

# Act Today to Change Tomorrow!

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**W**e have an extraordinary opportunity over the next year to create the energy future that is right for Vermont. In May 2006, stemming from enormous public demand, the Vermont legislature unanimously passed Act 160. This law states that Vermont's democratically elected representatives will decide the circumstances of Vermont Yankee's closure and not an out-of-state, multi-national corporation. Act 160 stipulates that detailed and independent studies focusing on economic and environmental impacts must be conducted. In addition to the studies, Act 160 requires significant public input throughout the process that will guide the decisions made by our representatives. We have a long history of deep citizen involvement in our state. Act 160 allows us to democratically close Vermont Yankee and participate in the creation of a clean, affordable and safe energy future.



The Vermont Yankee nuclear reactor is failing and the Entergy Corporation, the Louisiana-based owner, is not fulfilling its job to provide Vermonters with affordable, safe and clean electricity. Recent facility failures stemming from corporate mismanagement and the continued production of hazardous, radioactive nuclear waste make it all the more timely to close Vermont Yankee as scheduled in 2012. Through citizen participation and strong

political leadership, we can use this opportunity to replace Entergy Vermont Yankee with conservation, efficiency and renewable energy solutions. This will create the future energy economy we deserve.

During extensive public engagement conducted by Vermont's Department of Public Service (DPS) in the fall of 2007, Vermonters overwhelmingly voiced their desire to close Vermont Yankee and focus our efforts on efficiency programs and renewable technologies such as wind, hydro, solar and biomass. 63% of participants confirmed that we should no longer purchase electricity from Entergy Vermont Yankee. 94% believed that Vermont should obtain the majority of its electricity from renewable sources. Entergy Vermont Yankee is not part of our energy future.

The continued operation of Entergy Vermont Yankee is creating a mounting stockpile of hazardous radioactive nuclear waste that will stay in Vermont indefinitely. As reported by VPIRG's *Decade of Change*, Vermont Yankee has already produced over one million pounds of dangerous, radioactive nuclear waste. Because Entergy recklessly escalated electricity output in 2006 by 20%, an annual increase of approximately 18% of solid waste is expected.

This harmful radioactive nuclear waste will sit on the banks of the Connecticut River, posing

OUR ABILITY  
AND AN  
OPPORTUNITY  
TO REPLACE  
VERMONT  
YANKEE

a risk to citizens of Vermont, Massachusetts and New Hampshire for tens of thousands of years. No solution exists to safely dispose of radioactive nuclear waste.

Continued operation of Vermont Yankee puts the public and our environment at risk. Because of Entergy's continued mismanagement, the aging nuclear facility has experienced numerous dangerous events including the collapse of a cooling tower, unplanned emergency shut downs, transformer fires and on one occasion, lost fuel rods. Entergy continuously ignores public concern, and federal regulators charged with protecting the public from economic and physical hardship have not done their job. Further operation of Vermont Yankee puts us all at risk.

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## Act Today to Change Tomorrow!

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Solar array at shuttered Rancho Seco reactor—Clay Station, CA

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# The Power of ACT 160

In May 2006, after intensive citizen advocacy efforts, the Vermont legislature passed a law of truly historic proportions.

Titled Act 160, the legislation determines that the Entergy Nuclear Corporation may not operate the Vermont Yankee nuclear reactor after its license expires in 2012 without “the explicit approval of the General Assembly expressed in law after full, open, and informed public deliberation and discussion with respect to pertinent factors . . . .”

Even if the federal Nuclear Regulatory Commission (NRC) in Washington, DC has decided to authorize a new 20-year license for the aging, mismanaged reactor, the representatives of Vermont’s citizens still have the authority to say “NO!”

The Vermont legislature’s decisive vote will likely take place during the 2009 session.

Prior to the vote, Act 160 requires the state’s Department of Public Services (DPS), in consultation with the Senate–House Joint Energy Committee, to arrange for studies that will inform the public and the legislature regarding:

- long-term accountability and financial responsibility issues, including guardianship of the nuclear waste, closure obligations, and emergency management and evacuation plans;
- long-term environmental, economic, and public health issues, including issues relating to nuclear waste storage and decommissioning options; and,
- current economic issues and cost-benefit assumptions.

In addition to the studies, the DPS is required to arrange a “public engagement” process. While VCAN and other groups vehemently opposed the holding of these meetings prior to the release of any studies, the DPS held four public meetings and an online discussion in the Spring of 2008. Results show a majority of Vermonters wish Vermont Yankee to close and be replaced by 2012. The act authorizes the state to bill Entergy for the costs of the studies and engagement.

A copy of the act can be accessed online: <http://www.leg.state.vt.us/docs/legdoc.cfm?URL=/docs/2006/acts/ACT160.htm>

No other state legislature has ever claimed the right of its citizens, through their elected representatives, to make a decision that could over-ride the powerful interests of a major nuclear corporation and the NRC.

While Vermonters were successful in passing Act 160, we understand that it will take a far greater effort to win the decisive vote in 2009.

One part of that effort is to monitor the DPS (which under the Douglas administration, has favored Entergy) as it carries out the required studies and public engagement that are to inform the state legislature. Vermont citizen advocacy efforts have already helped block a DPS plan to subsume the public engagement activities within another process that took place in the fall of 2007. Additionally, citizens

successfully challenged the department’s decision to offer a contract to a consulting firm to do a single study that did not cover the breadth of issues in the legislation.

A coalition of citizen and advocacy groups will continue to provide constructive input about what constitutes an adequate combination of economic, health and environmental studies and meaningful public engagement, as well as to hold the DPS publicly accountable for any failure to provide these. In so doing, Vermonters from around the state will continue to work with the visionary legislators who introduced the Act 160 bill and continue to provide leadership in the Senate, House and various committees.

On the other hand, we realize that the Entergy Nuclear Corporation will use the full force of its wealth and power in an effort to

convince of legislators that Vermont’s economy cannot do without the reactor’s electricity and make them believe that the production of that electricity is safe, clean and reliable.

The key to our success will be people power: citizens organized in legislative districts throughout Vermont who speak truth to power. This is especially crucial in those parts of the state furthest from the reactor. The residents of the evacuation zone in Vermont, Massachusetts and New Hampshire, who live in the shadow of the reactor, will need to reach out to our fellow citizens. We will succeed in closing the Vermont Yankee nuclear reactor. And we will make history by providing a model for citizens of other states who are equally endangered by the nuclear reactors near them.

THE KEY TO OUR SUCCESS WILL BE  
PEOPLE POWER: CITIZENS ORGANIZED  
IN LEGISLATIVE DISTRICTS  
THROUGHOUT VERMONT.



# Living in the Shadow of Entergy Nuclear's Vermont Yankee Reactor



Fires, cracks in vital components, emergency shut downs, lost radioactive waste, a grossly inadequate and under-funded decommissioning plan, and a collapsed cooling tower are but a handful of incidents and doubt that define the nearly 40 years of operation at Entergy's Vermont Yankee nuclear facility. Since Entergy purchased Vermont Yankee in 2002, the inefficiency, unreliability and dangers have only increased. As the facility continues to age and more strain is placed upon its structures and components, we are continually faced with the uncertainty of its operation. While Vermont Yankee crumbles, we worry. As the out-of-state Entergy Corporation continues to mislead Vermonters and our elected representatives, we must review the destructive past and recognize the harm further operation will have on our state.

## Nuclear Waste

Over one million pounds of high-level radioactive waste now sits on the banks of the Connecticut River. This equates to over 35 million curies of cesium, a toxic alkali metal, residing in Entergy's nuclear waste pool. Annual solid waste is expected to increase by as much as 18% according to a Nuclear Regulatory Commission environmental impact assessment. This enormous amount of spent fuel is currently stored in a single spent fuel pool, created only as a temporary repository for high-level waste. Entergy plans to move the oldest spent fuel into "dry cask" storage, which will be indefinitely stored on site. There is no permanent solution to safely store radioactive nuclear waste. Ratepayers and taxpayers will likely pay for the cost of long-term radioactive waste storage.

## Radiation

Vermont Yankee releases radiation into the atmosphere every day. It exceeded 20 millirems of radiation at the fence line per year three times since 1998. Vermont Yankee has released over 400,000 curies of air-borne pollution over the last 35 years. While

Entergy, federal and state officials have dismissed the significance of these readings, the BEIR VII report, an exhaustive study done by the National Academy of Science, concludes that *any* amount of ionizing radiation is dangerous to humans. Furthermore, statistics released by the Radiation and Public Health Project show that the death rate from cancer in Windham County has risen from 1% below the state average to 10% above over the last 20 years. Additionally, 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. These findings raise serious questions regarding threats to public health and warrant swift analysis of the implications, something that has yet to be undertaken.

## Frequent Mishaps Jeopardizing Health & Safety

The following is a short representative list of significant events that occurred on the grounds of Vermont Yankee since its purchase by Entergy. These events are a symptom of a hap-hazard and cavalier approach to maintenance. Entergy defers maintenance in order to make a profit and our safety and surrounding landscape are at risk.

- On August 21 2007, a portion of Vermont Yankee's cooling tower collapsed causing Entergy to immediately cut production below 50%.
- On August 30 2007, an emergency shutdown (SCRAM) due to a stuck valve took Vermont Yankee completely offline. Estimates put the cost to Vermont ratepayers at tens of thousands of dollars.
- On June 18, 2004 Vermont Yankee's main transformer caught fire and caused the reactor to automatically shut down. Approximately, 10-20 gallons of toxic transformer fuel reportedly entered the Connecticut River.

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## The August 2007 Cooling Tower Collapse: A Symptom of Mismanagement

On August 21, 2007 a section of Entergy Vermont Yankee's cooling tower system collapsed, spewing wastewater and causing Entergy to immediately cut power production below 50%. This incident came only a short time after an inspection by Entergy and Nuclear Regulatory Commission officials. While the cause of the August collapse was found to be from rotting lumber and corroding steel bolts, the broader concern is Entergy's corporate culture of cost-cutting and mismanagement.

According to Arnie Gunderson, a former nuclear industry engineer, Entergy was warned about a potential tower collapse in 2003. Alarming, not only were these warnings ignored, but basic precautionary measures to detect cooling tower deficiencies were not implemented. The inspection process relied primarily on insufficient video observation of the tower scaffolding and overlooked significant sections of deteriorating lumber and bolting. Further analysis by Gunderson and representatives of the New England Coalition identified numerous inadequacies of Entergy's inspection process, including poor calculations to address changes to the cooling tower system after the 20% increase of power in the spring of 2006.

While the tower collapse dramatically illustrated structural deficiencies and Entergy's subsequent response mirrored that of a public relations cover-up, the incident also raised serious questions regarding the corporation's facility management and maintenance procedures. Reports of cost cutting activities such as foregoing routine inspections of facility equipment, inadequately implemented and out of date inspection processes and flawed oversight are emblematic of the systemic inconsistencies perpetrated by Entergy. The multi-billion dollar corporation has made it clear that public safety and sustainability in Vermont are not priorities of theirs.

Two days after the tower collapse on August 23rd, Gary Sullivan, President of the Utility Workers Union of America Local 369 (which represents workers at Entergy's Pilgrim nuclear power facility in Plymouth, MA) stated, "There are serious issues of public safety surrounding the Vermont Yankee [union contract] dispute." Mr. Sullivan goes on to say, "We cannot allow one bad corporate apple and corporate greed to create global risk." When asked about Mr. Sullivan's statement, James Moore, Clean Energy Advocate for the Vermont Public Interest Research Group exclaims, "We have serious concerns that the Entergy Corporation is cutting corners to increase their profits, potentially at the risk of millions of people who live in the area surrounding Vermont Yankee." The tower collapse and culture of corporate mismanagement clearly underscore that the continued operation of Entergy's Vermont Yankee is not in the best interest of Vermonters and must close by its licensed expiration date of 2012.



# Where Does Vermont Yankee's Waste Go?

The waste stream is long and wide. While much of Vermont Yankee's environmental impact is in the tri-state area (Vermont, Massachusetts and New Hampshire), it starts and ends far from our small corner of New England.

**The Air:** As part of its routine operation, Vermont Yankee vents radioactive material through a large smokestack connected to its cooling system. Many of the gases released break down into radioactive particles that

settle in surrounding communities as a kind of "fall-out." Over Vermont Yankee's 36-year history, it has released over 400,000 curies of radioactive waste into the air.

**Connecticut River:** Vermont Yankee also discharges tritium and other radioactive contaminants from its cooling system into the Connecticut River. Since 1972, Vermont Yankee has released over 2,000 curies of tritium into the river.

**Vernon, VT:** The most commonly known waste product of nuclear power is the used fuel. Sometimes called "spent fuel," the irradiated fuel rods are actually about one million times more radioactive than before they were used in the reactor—and hot enough to catch fire if they are not kept under water. Right now, over five-hundred tons are stored in the spent fuel pool, seven stories above ground. Since there is no viable disposal solution for this waste, Entergy plans to begin storing some of the waste in canisters outside the reactor building, probably for decades. After failing to find a way to dispose of their waste, Entergy must not be allowed to continue making it for another twenty years.

**Barnwell, SC:** "Low-level" radioactive waste—which includes all waste except the used fuel—is shipped to Barnwell, SC. Barnwell is a poor, rural, 48% African American community that hosts the country's primary radioactive waste dump. Although the dump is slated to close in 2009, within a few years the community's water supply will become contaminated by waste leaking from the dump, raising concerns about environmental racism. After the Barnwell dump closes, more radioactive waste may have to be stored in Vermont unless another community is forced to host a nuclear waste dump.

**East Springfield, MA:** Contaminated uniforms, gloves, and booties are sent off-site to be "cleaned" at industrial laundries that serve the nuclear industry. The closest such laundry is operated by UniFirst, Inc. in East Springfield, MA—a largely minority and immigrant community. These laundries routinely have bad safety and working conditions, fail to train their employees about radiation hazards, and discharge radioactive and chemical waste into the local water supply. The UniFirst/NTS laundry in E. Springfield has repeatedly dumped waste in the local sewage system and even the pond in a nearby park. Workers have been endangered by fires and spills in the plant.

**Native communities:** The beginning of the "nuclear fuel chain" is the mining and refining (called milling) of uranium ore. Mining and milling operations produce immense amounts of radioactive and chemical waste. They are mostly located on Native lands in the Dakotas, the Province of Ontario and the Southwest. For every pound of uranium that is used in a reactor, 3,500–4,000 pounds of radioactive uranium tailings are generated.

In addition, uranium enrichment produces seven pounds of "depleted uranium" for every pound of enriched uranium. This means the 500 tons of spent fuel at Vermont Yankee represent only the tip of a huge iceberg of radioactive waste: nearly 4,000 tons of depleted uranium—and about *two million tons* of uranium tailings. The industry is also targeting Native communities in Nevada and Utah to locate waste dumps for all of the nation's spent nuclear fuel. There has been a persistent pattern of environmental racism throughout the history of the nuclear industry.

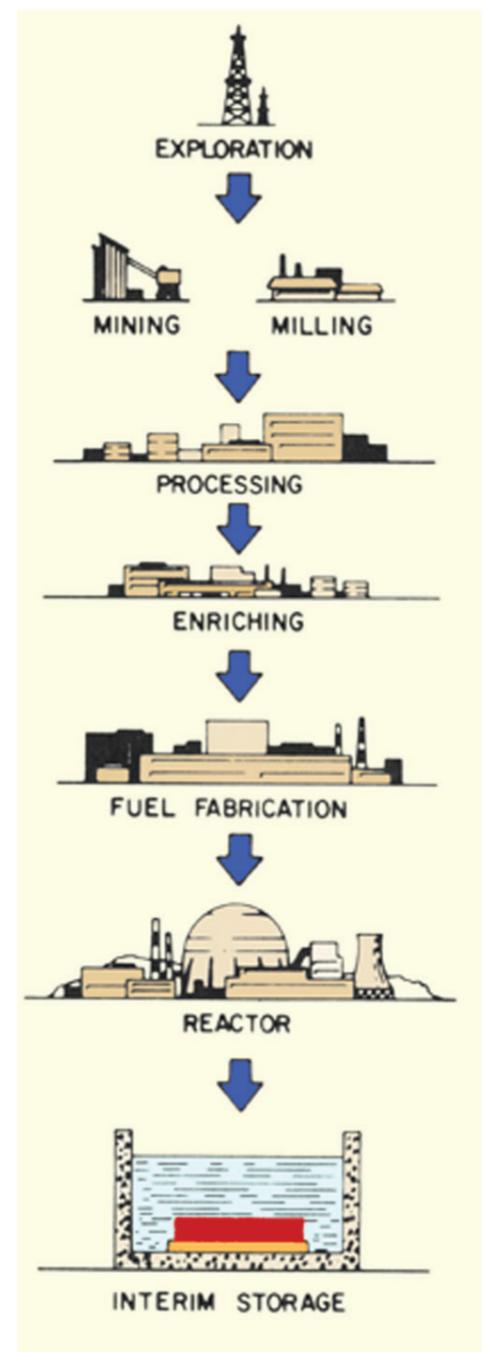
## Global Warming, Acid Rain, and the Nuclear Fuel Chain:

Before it can be used for nuclear power, natural uranium must be "enriched" to increase the amount of uranium that can sustain a nuclear chain reaction. This is a very energy-intensive process, and the US's only operating enrichment plant (in Paducah, Kentucky) is largely powered by huge, old coal-fired power plants. These coal-fired plants not only contribute to global warming, they also contribute to acid rain in the northeast that damages our forests, lakes and rivers. Also, the enrichment plants leak enormous amounts of CFCs (chloro-fluoro-carbons)—ozone-depleting chemicals that are banned in the US. The ozone layer in the atmosphere is necessary to protect people from solar radiation that causes skin cancer. Under the law, companies are still allowed to use CFCs until their existing stockpiles are gone. The US's uranium enrichment plant is responsible for half of our country's CFC emissions, making it among the single largest ozone-destroyers in the world.

## What is a Curie?

A Curie is a unit of radioactivity, named after Marie and Pierre Curie, the famous scientists who discovered the phenomenon. Marie Curie eventually died from her exposure to radiation. While it is hard to grasp how much radiation is in a curie, we can compare the amounts of radiation released from different sources to get a sense of it. A medical hospital that regularly uses radioactive materials for cancer treatments and medical diagnoses, typically has 2-5 curies on hand over the course of a whole year. People receive treatments on the order of millicuries (1/1000), microcuries (1/1,000,000) or even nanocuries (1/1,000,000,000). The Hiroshima bomb released about 2,000 curies of radioactive material and caused thousands of people to die of radiation poisoning, immune system damage, and cancer. The Chernobyl meltdown in 1986 released about 2 million curies of a particularly radioactive element, cesium-137; there is still a 36-mile wide uninhabitable zone around Chernobyl based on cesium-137 levels in the area. By comparison, Vermont Yankee has released over 400,000 curies of radioactive gases into the air since 1972, and there are over 30 million curies of cesium-137 in the waste on site.

## Nuclear Fuel Chain



Russell D. Hoffman, 2002—  
The Demon Hot Atom.

# The Rising Cost of Clean-Up: Who Will Pay?

Vermont Yankee has been generating radioactive waste in our state for over thirty-six years and will eventually shut down. Nuclear reactor sites become extremely contaminated over the life of the plant, and the companies that operate them are required to set aside money to pay for the plants to be dismantled and the sites cleaned up. Having sufficient funds for that process, called decommissioning, is essential to protect both workers and the surrounding community for generations to come from the legacy of nuclear power.

Unfortunately decommissioning is frequently mismanaged and underfunded by nuclear power companies. Around the country decommissioning costs have exceeded the rosy estimates generated while the plants were operating, and ratepayers and/or taxpayers have been stuck with the bill. Cleaning up the Yankee Rowe reactor site in northwest Massachusetts, ended up costing over \$700 million, more than double the original estimate and nearly twenty times what it cost to build the plant. Likewise, the Connecticut Yankee reactor cost \$1.2 billion to decommission. It was originally estimated at \$410 million. In both cases, some ratepayers who never used a kilowatt of electricity from the plants are paying for these excess costs.

In January 2008, it was revealed that Vermont Yankee's decommissioning fund is already doomed to zero out long before the job is complete. This could saddle the people of Vermont with an enormous bill for cleaning up waste that Entergy has profited from creating. Fairewinds Associates, led by a team of nuclear industry experts, Arnold and Margaret Gunderson, analyzed documents Entergy submitted to the Vermont Public Service Board (PSB) in support of a license extension for Yankee. They found that Entergy's estimates ignore important aspects of decommissioning the plant and make unrealistic assumptions—such as not accounting for inflation.

In addition, Entergy has not contributed a penny to the decommissioning fund since it purchased Vermont Yankee in 2002. Along with the sale, Entergy was given the decommissioning fund created by fees paid by Vermont ratepayers to help pay for the eventual cleanup. While Entergy is reaping profits of up to

\$100 million per year from operating Vermont Yankee, it is contributing none of that to the eventual cleanup of its property in Vernon. It acts as though all of the contamination at Vermont Yankee was created by the previous owners, despite the fact that the company is generating even more waste since Entergy increased Vermont Yankee's power output by 20%.

Entergy's negligence puts Vermonters in a dangerous position. Fairewinds estimates that the fund could go bankrupt within ten years of Vermont Yankee's closure, long before cleanup is done. Because the reactor is actually owned by a subsidiary of Entergy that has no other assets, the subsidiary could simply declare bankruptcy and abandon the plant. Such an outcome is looking more likely as Entergy is in the process of "spinning off" six of its oldest reactors to a separate company called Enexus, which would completely shield it from responsibility for cleaning up the plants it operates in New England, New York, and Michigan.

Entergy says it is also considering "mothballing" Vermont Yankee after it shuts down and letting it sit for twenty to thirty years before beginning cleanup. That approach would be a disaster for Vermont, since toxic and radioactive contamination at Vermont Yankee could be allowed to spread unrecognized and unchecked and create a much larger, more complicated and expensive cleanup.

Entergy falsely calls this plan SAFSTOR, an approved and proven decommissioning strategy used at some other plants. Under Entergy's "mothballing" plan, the company would fire nearly the entire workforce and leave only a skeleton crew at Vermont Yankee for security, sacrificing all of the history, experience, and detailed knowledge of the plant that current employees have and putting them out of work unnecessarily.

Under a true SAFSTOR cleanup, most of the workforce continues to be employed in prepping, monitoring, and maintaining the site until it is safe for workers to begin taking apart the plant. If employees begin dismantling the reactor right away, they are subjected to extremely hazardous working conditions that result in workers being repeatedly contaminated as they have been at Yankee Rowe and Connecticut Yankee.

During the 2008 legislative session, Vermont legislators passed a bill requiring Entergy to have a fully-funded decommissioning fund now. Governor Douglas vetoed this important legislation. The decommissioning legislation will be reintroduced during the 2009 legislative session. Establishing financial responsibility for clean up is essential, since Entergy is in the process of creating a new and separate limited liability corporation that will own Vermont Yankee and six other reactors. Also passed was legislation requiring an audit of the reactor by a panel of experts appointed by both houses of the legislature and the governor. Given the repeated safety problems, poor maintenance and inadequate oversight by the NRC, an audit is vital. Entergy must be held responsible for cleaning up Vermont Yankee.

## Problems with Entergy's Decommissioning Plan

The decommissioning plan Entergy has submitted to the Public Service Board is fraught with problems and must be tossed out. Here are the most significant errors and deficiencies:

- The decommissioning fund is too small.
- The cost estimates are based on a "generic" nuclear plant and do not even mention known problems at Vermont Yankee, such as a contaminated area between the cooling towers.
- Entergy has done no inspections to see if there could be other unique contamination problems like those that have occurred at every other decommissioned plant.
- Entergy's estimates are based on a lower cleanup standard than what Vermont law currently requires.
- Entergy does not consider that there will be additional costs due to the increased waste and contamination resulting from running Vermont Yankee at a 20% power uprate.
- The power uprate increased Entergy's profits at Vermont Yankee to nearly \$100 million/year, yet the company has not contributed any of that money to decommissioning.
- Entergy assumes decommissioning Vermont Yankee will produce less than half the amount of radioactive waste that other reactors are expected to.
- Entergy underestimates the cost of disposing of the waste and incorrectly assumes that a suitable dump will be available. By the time Vermont Yankee shuts down, there will be no low level rad waste dumps available. Disposal costs are likely to skyrocket if a dump does open, but if not Vermont may be stuck with it for years.
- All of Entergy's costs are estimated in 2006 dollars, and do not project how those costs will increase over the years with inflation. However, Entergy does assume the fund to pay for those costs will grow 5-7%/year through investing.
- In January 2008, Entergy recently released a "new" estimate of \$1 billion. Entergy estimated \$800 million in Fall 2007—an increase of 25% in just a few months. At this rate, by 2012, the estimated cost could be \$2 billion.



# Beyond Entergy Nuclear: Our Energized Future

Our deeply held values of independence, ingenuity and conservation will propel Vermont beyond the polluted legacy of Entergy's crumbling Vermont Yankee. The exciting moment that now exists as Vermont Yankee nears the end of its 40-year license provides us with the unique opportunity to transform our energy economy to one based on local, efficient and renewable solutions. This transition won't be easy and because of poor leadership in years past, we will have to purchase some electricity from the New England power grid over the next few years. But imagine . . . homes, businesses, and public buildings outfitted with renewable technologies such as wind, solar, geothermal, and biomass . . . efficiency efforts dramatically reducing our electricity usage and saving us money . . . decisions being made locally using our creativity and skills. This will be our energy future.

## What Will Our Energy Future Look Like?

### Efficiency

The beauty of envisioning how we meet our energy needs is that we have the ability to create and shape that vision. In 2000, Efficiency Vermont was created with the intent to decrease energy consumption and save Vermonters money. Through 2006, they have helped us save over \$31 million in energy costs and cut over 307 million kilowatt hours (Kwh) in annual electric energy. Further support for Efficiency Vermont and other efficiency programs will decrease our need to produce electricity and minimize the cost to households and businesses. Efficiency will bridge the past with our future energy needs.

### Conservation

Energy conservation, the energy not used, will be the cornerstone of our energy future. The most effective and affordable way to address our energy needs is to not use it whenever possible! Dollar for dollar, investing in energy conservation saves more money and reduces pollution more than any other alternative. Over the past few years, communities across Vermont have been embracing conservation initiatives that reduce our need to consume energy. Future efforts to further educate and



We can do it! A vision of Vermont Yankee's closure as a catalyst for sustainability.

promote energy conservation will inevitably lead to a dramatic decrease in electricity consumed in households and businesses around Vermont. Additionally, by making personal and collective choices to reduce our energy consumption, we can also dramatically reduce the amount we spend on electricity.

### Renewable Technologies

Vermont can be a leader in renewable innovation and development. Green energy legislation, signed into law, in 2008 stipulates that we will meet 25% of our energy needs by 2012 using renewable technologies and 45% by 2018. Investing in renewable technologies such as wind, solar, hydro and biomass will create high paying jobs, provide a reliable tax base, protect the environment, and develop a sustainable energy system. Many of the technologies are already in use and providing us with reliable energy. For example, the Searsburg wind farm has been in operation since 1997 and has a capacity of 6 MW. The Vermont Environmental Research Associates (VERA) identified a potential of 6,000 MW of wind resources. None of this is on public land and is nearly three times Vermont's current annual demand. According to VPIRG's *Decade of Change*, we can provide 20% of our electricity needs by 2015 through wind turbine installations utilizing a small portion of our ridgelines.

Biomass, which is organic matter that can be burned to generate electricity, will continue to increase as a substantial renewable technology. Current biomass stations such as the McNeil plant in Burlington has a production capacity of 53 MW. New biomass technologies can produce electricity in addition to harnessing and distributing heat, such as that planned by the Brattleboro District Energy project.

Additionally, hydro and solar photovoltaics will be vital components to our energy economy. Small-scale hydro projects can take advantage of our diverse water resources without harming the local environment. Solar panel systems are becoming dramatically more powerful and can easily be installed on our homes, businesses and municipal buildings, thus taking advantage of our most abundant renewable resource, the sun.

Producing our own electricity using renewable technologies will increase the amount of dollars and resources staying in Vermont. The thousands of high paying jobs created will provide local and state government with needed tax dollars. Furthermore, using renewable, clean resources such as wind, solar and biomass will dramatically decrease our need for costly, finite resources such as fossil fuels and nuclear materials. Renewable technologies will flourish in Vermont and provide us with the electricity we need beyond 2012.

## How Do We Achieve This Vision?

### Policy

A report released in 2007 entitled *Strengthening Vermont's Energy Economy* conducted by the Vermont Council on Rural Development details the clear choices we need to make in order to realize our energy future. Above all, it stresses the full support and action by the Vermont state legislature and the governor for pragmatic policy that encourages conservation, efficiency and renewable energy. Specifically, our representatives must continue to focus on efforts to fully support efficiency and renewable energy legislation. Additionally, the legislature must vote NO to the extended operation of Entergy Vermont Yankee beyond 2012. Operation past its licensed expiration date is an economic disincentive to invest in safer, cleaner, more efficient and affordable solutions. Vermont Yankee is bad for our economy, bad for the environment and bad for the citizens of Vermont. Because of Act 160, we have the power to close Vermont Yankee by its licensed expiration date of March 2012. Our elected officials must be advocates and leaders for laws that will make our energy future a reality.

### Personal Action

While it is vital that comprehensive laws are passed supporting conservation, efficiency and renewables to take us beyond Vermont Yankee, we also have an opportunity as individual citizens to create our own energy future. We need to continue educating ourselves about effective ways to save and use electricity. Taking steps such as decreasing our electricity usage, efficiently using electrical appliances and sharing with others the solutions that work best. Additionally, we must tell our electric companies to stop buying power from dangerous, expensive sources such as Vermont Yankee. Finally, we must encourage our elected representatives that a renewable, efficient energy future is best for Vermont. By participating in the political process, we can shape the direction we take as a state and create a clean and affordable energy future.

## A Vision Beyond Vermont Yankee

Entergy's Vermont Yankee facility is not part of our energy future. It is inefficient, costly, dangerous and oppressive. It continues to act as an economic disincentive, stifling creative efficiency initiatives and renewable technologies. However, with broad citizen participation and enthusiastic leadership, Vermont Yankee will close in 2012, ending a turbulent legacy and ushering in new opportunities for Vermont. Our energy future resides in our creativity and vision.

# Renewable Energy Creates Jobs For Vermont

The closure of Vermont Yankee could stimulate the creation of good-paying, stable jobs in Vermont—more jobs, in fact, than the plant currently provides. Given the impact that plant closures, out-sourcing production, and federal trade policies have had on employment in manufacturing, that may seem like a fantasy. Nuclear power companies often argue that closing their plants will create unemployment and hurt the economy because we are so used to the loss of jobs to overseas manufacturers.

The business of generating electricity is different than the business of making the stereos, computers and appliances that run off of it. When Vermont Yankee shuts down, we are going to have to replace it with other sources of electricity and/or efficiency measures. Both renewable energy and energy conservation are good sources of jobs—better sources than nuclear power.

According to a report by the Renewable Energy Policy Project, widely cited for its thoroughness and objectivity: solar power creates 35.5 jobs/year for each megawatt (MW) of electricity-generating capacity; and wind power creates 4.8 jobs/year for each MW. Entergy claims it employs approximately one person per MW to run the plant, or about 600 workers. If one considers only jobs in installing and maintaining solar and wind generators—jobs that are most likely be local—they still look better than continuing to pour our electricity dollars into the nuclear plant: 7.9 jobs/year per MW for solar, and 1.6 jobs/year per MW for wind. Biomass power plants (run on fuel made from crops or organic waste products) create 1.4 jobs/year per MW, providing the opportunity to help Vermont farmers and create jobs.

Also, unlike any other industry, a shut-down nuclear reactor has to employ a large number of people for many years to dismantle and decontaminate the plant. To fund this process, Vermont Yankee has been building up a trust fund through charges to ratepayers since 1972. The decommissioning plan Entergy adopts will determine just how many people continue to be employed at Vermont Yankee and for how long. As a utility in Sacramento,

California demonstrated after it shut down the Rancho Seco Nuclear Plant in 1989, a thorough, safe and effective decommissioning plan (called SAFSTOR) can maintain more than 60% of pre-shutdown jobs for 20–30 years. Retaining the knowledge and experience of the existing workforce is important in decommissioning. Given the deep job cuts that Entergy has already made at Vermont Yankee—reducing the staff to alarmingly low levels—it is possible that an even higher proportion of Vermont Yankee’s current workforce could be maintained to do an effective cleanup. If SAFSTOR were implemented, most of the 600 jobs at Vermont Yankee could be preserved for up to thirty years.

Vermont could see a net increase in employment if Vermont Yankee is phased out in 2012 through renewable energy sources such as solar, biomass, and wind. Conservatively, if we replace the amount of electricity the nuclear plant supplies to Vermont (about 200 MW) with new, renewable energy sources, we could create over 310 new jobs in Vermont. If the state were to adopt an aggressive plan to increase the state’s reliance on renewable energy sources for electricity, according to a plan created by VPIRG, over 370 Vermont jobs could be created. If Vermont were to attract some of the manufacturing industries necessary to produce the equipment for solar and wind power generators, these numbers could increase even further.

Both of these plans would result in up to twice as many well-paying, skilled jobs as Entergy now employs, for years into the future. New Hampshire and Massachusetts also rely on electricity Vermont Yankee generates. If they replaced that energy through renewable sources as well, nearly 1,500 new jobs could be created in the region in installation, operation, and maintenance alone. When considered with the other environmental and economic advantages to reinvesting our energy dollars in renewables, the potential to create so many more good jobs means that it is not a question of whether we can afford to shut down Vermont Yankee in 2012, it is a question of whether we can afford not to.

## Estimated Job Creation Figures for Renewables

**Solar:** 35.5 jobs/yr/MW; 7.9 jobs/yr/MW installation; maintenance and service

**Wind:** 4.8 jobs/yr/MW; 1.6 jobs/yr/MW installation; maintenance and service

**Biomass:** 1.4 jobs/yr/MW biofuel cultivation and production

### VPIRG “Decade of Change” (55% Renewables) Strategy One

**450 MW wind:** 2160 new jobs, 720 new local jobs

**150 MW biofuel:** 210 new local jobs

**Total:** 930 new local jobs

### VPIRG “Decade of Change” (with Solar) Strategy Two

**30 MW solar:** 1,015 new jobs, 237 new local jobs

**420 MW wind:** 2,016 new jobs, 672 new local jobs

**150 MW biofuel:** 210 new local jobs

**Total:** 1,119 new local jobs

### Decommissioning

**Present workforce:** 600

**Decommissioning workforce:** 60% of pre-shutdown level, 360 jobs

### Net Job Impact

#### Vermont Yankee Replacement

Total new local jobs plus decom workforce equals 1091 local jobs

Net increase/decrease equals +491 jobs or +82%

#### Decade of Change

Total new local jobs plus decom workforce equals 1294 local jobs

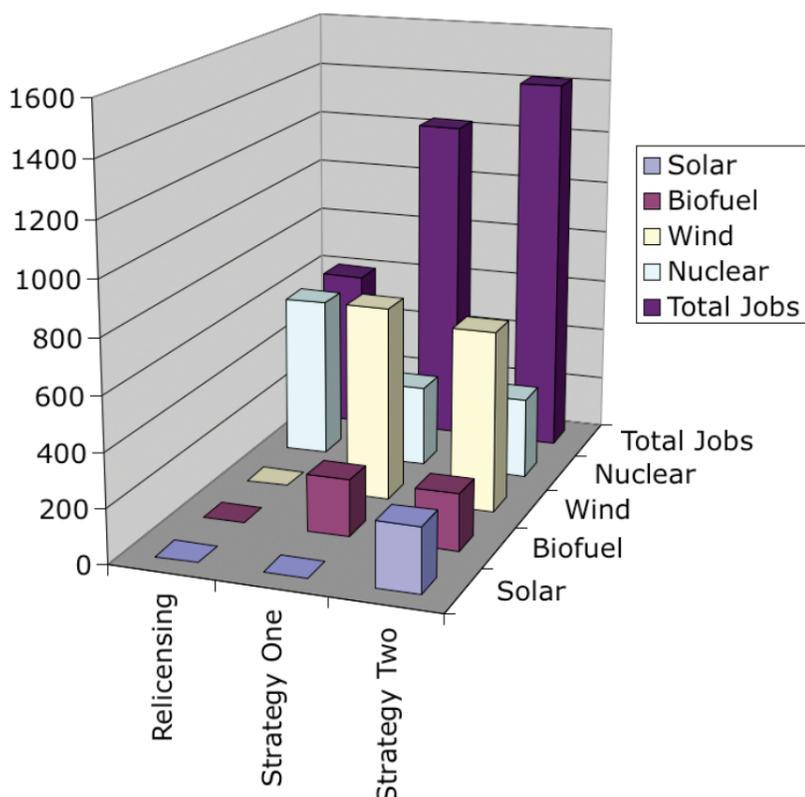
Net increase/decrease equals +694 jobs or +116%

**Sources:** “The Work that Goes Into Renewable Energy,” Renewable Energy Policy Project, 2001.

“A Decade of Change: A Vision for Vermont’s Renewable Energy Future,” Vermont Public Interest Research and Education Fund, 2006.

“Energizing the Future: The Benefits of Renewable Energy for New York State,” New York State Office of the Comptroller, 2005.

## Local Jobs and Future Energy Scenarios



## Energy Supply Scenarios Related to Vermont Yankee’s Future



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### Act Today to Change Tomorrow, continued from page 1

Allowing Entergy to continue operating Vermont Yankee past 2012 will increase the likelihood of Vermont taxpayers and ratepayers picking up the cost of decommissioning. The current decommissioning cost is estimated at \$1 billion, up from \$800 Million in late 2007. Entergy has yet to add any money to the decommissioning fund.

Entergy sucks electricity out of Vermont and will leave ratepayers and taxpayers responsible for future costs of Vermont Yankee. It's continued operation makes us reliant on an out-of-state corporation and is a disincentive to create new, high-paying jobs right here in Vermont.

The energy future is up to us. We possess the ingenuity, creativity and power to make our future energy economy a reality. Creative solutions through energy conservation and efficiency programs are already showing an impact on decreasing our need for electricity. Further support of such programs will help us save money and use less electricity in the future. Renewable electricity technologies such as wind, solar, hydro and biomass are solutions for meeting our future energy needs. These technologies can meet a fifth of our energy needs by 2015 and improve our economy by supporting new businesses and creating new, high-paying jobs. Furthermore, replacing Vermont Yankee with conservation and efficiency programs as well as renewable

technologies will allow our local communities to decide the energy future that meets their unique needs. We have the solutions. We have the ability, drive and opportunity to see these solutions become reality. Act today to change tomorrow!

### Shadow of Entergy, continued from page 3

- As of August 2007, nearly 70 cracks have been identified in Vermont Yankee's steam dryer.
- On April 20, 2004, Entergy announced it was missing 2 radioactive fuel rods. The misplaced fuel rods were not found until July.

### Entergy Nuclear's Vermont Yankee is the Past

For nearly 40 years, we have been living in the shadow of Vermont Yankee. The ever-present fear of a potential radiological accident, costly and time-consuming monitoring and planning, frequent mishaps polluting the surrounding environment and posing public safety hazards, and the sapping of local resources into an out of state corporation have plagued citizens of this state for long enough. Entergy Vermont Yankee is an economic disincentive to the development of clean, safe power initiatives . . . our future energy economy. The closure of Vermont Yankee and a new, clean, affordable energy future will leave the uncertain and toxic days behind.

# TAKE ACTION

Citizen Action during 2008 is crucial if Vermont is to end "business as usual" in the use and production of energy. It's time to be heard! It's time to turn Vermont Yankee Off!

### The Vermont State Legislature Needs to Hear From You

- Tell your legislators to OPPOSE the continued operation of Entergy Nuclear Vermont Yankee after its original license expires in March 2012. You can find out who your legislators are and how to contact them at <http://www.leg.state.vt.us/legdir/legdir2.htm>.
- Ask your legislators to fully support all legislation increasing efficiency and conservation programs.
- Ask your legislators to fully support all legislation creating and implementing renewable energy technologies.

### Let Your Electric Provider Know You Don't Want Electricity From Entergy

- Call the electric company that provides your electricity in your community and ask them not to purchase electricity from Entergy Nuclear.
- Ask your electric provider to purchase its electricity from local, renewable technologies such as methane capture, wind, hydro, solar and the support of co-generation initiatives.

### Involve Your Community

- Host a house party and get your friends and family to join in the effort.
- Write a letter to the editor explaining why Vermont Yankee must be closed.



### Commit to Decrease the Amount of Electricity You Use

- Visit [www.encyvermont.org](http://www.encyvermont.org) and learn how to use electricity more efficiently.
- Try using less electricity by making changes in your life.
- Organize efforts in your community to decrease the amount of electricity your homes, schools, businesses and town buildings need.

### Support Your Citizen Lobbyist in Montpelier

- Visit [www.vtcitizen.org](http://www.vtcitizen.org) to learn more.
- Donate to Vermont Citizens Action Network.

To learn more about ways to participate in the efforts to close and replace Entergy Nuclear Vermont Yankee, contact Chris Williams with Vermont Citizens Action Network at 802.767.9131.