

STATE OF VERMONT  
PUBLIC SERVICE BOARD

Joint Petition of NorthStar Decommissioning )  
Holdings, LLC, NorthStar Nuclear )  
Decommissioning Company, LLC, NorthStar )  
Group Services, Inc., LVI Parent Corp., NorthStar ) Docket No. [ ]  
Group Holdings, LLC, Entergy Nuclear Vermont )  
Investment Company, LLC, and Entergy Nuclear )  
Operations, Inc., and any other necessary )  
affiliated entities to transfer ownership of Entergy )  
Nuclear Vermont Yankee, LLC, and for certain )  
ancillary approvals, pursuant to 30 V.S.A. §§ 107, )  
231, and 232 )

**SUMMARY OF PREFILED TESTIMONY OF SCOTT E. STATE**

Mr. State, Chief Executive Officer of NorthStar Group Services, Inc., describes that entity and its affiliates; discusses the proposed transaction in which NorthStar will acquire ENVY and then perform an earlier decommissioning and site restoration, completed by 2030; introduces witnesses who will explain the benefits to the local community and the State of Vermont of this earlier decommissioning and site restoration; sets forth the site restoration standards for which NorthStar seeks approval as a material element of the transaction; and shows that NorthStar will be a fair partner for Vermont.

Mr. State sponsors the following exhibits:

JP-SES-1	Resume of Scott E. State
JP-SES-2	Dkt 7862 VY Site Restoration Trust Agreement [03-18-14]
JP-SES-3	Industrial Standards of IROCPP
JP-SES-4	Final May 2011 VY Hydrogeologic Investigation Figure 2.4

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**PREFILED TESTIMONY OF SCOTT E. STATE**

1 Q1. **Please state your name and business address.**

2 A1. Scott E. State, P.E., Seven Penn Plaza, 370 7th Avenue, Suite 1803, New York, NY  
3 10001.

4 Q2. **What is your occupation?**

5 A2. I am the Chief Executive Officer (“CEO”) of NorthStar Group Services, Inc. (referred to  
6 herein as “NorthStar” unless otherwise noted). NorthStar Group Services, Inc., together  
7 with its affiliate companies, is the largest demolition and abatement firm in the United  
8 States.

9 Q3. **What is your educational and professional background?**

10 A3. I have worked in the fields of nuclear engineering, environmental remediation,  
11 demolition, and abatement for 30 years. My first direct experience with  
12 decommissioning a nuclear reactor facility was in 1992, when I was retained by UCLA to  
13 decommission and free release their campus-based nuclear reactor facility. Prior to my

1 appointment as CEO of NorthStar in 2010, I worked as a consultant on several projects,  
2 including a \$120 million remediation of a 9,000-acre former military facility, technical  
3 program management consulting, and executive-level support focused on cleaning up  
4 former nuclear weapons and nuclear power plant sites. I was also Chairman and CEO  
5 of MACTEC, Inc., a leader in engineering, environmental, and construction services  
6 worldwide with 80 locations, that saw annual revenue rise from \$45 million when I  
7 joined to more than \$500 million when I left. MACTEC performed environmental  
8 consulting work on both the Maine Yankee nuclear power plant and Connecticut Yankee  
9 nuclear power plant sites when I was at the company. During the course of my career, I  
10 have completed projects on four continents. A copy of my CV is attached as Exhibit  
11 Joint Petitioners (“JP”)-SES-1.

12 I have a bachelor’s degree and a master’s degree in nuclear engineering from  
13 Iowa State University, as well as a master’s degree in engineering management from  
14 Washington State University. I am a licensed professional engineer. I formerly held a  
15 Reactor Operator’s license from the U.S. Nuclear Regulatory Commission (“NRC”). I  
16 currently have in process a U.S. Department of Energy (“DOE”) “Q” and Department of  
17 Defense Top Secret clearance.

18 Prior to entering the demolition and abatement field, I worked as a nuclear  
19 engineer for multiple companies, including AREVA (at the time known as Siemens  
20 Nuclear Power Corporation). In this role, I designed nuclear fuel assemblies for boiling  
21 water reactors like the Vermont Yankee Nuclear Power Station (“VY Station”) reactor.

1 Q4. **What is the purpose of your testimony in this proceeding?**

2 A4. In Section I, my testimony introduces NorthStar.

3 In Section II, I provide an overview of the proposed transaction, which will  
4 transfer ownership of Entergy Nuclear Vermont Yankee, LLC (“ENVY”) from Entergy  
5 to NorthStar.

6 In Section III, I explain that, if the transaction is approved and ownership is  
7 transferred to NorthStar Decommissioning Holdings, LLC, NorthStar entities will  
8 complete both radiological decommissioning and site restoration of VY Station (with the  
9 exception of the Independent Spent Fuel Storage Installation (“ISFSI”) and the VELCO  
10 switchyard) no later than 2030, decades earlier than Entergy projects to complete those  
11 tasks under the status quo. Earlier decommissioning will result in an earlier release of the  
12 VY Station site for redevelopment, except for those portions of the site on which spent  
13 nuclear fuel is stored.

14 In Section IV, I discuss how this earlier site release will benefit the local  
15 community and the State of Vermont in numerous ways, including by having a positive  
16 economic impact and serving the goals of Vermont’s energy and other policies. These  
17 benefits are described in more detail in the prefiled testimony of other witnesses whom I  
18 will introduce.

19 In Section V, I describe the site restoration standards for which NorthStar seeks  
20 Board approval as a material part of the proposed transaction.

21 In Section VI, I address the technical and financial resources of NorthStar and its  
22 ability to meet the NRC’s 10 C.F.R. Part 50 license termination requirements;

1 NorthStar's ability to provide financial assurances to complete radiological  
2 decommissioning, spent fuel management, and site restoration on schedule and within the  
3 available trust fund amounts and projected earnings; and the use of strategic partnerships  
4 to control costs supporting the accelerated decommissioning schedule.

5 In Section VII, I discuss NorthStar's demonstrated good corporate and regulatory  
6 stewardship.

7 **Q5. Please summarize why NorthStar is able to accomplish decommissioning and site**  
8 **restoration of the VY Station earlier than Entergy.**

9 **A5.** While I will provide further detail later in my testimony, here is a summary: NorthStar is  
10 able to accomplish this earlier decommissioning and site restoration because, among  
11 other reasons, NorthStar's business is entirely focused on large-scale demolition and  
12 environmental remediation projects while Entergy's business is focused on the very  
13 different business of operating nuclear plants and generating and selling electricity;  
14 NorthStar performs most of the work itself (whereas Entergy would otherwise hire a  
15 decommissioning operations contractor and incur expenses to select and to monitor that  
16 contractor); NorthStar can optimize the disposal of low-level radioactive waste at the  
17 Texas Compact facility using certain disposal options that are available today but that  
18 may not be available after an extended SAFSTOR period; and NorthStar can commence  
19 work sooner and project its costs based upon its substantial experience with a relatively  
20 high level of confidence (in contrast to cost projections for work scheduled to be done  
21 several decades in the future). In short, a company like Entergy is the right owner for an  
22 operating nuclear plant, but NorthStar is the right owner for a decommissioning plant.

1 **I. Background on NorthStar: Experience and Financial Qualifications**

2 Q6. **Please provide an overview of NorthStar.**

3 A6. NorthStar is the nation’s largest remediation and demolition company. The company was  
4 founded in 1986 and has a broad range of experience, including projects involving  
5 nuclear materials, asbestos, lead paint, mold, infection control, hazardous materials,  
6 fireproofing, emergency and disaster services, and demolition. In 2016, *Engineering*  
7 *News-Record* ranked NorthStar the number one firm nationwide in both the “demolition  
8 and wrecking” and “asbestos abatement” categories.<sup>1</sup> NorthStar has a full-time  
9 workforce of 3,500 employees and on occasion may employ significantly more people  
10 during peak work periods. NorthStar’s revenue in 2015 was over \$650 million, making it  
11 the largest demolition contractor in the world by revenue, according to *Construction &*  
12 *Demolition Recycling*.<sup>2</sup> In addition to its corporate headquarters in New York City,  
13 NorthStar has more than 25 branch locations nationwide, including major offices in  
14 Boston; Chicago; Denver; East Hanover, New Jersey; Houston; Los Angeles; Orlando;  
15 and Seattle. NorthStar entities are licensed to perform demolition and/or asbestos work  
16 in all 50 states.

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<sup>1</sup> *The 2016 Top 600 Specialty Contractors 1-100*, ENGINEERING NEWS-RECORD, <http://www.enr.com/toplists/2016-Top-600-Specialty-Contractors1> (last visited Dec. 12, 2016).

<sup>2</sup> Kristin Smith, *Finding Their Stride*, CONSTRUCTION & DEMOLITION RECYCLING (Nov. 15, 2016), <http://www.cdrecycler.com/article/finding-their-stride/> (“New York City-based NorthStar Group is once again the largest revenue earner . . . with the \$652.33 million it earned in 2015.”).

1 Q7. **What experience do NorthStar and its predecessors have with decommissioning**  
2 **work?**

3 A7. NorthStar is deeply experienced in decommissioning and abatement work on all types of  
4 energy-related facilities and the contaminants often found at such facilities, including  
5 radioactive material, mercury, lead, asbestos (which is often a large part of the demolition  
6 process at nuclear plants), and polychlorinated biphenyl (“PCB”). Outside of the energy  
7 arena, NorthStar has performed asbestos remediation at both Madison Square Garden and  
8 the Pentagon and has performed demolition of Yankee Stadium and NASA’s Kennedy  
9 Space Center Vehicle Assembly Building. NorthStar has extensive experience within the  
10 power industry, decommissioning tens of thousands of megawatts of power facilities  
11 throughout the United States, which are subject to extensive state and federal rules and  
12 regulations. For example, NorthStar performed decommissioning, decontamination, and  
13 asbestos abatement of the Mohave Generating Station, a coal-fired facility in Laughlin,  
14 Nevada, located on 3,000 acres of land adjacent to the Colorado River. That project  
15 included salvaging and recycling over 40,000 tons of ferrous metals and the demolition of  
16 two 180-foot high supercritical steam boilers, two 790 MW cross-compound steam  
17 turbines, four 8-million gallon steel storage tanks, and one 500-foot tall concrete stack.

18 Q8. **What specific experience does NorthStar have in the nuclear sector?**

19 A8. NorthStar and its predecessors have performed demolition and decommissioning work at  
20 numerous sites throughout the United States. NorthStar’s most recent nuclear projects  
21 include university and Department of Energy sites. When working on university sites,  
22 the work NorthStar performs is subject to NRC requirements:

1 **University of Illinois – Nuclear Reactor Lab (completed August 2012):** NorthStar  
2 dismantled, removed, and packaged the reactor, systems, and structures and decontaminated  
3 and removed radiologically-contaminated surfaces, components, and debris from the Mark II  
4 TRIGA reactor and nuclear reactor lab. The project was completed within the approved  
5 budget, without any notices of violation (“NOVs”) from any governmental authority, and  
6 without any U.S. Occupational Safety and Health Administration (“OSHA”) recordable  
7 incidents.

8 **DOE Hanford – Disposition of 308-A / 309 Reactors & 340 Waste Vault (completed April**  
9 **2013):** NorthStar decommissioned two nuclear reactors and a radioactive waste vault. In  
10 addition, NorthStar remediated and packaged approximately 200,000 tons of contaminated  
11 soil and other materials for disposal. The project was completed within the approved budget,  
12 without any NOVs, and without any OSHA recordable incidents.

13 **DOE Savannah River Site – K Cooling Tower (completed September 2010):** NorthStar  
14 performed decommissioning work on a 455-foot-tall and 333-foot-wide heavily-reinforced  
15 hyperbolic concrete cooling tower and also performed site restoration work. The project was  
16 completed one month ahead of schedule, under budget, without any NOVs, and without any  
17 OSHA recordable incidents.

18 **University at Buffalo – Materials Research Center (completed December 2013):** NorthStar  
19 performed decommissioning and site restoration work at this nuclear research and test  
20 reactor. The project included removal, packaging, and disposal of approximately 21,000  
21 cubic feet of low-level radioactive waste. The project was completed within the revised  
22 budget, without any NOVs, and without any OSHA recordable incidents.

1 **DOE Y-12 National Security Complex (Oak Ridge, TN) – Buildings 9769 & 9211**

2 **(completed January 2011):** NorthStar decommissioned radiologically-contaminated  
3 structures within an active DOE/National Security Agency (“NSA”) weapons facility, which  
4 included segregation, packaging, and transportation of low-level radioactive waste and other  
5 hazardous wastes, including 62,100 cubic feet of radiological contaminated debris. The  
6 project was completed within the approved budget, without any NOVs, and without any  
7 OSHA recordable incidents.

8 **University of Arizona – Nuclear Reactor Lab & TRIGA Reactor (completed November**

9 **2011):** NorthStar decommissioned this reactor and its support systems, removing all  
10 radioactive materials from the site such that the site could be released for unrestricted use.  
11 The project was completed under budget, without any NOVs, and without any OSHA  
12 recordable incidents.

13 **University of Washington – Nuclear Reactor (completed November 2006):** NorthStar

14 decommissioned this reactor and related structures. The project was completed within the  
15 approved budget, without any NOVs, and without any OSHA recordable incidents.

16 **DOE Pit 9 (Idaho Falls, ID) – Remediation Treatment Facility (completed June 2007):**

17 NorthStar decommissioned this radiological waste processing facility. The project was  
18 completed within the approved budget, without any NOVs, and without any OSHA  
19 recordable incidents.

20 **VA Medical Center (Omaha, NE) – Research Reactor (completed July 2016):** NorthStar

21 decommissioned this research reactor and structures. The project was completed within the  
22 approved budget, without any NOVs, and without any OSHA recordable incidents.

1 Q9. **Does NorthStar typically handle multiple projects at the same time?**

2 A9. Yes. NorthStar has done so in the past and expects to do so in the future, enabled by its  
3 large workforce and number of offices nationwide.

4 Q10. **Please describe the key entities in the NorthStar family of companies.**

5 A10. The key parent company is NorthStar Group Services, Inc. NorthStar Group Services,  
6 Inc. is wholly owned by LVI Parent Corp., a passive holding company that has no  
7 employees or physical assets and simply owns the stock of NorthStar Group Services,  
8 Inc. LVI Parent Corp. is wholly owned by NorthStar Group Holdings, LLC, which also  
9 is a passive holding company that has no employees or physical assets and simply owns  
10 the stock of LVI Parent Corp.

11 NorthStar Group Services, Inc.'s wholly-owned subsidiary NorthStar  
12 Decommissioning Holdings, LLC, would own ENVY as a result of the proposed  
13 transaction. Another wholly-owned subsidiary named NorthStar Nuclear  
14 Decommissioning Company, LLC ("NorthStar NDC") would be the NRC-licensed  
15 operator of the VY Station, just as Entergy Nuclear Operations, Inc. ("ENOI") is  
16 currently the licensed operating entity. I am the CEO of NorthStar Group Services, Inc.,  
17 and all entities below it. I also will be the Chief Nuclear Officer ("CNO") of the  
18 operating company, NorthStar NDC.

19 Q11. **Is NorthStar Group Services, Inc. a publicly-held company?**

20 A11. No. It is privately owned through the holding company structure described in my  
21 previous answer. Its four largest owners have collectively invested more than \$275

1 million in NorthStar. No investor owns a majority stake in the company, and the  
2 company is controlled by a Board of Directors, which includes members from all of the  
3 investors.

4 **Q12. Please describe NorthStar's financial position.**

5 A12. NorthStar is financially strong. Details are provided in the prefiled testimony of  
6 NorthStar Chief Financial Officer Jeff Adix.

7 **Q13. What role will NorthStar and its employees have in doing the actual  
8 decommissioning and site restoration work at the VY Station?**

9 A13. NorthStar will perform the majority of the work itself, thus avoiding the expense of  
10 selecting and then overseeing contractors or subcontractors, an expense that ENVY  
11 would have to incur if it were to hire a decommissioning operations contractor rather than  
12 selling the ENVY entity to NorthStar in the proposed transaction. NorthStar's self-  
13 performance approach is the same approach it followed on the prior projects I described  
14 above, where (aside from certain specialized tasks) NorthStar employees dismantled,  
15 removed, and packaged all systems, structures, and reactors. As to the specialized tasks  
16 that NorthStar does not itself perform, NorthStar will team with other entities under  
17 fixed-price arrangements.

18 *First*, NorthStar will engage AREVA Nuclear Materials LLC (a wholly-owned  
19 subsidiary of AREVA SAS, which is majority-owned by the French government) to  
20 perform the specific task of segmenting (cutting up, in layman's terms) the nuclear

1 reactor pressure vessel and vessel internals. AREVA is the unmatched leader in  
2 segmentation work.

3 *Second*, NorthStar has a contractual arrangement with Waste Control Specialists,  
4 LLC (“WCS”), which operates a low-level radioactive waste (“LLRW”) disposal site in  
5 Andrews, Texas. The Andrews, Texas, disposal site includes the Texas Compact Waste  
6 Facility that is owned and licensed by the state of Texas and operated by WCS. The  
7 Compact Waste Facility was created as a result of the compact among Texas, Maine, and  
8 Vermont to dispose of LLRW generated within each of the three party states and is one of  
9 the few commercial facilities in the United States licensed to dispose of all types of  
10 LLRW (*i.e.*, Class A, Class B, and Class C LLRW). Vermont joined the compact in 1993  
11 (10 V.S.A. §§ 7060-7069), and Congress passed the Texas Low-Level Radioactive Waste  
12 Disposal Compact Consent Act, approving of the compact, in 1998.<sup>3</sup> (Maine  
13 subsequently withdrew.) The compact ensures that 20% of the Compact Waste facility is  
14 dedicated to LLRW generated in Vermont. The WCS site can also accept in another  
15 disposal cell hazardous waste and lower-activity radioactive waste that is defined as  
16 “exempt” waste under the Texas statute. NorthStar’s decommissioning approach will  
17 optimize waste streams for economical waste disposal, taking advantage of both the  
18 dedicated Compact Waste Facility for Class A, B, and C LLRW and WCS’s other  
19 currently available disposal cells for exempt waste, cells that may be unavailable several  
20 decades from now.

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<sup>3</sup> Texas Low-Level Radioactive Waste Disposal Compact Consent Act, Pub. L. No. 105-236 (1998), <https://www.congress.gov/105/plaws/publ236/PLAW-105publ236.pdf>.

1           *Third*, NorthStar will team with Burns & McDonnell for support in both  
2 engineering and termination of the NRC license, giving NorthStar optimal access to  
3 specialty engineering and licensing resources. Burns & McDonnell is one of the  
4 country's top engineering design firms. *Engineering News-Record* listed it in the top 50  
5 in eight different market categories in 2016 (including design-build and program  
6 management) and listed it in the top 50 in 25 different industries (including nuclear,  
7 chemical and soil remediation, and hazardous waste).<sup>4</sup>

8           NorthStar's approach will allow both NorthStar and its teaming partners to focus  
9 on their core competencies under fixed-price arrangements without adding costs that  
10 come with working as or under a decommissioning operations contractor.

11 **Q14. Has NorthStar explored formalizing its relationship with any of its teaming partners**  
12 **in a joint ownership structure that would directly or indirectly own ENVY?**

13 A14. Yes. NorthStar is exploring doing so. If NorthStar forms such a structure, it will amend  
14 the Joint Petition and prefiled testimony in this proceeding as necessary to reflect the  
15 formation of such a structure.

16 **Q15. Are you familiar with AREVA's experience in dismantling nuclear reactor vessels**  
17 **and/or structures internal to the vessel?**

18 A15. Yes. I have a general understanding of AREVA's depth of resources and capabilities  
19 based on my prior experience working for AREVA (at the time known as Siemens  
20 Nuclear Power Corporation). Specifically as to the tasks of dismantling nuclear reactor

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<sup>4</sup> *Industry Rankings*, BURNS & MCDONNELL, <http://www.burnsmcd.com/about-us/industry-rankings> (last visited Dec. 12, 2016).

1 vessels and/or structures internal to the vessel, I am familiar with AREVA's capabilities  
2 based upon my due diligence for this VY Station project and my visits to AREVA's  
3 operations in Lynchburg, Virginia and France.

4 While our due diligence of AREVA concerned its ability to complete the  
5 segmentation and SNF management, I am aware of recent reports concerning Le Creusot  
6 Forge, an AREVA facility in central France that manufactures components of nuclear  
7 reactors. [http://www.wsj.com/articles/problems-at-nuclear-components-supplier-spark-](http://www.wsj.com/articles/problems-at-nuclear-components-supplier-spark-global-reviews-1481625005)  
8 [global-reviews-1481625005](http://www.wsj.com/articles/problems-at-nuclear-components-supplier-spark-global-reviews-1481625005). The Le Creusot facility is operated by AREVA NP, a  
9 separate entity from AREVA Nuclear Materials LLC that is not involved in any of  
10 AREVA's decommissioning-related business and will not be involved in  
11 decommissioning work at the VY Station.

12 **Q16. Please describe AREVA's experience in dismantling nuclear reactor vessels and/or**  
13 **structures internal to the vessel.**

14 **A16.** AREVA has successfully performed this task at five nuclear plants since 1999:  
15 **Wuergassen Nuclear Power Station (Germany).** AREVA performed segmentation of the  
16 reactor vessel and internals for this boiling water reactor ("BWR"). The phase concerning  
17 the internals started in 2006 and was successfully completed in 2008; the phase concerning  
18 the vessel started in 2008 and was successfully completed in 2010. Importantly,  
19 Wuergassen's reactor was the same type of reactor and of approximately the size as the one  
20 at the VY Station. AREVA thus has valuable practical experience that will be directly  
21 translatable to the VY Station decommissioning project.

1 **Stade Nuclear Power Station (Germany).** AREVA performed segmentation of the reactor  
2 vessel and internals for this pressurized water reactor (“PWR”). The project was started in  
3 2007 and successfully completed in 2009.

4 **Rancho Seco Nuclear Generating Station (California).** AREVA performed segmentation of  
5 the reactor vessel and internals for this PWR. The project was started in 2005 and  
6 successfully completed in 2006.

7 **Millstone Unit 1 (Connecticut).** AREVA performed segmentation of the reactor vessel and  
8 internals for this BWR, which like Wuergassen has a similar design to the Vermont Yankee  
9 reactor. The project was started in 2002 and successfully completed in 2004.

10 **Maine Yankee Nuclear Power Plant (Maine).** AREVA performed decommissioning of the  
11 reactor vessel internals for this PWR. The project was started in 1999 and successfully  
12 completed in 2001.

13 AREVA will work under NorthStar’s leadership to segment the Vermont Yankee  
14 reactor vessel and internals.

15 **Q17. Will AREVA have any other role in the project?**

16 A17. Yes. Prior to the transaction’s expected closing date, ENVY is expected to have moved  
17 all of the VY Station’s spent fuel from its spent fuel pool to its dry fuel storage pads.

18 AREVA will support the long-term management of the spent nuclear fuel (“SNF”) in dry  
19 storage and will oversee the transfer of the fuel to DOE when DOE is ready to accept it.

20 AREVA manages more spent fuel than any other company in the world and has been  
21 providing dry fuel storage and transportation for the nuclear industry for more than 50

1 years. AREVA has loaded more dry fuel assemblies than any other supplier in the United  
2 States.

3 AREVA has worldwide experience with transporting SNF, with more than 2,000  
4 SNF assemblies shipped per year and more than 75,000 SNF assemblies from throughout  
5 the world (shipped from countries like Japan, Germany, Netherlands, Spain, Italy, and  
6 others).

7 Over the last 30 years, AREVA's La Hague facility in France has received over  
8 40,000 tons of SNF, including over 3,000 tons from Japan and 8,000 tons from within  
9 Europe. This amount represents over half of the SNF shipped around the world during  
10 that time. AREVA transports approximately 1,200 tons of SNF every year, which is  
11 approximately half of the annual SNF unloaded in the United States annually.

12 **II. Description of Proposed Transaction**

13 **Q18. Please explain why the proposed transaction involves NorthStar taking ownership**  
14 **of the ENVY entity (to be renamed NorthStar VY) instead of NorthStar simply**  
15 **being hired by ENVY as a decommissioning operations contractor.**

16 **A18.** NorthStar's business is large-scale demolition and decommissioning, and we have deep  
17 nuclear sector experience. We have the employees, the equipment, and the expertise to  
18 do this work. Owning the VY Station allows us to perform the planning, work, and  
19 oversight directly. By contrast, the decommissioning operations contractor role, which  
20 has been often used in the nuclear industry for plant decommissionings to date, does not  
21 fit with NorthStar's business model, which depends on owning the site to align the

1 potential rewards with its assumption of all of the risks of decommissioning and restoring  
2 the site and managing SNF. NorthStar has budgeted a certain amount of  
3 contingency/profit into its cost estimates that underpin this transaction. It can only be  
4 confident of being able to realize some or all that profit if it has total control over the  
5 project and the workflow. The ownership model provides NorthStar the opportunity to  
6 participate in the potential upside from decommissioning the plant, including, among  
7 other things, the value of the real estate once the site is released for alternative  
8 development. The ownership model also significantly reduces the risk of owner-  
9 contractor disagreements that can sidetrack valuable management time and attention,  
10 hamper getting work done on the project, delay the project schedule, and increase project  
11 costs, all of which are disadvantageous not only to the owner but also to the contractor  
12 and to the success of the project. Further, taking ownership permits NorthStar to  
13 maintain a direct relationship with the NRC and Public Service Board, rather than  
14 interfacing with these agencies through an intermediary owner entity. As the primary  
15 performer of the work and the steward of the project's success, NorthStar believes that a  
16 direct relationship with its regulators is important.

17 **Q19. Please describe the proposed transaction.**

18 A19. ENVY is a limited liability company and is the current owner of the VY Station. ENVY  
19 holds a certificate of public good from the Public Service Board (Docket 6545 as  
20 amended by Docket 7862) to be the owner of the VY Station. The membership interests  
21 in ENVY are 100% owned by Entergy Nuclear Vermont Investment Company, LLC  
22 (“ENVIC”).

1           In the proposed transaction, which the parties desire to close prior to the end of  
2           2018, ENVIC will sell its membership interests in ENVY to NorthStar Decommissioning  
3           Holdings, LLC, thus transferring ownership of ENVY along with the assets ENVY  
4           owns—including the VY Station, its SNF, the nuclear decommissioning trust (“NDT”),  
5           the site restoration trust (“SRT”), and the real property within the VY Station site—to  
6           NorthStar Decommissioning Holdings, LLC.

7           As Entergy’s Steven Scheurich explains, the day before closing, ENVIC will  
8           transfer the membership interests in ENVY to a subsidiary, Vermont Yankee Asset  
9           Retirement Management, LLC (“VYARM”). At closing, VYARM will transfer the  
10          membership interests in ENVY to NorthStar Decommissioning Holdings, LLC.

11   Q20.   **Will any assets currently owned by ENVY be taken out of ENVY before the transfer**  
12          **of ownership of ENVY’s membership interests described above?**

13   A20.   Yes. There are certain assets that are neither relevant to nor useful for decommissioning  
14          or site restoration activities and that NorthStar is not interested in acquiring; these assets  
15          will be excluded from the transaction before the membership interests in ENVY are  
16          transferred. NorthStar is comfortable with this aspect of the transaction because it does  
17          not need any of these assets for decommissioning or site restoration.

18   Q21.   **Will ENVY be renamed following the transfer of ownership of its membership**  
19          **interests?**

20   A21.   Yes. As part of the transaction, ENVY will be renamed NorthStar VY, LLC (“NorthStar  
21          VY”) after the closing, but will remain the same entity. NorthStar VY, under the

1 ownership of NorthStar Decommissioning Holdings, LLC, will remain subject to all  
2 NRC and Public Service Board requirements, including those applicable to radiological  
3 decommissioning and site restoration, except insofar as NorthStar seeks a modification of  
4 those requirements, as described below.

5 **Q22. What entity will operate the VY Station after the closing of this transaction?**

6 A22. Currently, ENOI operates the VY Station for ENVY. After the transaction, NorthStar  
7 NDC will take ENOI's place and become the operator of the site for NorthStar VY.  
8 Thus, the petition seeks substitution of NorthStar NDC for ENOI on the CPG that was  
9 granted in Docket 6545, as amended by Docket 7862, as well as the CPGs issued in other  
10 dockets to ENOI and ENVY.

11 All conditions that remain in effect in these CPGs, including those in the  
12 Memorandum of Understanding adopted in Docket 7862, will continue to be honored,  
13 except that (1) prior Entergy Corporation and affiliate financial commitments will be  
14 replaced by the new financial support agreements explained later in my testimony; and  
15 (2) NorthStar will not adhere to prior Entergy commitments not to reuse rubblized  
16 concrete for site restoration, although NorthStar will engage in rubblization only in an  
17 appropriate manner, as explained later in my testimony.

18 **Q23. Will NorthStar VY and/or its parent companies provide any financial assurances**  
19 **that are not currently in place under Entergy's ownership of ENVY?**

20 A23. Yes. NorthStar VY will obtain a contingent letter of credit in the amount of \$25 million,  
21 payable to a secondary decommissioning completion trust to be formed by NorthStar VY

1 in the event NorthStar VY does not start decommissioning activities on or before January  
2 1, 2021 or complete radiological decommissioning and site restoration other than the  
3 ISFSI area by December 31, 2030. This instrument backs up NorthStar's commitment to  
4 start and complete the work on the schedule set forth in the transaction agreement.

5 At closing, NorthStar Group Services, Inc. also will execute a Support Agreement  
6 in the amount of \$125 million, which will be available to NorthStar VY if needed to meet  
7 any of its obligations so that the VY Station is maintained, decommissioned, and restored  
8 in compliance with applicable regulatory requirements.

9 **Q24. Prior to closing, ENVY will have incurred certain SNF management costs, but at the**  
10 **time of closing, is not expected to have yet recovered those costs through litigation**  
11 **against DOE. How are such costs treated in this proposed transaction?**

12 A24. ENVY is planning to complete the transfer of SNF from the spent fuel pool to dry cask  
13 storage on the ISFSI pads by the end of 2018, which will occur before the transaction  
14 closes. To accomplish that objective, ENVY has incurred and will continue to incur dry  
15 fuel storage project-related expenses (such as construction of the second ISFSI pad and  
16 Holtec cask storage systems) through late 2018, which are not being funded by  
17 withdrawals from the NDT. ENVY is funding those dry fuel storage project costs  
18 through two credit facilities. At the time of, or prior to, closing, the existing credit  
19 facilities will be assumed by, or transferred from ENVY to, VYARM. NorthStar VY will  
20 then issue a note payable to VYARM in the amount of the outstanding  
21 borrowings. NorthStar VY expects to recover the costs funded from the credit facilities  
22 from DOE as damages for DOE's partial breach of the Standard Contract (which

1 obligates DOE to remove spent fuel from the VY Station), which will enable it to repay  
2 the note to VYARM.

3 **III. Timing of Radiological Decommissioning and Site Restoration Under NorthStar's**  
4 **Ownership of ENVY as Compared to the Status Quo**

5 **Q25. Please describe how much of the residual radioactivity at the VY Station will be**  
6 **contained in the structures to be decommissioned as of the start of decommissioning.**

7 A25. All spent fuel is expected to have been moved to the ISFSI by the time this transaction  
8 closes and active decommissioning begins. The SNF contains the vast majority—  
9 approximately 98%—of the residual radioactivity at the VY Station. (It will be removed  
10 by DOE when DOE performs its obligations under the Standard Contract.) Thus, the  
11 structures to be decommissioned will contain only approximately 2% of the residual  
12 radioactivity at the VY Station.

13 **Q26. Please describe the timing of radiological decommissioning and site restoration**  
14 **under NorthStar's ownership of ENVY, as compared to the status quo of Entergy's**  
15 **ownership of ENVY.**

16 A26. ENVY's current Post-Shutdown Decommissioning Activities Report ("PSDAR"), which  
17 ENVY has filed describing its planned decommissioning activities and schedule to  
18 comply with the NRC's regulatory requirements, states that it intends to make use of the  
19 NRC-approved SAFSTOR method, including a long period of dormancy before active  
20 decommissioning work begins. I understand, however, that ENVY is obligated under a  
21 Settlement Agreement with Vermont governmental agencies (which the Board described  
22 in its final order in Docket 7862) to commence decommissioning work earlier than the

1 maximum period allowed under NRC regulations once ENVY has made a reasonable  
2 determination that it has sufficient funds in the NDT to commence and to complete  
3 decommissioning and remaining SNF management activities not reimbursed by DOE.  
4 The prefiled testimony of Entergy's Steven Scheurich provides ENVY's current estimate  
5 of when it may be able to commence and complete decommissioning and site restoration.  
6 Assuming the conditions and circumstances described in his testimony are met and come  
7 to fruition, Mr. Scheurich projects that ENVY may be able to commence  
8 decommissioning in approximately 2053 and complete decommissioning and site  
9 restoration by approximately 2060.

10 By contrast, NorthStar has committed to commence radiological  
11 decommissioning by 2021 and may be able to do so as early as 2019. Unlike ENVY,  
12 whose 2014 DCE describes a plan to initiate site restoration activities after completion of  
13 radiological decommissioning, NorthStar will perform radiological decommissioning and  
14 site restoration concurrently. NorthStar will complete both of these tasks no later than  
15 the end of 2030 (and potentially as early as 2026), decades earlier than ENVY, allowing  
16 for the partial release of nearly the entire VY Station site (aside from the ISFSI) from the  
17 NRC operating license at that time. The VELCO switchyard would remain in place for  
18 possible use in connection with a potential new solar or other generating facility.

19 **Q27. Will storage of SNF at the site be any different under NorthStar's ownership than**  
20 **under Entergy's ownership?**

21 **A27.** No. The need to store SNF at the site arises from DOE's partial breach of its contract to  
22 take title to and remove SNF from the site. Thus, the site will store all SNF in dry casks

1 on the two ISFSI pads on the site until DOE fulfills its contractual obligations. Although  
2 the VY Station cannot be fully decommissioned and restored while SNF remains on-site,  
3 the presence of SNF will not impede NorthStar's decommissioning and site restoration  
4 plan for the remainder of the site, and it will not prevent release for unrestricted use of the  
5 rest of the site, pursuant to 10 C.F.R. § 50.83, by the end of 2030. A security cordon and  
6 staff will continue to protect the ISFSI area after partial site release, consistent with NRC  
7 requirements. The ISFSI area can be decommissioned, released, and restored only after  
8 DOE removes the SNF from the site.

9 **Q28. You mentioned that NorthStar intends to accomplish radiological decommissioning**  
10 **and site restoration concurrently. How will that occur?**

11 A28. NorthStar will undertake radiological and site restoration tasks at the same time by not  
12 separating out the two aspects of the work onsite. For instance, instead of first cleaning a  
13 concrete structure of radioactivity and then waiting until after radiological  
14 decommissioning has been completed and site restoration has begun to demolish it (a  
15 sequence consistent with the general approach and timing assumed in Entergy VY's 2014  
16 DCE), NorthStar generally demolishes the structure using mechanized equipment and  
17 removes it from the site during radiological decommissioning.

1 Q29. **Please explain how, given this simultaneous performance of radiological**  
2 **decommissioning and site restoration, NorthStar plans to use the currently separate**  
3 **NDT and SRT.**

4 A29. I understand that, under the Docket 7862 MOU, the SRT and NDT are separate so that  
5 there is assurance that separate funds for site restoration exist apart from depletion of the  
6 NDT for decommissioning. Given NorthStar's different methodology, the Joint Petition  
7 seeks to allow NorthStar to access the SRT during decommissioning as site restoration  
8 tasks are completed. Because many of the tasks NorthStar performs accomplish both  
9 radiological decommissioning and site restoration, for those tasks NorthStar will allocate  
10 the cost of each task appropriately between radiological decommissioning and site  
11 restoration. NorthStar seeks to be permitted to withdraw the allocated amount under the  
12 pay-item disbursement schedule (with any overage on any task, whether  
13 decommissioning or site restoration, to be paid for from NorthStar's own resources as  
14 described). In furtherance of this approach, NorthStar requests approval for Entergy at or  
15 immediately prior to the closing of the transaction to contribute the SRT into a separate  
16 segregated sub-account within the NDT to be used for site restoration task purposes. The  
17 trustee of the NDT would serve as the trustee both for the NDT (in the main account) and  
18 the SRT (in the sub-account). If Entergy is permitted to contribute the SRT into a  
19 separate NDT sub-account, NorthStar proposes that any distributions from the SRT sub-  
20 account would be subject to the same restrictions on distributions from the SRT that  
21 currently exist pursuant to Section 4.01 of the Site Restoration Trust Agreement for the  
22 VY Station. (A copy of the Site Restoration Trust Agreement is provided as Exhibit JP-

1 SES-2.) Specifically, any distributions from the sub-account would be used exclusively  
2 to pay for site restoration costs. NorthStar VY would initiate any disbursements from the  
3 sub-account by presenting a certificate to the trustee. For the initial certificate requesting  
4 disbursement from the sub-account, and for every subsequent certificate requesting  
5 disbursement from the sub-account in which NorthStar VY is the payee, NorthStar VY  
6 will first present the certificate to the Vermont Public Service Department  
7 (“Department”). The Department will have a period of 14 days from receipt of the  
8 certificate to object in writing, and if no written objection is made, after the expiration of  
9 the 14-day period, NorthStar VY can present the certificate to the trustee for payment.

10 **IV. The Benefits of Earlier Decommissioning, Site Restoration, and Site Release**

11 **Q30. Please describe the benefits that flow from earlier site release and more active work**  
12 **at the site in the near term.**

13 **A30.** These benefits are described in detail in the prefiled testimony of Mark Berkman, Sue  
14 Tierney, and Harry Dodson.

15 Dr. Berkman explains the direct and indirect economic benefit that is created by  
16 performing active work at the site in the early years (2020 to 2030), as compared to  
17 perhaps 2053 to 2060 under Entergy’s ownership. He also mentions the economic  
18 benefit that would be created from earlier release of the site for redevelopment, in  
19 particular the possibility of using the site for a solar power generation facility.

20 Dr. Tierney discusses the benefits of earlier site release for Vermont’s energy  
21 policy, community and environmental values, and public policy more generally.

1           Mr. Dodson discusses how earlier site release and potential redevelopment of the  
2 site for generation such as solar power will benefit the aesthetics of the site and thus the  
3 public good.

4 **Q31. What does NorthStar intend to do with the site once radiological decommissioning**  
5 **and site restoration (aside from the ISFSI and VELCO switchyard areas) are**  
6 **complete?**

7 A31. NorthStar VY will own the real estate and be able to develop it upon site release, subject  
8 to necessary regulatory approvals, which will occur in 2030 or earlier for the non-ISFSI  
9 and non-switchyard portion of the site. Thus, NorthStar VY stands to gain from making  
10 productive use of the site (such as for solar power generation or light industrial use),  
11 which will be beneficial to the community generally, or by selling the site (respecting the  
12 State's right of first refusal in the Docket 7862 MOU).

13 **Q32. How will any funds remaining in the NDT after completion of radiological**  
14 **decommissioning and site restoration be handled?**

15 A32. NorthStar expects that approximately \$17 million will remain in the NDT/SRT after  
16 completion of decommissioning and site restoration of the site (including the ISFSI).  
17 Under existing orders regarding ownership of the excess amount remaining in the NDT,  
18 NorthStar VY would retain 45% of any amount remaining, while the other 55% would be  
19 returned to benefit to the customers of the Vermont utility companies that, through the  
20 Vermont Yankee Nuclear Power Corporation, formerly owned the VY Station. Based on  
21 the most recent information from DOE related to its spent fuel disposal program, the

1 current estimated date when DOE will remove SNF from the site is 2052, though that  
2 date is not certain.

3 **V. NorthStar's Requested Site Restoration Standards**

4 **Q33. Does the transaction contemplate that the Board will approve specific site**  
5 **restoration standards that are material to the transaction?**

6 A33. Yes. The Board's final order in Docket 7862 expressed the Board's intention to approve  
7 site restoration standards for the plant, and the transaction is predicated upon the Board  
8 doing so in the context of ruling on the Joint Petition.

9 **Q34. Are the site restoration standards NorthStar is proposing protective of the**  
10 **environment and public health?**

11 A34. Yes. They are fully protective of the environment and public health and, indeed, more  
12 restrictive than the NRC's radiological dose limit. Whereas the NRC's limit is 25  
13 mrem/year from all pathways combined (*i.e.*, air, soil, and water),<sup>5</sup> NorthStar proposes a  
14 standard of 15 mrem/year from all pathways that are applicable to a permanently  
15 shutdown plant, from all pathways combined. For example, the resident farmer scenario,  
16 which, as I will explain, will be used to determine exposure to residual radioactivity  
17 initially in the soil, is based on the highly conservative assumptions that a resident farmer

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<sup>5</sup> Specifically, 10 C.F.R. § 20.1402 provides: "A site will be considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a TEDE to an average member of the critical group that does not exceed 25 mrem (0.25 mSv) per year, including that from groundwater sources of drinking water, and the residual radioactivity has been reduced to levels that are as low as reasonably achievable (ALARA). Determination of the levels which are ALARA must take into account consideration of any detriments, such as deaths from transportation accidents, expected to potentially result from decontamination and waste disposal."

1 on the site will be exposed to radiation through all of the following pathways: (i) external  
2 exposure from soil, (ii) inhalation of airborne soil, (iii) ingestion of soil, (iv) ingestion of  
3 drinking water from the aquifer under the site, (v) ingestion of plant products grown in  
4 contaminated soil and using the aquifer to supply irrigation, (vi) ingestion of animal  
5 products grown onsite using feed and water derived from potentially contaminated  
6 sources), and (vii) ingestion of fish from a pond filled with water from the aquifer.<sup>6</sup>

7 **Q35. Why is NorthStar proposing site restoration standards for the Board in connection**  
8 **with an approval of this proposed transaction?**

9 A35. NorthStar needs to know, in advance of closing on this transaction, the site restoration  
10 standards that will be applied to determine whether it can satisfy those standards within  
11 the schedule and budget to which it will be committing itself. NorthStar cannot close this  
12 transaction and commit itself to starting by 2021 and finishing the end of 2030—and  
13 completing all required work with the funding provided by the NDT and SRT—if these  
14 standards are not approved by the Board as a part of this transaction review and prior to  
15 closing. That is why Joint Petitioners have requested that the Board approve the site  
16 restoration standards proposed as a part of this transaction.

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<sup>6</sup> U.S. NUCLEAR REGULATORY COMM'N, NUREG-1757 (Vol. 1, Rev. 2), CONSOLIDATED  
DECOMMISSIONING GUIDANCE, at B-5 (Sept. 2006),  
<http://www.nrc.gov/docs/ML0630/ML063000243.pdf>.

1 Q36. **Can the proposed site restoration standards be evaluated individually, or should**  
2 **they be considered together as part of a package?**

3 A36. They must be considered together as part of a package because changing one can affect  
4 the implementation of, and therefore the costs associated with, another standard.

5 Q37. **If the Board were to reject NorthStar's proposed site restoration standards, would**  
6 **NorthStar still be willing to close the proposed transaction?**

7 A37. The site restoration standards proposed for approval in this transaction are material to the  
8 transaction. NorthStar's contract with Entergy makes it a condition to closing of the  
9 transaction that no final order of this Board shall include a term that would have a  
10 material adverse effect on NorthStar.

11 Q38. **Is Entergy proposing these same site restoration standards in the event that the**  
12 **transaction is rejected by the Board?**

13 A38. No. As Entergy's Steven Scheurich explains, Entergy is not proposing site restoration  
14 standards for the process NorthStar would utilize; Entergy reserves its right to propose  
15 different standards in a separate proceeding, which would be necessary in the event the  
16 Board fails to approve the proposed transaction.

17 Q39. **What type of characterization of the VY Station site does NorthStar propose to**  
18 **conduct prior to beginning decommissioning site restoration work?**

19 A39. NorthStar believes that it has sufficient information on the radiological and non-  
20 radiological conditions at the site to proceed with decommissioning and site restoration  
21 work based on its review of the 2001 Phase I and Phase II Environmental Assessment

1 conducted at the time ENVY purchased the site and the 2014 Site Assessment Study, as  
2 well as its own due diligence. However, to address our understanding of the State of  
3 Vermont's concerns regarding these prior assessments, ENVY has agreed to initiate a  
4 Phase I Environmental Assessment of the VY Station site that would be conducted in  
5 accordance with the American Society for Testing and Materials ("ASTM")  
6 International's E1527-13 Standard Practices for Environmental Site Assessments ("Phase  
7 I") by March 31, 2017. To the extent that the Phase I identifies any recognized  
8 environmental conditions as defined in ASTM International's E1527-13 Standard  
9 Practices for Environmental Site Assessments not previously identified or characterized,  
10 within 120 days after the closing of the transaction, NorthStar will either conduct a Phase  
11 II Environmental Assessment for those areas with recognized environmental conditions  
12 identified in the Phase I Environmental Assessment, in accordance with ASTM  
13 International's E1903-11 Standard Practices for Environmental Site Assessments ("Phase  
14 II"), or proceed with the development of a corrective action plan. The Phase II  
15 assessment will identify which, if any, recognized environmental conditions are expected  
16 to be redressed through radiological decommissioning or site restoration (*e.g.*, soils  
17 removal). To the extent Phase II identifies the release or likely release of non-  
18 radiological hazardous materials, and a corrective action plan is required pursuant to the  
19 Vermont Department of Conservation's Investigation and Remediation of Contaminated  
20 Properties Procedure ("IROCPP"), NorthStar will develop and implement an appropriate  
21 corrective action plan.

1 Q40. **What does NorthStar propose for end use of the property?**

2 A40. NorthStar proposes light industrial use (for example, use for a solar generation site).

3 Q41. **What does NorthStar propose for a radiological dose limit?**

4 A41. NorthStar proposes a 15mrem/year dose limit from all pathways.

5 Q42. **What does NorthStar propose for radiological dose modeling?**

6 A42. NorthStar proposes (1) the use of a “basement inventory model” to determine the amount  
7 of residual radioactivity that remains in any remaining below-grade structures or building  
8 materials that will be used as backfill, and (2) the use of the “resident farmer scenario” to  
9 model the potential exposure to residual radioactivity in the soil. The basement inventory  
10 model assumes that the human exposure pathway is limited to migration of residual  
11 radioactivity within the concrete into the local aquifer. This model approach was  
12 adopted, used, and accepted by the NRC and other regulators for selected subsurface  
13 structures at the Connecticut Yankee, Yankee Rowe, and Maine Yankee nuclear power  
14 plants, and is currently being planned for use in decommissioning the Zion and LaCrosse  
15 nuclear power plants. The resident farmer scenario is considered to be the most  
16 conservative dose modeling scenario because of all the assumptions that I described  
17 previously.

18 Q43. **What does NorthStar propose for non-radiological cleanup criteria?**

19 A43. NorthStar proposes compliance with the industrial standards set forth in the April 2012  
20 version (effective as of the submission of this testimony) of the IROCPP, particularly  
21 pages 40-59 which set forth the soil screening values for industrial sites. A copy of those

1 standards is attached hereto as Exhibit JP-SES-3. NorthStar would not be subject to any  
2 future revised version of IROCPP or replacement for IROCPP unless such revised  
3 version or replacement were mandated by federal law.

4 **Q44. What does NorthStar propose for removal of structures at the site and for reuse of**  
5 **soil and rubblized concrete that is excavated as part of the project?**

6 A44. NorthStar proposes to remove all above-ground structures on site, other than the ISFSI  
7 and associated security facilities, the Plant Support Building, the VELCO switchyard, and  
8 other uncontaminated structures that can be part of site redevelopment without affecting  
9 the site's release for unrestricted use.

10 NorthStar proposes to remove underground structures—including, without  
11 limitation, building foundations, buried piping, and contained piping—to a depth of 4 feet  
12 below ground surface (with “ground surface” meaning existing site contours, which are  
13 depicted in Exhibit JP-SES-4) and to a greater depth wherever required to meet the site  
14 release standards I have described. Asbestos-containing material would be removed  
15 regardless of depth. Pipes and other spaces with void space that are below 4 feet and  
16 allowed to be left in place would be filled with concrete or other material as necessary to  
17 ensure stability of the ground above.<sup>7</sup>

18 NorthStar proposes that concrete that is consistent with the applicable radiological  
19 and non-radiological standards for radiological decommissioning and site restoration

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<sup>7</sup> In the case of a pipe the top portion of which is above the 4-foot cut-off, and the bottom portion of which is deeper than the 4-foot cut-off, NorthStar would remove the portion that is above the 4-foot cut-off and would be permitted to leave in place the portion that is deeper than the 4-foot cut-off.

1 (referred to herein as “ recycled concrete”) can be rubblized and reused at the site,  
2 consistent with the protective concrete rubble approaches successfully used at Yankee  
3 Rowe and Connecticut Yankee. NorthStar recognizes that this proposal to rubblize  
4 concrete may be considered a departure from the terms of the Docket 7862 MOU, but  
5 believes that a more thorough evaluation of this issue will show that the proposal, like the  
6 other aspects of its site restoration standards proposal, is integral to an accelerated  
7 decommissioning plan and budget and is protective of safety and the environment.

8 Finally, as to soil, NorthStar proposes that surface and sub-surface soil excavated  
9 as part of demolition can be reused at the site only so long as it complies with the  
10 approved radiological and non-radiological standards for the relevant survey unit area.

11 **Q45. To be clear, what sorts of piping are subject to the approach set forth in the answer**  
12 **to the previous question?**

13 A45. Both buried piping (*i.e.*, piping that is underground and in direct contact with the  
14 ground/soil) and contained piping (*i.e.*, piping that is underground but within some other  
15 structure and thus not in direct contact with the ground/soil) are subject to the approach  
16 set forth in my answer.

17 **Q46. You mentioned survey unit areas. What does that mean?**

18 A46. A survey unit is a physical area consisting of structures or land areas of specified size and  
19 shape for which a separate decision will be made as to whether or not that area exceeds the

1 release criterion.<sup>8</sup> Specific survey units have not yet been delineated but will be in a final  
2 status survey plan, which must be approved by the NRC prior to conducting the final  
3 status survey.

4 **Q47. What does NorthStar propose for the sharing of information related to on-site**  
5 **radiological monitoring of the decommissioning project before partial site release?**

6 A47. NorthStar proposes to perform and to pay for any analysis required by the NRC and to  
7 provide the results to the Vermont Department of Health, Vermont Agency of Natural  
8 Resources, and Vermont Department of Public Service.

9 **Q48. What does NorthStar propose for the sharing of final status survey results?**

10 A48. NorthStar proposes to perform and to pay for all analysis required by the NRC and to  
11 provide copies of any submissions to the NRC regarding the results of the final status  
12 survey analysis to the Vermont Department of Health, Vermont Agency of Natural  
13 Resources, and Vermont Department of Public Service.

14 **Q49. What does NorthStar propose for post-completion monitoring?**

15 A49. NorthStar proposes to perform biannual radiological monitoring of groundwater  
16 (including both previously impacted and down gradient monitoring wells) for three years.  
17 A post-completion monitoring plan approved by NRC and the Vermont Department of  
18 Health and Vermont Agency of Natural Resources will identify the sampling locations  
19 and analytical parameters specific to each location.

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<sup>8</sup> U.S. NUCLEAR REGULATORY COMM'N, NUREG-1575 (Rev. 1), MULTI-AGENCY RADIATION SURVEY AND SITE INVESTIGATION MANUAL (MARSSIM), at 4-14 (Aug. 2000), <http://www.nrc.gov/docs/ML0037/ML003761445.pdf>.

1 **VI. NorthStar’s Comparative Advantages over ENVY That Allow NorthStar to**  
2 **Complete Radiological Decommissioning and Site Restoration Sooner**

3 **Q50. Please explain how NorthStar will be able to complete radiological decommissioning**  
4 **and site restoration so many years sooner than ENVY would be able to complete**  
5 **those tasks under the status quo.**

6 A50. To start, NorthStar’s core business is large-scale demolition and environmental  
7 remediation. This business focus contrasts to Entergy’s business, which concerns the  
8 operation of nuclear and other generating plants and selling their output. In this regard,  
9 NorthStar undertakes most of the work itself (rather than contracting it out) and has  
10 substantial expertise in doing this work, and NorthStar enjoys negotiated rates on the  
11 work that it does not perform “in-house,” such as waste disposal and reactor vessel  
12 segmentation. Together, these factors provide a high degree of cost certainty and also  
13 decrease the total nominal cost of the work, such that NorthStar can begin  
14 decommissioning activities much sooner, without the need to wait for the NDT to grow  
15 during an extended SAFSTOR period. The Membership Interest Purchase and Sale  
16 Agreement (“MIPA”) provides a minimum NDT amount at closing that NorthStar  
17 projects, with the SRT, will provide access to \$538,149,956 available at the start of its  
18 decommissioning and site restoration activities. That amount is sufficient for NorthStar  
19 to begin work no later than early 2021 and possibly as early as 2019.

1 Q51. **Please elaborate on how eliminating the need to hire a decommissioning operations**  
2 **contractor saves costs.**

3 A51. Entergy does not have significant experience in nuclear plant decommissioning or  
4 demolition or remediation of large projects. If Entergy retained ownership of ENVY,  
5 ENVY would hire a decommissioning operations contractor and Entergy's DCE is based  
6 on that approach. Utilities like Entergy have generally hired contractors to manage large  
7 projects like constructing generating facilities or decommissioning them, rather than  
8 developing the expertise to manage them internally, likely because that function does not  
9 fit within their core business. Hiring a decommissioning operations contractor, however,  
10 adds tens of millions of dollars to the cost of the project over its life due to the labor-  
11 intensive process to select the contractor, to monitor its work and performance until the  
12 project is completed, and to ensure the contractor's compliance with all of the regulatory  
13 requirements for which ENVY, as the owner and NRC licensee, would remain ultimately  
14 responsible.

15 Q52. **Please elaborate on NorthStar's negotiated rates on waste disposal.**

16 A52. Decommissioning a nuclear plant involves removal of significant volumes of waste,  
17 including LLRW, mixed waste, and hazardous waste, all of which must be disposed of at  
18 an appropriate site. Because Vermont is a member of the Texas Low Level Radioactive  
19 Waste Compact, the VY Station already enjoys the lowest available rates for disposal of  
20 its Class A, B, and C low-level radioactive waste at WCS's Compact Waste Facility.  
21 NorthStar, by commencing the project now and given NorthStar's extensive expected  
22 relationship with WCS, can optimize transportation and disposal of such waste and take

1 advantage of disposal options that are available today but may be unavailable after the  
2 extended SAFSTOR period that ENVY plans.

3 **Q53. Are there any other benefits from NorthStar's teaming with AREVA and WCS?**

4 A53. Integrating work with AREVA and WCS optimizes packaging and transport of the  
5 reactor vessel. By teaming with AREVA to use its special transportation canister,  
6 AREVA can reduce the number of cuts made during segmentation of the vessel, which  
7 reduces the number of shipments from Vermont to the WCS site in Texas.

8 **Q54. Please elaborate on NorthStar's arrangement with AREVA for reactor vessel  
9 segmentation.**

10 A54. NorthStar's ability to use AREVA on numerous projects similarly has allowed NorthStar  
11 to negotiate preferred firm fixed prices with AREVA. NorthStar faces no risk of the  
12 tasks being billed for more than the agreed amounts. Most importantly, AREVA's  
13 unparalleled experience with five recent reactor vessel segmentation projects means that  
14 it knows what costs to expect and has strong project controls. Armed with the experience  
15 of having performed five vessel segmentations, AREVA can implement lessons learned  
16 from its prior work into the plans for this project. In particular, AREVA will be bringing  
17 the same project managers and project plan for the successful Wuergassen reactor vessel  
18 segmentation project to the VY Station.

1 Q55. **Aside from its negotiated prices with WCS and AREVA, what certainty does**  
2 **NorthStar have that its cost estimates for the various tasks are reliable and that it**  
3 **will not go over-budget?**

4 A55. NorthStar has the benefit of the investigation that ENVY undertook and the information  
5 that it gathered on both radiological and non-radiological contamination at the site in  
6 order to prepare its October 2014 Site Assessment Study. We also have the benefit of the  
7 extensive hydrogeologic investigation and groundwater modeling that was done after the  
8 2010 tritium leak. With this information, and because of the fact that NorthStar does  
9 much of the decommissioning work itself and can reliably estimate costs based on its  
10 substantial past experience, NorthStar has high confidence in its cost estimates to do each  
11 task. The estimated costs are based on prior decommissioning cost estimates, building  
12 and equipment inventories, radiological and non-radiological historical site assessments,  
13 interviews with site personnel and our decommissioning consultants, field walk-downs of  
14 the facilities, and production rates from NorthStar and team members.

15 Because NorthStar plans to commence the work almost immediately, it can  
16 estimate those costs with far greater certainty than cost estimates for work to be done in  
17 the distant future (when Entergy projects doing the work) that may change significantly  
18 due to new regulatory developments or other unforeseen circumstances. This is a  
19 commonly recognized advantage of immediate rather than deferred decommissioning.

1 Q56. **What financial protections are built in to ensure that the work is completed as**  
2 **estimated by NorthStar?**

3 A56. NorthStar builds in several further protections to ensure that it can rely on its estimates.

4 *First*, NorthStar includes a contingency or potential profit margin in the amount it  
5 estimates for each task; if a task ends up costing more than NorthStar's estimate,  
6 NorthStar's profit will be reduced but the contingency amount will be available to fund  
7 completion of the task. If the task ends up costing more than the estimated amount  
8 including the contingency, NorthStar will still have to complete the task to comply with  
9 its decommissioning and site restoration obligations to the NRC and Vermont,  
10 respectively.

11 *Second*, NorthStar is committing to the NRC and to this Board to a limitation on  
12 its ability to withdraw funds from the NDT and SRT according to a pay-item  
13 disbursement schedule that designates a specific amount for each separate task required  
14 to complete decommissioning and site restoration—with the total of these amounts being  
15 less than the combined balances of the NDT and SRT (including projected growth and  
16 DOE recoveries). The amount earmarked in the pay-item disbursement schedule would  
17 be the only money available for a task; if NorthStar goes over budget for the task, it could  
18 not withdraw additional monies from the NDT to complete that task. This payment  
19 method aligns NorthStar's incentives with the goal of successful on-time, on-budget  
20 completion.

21 *Third*, as a condition of the transaction agreement with ENVY, NorthStar also  
22 commits to provide, and will require its teaming partners to provide, appropriate

1 performance bonds (or insurance, where appropriate) issued by Treasury-rated surety  
2 companies to guarantee the performance of the tasks.

3 *Finally*, in the unlikely event that the bonds are unavailable or inadequate,  
4 NorthStar VY will be able to draw on the \$125 million support agreement provided by  
5 NorthStar Group Services, Inc.

6 **Q57. Please explain further how the pay-item disbursement schedule works.**

7 A57. NorthStar's contracting work will be based upon a work breakdown structure in which  
8 smaller discrete tasks to be conducted during decommissioning over five years, each with  
9 its own fixed-price contracts, will be specified. As tasks are conducted or completed and  
10 deliverables provided and efforts appropriately documented, NorthStar (or other relevant  
11 contractor(s)) will be paid.

12 **Q58. Please provide an example of how this pay-item disbursement schedule works.**

13 A58. One example is the task of soil remediation of Area B5 – North 40. NorthStar has  
14 budgeted \$1,310,000 for that task. NorthStar will withdraw amounts within the  
15 \$1,310,000 budget from the NDT to pay for that task on a monthly basis as sub-tasks are  
16 completed. If the task ends up costing more than the allotted amount, NorthStar must pay  
17 for the overage from its own resources and cannot take that excess amount from the  
18 NDT.

1 Q59. **Are there any differences between the work methodology employed for**  
2 **decommissioning and site restoration by NorthStar as compared to ENVY?**

3 A59. Yes. NorthStar has a very different approach to decommissioning and site restoration.  
4 As discussed earlier in my testimony, the approach of ENVY (under Entergy ownership)  
5 as described in its 2014 DCE involves waiting many years, then starting and completing  
6 radiological decommissioning, which, in addition to removing the reactor vessel and  
7 internals, mostly consists of a process to remove radioactive contamination from the  
8 surfaces of all structures, and then—only after such radiological decommissioning is  
9 complete—starting and completing site restoration, including demolition and removal of  
10 the previously decontaminated structures.

11 NorthStar, by contrast, performs radiological decommissioning and site  
12 restoration together as an integrated process. Basically, this involves removing  
13 radioactively contaminated structures from the site in large sections, packaging them  
14 safely in containers, and promptly and safely shipping the entire container out of state to  
15 WCS for appropriate treatment and disposal. This task is done largely using mechanical  
16 equipment that reduces workers' exposure to radiation. It has the benefit of completing  
17 radiological decommissioning and site restoration in tandem.

18 Q60. **Does NorthStar intend to use the NDT to pay for SNF-management expenses?**

19 A60. Yes, NorthStar plans to withdraw funds from the NDT (but not from any portion of the  
20 segregated site restoration sub-account) to pay for operational SNF management  
21 expenses (primarily security costs) while the spent fuel remains on the ISFSI pads, to  
22 recover those expenses from DOE, and to then use those recoveries exclusively for the

1 VY Station until decommissioning and site restoration are complete and DOE has  
2 removed the SNF from the site. Again, any withdrawals for this purpose will be subject  
3 to the budgeted amounts and the procedure I described regarding the pay-disbursement  
4 schedule. Litigation costs to obtain recovery from DOE will be covered by NorthStar  
5 VY and will not be taken out of the NDT (or SRT). Additionally, NorthStar has  
6 committed to maintain a revolving cap of \$20 million in NDT withdrawals to support  
7 spent fuel management. In other words, NorthStar will never have more than \$20 million  
8 withdrawn from the NDT at one time for spent fuel management purposes; to the extent  
9 that the withdrawn amount is replenished from DOE recoveries, NorthStar would be able  
10 to withdraw more, always subject to the \$20 million cap. Beyond that amount, NorthStar  
11 will provide the funding of SNF management expenses from its own resources and will  
12 not withdraw from the NDT (or SRT).

13 **Q61. Does NorthStar make any assumption in its modeling regarding how the NDT and**  
14 **SRT will grow over time?**

15 A61. Yes. NorthStar assumes 2% net annual growth, which is the real rate allowed by the  
16 NRC for these purposes.<sup>9</sup> This is a reasonable estimate of the rate of return based on a  
17 fixed income portfolio investment strategy that NorthStar intends to implement to  
18 provide certainty in fund performance. Of course, since NorthStar is withdrawing from  
19 the fund each year, the principal amount will decrease, but the amount remaining in the  
20 NDT and SRT will continue to grow during the project, and indeed NorthStar expects  
21 that there will be an excess once the site is fully decommissioned and restored.

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<sup>9</sup> 10 CFR § 50.75(e)(1)(i).

1 Q62. **Please describe the key categories of NorthStar’s decommissioning and site**  
2 **restoration project and how much each will cost.**

3 A62. The key categories are license termination, spent fuel management, and site restoration.  
4 As explained above, NorthStar accomplishes site restoration simultaneously with the  
5 radiological decommissioning activities that (when completed) allow license termination.  
6 Nonetheless, NorthStar has allocated the cost of such tasks as between license  
7 termination and site restoration. Over the entire duration of the project (2019 to 2052,  
8 which includes dismantling and site restoration of the ISFSI area assuming that DOE  
9 removes the SNF in 2052), NorthStar’s costs for license termination are \$511,124,040;  
10 for SNF management are \$287,802,112; and for site restoration are \$12,598,000.

11 Q63. **Please explain when some of the key tasks during the project take place and how**  
12 **much they are expected to cost.**

13 A63. One key task is segmentation of the reactor vessel. This will cost over \$25 million, and  
14 will occur in the early years of the project, concluding as early as 2021 if  
15 decommissioning starts in 2019.

16 A second key task is segmentation of the reactor vessel internals. This will cost  
17 over \$50 million, and will also occur in the early years of the project, concluding as early  
18 as 2021 if decommissioning starts in 2019.

19 A third key task is demolition of the cooling towers. This will cost over \$15  
20 million and will occur in approximately 2023.

1 Q64. **Is that an exhaustive list of the project tasks and their costs and timing?**

2 A64. No. There are many other tasks. Their costs and timing are sensitive commercial  
3 information and for that reason I have not provided them in this opening public  
4 testimony.

5 Q65. **Please summarize why NorthStar expects the NDT and SRT to be adequate to allow**  
6 **NorthStar to complete radiological decommissioning and site restoration no later**  
7 **than the end of 2030.**

8 A65. NorthStar projects that there will be a minimum of \$538,529,646 combined in the NDT  
9 and SRT at closing. NorthStar will promptly commence active work on the radiological  
10 decommissioning and site restoration tasks no later than 2021 (and as early as 2019) and  
11 will make withdrawals from the NDT and SRT sub-account as allowed by the pay-item  
12 disbursement schedule. Although this diminishes the trusts, the trusts also have some  
13 growth from income earned on the principal not yet withdrawn, as well as contribution  
14 back to the fund of recoveries periodically received from DOE in litigation over SNF  
15 management costs.

16 By 2030 (and, according to NorthStar's work plan, as early as 2026), NorthStar  
17 expects that decommissioning and site restoration (apart from the ISFSI and switchyard  
18 areas) will be completed. The portions of the site apart from the ISFSI area will be  
19 released from the NRC 10 C.F.R. Part 50 license and will be available for alternative  
20 development at that time.

21 The remainder of the schedule involves overseeing and protecting the ISFSI area  
22 until DOE removes the SNF, at which point the ISFSI area would be decommissioned

1 and restored at an estimated cost of \$3,454,000. Based on an assumption that DOE  
2 completes the removal of all the SNF by 2052, the ISFSI area would be ready for release  
3 that same year. At that time, approximately \$17 million of the combined balance of the  
4 NDT and SRT will remain in the trusts unspent.

5 **Q66. Does NorthStar's assumption regarding DOE recovery for spent fuel management**  
6 **differ from Entergy's assumption with regard to decommissioning?**

7 A66. No. As explained above, Entergy also estimates that it will recover approximately 90%  
8 of its spent fuel management costs from DOE. But unlike Entergy, NorthStar includes  
9 the use of such recoveries in its modeling. The NRC is expected to authorize the  
10 inclusion of the recoveries because NorthStar is providing, among other things, the  
11 commitment to withdraw from the fund constrained by the pay-item disbursement  
12 schedule, as well as a \$125 million parent support agreement.

13 **VIII. Fair Partner**

14 **Q67. What is NorthStar's history and record of regulatory compliance?**

15 A67. NorthStar has a strong record in the projects it has undertaken, many of which were  
16 summarized earlier in my testimony. In those projects, NorthStar has successfully  
17 complied with, among other things, NRC, environmental, and workplace safety  
18 regulations, and has not been subject to any NOVs.

1 Q68. **Are there other factors that you believe strengthen NorthStar's position as a fair**  
2 **partner with the State of Vermont in this transaction?**

3 A68. Yes. As discussed earlier in my testimony, direct ownership when performing  
4 decommissioning and site restoration work means that NorthStar will have a direct  
5 relationships with the relevant agencies and entities. NorthStar will continue all  
6 outstanding obligations to the State and NRC set forth in regulation and orders (except as  
7 modified by the conditions of this transaction), will continue cooperation with the  
8 Nuclear Decommissioning Citizens Advisory Panel, will work with local citizens and  
9 government throughout the project and when considering site reuse, and will work with  
10 state and federal regulators as required.

11 Q69. **At the time of closing, how many people will be employed at the VY Station?**

12 A69. At the time of closing, there will be approximately 40 utility employees and security  
13 contractors working at the VY Station.

14 Q70. **Does NorthStar plan to hire any of those employees for continued employment at**  
15 **the VY Station during decommissioning and site restoration?**

16 A70. Yes. NorthStar will offer employment to all Entergy employees working at the VY  
17 Station at the time of closing, keeping these experienced employees familiar with the site  
18 in a project management role and also retaining the security contractors at the site.

19 Q71. **Does that conclude your testimony?**

20 A71. Yes, at this time.

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