

STATE OF VERMONT  
PUBLIC SERVICE BOARD

Petition of Entergy Nuclear Vermont Yankee, LLC, and )  
Entergy Nuclear Operations, Inc., for amendment of their )  
certificates of public good and other approvals required )  
under 10 V.S.A. §§ 6501-6504 and 30 V.S.A. §§ 231(a), )     Docket No. \_\_\_\_\_  
248 & 254, for authority to continue after March 21, 2012, )  
operation of the Vermont Yankee Nuclear Power Station, )  
including the storage of spent-nuclear fuel )

SUMMARY OF PREFILED TESTIMONY OF JAY THAYER

Mr. Thayer provides an overview of Entergy’s petition for authority to continue operation of the Vermont Yankee Nuclear Power Station (the “VY Station”) after March 21, 2012. He introduces the other witnesses testifying on behalf of the petitioners. Mr. Thayer’s testimony then addresses the criteria applied by the Board under Section 231(a) to determine whether to grant a certificate of public good to a utility company to operate in Vermont, showing that these criteria are met by Entergy Nuclear Vermont Yankee, LLC, and Entergy Nuclear Operations, Inc. (collectively, “Entergy VY”).

Mr. Thayer summarizes the petitioners’ testimony on the benefits of the VY Station as a supplier of electricity to Vermont and the New England region. He also addresses the financial commitments and assurances that back Entergy VY and ensure that it will have adequate resources to operate the VY Station; store spent-nuclear fuel (or “SNF”) at the VY Station until the U.S. Department of Energy fulfills its contractual obligation to remove SNF from the site; ensure the VY Station’s decommissioning when the plant ceases operations; and meet the station’s emergency-management obligations. Finally, Mr. Thayer addresses certain other criteria under Section 248, including criteria that Entergy VY does not believe are applicable to its petition.

Mr. Thayer sponsors the following exhibits:

- Exhibit EN-JKT-1     Resume of Jay Thayer
  
- Exhibit EN-JKT-2     Entergy Nuclear Vermont Yankee, LLC, Spent Fuel Management Plan, June 2006.

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PREFILED TESTIMONY OF JAY THAYER

1 Q1. State your name.

2 A1. My name is Jay Thayer.

3 Q2. What is your position, and by whom are you employed?

4 A2. I am Vice President–Nuclear Operations of Entergy Services, Inc.

5

6 Formerly, I was Site Vice President of Entergy Nuclear Vermont Yankee, LLC, or  
7 “EVY,” and Entergy Nuclear Operations, Inc., or “ENO” (referenced collectively in my  
8 testimony as “Entergy VY”), the two companies that respectively own and operate the  
9 Vermont Yankee Nuclear Power Station (to which I refer in my testimony as the “VY  
10 Station”).

11

12 Exhibit EN-JKT-1 is my resume.

13 Q3. What is the purpose of your testimony?

14 A3. My testimony provides an overview of the VY Station and its importance to Vermont and  
15 the New England region. First, it addresses the criteria normally applied by the Board to

1 determine whether a company may operate a utility business in Vermont, including the  
2 management and technical experience of Entergy Corporation, ENO and their affiliates;  
3 the VY Station's ability to supply electricity reliably to the New England region,  
4 including to Vermont utilities, and contribute to Vermont's low carbon footprint; and the  
5 financial support today and the enhanced financial support going forward available to the  
6 VY Station.

7  
8 The second part of my testimony addresses the financial commitments and assurances  
9 that support EVY. Specifically, I will address financial assurances for the storage of  
10 spent-nuclear fuel (or "SNF") at the VY Station until the U.S. Department of Energy (or  
11 "DOE") fulfills its contractual obligation to remove SNF from the site. I also address  
12 financial assurances that ensure the VY Station's decommissioning when it ceases  
13 operations. Finally, I will address financial assurances for emergency management.

14  
15 The last part of my testimony summarizes certain criteria under Section 248 of Title 30,  
16 Vermont Statutes Annotated, that Entergy VY does not believe are applicable to EVY's  
17 and ENO's petition under Section 248. I also address several other criteria that are  
18 applicable to the VY Station's continued operation.

19 Q4. What are your qualifications to offer the testimony you intend to present?

20 A4. I have held a variety of positions in the nuclear industry, ranging from engineer up to and  
21 including Site Vice President for the VY Station in which role I was the senior manager  
22 responsible for the station's safe operation. My tenure at the VY Station included the

1 recent power-uprate project as well as the permitting and initial site construction for dry-  
2 fuel storage. For the past 18 months, I have been Vice President–Nuclear Operations for  
3 Entergy Services, Inc., representing Entergy and the nuclear industry at the Nuclear  
4 Energy Institute in Washington, D.C.

5  
6 I have recently been named Vice President – Nuclear Operations, responsible for the  
7 integration of all external activities related to nuclear operations and business projects,  
8 such as license renewal for Entergy’s wholesale plants in the Northeast and Midwest. As  
9 such, I have overall responsibility for external activities related to license renewal for the  
10 VY Station by the Nuclear Regulatory Commission (or “NRC”) and Entergy VY’s  
11 petition in this proceeding.

12 Q5. Begin with an overview. What is the value of the VY Station’s continued operation to  
13 Vermont and the New England region?

14 A5. The VY Station is a 620-megawatt (or “MWe”) generating plant (net) that currently  
15 supplies nearly one-third of all electricity consumed in Vermont at beneficial, below-  
16 market rates. The VY Station contributes significantly to the environmental quality of  
17 Vermont’s electric portfolio, which has the lowest carbon footprint of any state in the  
18 nation as Dr. Lester’s testimony notes.

19  
20 As a baseload generator, the VY Station provides 100% of its rated capacity twenty-four  
21 hours a day, 365 days a year, except during scheduled and non-scheduled plant outages or

1 power reductions. Over the past five years, the VY Station has operated at a capacity  
2 factor of 93%.

3  
4 Entergy VY employs more than 620 full-time employees (currently 454 full-time Entergy  
5 VY employees and 169 full-time contractors). To complete a recent realignment of its  
6 work force, Entergy VY intends to fill an additional 60 employee positions in the next  
7 year or so and to continue at that employment level through 2012 and beyond, if the  
8 station continues to operate. At the same time, Entergy VY intends in the future to  
9 reduce the number of full-time contractors it retains to approximately 150. In addition to  
10 full-time employees and contractors, Entergy VY employs roughly 600 to 1,200 contract  
11 personnel during refueling outages, which occur every 18 months.

12  
13 As one of the largest employers in the southern Vermont area, the company's payroll is  
14 approximately \$50 million annually with an additional \$16 to \$23 million paid to  
15 contractors annually depending on outage versus non-outage years. In addition, each  
16 year Entergy VY supports local charities in the amount of approximately \$370,000.

17 Also, Entergy VY pays on the order of \$6 million annually to local vendors in the area  
18 for goods and services.

19 Q6. Introduce the other witnesses who testify on behalf of Entergy VY in this case.

20 A6. Entergy VY has retained Dr. Richard K. Lester, Professor of Nuclear Science and  
21 Engineering and Director of the MIT Industrial Performance Center, at the Massachusetts  
22 Institute of Technology. Dr. Lester was a member of MIT interdisciplinary-study teams

1 that produced two recent MIT reports called *The Future of Nuclear Power* and *The*  
2 *Future of Coal*. Professor Lester's testimony addresses the decision that the Board faces  
3 of whether to approve continued operation of the VY Station. He provides perspective  
4 on the important role of nuclear power in meeting electricity demand economically while  
5 evaluating environmental, health, safety and security concerns. Dr. Lester's testimony  
6 focuses extensively on the role of nuclear power in addressing the problem of global  
7 climate change and, specifically, its role in avoiding the release of greenhouse gases that  
8 might otherwise result from the combustion of fossil fuels. He offers a perspective that  
9 Entergy VY believes the Board should weigh in its decision in this case.

10  
11 Entergy VY has also retained Jeffrey Tranen of Lexecon to sponsor testimony providing  
12 an assessment of whether continued operation of the VY Station is required to meet the  
13 need for present and future demand for service that could not otherwise be provided in a  
14 more cost-effective manner through energy conservation, energy efficiency and load  
15 management, as required by Title 30 of the Vermont Statutes Annotated, Section  
16 248(b)(2); whether such approval would be consistent with the 2005 Vermont Electric  
17 Plan, as required by Section 248(b)(7); and whether such approval would be consistent  
18 with Sections 248(b)(3), and (4), regarding reliability, stability and economic factors.

19  
20 Entergy VY also retained Richard Heaps of Northern Economic Consulting, Inc., to  
21 assess and estimate the economic benefit that the VY Station's continued operation

1 would provide to the state of Vermont and its residents. Mr. Heaps authored and  
2 sponsors a report entitled *The Economic Impact of the VY Station on Windham County*  
3 *and Vermont*, in which Mr. Heaps estimates that the continued operation of the VY  
4 Station from 2012 to 2032 will result in over \$2 billion in additional income for the  
5 residents of Windham County and the state of Vermont as well as increased tax revenues  
6 for the state in excess of \$300 million in today's dollars.

7  
8 Entergy VY has also retained and sponsored Bruce Wiggett, former Treasurer and  
9 President of Vermont Yankee Nuclear Power Corporation (or "VYNPC") and current  
10 Adjunct Professor of Accounting at Plymouth State University, to address the economic  
11 impacts of the Station's operation. In particular, he explains the potential economic  
12 benefits to the state and its residents of a revenue-sharing provision, contained in the  
13 Memorandum of Understanding executed by Entergy VY in Docket No. 6545, that  
14 requires Entergy VY to share 50% of its revenues above a "strike price" with VYNPC  
15 and its sponsors, which include Vermont's two largest utilities, for a period of ten years  
16 from 2012 to 2022.

17  
18 Entergy VY further sponsors testimony by Garry Young, an employee of Entergy  
19 Services, Inc., who is involved in license-renewal activities for Entergy Corporation in  
20 general and for the VY Station in particular. Mr. Young provides testimony regarding  
21 the Nuclear Regulatory Commission (or "NRC")'s processes for review and

1 consideration of license-renewal requests by nuclear-power-plant operators as well as the  
2 NRC's processes for ongoing review of nuclear-power-plant operations.

3  
4 Entergy VY also sponsors John Hoffman, a retired Entergy VY engineer who served as  
5 the project manager for the dry-fuel-storage project approved by the Board in Docket No.  
6 7082. Mr. Hoffman provides testimony regarding the current status of dry-fuel storage at  
7 the VY Station, Entergy VY's compliance with the MOU entered by Entergy VY in  
8 Docket No. 7082 and the company's plan regarding the storage of spent-nuclear fuel  
9 should the VY Station continue to operate after 2012.

10  
11 Also providing testimony on behalf of the company is William A. Cloutier, Jr., Manager  
12 of Decommissioning Services for TLG Services, Inc. Mr. Cloutier's testimony discusses  
13 his company's most recent decommissioning-cost analysis for the VY Station, an analysis  
14 that provides cost estimates under eight different scenarios including four scenarios that  
15 assume continued operation of the VY Station until 2032. Mr. Cloutier provides  
16 testimony regarding the financial ability of Entergy VY to decommission the VY Station  
17 based on reasonable assumptions regarding the growth of the VY Station's  
18 decommissioning-trust funds.

1           Entergy VY sponsors testimony by John Goodell of SVE Associates to address the  
2           environmental, municipal-impact and infrastructure criteria established by Section 248,  
3           including the criteria and sub-criteria incorporated into the statute from Act 250.

4  
5           Finally, Entergy VY sponsors testimony by Harry Dodson who addresses whether the  
6           VY Station’s continued operation is consistent with local and regional plans as well as  
7           the aesthetic impact of the VY Station’s continued operation, applying Section 248’s  
8           criteria and those criteria incorporated from Act 250 and Vermont’s outstanding-  
9           resource-water legislation.

10  
11           **I. Certification of EVY and ENO for and the benefits of the VY Station’s**  
12           **continued operation in Vermont**

13  
14       Q7.    Explain how Entergy Corporation and its affiliates provide managerial, technical and  
15           financial support for the VY Station.

16       A7.    When the Public Service Board granted Section 231 certificates of public good (or  
17           “CPGs”) to EVY and ENO in Docket No. 6545 in June 2002, the Board made detailed  
18           findings regarding the qualifications of EVY and ENO to own and operate, respectively,  
19           the VY Station. Other than certain proposed changes in Entergy Corporation’s corporate  
20           structure which I will mention briefly in my testimony—changes that will have no  
21           material impact on the personnel who will manage and operate the VY Station—there  
22           have been no significant changes within Entergy Corporation or its subsidiaries that

1 affect the Board's findings in Docket No. 6545 regarding corporate structure and  
2 technical qualifications.

3 Entergy's managerial and technical competence derives from its experience operating the  
4 second largest nuclear fleet in the United States, both in terms of number of plants and  
5 megawatthours generated. Entergy Corporation and its affiliates own and operate eleven  
6 nuclear-power plants: the VY Station, Units 2 and 3 at Indian Point, the James A.  
7 FitzPatrick Station in New York, the Pilgrim Nuclear Station in Massachusetts, the  
8 Palisades Nuclear Station in Michigan, Arkansas Nuclear One Units 1 and 2 in Arkansas,  
9 the Waterford and River Bend Stations in Louisiana and the Grand Gulf plant in  
10 Mississippi. In addition, an Entergy Corporation affiliate manages operation of the  
11 Cooper Nuclear Station in Nebraska. Entergy Corporation's acquisition of the Palisades  
12 Nuclear Station and its entry into the support-services agreement at the Cooper Nuclear  
13 Station have both occurred since the Docket No. 6545 order approving acquisition of the  
14 VY Station.

15 Q8. Briefly describe the restructuring you mentioned.

16 A8. Entergy Corporation will restructure ownership of its non-utility, wholesale-nuclear fleet  
17 under a to-be-named company to which I will refer as "NewCo." There will be no  
18 material change, however, in the managers who oversee the VY Station's operation or the  
19 personnel who operate the plant on a day-to-day basis.

20  
21 Specifically, NewCo will acquire an indirect controlling interest in EVY. NewCo will  
22 also acquire an indirect controlling interest in ENO, through a 50-50 joint venture with

1           Entergy Corporation, yet to be named but currently referred to as “ENOI Holdings,  
2           LLC.”

3   Q9.    What are the implications of NewCo’s owning and operating the non-utility, wholesale-  
4           nuclear fleet in terms of the managerial, technical and financial competence of EVY and  
5           ENO to operate the VY Station?

6   A9.    As detailed in a separate Board docket on restructuring, ENO will still hold the operating  
7           license for each of the wholesale units, including the VY Station. Under Operating  
8           Agreements, ENO will continue to operate the non-utility wholesale fleet and will also  
9           make its expertise and experience available to Entergy Corporation’s regulated utilities in  
10          the South. The Chief Nuclear Officer for all of these units will be the same, and again the  
11          personnel that operate the VY Station will continue to be the same. In short, the  
12          managerial and technical competence of ENO used to run and support the VY Station  
13          will not change in any material way.

14   Q10.   What about the ability of NewCo to finance the wholesale fleet, including indirect  
15          subsidiaries that own the nuclear units such as the VY Station?

16   A10.   NewCo has applied to the NRC and must obtain its approval for the proposed change in  
17          control of the non-utility, wholesale-nuclear units of Entergy Corporation, which will  
18          include a review by the NRC of NewCo’s financial qualifications. Further, the indirect  
19          change of controlling interests in EVY and in ENO—insofar as it operates the VY  
20          Station—will not occur unless this Board issues an approval order. Of course, NewCo  
21          also must be able to raise in the marketplace the capital required to complete the  
22          transaction.

1 The Board reviewed Entergy Corporation's ability to backstop the VY Station financially  
2 in Docket No. 6545, which considered whether to allow EVY to acquire and ENO to  
3 operate the VY Station. The Board ultimately found that the intercompany-credit  
4 agreements proposed by Entergy Corporation plus a \$60-million guaranty from Entergy  
5 Corporation provided adequate financial assurances for the VY Station's operations and  
6 decommissioning. Specifically and as the Board may recall, the \$60-million guaranty—  
7 required under a Memorandum of Understanding between EVY, ENO, the Department of  
8 Public Service and other parties—provides financial support to allow the VY Station to  
9 operate for a six-month "bridge" period, during which time EVY under NRC rules will  
10 access 20% of the decommissioning-trust funds for the VY Station, which can then be  
11 used to pay for decommissioning.

12  
13 If NewCo acquires indirect control of the VY Station, it will enter into a \$700-million  
14 Support Agreement that will be available for the six wholesale units and replace the much  
15 smaller, intercompany lines of credit to EVY that exist today. Additionally, NewCo will  
16 replace Entergy Corporation's \$60-million guaranty to the VY Station with a \$60-million  
17 letter of credit, issued by an independent financial institution that has an S&P rating of at  
18 least "A." This means that the credit support for EVY will be enhanced as compared to  
19 the financial support previously found sufficient by the Board in Docket No. 6545,  
20 because an independent (*i.e.*, non-affiliated) bank or other financial institution will stand  
21 behind the letter of credit.

1 Q11. Has ENO operated the VY Station reliably?

2 A11. Yes. The VY Station's Capacity Factor over the past five years—"Capacity Factor" is  
3 the relationship of the amount of output a plant actually produces over a given period of  
4 time to the amount of output the plant theoretically could produce during the same  
5 period—has been at 93%, which is considered to be excellent in the nuclear industry.  
6 This strong performance included downtime due to refueling, which typically requires 20  
7 to 25 days for each refueling outage. In May 2007, the VY Station completed its most  
8 successful operating cycle in its history, operating safely for 549 continuous days from  
9 November 11, 2005, until May 12, 2007.

10 Q12. Have there been any unplanned outages or reductions in capacity since EVY acquired  
11 and ENO commenced operating the VY Station?

12 A12. Yes, there have been. Most recently, in August of 2007 an incident occurred that  
13 involved a cooling tower and required the plant to be derated by 50% for a period of time,  
14 which I intend to address. I want to make clear, however, that the plant's 93% Capacity  
15 Factor includes the loss of production resulting from the cooling-tower-related derate and  
16 a brief outage related to a turbine-valve problem last Summer.

17 Q13. Address the cooling-tower incident and the lessons learned from this experience.

18 A13. In late August and early September 2007, the plant operated at a reduced power level for  
19 several weeks due to a partial failure of one of the VY Station's 22 cooling-tower cells.  
20 The plant also experienced an automatic reactor shutdown, after which the plant was off-  
21 line for two days to repair a turbine steam-stop valve. As a result of these incidents and

1 the root-cause analyses that followed, ENO revised the VY Station's procedural and  
2 maintenance practices.

3  
4 I would like to explain briefly the tower incident. The VY Station has two cooling  
5 towers each of which consists of eleven cells. Each tower is approximately 500-feet  
6 long. Each of the eleven cells within a tower has a fan and motor associated with that  
7 cell to help draw ambient air through the tower to cool the water, before it is either  
8 returned to the plant for re-use or discharged into the Connecticut River.

9  
10 There is only one cell, cell 2-1 in the west tower, that is considered "Safety Related."  
11 Cell 2-2 is adjacent to cell 2-1 and provides a seismic buffer. Cell 2-1 provides sufficient  
12 cooling and water inventory to provide the plant with the water needed to cool plant  
13 equipment while shut down, in the unlikely event the primary source of cooling water  
14 (the Connecticut River) is unavailable. In this recent cooling-tower-cell failure, a portion  
15 of a non-safety-related cell, number 2-4 of the west tower, failed. The event was a result  
16 of at least two failed structural columns of that cell's internal framework.

17  
18 There were several contributing factors in the failure, among them a less-than-perfect  
19 inspection program. While the inspection program was in accordance with the  
20 manufacturer's recommendations and performed by an independent tower consultant, the  
21 program was not fully adequate to detect the type of failure cell 2-4 experienced. As a

1 result, Entergy VY has revised its inspection methodology and completed an engineering  
2 review to evaluate the maintenance options on the cells and towers going forward.

3  
4 Without the availability of that portion of cell 2-4, full-power operation was not  
5 achievable. Until repairs were made on cell 2-4, the plant ran with only its east cooling  
6 tower available for service. Because the cooling towers (with the exception of cells 2-1  
7 and 2-2) are not critical to the safe operation of the plant, the failure of cell 2-4 did not  
8 pose a threat to the safety of the reactor, the public or the environment.

9 Q14. Describe Entergy VY's relationship with customers, including the Vermont utilities that,  
10 through the Vermont Yankee Nuclear Power Corporation (or "VYNPC"), purchase the  
11 VY Station's output under a power-purchase agreement (or "PPA").

12 A14. Our relations are cordial and business-like. Importantly, the VY Station—the output of  
13 which is sold by an affiliate, Entergy Nuclear Power Marketing LLC—has been a reliable  
14 supplier to VYNPC, which resells VY Station power to Central Vermont Public Service  
15 Corporation and Green Mountain Power Corporation.

16  
17 The VY Station's reliability is important because when the plant has an outage or reduced  
18 output, these utilities must replace VY Station power. As I mentioned, Entergy VY has  
19 operated the station at a Capacity Factor of 93%, an excellent performance level that has  
20 minimized the need for these two Vermont utilities to replace PPA power.

1 Q15. Now describe the regulatory environment in which Entergy VY operates.

2 A15. Entergy VY is subject to comprehensive regulation by the NRC and various agencies of  
3 the State of Vermont including this Board. It is also subject to oversight, as an exempt  
4 wholesale generator, by the Federal Energy Regulatory Commission. Entergy  
5 Corporation, the ultimate parent of EVY, is and NewCo will be a publicly-held company,  
6 and each will be subject to regulation by the U.S. Securities and Exchange Commission.

7

8 The NRC is responsible for regulating VY Station's safe operation and its  
9 decommissioning. As previously noted, Mr. Garry Young details how the NRC regulates  
10 the VY Station.

11

12 This Board, of course, regulates EVY, ENO and the VY Station in various ways. I  
13 understand, for example, that this Board has jurisdiction to regulate financings, certain  
14 asset sales or leases, changes in control and mergers or acquisitions. I also understand  
15 that under Section 248 of Title 30, any substantial change to the VY Station requires that  
16 EVY and ENO petition the Board for approval. These companies have petitioned the  
17 Board for seven CPGs in connection with changes to the VY Station since 2002.

18

19 Other agencies of the State of Vermont, including notably the Agency of Natural  
20 Resources, regulate the VY Station. Mr. Goodell's testimony addresses the statutes and  
21 permits under which that agency regulates the VY Station.

1           Entergy VY has also previously committed to meet a Vermont-specific, site-boundary-  
2           dose limit for direct gamma radiation established by the Vermont Department of Health  
3           in Part 5, Chapter 3, 5-305(B)(1)(e), of its regulations. Entergy VY commits to continue  
4           to comply with this standard during the period of continued operation for which it seeks  
5           approval in this proceeding.

6  
7           In short and although the NRC has preemptive jurisdiction in certain areas and EVY  
8           operates as an exempt wholesale generator subject to the jurisdiction of the Federal  
9           Energy Regulatory Commission, the State of Vermont has jurisdiction over many aspects  
10          of EVY, ENO and the VY Station. While the tension between federal and state  
11          jurisdictions is real, it has been my experience that the State of Vermont can and does  
12          influence how the VY Station is operated, either under its own authority or as a party  
13          before the NRC or other federal agencies.

14   Q16.   What does EVY and ENO seek from the Public Service Board?

15   A16.   I understand that under Vermont law these companies cannot operate a utility business in  
16          Vermont without a CPG issued under Subsection (a) of Section 231, Title 30 of the  
17          Vermont Statutes Annotated. EVY's and ENO's existing CPG does not allow these  
18          companies to continue operating the VY Station after March 21, 2012. By this  
19          proceeding, EVY and ENO seek from the Board an amendment to these CPGs to extend  
20          these companies' authority to operate the VY Station for 20 years, or until March 21,  
21          2032. We also seek the Board's approval under Sections 248 and 254 for such continued  
22          operation.

1 Q17. Now address the need for the VY Station to supply power to Vermont and to the New  
2 England region focusing, in particular, on operation of the VY Station after March 21,  
3 2012.

4 A17. Mr. Tranen and Dr. Lester address this criterion, focusing on practical alternatives to the  
5 VY Station including the potential of demand-side-management measures and programs  
6 to displace the need for the VY Station's continued operation. As they point out, the VY  
7 Station is a baseload plant, which means that it operates on a "24/7" basis. As I believe  
8 the Board understands, to supply power reliably requires a combination of resources, and  
9 at all hours of the day and week customers require some threshold of "baseload" supply.

10

11 As Mr. Tranen and Dr. Lester explain in more detail, on the supply side baseload power  
12 can be generated principally from hydroelectric, coal, natural-gas or nuclear resources.  
13 The diversified regional portfolio relies on all four resources although, as they explain, in  
14 New England natural gas is the predominant resource, nuclear is second and coal and  
15 hydro supply a smaller percentage of the regional need for power. While the potential  
16 exists to build additional, natural-gas-fired plants in the region, with associated concerns  
17 about carbon footprint and price volatility, and to continue to import hydroelectric power  
18 to the region from Canada, significant new contracts are not to my knowledge in place.  
19 Entergy VY believes, in any event, that maintaining a diversified regional portfolio  
20 requires continued operation of the region's existing nuclear stations for the reasons  
21 explained in Mr. Tranen's testimony.

1 Q18. What are the benefits of the VY Station as a baseload resource to Vermont?

2 A18. Entergy VY's marketing affiliate, Entergy Nuclear Power Marketing LLC, has begun to  
3 negotiate a PPA with electric-distribution utilities in Vermont that will be beneficial to  
4 the state. As the existing PPA demonstrates, buying power from the VY Station provides  
5 a reliable, in-state source of power.

6

7 There are other benefits to Vermont. These benefits include:

- 8 • **Financial benefits.** As explained by Messrs. Wiggett and Heaps, there are  
9 substantial economic benefits in terms of revenue sharing, employment, the  
10 purchase of goods and services and the payment of taxes in the region in which  
11 the VY Station is located as well as to the State of Vermont;
- 12 • **Environmental benefits.** As explained in Dr. Lester's and Mr. Tranen's  
13 testimony, the environmental benefit for the state to continue to use resources  
14 having a very low, electrical carbon footprint is instrumental to ensuring that  
15 Vermont continues to have the lowest footprint in the nation; and
- 16 • **Supply security benefits.** As Mr. Tranen explains, the VY Station is important to  
17 the reliability of power supply in Vermont and New England.

18 Q19. What about the risk that the VY Station will not operate and therefore that these benefits  
19 will not be realized?

20 A19. I am aware that some Vermonters have concerns about the risks of nuclear generation and  
21 the potential for these risks to interrupt the VY Station's operation.

1 It should be clear from my testimony that the reliability of nuclear operation is extremely  
2 high: of the 117 commercial generation stations that have been licensed in the United  
3 States, 104 remain on line. As Dr. Lester testifies, since the early 1990s improved  
4 operating performance at the remaining 104 stations has increased the industry Capacity  
5 Factor from 70% to 90%, and that increase, together with station uprates, has in effect  
6 created more than 25,000 MWe of new generating capacity and relieved the pressure to  
7 build thousands of megawatts of new, fossil-fueled capacity.

8 Q20. Summarize your testimony on the benefits to Vermont and the region of the VY Station's  
9 continued operation.

10 A20. While no generation is risk-free, I believe the Board, after careful examination, can  
11 reasonably conclude that continued operation of a station that has operated safely and  
12 reliably for 40 years—and contributes to Vermont's lowest-in-nation, electrical-carbon  
13 footprint—has a high probability of producing benefits to Vermont in terms of a  
14 diversified, environmentally-sound source of power as well as substantial economic  
15 benefits as Messrs. Wiggett and Heaps testify.

16 **II. Financial Assurances & Commitments**

17 Q21. Address the company's financial commitments to the VY Station and state as well as the  
18 financial assurances that are required by Vermont law.

19 A21. I begin by providing an overview of the mechanisms in place supporting EVY's ability to  
20 operate the VY Station in a financially sound manner. I then address the statutory  
21 requirements that apply specifically under Vermont law, as I understand them, to the  
22 storage of SNF on an interim basis at the VY Station. I then take up financial assurances

1 that are available if the VY Station ceases operations, including the continued interim  
2 storage of SNF at the VY Station long-term as well as the plant's decommissioning.

3 Lastly, I address funding for emergency management.

4 Q22. Begin with operating support for the VY Station.

5 A22. The financial strength of the VY Station is based on several factors. First, EVY will have  
6 available to it revenues from the sale of the VY Station's output, either directly to the  
7 market or through one or more PPAs.

8  
9 In the event operating revenues are not available due to an unplanned outage or similar  
10 event requiring a complete shutdown of the VY Station, EVY maintains and will  
11 continue to maintain production-interruption insurance that can provide a revenue stream  
12 during the shutdown. The VY Station currently has production-interruption insurance  
13 that would provide \$3.5 million per week of coverage up to a maximum of \$435 million.

14  
15 Since purchasing the VY Station, EVY has maintained a \$35-million credit agreement  
16 with Entergy International Holdings, Ltd., LLC (or "EIHL"). This agreement functions  
17 as a standby financial assurance, and its primary purpose is to pay costs during the bridge  
18 period between an unplanned, premature shutdown of the plant and access by EVY to  
19 funds from the decommissioning trusts.

1 As a result of the proposed restructuring, NewCo will replace the EIHL credit agreement  
2 with a \$700-million Support Agreement running from NewCo to EVY and other NewCo-  
3 owned, wholesale-nuclear plants. As with the EIHL credit agreement, EVY (as well as  
4 NewCo's other wholesale, non-utility plants) must report to the NRC each time it intends  
5 to draw funds under the Support Agreement, and NewCo cannot reduce, replace or  
6 withdraw funds without express NRC approval. Also as with the EIHL credit agreement,  
7 EVY's access to funds under the Support Agreement remains in place until EVY can  
8 access at least 20% of the decommissioning-trust funds (the NRC requires adequate  
9 assurance of financial support for nuclear plants for up to six months after operations  
10 cease, during which time the plant operator applies to the NRC to withdraw such funds  
11 from its decommissioning trust(s)).

12  
13 Since purchasing the VY Station, EVY has also maintained a \$35-million credit  
14 agreement with affiliate Entergy Global, LLC, formerly Entergy Global Investments, Inc.  
15 (or "EGI"). The EGI credit agreement functions as a revolving-credit facility to fund  
16 EVY's needs for working capital.

17  
18 NewCo will replace the EIHL and EGI agreements with the \$700-million Support  
19 Agreement. This agreement will continue to provide EVY access to working capital, as  
20 needed, to meet its on-going operational needs.

1 Through a Memorandum of Understanding entered in Docket No. 6545, Entergy  
2 Corporation provided an additional layer of financial support in the event that funds are  
3 not available under the credit agreements I just described, to support the station during  
4 the bridge period between a premature shutdown and EVY's ability to access at least  
5 20% of decommissioning-trust funds. In particular, Entergy Corporation executed a \$60-  
6 million guaranty to EVY as a backstop to ensure that EVY has sufficient cash available  
7 to maintain the VY Station during this bridge period.

8  
9 As part of the NewCo transaction, Entergy VY proposes that the Entergy Corporation  
10 guaranty be replaced by a third-party letter of credit in the amount of \$60 million. This  
11 \$60-million letter of credit will remain in effect after March 21, 2012, and as long as the  
12 VY Station operates, as a backstop for the \$700-million Support Agreement and until  
13 EVY can access at least 20% of decommissioning-trust funds.

14 Q23. Now turn to the storage in Vermont of SNF generated after March 21, 2012, at the VY  
15 Station. What mechanisms will ensure that EVY has sufficient funds to store SNF on-  
16 site until it is removed by DOE?

17 A23. Let me be clear that the storage of SNF and the assurance of funding for that storage is an  
18 issue that is under the jurisdiction of the NRC, and EVY will comply with all NRC  
19 requirements. That being said, as a general matter the costs of storing SNF during  
20 operation come out of the operating revenues of the VY Station. Thus, if the VY Station  
21 is allowed to operate after March 21, 2012, the plant will bear the costs of operating the  
22 station, including the storage of SNF, through operating revenues.

1 The cost of storing SNF at the VY Station after March 21, 2012, should only be  
2 marginally higher than before that date because Entergy VY has already made significant  
3 capital investments to support wet and dry storage of SNF. The spent-fuel pool and dry-  
4 fuel-storage pad will contain sufficient capacity to store all SNF generated up to 2032.  
5 Thus, the primary costs associated with the storage of SNF generated after March 21,  
6 2012, will consist of maintaining the existing wet- and dry-fuel storage facilities as well  
7 as the periodic loading of SNF into new dry-fuel-storage casks.

8  
9 While SNF storage costs are to be covered through operating revenues, to the extent  
10 additional revenues are required during an unplanned outage (or otherwise) EVY will  
11 have the ability to draw on its Support Agreement with NewCo or will have access to  
12 production-interruption insurance, as I previously described.

13  
14 I should note that my testimony is based on the assumption that the DOE will not meet its  
15 obligations under the so-called “standard contract” with respect to SNF during the 20-  
16 year period of extended operation. EVY is pursuing litigation against DOE to recover  
17 damages for DOE’s breach of its obligations under the standard contract. It is my  
18 understanding that the courts have established DOE’s liability to remove fuel under the  
19 standard contract, and EVY and other Entergy-affiliated, nuclear-power plants have filed  
20 a lawsuit against DOE in the United States Court of Federal Claims seeking monetary  
21 damages. The EVY case is moving forward in the court system, and EVY will soon  
22 produce to the DOE certain information about its damages claim. In an order dated

1           October 19, 2006, the court ruled in the EVY case that the DOE is liable for breach of the  
2           VY Station contract, so the remaining issue is the amount of damages owed.

3  
4           As recently shown in Docket No. 7082 and as further explained in Mr. Cloutier's  
5           testimony, if the VY Station ceases operations, the qualified and non-qualified  
6           decommissioning trusts have adequate funds to satisfy decommissioning costs, including  
7           the long-term storage of SNF at the VY Station, using the SAFSTOR methodology if  
8           necessary. In the period between shutdown and EVY's ability to access  
9           decommissioning-trust funds (a period presumed in Docket No. 7082 to be six months),  
10          EVY will have available to it the \$700-million Support Agreement with NewCo as well  
11          as a \$60-million letter of credit (issued by a financial institution with a minimum S&P  
12          rating of A) to cover SNF storage costs between shutdown and access to  
13          decommissioning funds.

14    Q24.   Has Entergy VY made commitments to remove all SNF in Vermont to a federally-  
15          certified, long-term-storage facility in a timely manner, consistent with applicable federal  
16          standards?

17    A24.   Entergy VY stands by its commitments through CPG conditions and its agreement in two  
18          MOUs to use its commercial best efforts to ensure that all SNF is removed to a federally-  
19          certified, long-term-storage facility in a timely manner, consistent with applicable federal  
20          standards.

1 Q25. Has Entergy VY developed a Spent Fuel Management Plan to facilitate the eventual  
2 removal of SNF in an efficient manner?

3 A25. Yes, Exhibit EN-JKT-2 is the VY Station's Spent Fuel Management Plan. Mr. Hoffman  
4 addresses the plan in his testimony.

5 Q26. What about decommissioning?

6 A26. Mr. Cloutier's testimony addresses the adequacy of the qualified and non-qualified trust  
7 funds to fund decommissioning. Mr. Cloutier's analysis shows that if the VY Station  
8 operates until 2032, the decommissioning-trust funds will be adequate to ensure  
9 decommissioning. Mr. Cloutier's analysis also shows that the decommissioning-trust  
10 funds should be sufficient to fund continued storage of SNF even assuming that the DOE  
11 does not meet its funding obligations or complete removal of the SNF until 2082.

12  
13 EVY has previously committed in Docket No. 7082—and reconfirms its commitment  
14 here—to maintain an investment strategy for the decommissioning-trust funds that is  
15 targeted toward achieving at least the level of return on investment required for  
16 decommissioning, including maintenance, security and other costs for storing SNF on-  
17 site, for the time period reasonably expected to be necessary.

18 Q27. Explain how Entergy VY funds the emergency-management requirements of the VY  
19 Station.

20 A27. The VY Station will continue to fund emergency-management activities as it has during  
21 the current license. That is, the State of Vermont develops a budget to provide adequate  
22 funding for local towns' and communities' emergency-management activities. Once that

1 budget is compiled by the State, the State meets with Entergy VY to agree on the  
2 funding.

3  
4 **III. Other Criteria**

5 Q28. Under the fifth Section 248 criterion, the Board must consider certain Act 250 criteria to  
6 the effect that an adequate water supply must be available, the supply cannot burden an  
7 existing supply and the application must show that the design has considered  
8 conservation, incorporates multiple use or recycling where technically and economically  
9 practical, uses the best available technology for the application and provides for  
10 continued efficient operation of the system.

11 A28. Mr. Goodell addresses the use of water for cooling and for the site's general needs such as  
12 potable water supply.

13 Q29. Please address this criterion with respect to water used inside the Reactor Building,  
14 including the Reactor itself as well as the pool used for wet storage of SNF.

15 A29. The VY Station recycles water drawn from on-site wells for use in the reactor in a closed-  
16 cycle system. Water is also drawn for the spent-fuel pool and for other uses. Water used  
17 for these purposes is taken from and returned to tanks in the Reactor Building. Some  
18 evaporation occurs, however, principally from the pool. Water lost through evaporation  
19 is replaced from on-site wells, which typically draw around 1,000 gallons a day.

20  
21 The VY Station's design therefore incorporates conservation and recycling using efficient  
22 technology, because these water uses operate in a closed cycle and because at 1,000

1 gallons per day the amount of water required to supplement the closed cycle is modest.  
2 For over 30 years, moreover, the on-site wells have provided water for these Reactor  
3 Building and other site needs, and I am not aware of any complaints from nearby users of  
4 any adverse impact on their water supplies.

5  
6 As Mr. Goodell notes, water drawn from wells is subject to and governed by permits  
7 issued by the Agency of Natural Resources.

8 Q30. Is the VY Station a waste-to-energy source of generation?

9 A30. No, and accordingly we believe this criterion of subsection (b) of Section 248 is not  
10 applicable.

11 Q31. Criterion 9(K), incorporated into Section 248 from Act 250, requires the Board to assess  
12 a project's impact on public and quasi-public investments, lands and other resources,  
13 which include investments made by public utilities. An example is the Vernon dam.

14 A31. Entergy VY represents a public-utility investment itself, and Entergy VY seeks Board  
15 authorization for continued operation of this important resource. Messrs. Dodson and  
16 Goodell address the impact of the VY Station's operation after March 21, 2012, on other  
17 utilities, investments and resources in the area.

18 Q32. In Docket No. 6812, the Board required EVY to make certain modifications to the VY  
19 Station to ensure that the extended-power uprate would not have an adverse effect on  
20 system stability and reliability. Were those modifications made?

1 A32. Yes. Since the VY Station increased its operations to the uprated level, moreover, the  
2 VY Station has not caused any condition that resulted in an adverse effect on the bulk-  
3 power system's stability or reliability.

4 Q33. The sixth Section 248(b) criterion requires that a facility be consistent with a resource  
5 selected in a utility company's integrated-resource plan or that good cause exists for the  
6 facility. Is this criterion applicable to the VY Station's continued operation?

7 A33. No. I understand that this criterion applies to Vermont's distribution utilities and not to  
8 exempt wholesale generators such as EVY.

9 Q34. Finally, please address the tenth criterion of Section 248(b), that is, whether the VY  
10 Station can be served economically by existing or planned transmission facilities without  
11 undue adverse effect on Vermont utilities or customers.

12 A34. Continued operation after March 21, 2012, will not require a change in the currently-  
13 existing transmission facilities that serve the VY Station.

14

15

#### **IV. Conclusion**

16 Q35. Summarize your testimony.

17 A35. The VY Station today supplies nearly one-third of the electricity consumed in Vermont at  
18 beneficial, below-market rates. It contributes significantly to the environmental quality  
19 of Vermont's electricity portfolio, which has the lowest carbon footprint of any state in  
20 the nation. Since Entergy VY acquired and began to operate the VY Station, the plant  
21 has operated at a Capacity Factor of 93%, providing power that is needed by Vermont  
22 and the region on a 24/7 basis and that diversifies New England's electricity supply,

1 which is heavily dependent on natural gas. Entergy VY is a major employer and  
2 economic force in Windham County and Vermont.

3  
4 Continued operation of the VY Station will enable Vermont to continue these  
5 environmental-quality and economic benefits. As shown by the Northern Economic  
6 Consulting report, the VY Station's continued operation will result in over \$2 billion in  
7 additional income for the residents of Windham County as well as the state of Vermont  
8 and tax revenues in excess of \$300 million in today's dollars.

9  
10 These benefits do not include a PPA between Entergy VY's marketing affiliate and  
11 electric-distribution utilities in Vermont, although one is being negotiated. A VY Station  
12 PPA would maintain the diversity of Vermont's electric-supply portfolio and contribute  
13 significantly to the state's maintaining the lowest carbon footprint for electricity supply in  
14 the nation.

15 Q36. Does this conclude your testimony?

16 A36. Yes, it does.