurchases, and projected common dividends, by more than 1.2x over the next 12 months.

Liquidity is provided through Entergy's \$3.5 billion revolving credit facility that matures in August 2012 and had \$1.7 billion of availability as of March 31, 2011. In addition, as of the same date, the subsidiaries had their own revolving credit facilities totaling \$545 million, all of which were available:

- EAI: \$75.125 million;
- EGSL: \$100 million;
- ELL: \$200 million;
- EMI: \$70 million; and
- ETI: \$100 million.

Entergy also had about \$726 million of cash and cash equivalents.

We expect that capital expenditures will remain significant and total about \$2.6 billion in 2011, \$2.6 billion in 2012, and about \$2.2 billion in 2013, to be used for maintenance projects to ensure system integrity as well as projects that support system growth. Given the company's robust cash flow generation, capital spending is likely to be largely internally funded over the intermediate term.

Entergy has minimal debt maturities, with about \$115 million in 2011, \$156 million in 2012, and a peak of about \$700 million in 2013. These exclude any securitized debt maturities.

## Outlook

The negative outlook reflects the potential for lower ratings over the next 12 to 24 months as there is more clarity on the relicensing process for Vermont Yankee and Indian Point Units 2 and 3. We expect that over the intermediate term, as Entergy's current hedges expire and the company sells incrementally more of the merchant output at spot prices, combined with the ongoing softness in the wholesale power markets, adjusted FFO to interest coverage will decline to about 4.0x, adjusted FFO to total debt will trend toward 20%, and adjusted debt leverage will remain at about 60%. A material reduction in cash flow could result from the shutdown of Vermont Yankee and Indian Point Units 2 and 3 by their respective license expiration dates, which could drive credit metrics below this forecast, move the consolidated financial risk profile to the aggressive category, and lead to a downgrade of one notch. However, if Entergy succeeds in renewing the operating licenses for Indian Point Units 2 and 3, preserves its historically consistent hedging program, and maintains the improvements accomplished in the regulated utility operations, then we will revise the outlook to stable.

Research Update: Outlook On Entergy Corp. Is Revised To Negative Amid Relicensing Uncertainties; Ratings Are Affirmed

## Related Criteria And Research

- Standard & Poor's Standardizes Liquidity Descriptors for Global Corporate Issuers, July 2, 2010
- Business Risk/Financial Risk Matrix Expanded, May 27, 2009
- Analytical Methodology, April 15, 2008

## Ratings List

Ratings Affirmed; Outlook Action

	To	From
Entergy Corp.		
System Energy Resources Inc.		
Entergy Texas Inc.		
Entergy New Orleans Inc.		
Entergy Mississippi Inc.		
Entergy Louisiana Holdings Inc.		
Entergy Louisiana Capital I		
Entergy Arkansas Inc.		
Entergy Gulf States Louisiana LLC		
Entergy Louisiana LLC		
Corporate Credit Rating	BBB/Negative/--	BBB/Stable/--

Ratings Affirmed

Entergy Arkansas Inc.		
Entergy Louisiana LLC		
Entergy Mississippi Inc.		
Senior Secured	A-	
Recovery Rating	1+	
Entergy Gulf States Louisiana LLC		
Entergy New Orleans Inc.		
Entergy Texas Inc.		
System Energy Resources Inc.		
Senior Secured	BBB+	
Recovery Rating	1	

Complete ratings information is available to subscribers of RatingsDirect on the Global Credit Portal at [www.globalcreditportal.com](http://www.globalcreditportal.com). All ratings affected by this rating action can be found on Standard & Poor's public Web site at [www.standardandpoors.com](http://www.standardandpoors.com). Use the Ratings search box located in the left column.

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A-1978

**UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF VERMONT**

ENTERGY NUCLEAR VERMONT YANKEE, LLC  
and ENTERGY NUCLEAR OPERATIONS, INC.,

Plaintiffs,

v.

PETER SHUMLIN, in his official capacity as  
GOVERNOR OF THE STATE OF VERMONT;  
WILLIAM H. SORRELL, in his official capacity as  
ATTORNEY GENERAL OF THE STATE OF  
VERMONT; and JAMES VOLZ, JOHN BURKE, and  
DAVID COEN, in their official capacities as members  
of THE VERMONT PUBLIC SERVICE BOARD,

Defendants.

Civil Action No. 1:11-cv-99

Notice of Appeal

**NOTICE OF APPEAL**

Notice is hereby given that the defendants in the above-named case appeal to the United States Court of Appeals for the Second Circuit from each and every part of the Decision and Order on the Merits of Plaintiffs' Complaint entered in this action on January 19, 2012 [Dkt. 181] and the Final Judgment entered on January 20, 2012 [Dkt. 183], and from all opinions, orders, and rulings subsumed therein, including, but not limited to, the following docket entries:

- Dkt. 24 & Dkt. 27 at 27:3-8 (denying defendants' motion to combine preliminary injunction hearing with trial on the merits);
- Dkt. 87 (denying defendants' motion to strike portions of plaintiffs' supplemental proposed findings of fact);
- Dkt. 132 (granting plaintiffs' motion in limine to preclude expert testimony);
- Dkt. 159 & Dkt. 167 at 176:1-3 (denying defendants' motion for judgment as a matter of law);
- Dkt. 164 at 149:13-14, Dkt. 168 at 389:1-2, Dkt. 168 at 391:3-5, & Dkt. 170 at 591:10-11 (overruling defendants' objections to witness testimony);
- Dkt. 177 (granting plaintiffs' motion for leave to file one-paragraph response);
- Dkt. 181 (decision and order on the merits of plaintiffs' complaint);
- Dkt. 168 at 281:23-24 & Dkt. 182 (sustaining in part and overruling in part defendants' objections to admission of certain exhibits and testimony from the preliminary injunction hearing); and
- Dkt. 183 (final judgment).

Even if one or more of these opinions, orders, or rulings did not merge into the final judgment, the defendants hereby give notice that they appeal from those opinions, orders, and rulings to the United States Court of Appeals for the Second Circuit.

Dated: February 18, 2012

STATE OF VERMONT  
WILLIAM H. SORRELL  
ATTORNEY GENERAL

By: /s/ Scot L. Kline

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UNITED STATES DISTRICT COURT  
FOR THE  
DISTRICT OF VERMONT

ENTERGY NUCLEAR VERMONT )  
YANKEE, LLC and ENTERGY NUCLEAR )  
OPERATIONS, INC., )

Plaintiffs, )

v. )

Docket No. 1:11-cv-99

PETER SHUMLIN, in his official capacity as )  
GOVERNOR OF THE STATE OF )  
VERMONT; WILLIAM SORRELL, in his )  
official capacity as the ATTORNEY )  
GENERAL OF THE STATE OF VERMONT; )  
and JAMES VOLZ, JOHN BURKE, and )  
DAVID COEN, in their official capacities as )  
members of THE VERMONT PUBLIC )  
SERVICE BOARD, )

Defendants. )

**NOTICE OF CROSS-APPEAL**

NOTICE IS HEREBY GIVEN that Plaintiffs Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. appeal to the United States Court of Appeals for the Second Circuit from the final judgment entered January 20, 2012, and each and every part thereof.

Dated: February 27, 2012

Respectfully submitted,

Entergy Nuclear Vermont Yankee, LLC and  
Entergy Nuclear Operations, Inc.

By their attorneys,

s/ Kathleen M. Sullivan  
Kathleen M. Sullivan (admitted *pro hac vice*)  
Faith E. Gay (admitted *pro hac vice*)

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s/ Robert B. Hemley

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**UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF VERMONT**

ENTERGY NUCLEAR VERMONT YANKEE, LLC  
and ENTERGY NUCLEAR OPERATIONS, INC.,

Plaintiffs,

v.

PETER SHUMLIN, in his official capacity as  
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WILLIAM H. SORRELL, in his official capacity as  
ATTORNEY GENERAL OF THE STATE OF  
VERMONT; and JAMES VOLZ, JOHN BURKE, and  
DAVID COEN, in their official capacities as members  
of THE VERMONT PUBLIC SERVICE BOARD,

Defendants.

Civil Action No. 1:11-cv-99

Amended Notice of Appeal

**AMENDED NOTICE OF APPEAL**

Notice is hereby given that the defendants in the above-named case appeal to the United States Court of Appeals for the Second Circuit from each and every part of the Decision and Order on the Merits of Plaintiffs' Complaint entered in this action on January 19, 2012 [Dkt. 181] and the Final Judgment entered on January 20, 2012 [Dkt. 183], and from all opinions, orders, and rulings subsumed therein, including, but not limited to, the following docket entries:

- Dkt. 24 & Dkt. 27 at 27:3-8 (denying defendants' motion to combine preliminary injunction hearing with trial on the merits);
- Dkt. 87 (denying defendants' motion to strike portions of plaintiffs' supplemental proposed findings of fact);
- Dkt. 132 (granting plaintiffs' motion in limine to preclude expert testimony);
- Dkt. 159 & Dkt. 167 at 176:1-3 (denying defendants' motion for judgment as a matter of law);
- Dkt. 164 at 149:13-14, Dkt. 168 at 389:1-2, Dkt. 168 at 391:3-5, & Dkt. 170 at 591:10-11 (overruling defendants' objections to witness testimony);
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- Dkt. 168 at 281:23-24 & Dkt. 182 (sustaining in part and overruling in part defendants' objections to admission of certain exhibits and testimony from the preliminary injunction hearing); and
- Dkt. 183 (final judgment).

Even if one or more of these opinions, orders, or rulings did not merge into the final judgment, the defendants hereby give notice that they appeal from those opinions, orders, and rulings to the United States Court of Appeals for the Second Circuit.

In addition to these opinions, orders, and rulings on appeal, defendants further reserve the right to address any and all arguments and issues presented in the district court's March 19, 2012 Memorandum and Order granting in part plaintiffs' motion for an injunction pending appeal pursuant to Federal Rule of Civil Procedure 62(c) [Dkt. 209].

Dated: March 23, 2012

STATE OF VERMONT  
WILLIAM H. SORRELL  
ATTORNEY GENERAL

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