

Vermont's nuclear ambitions



By Shay Totten | *Vermont Guardian*

While nuclear power remains unpopular with many in the home county of Vermont Yankee, there are new efforts underway to ensure that the state's only nuclear power station not only keeps pumping out electrons, but that nuclear power is potentially a greater portion of the state's energy portfolio.

Supporters of increased nuclear power say Vermont, and anti-nuclear activists, are ignoring many of the benefits the fuel source provides in terms of reduced greenhouse gas (GHG) emissions, and a stable supply of electricity.

Nuclear supporters also point to a sort of "nuclear renaissance" around the globe, including the commitment in the United States to build six new 500-1,000 megawatt reactors, the result of an energy bill passed by Congress in 2005.

There are currently 103 operating reactors in the United

States, meeting about 20 percent of the nation's electrical demand. And, some would like to see that number go even higher through a mix of extended operating licenses, power uprates, and new plants.

In Vermont, Entergy is already producing 20 percent more power at Windham County's Vermont Yankee (VY) than the power station was originally licensed to produce, and would like to keep operating the plant beyond 2012 when its current license expires.

Outside of Vermont, Entergy, which earned \$216 million in the first quarter of this year from its nuclear operations, is looking to expand the number of plants it operates.

Entergy has received an early go-ahead from the Nuclear Regulatory Commission (NRC) to file permits for a new plant in Port Gibson, MI. The company hopes to file its full application later this year, according to Diane Park, a spokeswoman for the company's nuclear business development group.

Entergy is also eyeing a new plant in St. Francisville, LA, but Park said she doesn't expect that permit to be filed until sometime next year.

These new plants, along with another being proposed by the Tennessee Valley Authority, are part of a 10-member group called the New Start Consortium, a mix of energy companies and nuclear plant designers and suppliers.

However, bringing a nuclear power plant online is both expensive and takes nearly a 10 years from filing a permit to grand opening, and costs nearly \$2 billion to construct.

"The NRC has said they would expect about a four-year review cycle and if we submit at the end of 2007 then you're talking about 2011 or 2012 when their review would be complete," said Park. "And, then you're looking at four to five years' construction time."

Park said that is a ballpark estimate.

Aside from these plants, which are being boosted financially by Congress' offer of subsidies and GHG credits, Entergy is cautiously looking at building other plants, and

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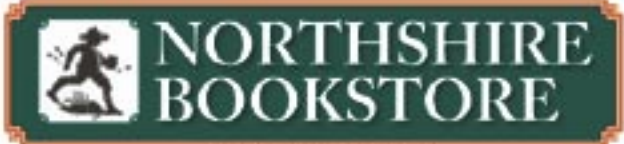
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the jury is still out on whether these new plants will be built, Park said.

"There is a regulatory and technology path that we're going down and concurrently there is a business path to decide whether to build makes sense financially," said Park. "There we are considering load projection, interest rates and the cost of capital, and what does the picture look like to the alternatives to nuclear energy."

Talks of new nuclear power plants are mostly in the South and mid-Atlantic regions of the country, where load growth is the most pronounced.

"We're certainly not saying that nuclear should be the only source of power for the country. We believe in a diverse power mix, but nuclear is a good source of baseload power," said Park.

As to the questions of waste, and safety, Park said no form of energy is completely benign.

"There is no form of energy that doesn't leave some kind of footprint. Even if you get to solar and wind, it takes a considerable amount of land space to do anything," said Park. "Every form of power developed on a scale that meets our increasing demand is a trade-off and it comes down to what different people find acceptable."

Europe: A fresh look at nuclear

In Europe, where nuclear power remains unpopular in a number of countries, efforts are underway to develop new power plants, or keep older plants online longer.

The main reason: Nuclear power advocates call it the only power source to utilize if society is serious about cutting greenhouse gases.

In the wake of the 1986 Chernobyl disaster and concerns about where to put the waste generated from nuclear power, European nations stopped building nuclear plants for 15 years.

Finland was the first to break the silence, and is expected to see its first new reactor come online in 2009. A similar power plant is expected to be built in France and be online by 2020.

Countries in eastern Europe, such as Bulgaria, Romania, and the Czech Republic, are also putting plants back online, and looking to expand their nuclear power capacity in the next 10 years.

And the list goes on — Swit-

zerland, Italy, Sweden, Germany, and Belgium are all lifting moratoria, or backing off plans to mothball nuclear plants.

At the same time, many European countries are also expanding their investments in wind and solar, in particular Germany, which is making some of the largest investments in solar and has a so-called "solar resource" roughly the equivalent to Vermont's.

According to nuclear proponents:

- As of January 2007, 30 countries worldwide were operating 435 nuclear reactors for electricity generation;
- Thirty new nuclear plants were under construction in 12 countries;
- Nuclear power plants provided some 16 percent of the world's electricity production in 2005; and,
- In total, 16 countries relied on nuclear energy to supply at least one-quarter of their total electricity.

With all of this focus on nuclear power, another problem is raised: Uranium is considered a finite resource. There is believed to be enough known sources of uranium to fuel existing power demands another 50 years or so, but that does not take into account an increased power output. Factoring that in, some industry observers say the uranium could be depleted in 20 to 25 years.

The largest supply of uranium is in Australia, followed by Kazakhstan, Canada, South Africa, Namibia, Brazil, Russia, the United States, and Uzbekistan.

What about more Yankee?

Gov. Jim Douglas' Global Climate Change Commission (GCCC) is taking up the issue of nuclear power as a continued, and perhaps expanded, power source for Vermont's utilities.

And, Vermont's utilities are also close to beginning a study into whether a new baseload power plant should be built in Vermont, and what fuel would be used. Utility officials say nuclear power, while not officially off the table, is a highly unlikely source of fuel. Instead, it is likely to be natural gas, biomass, or a combination of the two.

Nuclear power, in Vermont, is not seen as a politically palpable possibility.

Even purchasing additional

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power from nuclear power providers in the region seems unlikely, said one utility official.

Both Green Mountain Power and Central Vermont Public Service (CVPS) have begun preliminary talks with Entergy about purchasing power from VY after 2012 if it receives its extended license, as well as Hydro Quebec (HQ), whose contracts with Vermont utilities also begin to expire around the same time.

"We are jointly talking with both VY and HQ about future contract possibilities. The HQ talks are very preliminary at this point, but they've shown an interest in new agreements," said Steve Costello, a spokesman for CVPS. "VY also, obviously, would like to strike a deal with Vermont utilities if they are to be relicensed."

Costello said he hadn't heard that the GCCC was examining a possible expansion of nuclear power as a percentage of Vermont's energy portfolio.

"We are looking at all options at this point, but obviously want to have a balance of sources with greenness one of the key attributes," Costello said in an e-mail to the *Guardian*.

One member of the GCCC believes the state, and the utilities, shouldn't be too quick to dismiss nuclear power just because of some vocal opposition near the plant.

"If we really believe that greenhouse gas is a perilous and present danger, then we have to take a close look at nuclear as a source of fuel, not just in terms of electricity, but perhaps in transportation if we are going to be moving toward more hybrid or electric or hydrogen cars — their source of power being nuclear," said Bill Sayre, who is on the board of directors of Associated Industries of Vermont.

Sayre admits that building a new nuclear power plant is not in the cards for Vermont, and even getting VY relicensed is expected to be an uphill battle since the Legislature, along with the Public Service Board, has to weigh in on the matter along with the NRC.

"There's a large group of people in that area who are resistant to even relicensing, which I believe should happen," said Sayre. "But, its worth having the discussion about whether it should be a bigger part of our energy future as our own demands in this state grow."

Sayre said utilities could broker with Entergy, for example, which owns several nuclear power plants in the region, including



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— Steve Costello

Central Vermont Public Service

Pilgrim in Massachusetts and Indian Point outside of New York city. Pilgrim is up for relicensing at the same time as Vermont Yankee, and Indian Point recently has been plagued with ongoing problems related to its emergency notification system.

For its part, Entergy is working through the Vermont Energy Partnership to help advocate for relicensure. The group, founded in 2005, is comprised of "a diverse group of 75 business, labor, and community leaders."

Earlier this year, the group brought Patrick Moore, a founder of Greenpeace, to Vermont to speak about the benefits of nuclear power in the battle to reduced GHG emissions. Moore now serves as an advisor to the group.

Vermont's energy portfolio is already has one of the greenest in the country, and nuclear supporters say that's largely due to the fact that one-third of the state's power comes from VY, and another third comes from Hydro Quebec.

Moore said Vermont can, and should, develop more renewable sources, but should not automatically discount nuclear as a way to keep GHG emissions low.

"Working with the Vermont Energy Partnership is intriguing and important, in part because many other places can learn from how Vermont meets its energy challenges," Moore said

in a statement. "Yet, there is no silver bullet solution for addressing Vermont's electricity needs and keeping the state pristine. Nuclear and hydroelectric power are each important, as is the increased use of renewable sources, including wind and geothermal. Vermont can and should become a showcase for clean energy ideas and innovations." ☺



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