

SOME FACTS TO CONSIDER ABOUT VERMONT YANKEE

BACKGROUND: *The Vermont Legislature will soon be voting (probably during this year's session, January through June of '2010) on whether to allow the "Vermont Yankee" (VY) nuclear reactor to be re-licensed for another 20 years beyond the expiration of its original 40-year license, which expires in March of 2012. Vermont is the only state in the U.S. whose legislature has granted itself the authority to approve or reject the re-licensing of a nuclear reactor. So what happens here will be precedent-setting for the nation. When the vote comes up, it is likely to be very close, which is why it's very important that as many voices of opposition be raised as possible. While the legislature can only consider reliability and costs when casting their votes, Vermonters can make up their minds about VY by considering all of the important issues related to this ill considered attempt to operate this nuclear reactor for an extra twenty years.*

1. AGING TECHNOLOGY MEANS INEVITABLE BREAKDOWNS/ACCIDENTS.

- In March of 2012, the Entergy Nuclear corporation's "Vermont Yankee (VY)" nuclear reactor in Vernon, VT, will be 40 years, the period for which it was originally licensed. Its obsolete design would never be approved today. It is currently being run at 120% of its original design capacity.

- No machine or technology is "fail safe," despite the claims of their owners and manufacturers. This includes cars (yours and mine), levees (New Orleans), bridges (Minneapolis), ships (Titanic), and nuclear reactors.

- Four of New England's other nuclear reactors have already been permanently closed for safety-related reasons before they reached the end of their 40-year licenses (Yankee Rowe, Maine Yankee, Millstone 1 [CT], and Connecticut Yankee)

2. VY'S HISTORY OF "MINOR" BREAKDOWNS AND ACCIDENTS

- There have been many "minor" accidents at VY due to age, the 20% power increase, and cost-cutting measures resulting in deferred maintenance. A partial list includes: radioactive fuel rods "lost" for 3 months (September '04); transformer fire (June '05); cracks discovered in the steam dryer (November '05); "hot" shipment that left VY four times more radioactive than allowable federal limits (August '06); cooling tower collapse and automatic shutdown of reactor due to stuck valve (August '07); malfunctioning crane drops cask of high-level spent fuel four inches onto concrete floor of spent fuel area (May '08); discovery of inadequate "fix" of previous year's cooling tower collapse (July '08); more cooling tower leaks discovered (September '08); excess radiation exposure forces temporary evacuation of 12 workers (August '08); excess radiation exposure forces temporary evacuation of 25 workers

(October '08); discovery of inadequate cooling tower support brackets (October '08); new cracks found in reactor's steam dryer (November '08); ASLB finding of inadequate testing of critical spray nozzles for metal fatigue (November '08); temporary breakdown of emergency phone system (December '08); temporary breakdown of emergency radio alert system (December '08); two back-to-back leaks within two days of radioactive water inside the plant, with the latter occurring in a "safety-sensitive" area, causing emergency repairs and a 60% reduction of power (January '09).

•An August '07 statement issued by the Utility Workers Union of America, Local 369, the union representing VY workers, pointed to "serious issues of public safety" at the reactor and "actions required to mitigate the degrading conditions" that threaten its margin of safety.

3. A MAJOR ACCIDENT AT VY SPELLS CATASTROPHE.

•If your car has a major accident or breakdown, it's one thing. If it happens to a nuclear reactor, it's an entirely different matter.

•All the high-level nuclear waste—in the form of spent fuel rods—produced by VY during its 37 years of operation is currently stored in a tin-covered pool built into a concrete deck over the reactor 70 feet above ground. The pool was designed to hold only five years' worth of spent fuel rods. It is now triple-racked with 37 years' worth of fuel rods which together contain more than 8 times the radiation released in the Chernobyl accident. In 2008, workers started loading these rods into concrete-and-steel "dry cask" containers that sit near the reactor on the banks of the Connecticut River (a 500-year flood plain).

•A major accident or successful terrorist attack igniting the fuel pool could make much of New England uninhabitable for hundreds of years. According to a 2001 staff study by the federal Nuclear Regulatory Commission [NRC], a major loss of water from the spent fuel pool would cause a fire that could potentially cause 25,000 fatalities in a radius of 500 miles, presuming 95% evacuation (!?).

4. EFFECTIVE EVACUATION WOULD BE IMPOSSIBLE.

•There has never been an actual test of the evacuation plans for VY that exist on paper—that is, a test in which people leave, or are transported out of, the "Emergency Planning Zone (EPZ)," which, in any event, only covers the area within 10 miles of the VY reactor. Of course, in the event of a major accident, radiation would spread far beyond 10 miles (the entire area within 20 miles of the Chernobyl reactor has long been declared a "dead zone") and these hypothetical plans would prove to be hopelessly inadequate. Many people, even within the 10-mile zone, wouldn't hear the sirens or know what to do if they did hear them; frightened parents would be trying,

contrary to instructions, to retrieve their children from schools; bus drivers and emergency workers may or may not abandon their own families in order to rescue school children and nursing home residents; house-bound people would be stranded; roads would be gridlocked by fleeing vehicles; panic and confusion would be rampant.

- Apparently recognizing the inevitable failure of evacuation plans if ever put into practice, the federal Nuclear Regulatory Commission (NRC) has begun putting more emphasis on what it calls "Shelter-In-Place"—i.e., don't go outside, close all windows and doors, turn off fans, block air vents, and (if you're within the 10-mile EPZ) listen to your "emergency alert system" radio for further instructions.

5. NO INSURANCE COVERAGE IN CASE OF AN ACCIDENT.

- If VY's license is renewed, we will have to live with the risks of an accident or sabotage as well as increased levels of high-level radioactive waste for at least another 20 years. There is no insurance policy which covers our homes and property in the event of an accident at VY. We would be forced to leave our homes and livelihood with little hope of ever returning.

- The federal Price Anderson Act limits the liability of corporations in the event of a nuclear accident. It was enacted because corporations refused to build reactors if they had to be fully liable in the event of major accident.

6. AS LONG AS HIGH-LEVEL RADIOACTIVE WASTE REMAINS A HUGE, UNSOLVED PROBLEM, WE SHOULDN'T CREATE MORE OF IT.

- There is no permanent solution that has yet been found for the storage of high-level radioactive waste. For environmental as well as political reasons, the federal government's Yucca Mountain storage facility in Nevada is dead in the water, leaving the waste from this country's 104 nuclear power reactors to be stored on-site indefinitely.

- Over one million pounds of high-level nuclear waste now sits on the banks of the Connecticut River near the VY reactor that produced it. This equates to over 35 million curies of cesium, a toxic alkali metal, most of which resides in VY's spent fuel pool, which was built to handle six years' worth of spent fuel and now contains 37 years' worth. (Some of this waste has recently begun to be moved into "dry cask" storage on the ground at some distance from the reactor. Annual high-level solid waste is expected to increase by as much as 18% according to an NRC environmental impact assessment.

- Electric ratepayers and taxpayers will likely end up paying for the cost of long-term radioactive waste storage.

7. "VERMONT YANKEE" EMITS DANGEROUS LOW-LEVEL RADIATION DAILY.

- An exhaustive study done by the National Academy of Science (the BEIR VII report) concluded that any amount of ionizing radiation is dangerous to humans.

- VY has released over 400,000 curies of air-borne radioactive pollution over the last 37 years.

- Low-level radiation from VY has exceeded the allowable limit of 20 millirems of radiation per year at the reactor's "fence line" three times since 1998.

- Statistics released by the Radiation and Public Health Project show that the death rate from cancer in Windham County, Vermont (the county surrounding VY), has risen from one percent below the state average to 10% above over the last 20 years, and that death rates for infants, children, and young adults – those most susceptible to radiation exposure, range from 13% to 37% higher than the rest of the state. While these findings have been challenged, they raise serious questions and warrant swift analysis of the implications, something which has yet to be undertaken

8. WE CAN'T COUNT ON THE ENTERGY CORPORATION TO SAFEGUARD OUR HEALTH AND WELL-BEING.

- Entergy Nuclear is a huge, highly profitable, Louisiana-based energy corporation that bought the Vermont Yankee nuclear reactor in 2002. In recent years Entergy has also bought up five other older reactors in the Northeast, all at bargain-basement prices: Pilgrim (Plymouth, MA), Indian Point 2 and 3 (Westchester, NY), and Fitzpatrick (Oswego, NY). Entergy now wants to "spin off" their old Northeast reactors to a highly debt-leveraged LLC (limited liability corporation) called Enexus Energy Corp, thus raising additional doubts as to the future safety, reliability, and economic benefits of these reactors.

- Entergy, which also owns and operates nuclear, gas-fired, and coal-fired power plants in various southern states, has a long history of cost-cutting at the expense of safety and reliability (e.g., replacing permanent employees with "contract workers"). In 1997, the Texas Public Utility Commission fined Entergy \$9 million for "poor electric reliability," noting in their report that "...evidence revealed a lack of effective and prudent maintenance policies, uneven spending in the area of operations and maintenance, cuts in experienced personnel, and consequent deterioration in the quality of service" (underlining added). In 2005, Entergy agreed to pay the state of Louisiana between \$85 million and \$95 million to settle a dozen rate cases, some dating back to 1993, in part due to equipment failures caused by lack of needed improvements to its nuclear reactors.

- In December 2008, Mississippi attorney general John Hood filed a lawsuit accusing Entergy of "dishonest practices worthy of Enron," according to the "Jackson (MS) Free Press." Among other things, Hood's suit alleges that Entergy took out huge loans for

its northern nuclear power plants that imperil its local division, Entergy Mississippi. Hood's suit also purports that Entergy ripped off \$71 million in federal tax refunds intended to reimburse it for repairs to its Katrina ravaged power grids and that Entergy has "transform(ed) Mississippi into a dumping ground for high cost electricity."

- In short, Entergy's mode of operation is similar to that of most giant corporations (Enron, Bear Stearns, AIG, etc., etc., etc.): profit-maximization trumps the public interest.

- Nor can we count on the federal Nuclear Regulatory Commission (NRC) to protect us, even though their mandate is to do just that. Bernie Sanders, a U.S. Senator from Vermont, has testified before Congress that he regards the NRC as a "wholly-owned subsidiary" of the nuclear industry. Of the dozens of nuclear reactor re-licensing applications the NRC has reviewed, they have approved every one.

9. WE DON'T NEED VY'S ELECTRICTY.

- When VY is decommissioned, our lights won't even flicker or dim. We won't even notice. VY's total electrical output comprises only two percent of New England's electrical grid, which has ample "base load" capacity (VY being a base-load reactor). The VY reactor already shuts down on a routine basis for weeks at a time for refueling (3-4 weeks' down-time every 18 months) as well as for inspections and repairs following "minor" accidents, with no adverse impact on our electrical supply. While most Western Massachusetts towns (via WMECO and National Grid) get around 25% of their electricity from VY, our utilities can easily contract with other suppliers, including HydroQuebec, to replace VY's contribution (and that's assuming no reduction in electrical demand – see #10 below).

10. ENERGY CONSERVATION & EFFICIENCY MEASURES, COUPLED WITH SAFE, RENEWABLE ENERGY SOURCES, ARE THE ANSWER.

- We can replace VY's power with lower-cost energy conservation and efficiency measures coupled with wind and solar power and other safe, renewable sources of energy such as bio-fuels, microalgae, and wave energy.

- Every \$1 spent on conservation/efficiency saves \$7 in generation costs and provides many more jobs for local workers.

- In a recent report to the Vermont Department of Public Service, the state agency called Efficiency Vermont, which is already responsible for the fact that Vermont's demand for electricity has not increased over the last five years, stated that additional conservation and efficiency measures could reduce the state's electrical demand by at least 15%. With no equivalent state agency, Massachusetts has an even larger

potential for reducing electrical consumption by means of energy conservation and efficiency. In addition, Massachusetts, like Vermont, has tremendous potential for creating new generating capacity based on safe, renewable sources.

•The shutting down of Entergy's VY reactor without its being re-licensed will provide additional incentive for individuals, municipalities, businesses, and utilities to "go green," whereas giving VY 20 more years will do just the opposite.

11. NUCLEAR POWER IS NOT "CARBON FREE" AND DOES CONTRIBUTE TO GLOBAL WARMING.

•The VY reactor *itself* produces relatively little CO2 emissions, but when the total nuclear fuel cycle is taken into account -- the mining, milling, processing, and enrichment of uranium; the manufacture of all the buildings and machinery that go into a reactor and related facilities; the extensive transportation of reactor fuel and components; and the lengthy and complex decommissioning/decontamination process -- it's clear that every nuclear reactor is, in effect, responsible for putting a great deal of CO2 into the atmosphere. True, the average size coal-fired power plant is responsible for even more CO2 emissions, but we should not be fooled by nuclear industry propaganda saying that nuclear power is "clean," "carbon-free," and thus the answer to global warming. For the health and well-being of the planet, our energy supply must be carbon-free and nuclear-free.

12. LOCAL WORKERS WILL STILL HAVE LOCAL JOBS—ULTIMATELY MORE JOBS.

•Decommissioning VY and decontaminating the site -- returning it to a "green field" -- will provide local jobs for a large proportion of the current VY workforce for a least a decade (decontamination of the Yankee Rowe site in Rowe, MA, following decommissioning, took fifteen years), and the burgeoning renewable energy industry offers additional "green" job opportunities for local workers.

•Renewable energy creates more jobs than nuclear energy. VY employs roughly 600 workers and produces roughly 600 megawatt of electricity – i.e., one job/year per megawatt. According to a report from the Renewable Energy Power Project, wind power creates 4.8 jobs/year per megawatt and solar power creates 35.5 jobs/year per megawatt. The report states that solar and wind installation and maintenance alone create more jobs than operating a nuclear reactor: 7.9 jobs/year for solar and 1.6 job/years for wind. It also states that biomass power would create 1.4 jobs/year per megawatt, helping local farmers and forest-land owners in the process.

13. THE ISSUE IS WHETHER TO RE-LICENSE ENTERGY'S VY REACTOR, NOT THE FUTURE OF NUCLEAR POWER PER SE.

•The immediate issue is not about nuclear power in general (though there are plenty of

reasons why it makes no sense – from an economic, environmental, public health, and national security standpoint -- to build more nuclear reactors. The immediate issue is about the safety and reliability of one old, dirty, accident-prone nuclear reactor in Vernon, Vermont—a reactor whose distant corporate owner has a record that clearly demonstrates that it cannot be trusted to run the reactor safely (if, indeed, any nuclear reactor *can* be run safely...or safely *enough*).