

High Level Radioactive Waste in Vermont: Enough Is Enough

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Vermont's energy future is currently being forged in the committee rooms of the Statehouse, corporate boardrooms and town halls, both large and small. The operating license for Entergy Nuclear Vermont Yankee (ENVY) and the power contract with Hydro Quebec will expire in the near future. Decisions about the nature and cost of our power supply require immediate attention. The continued production and long term, local storage of deadly high-level nuclear waste on the banks of the Connecticut River is a significant factor in any decision-making concerning Vermont's energy future; its impact must be weighed by policymakers and citizens alike as Vermont decides which energy path to take in the coming decades.

As the debate around the costs and the environmental impact of power production continues, it is of paramount importance that the volume of waste at VY be seen for what it is... a vexing, long term economic and environmental burden. It's time to take stock and take positive action.

At the present time, Vermont Yankee is projected to have 671 tons of high-level nuclear waste on-site in Vernon by 2011. As a result of forty years of operation, Vermont Yankee will give the people of Vermont the dubious honor of ranking first in the nation for on-site volume of commercial high-level nuclear waste, on a per capita basis. Vermont ranks as number one, when the amount of projected waste present in each of the states with operating commercial nuclear reactors is divided by the total population in each of those states, the result is per capita amounts of waste present in each state. The projected volume of waste was taken from the Environmental Impact Statement prepared for the Yucca Mountain Repository.

The most prudent first step Vermont can take, as a leader in the production of commercial high-level waste, is to stop making it. If Vermont Yankee operates for another twenty years the problem on the Connecticut River will only get worse. The logical second step is to use the billions of ratepayer dollars, dollars that would have otherwise been paid to Entergy for running Vermont Yankee until 2032, and invest in readily available, commercially viable, smaller scale generating technologies with acceptable environmental impacts. Surely, the State of Vermont has the where-with-all to use the economic power of pooled ratepayer dollars and create a diversified, environmentally low-impact power generation infrastructure to replace the 300 megawatts of power we receive from Vermont Yankee.

Since 1972, the nuclear power station at Vernon has been producing irradiated fuel rods and storing the highly radioactive waste on-site, in the facility's spent fuel pool. Last year

the Public Service Board gave Entergy Nuclear Vermont Yankee permission to load irradiated fuel from its overcrowded pool into dry casks. The dry casks will be parked outdoors on the grounds of the facility on the banks of the Connecticut River. Entergy plans to install a wooden fence as protection for its dry cask storage facility. Both the spent fuel pool and dry cask systems are characterized as “temporary storage measures”.

Under current Federal statutes, the United States Department of Energy bears ultimate responsibility for the permanent storage of all commercial high-level radioactive waste. An examination of the status of policies and preparations for permanent isolation of these long-lived lethal by-products of nuclear power generation is an essential step in the decision-making process involved in determining the legacy of the Vermont energy plan now being forged.

Congress amended the Nuclear Waste Policy Act in 1987. The most significant change was the virtual designation of Yucca Mountain, Nevada as the nation’s only permanent high-level nuclear waste repository. The amendments were known by many on Capitol Hill as “The Screw Nevada Bill”, pointing to Nevada’s political weakness and assurances by the bill’s proponents that the State of Nevada could not act effectively to stop the project. Twenty years later the repository project, racked with scandal, potent legal challenges, and dubious science, is in grave danger. With the significant increase in the power wielded by the Nevada Congressional Delegation, it appears that any hopes held by states that their waste would soon be hauled to Nevada are dashed.

Commercial High-Level Radioactive Waste Per Capita, By State

State	Population*	Irradiated Nuclear Fuel	Waste Per Capita (lbs)***
Vermont	623,050	609 MT/671 T/1,342,601 lbs	2.15
South Carolina	4,255,083	3,923 MT/4,324 T/8,648,646 lbs	2.03
Alabama	4,557,808	3,106 MT/3,424 T/6,848,000 lbs	1.5
Illinois	12,763,371	8,001 MT/8,820 T/17,639,005 lbs	1.38
Connecticut	3,510,297	2,129 MT/2,347 T/4,693,593 lbs	1.34
Nebraska	1,758,787	831 MT/916 T/1,832,023 lbs	1.04
Pennsylvania	12,429,616	5,539 MT/6,106 T/12,211,279 lbs	0.98
Maine	1,321,505	536 MT/591 T/1,181,666 lbs	0.89
Arkansas	2,779,154	1,109 MT/1,222 T/2,444,000 lbs	0.88
North Carolina	8,683,242	3,085 MT/3,401 T/6,801,191 lbs	0.78
New Hampshire	1,309,940	425 MT/468 T/936,955 lbs	0.72
Virginia	7,567,465	2,378 MT/2,621 T/5,242,539 lbs	0.69
Mississippi	2,921,088	856 MT/944 T/1,887,138 lbs	0.65
U.S.A.	296,410,404	63,000 MT/69,445 T/138,889,800 lbs	0.47

Arizona	5,939,292	1,674 MT / 1,845 T / 3,690,000 lbs	0.62
Georgia	9,072,576	2,526 MT / 2,784 T / 5,568,820 lbs	0.61
New Jersey	8,717,925	2,358 MT / 2,599 T / 5,198,447 lbs	0.6
Michigan	10,120,860	2,699 MT / 2,975 T / 5,950,215 lbs	0.59
Minnesota	5,132,799	1,292 MT / 1,424 T / 2,848,343 lbs	0.55
Wisconsin	5,536,201	1,365 MT / 1,505 T / 3,009,279 lbs	0.54
Kansas	2,744,687	630 MT / 694 T / 1,388,898 lbs	0.51
Louisiana	4,523,628	1,031 MT / 1,136 T / 2,272,943 lbs	0.5
Tennessee	5,962,959	1,274 MT / 1,404 T / 2,808,660 lbs	0.47
Maryland	5,600,388	1,142 MT / 1,259 T / 2,517,653 lbs	0.45
New York	19,254,630	3,439 MT / 3,791 T / 7,581,619 lbs	0.39
Iowa	2,966,334	467 MT / 515 T / 1,029,548 lbs	0.35
Florida	17,789,864	2,606 MT / 2,873 T / 5,745,188 lbs	0.32
Missouri	5,800,310	702 MT / 774 T / 1,547,629 lbs	0.27
Massachusetts	6,398,743	654 MT / 721 T / 1,441,808 lbs	0.23
Oregon	3,641,056	359 MT / 396 T / 791,451 lbs	0.22
Washington	6,287,759	581 MT / 640 T / 1,280,873 lbs	0.2
Texas	22,859,968	2,010 MT / 2,216 T / 4,432,000 lbs	0.19
Ohio	11,464,042	957 MT / 1,055 T / 2,109,802 lbs	0.18
California	36,132,147	2,806 MT / 3,093 T / 6,186,108 lbs	0.17
Alaska	663,661	0	0
Colorado	4,665,177	0	0
Delaware	843,524	0	0
Dist of Columbia	550,521	0	0
Hawaii	1,275,194	0	0
Idaho	1,429,096	0	0
Indiana	6,271,973	0	0
Kentucky	4,173,405	0	0
Montana	935,670	0	0
Nevada	2,414,807	0	0
New Mexico	1,928,384	0	0
North Dakota	636,677	0	0
Oklahoma	3,547,884	0	0
Rhode Island	1,076,189	0	0
South Dakota	775,933	0	0
Utah	2,469,585	0	0
West Virginia	1,816,856	0	0
Wyoming	509,294	0	0

U.S.A.	296,410,404	63,000 MT / 69,445 T / 138,889,800 lbs	0.47
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(metric ton/ton/pound)**

*U.S. Census Bureau, State & County QuickFacts, <http://quickfacts.census.gov/qfd/>, accessed 11/20/2006.

**State totals by the year 2011, taken from Feb. 14, 2002 U.S. Dept. of Energy (DOE) “Final Environmental Impact Statement for Yucca Mountain,” Table A-7, “Proposed Action spent nuclear fuel inventory,” page A-15. This does not include irradiated nuclear fuel from research reactors, nor other DOE irradiated nuclear fuel and high-level radioactive waste. In the year 2011, enough commercial irradiated nuclear fuel – 63,000 metric tons – will exist in the U.S. to fill the Yucca Mountain dump to its legal limit, long before the earliest possible date (the year 2017) DOE says the dump could even be opened. These figures also do not account for so-called commercial and DOE “low” level radioactive wastes.

***Although these weights of highly radioactive atomic wastes may seem small, they are still deadly, and forevermore. For example, one pound of the oldest (that is, most radioactively decayed and thermally cooled) commercial nuclear fuel – many decades cooled post irradiation in the reactor core – could still deliver a lethal dose of radioactivity to a person standing six feet away in just a few minutes, unless thick radiation shielding is maintained between the waste and the person. Even one pound of irradiated nuclear fuel contains enough plutonium (0.01 pounds) to kill countless people by lung cancer over time, if they were to inhale just a microscopic quantity. Plutonium-239 has a hazardous persistence of 240,000 years, about as long as human beings have been a species.