

Local signs in eyes - Same as Coal in Glades FL! Money goes Solar 1/6
Support all about MONEY nuclear migration
Plan + harvest
all - safe + secure

NRC comments on Proposed New Nuclear Power reactor William States Lee, near Gaffney, SC

4/28/08 RE:

US Nuclear Regulatory Commission (NRC) regarding Duke energy's application for Construction and Operation License

Dear NRC:

I find your timing very difficult for folks like myself who will be impacted by so many new proposed nuclear expansions and projects being rushed into existence all over the country and especially here in the South. Is it just to get these in under the wire before a new President is elected who may not be so easily misled by claims from power companies being allowed to collect huge profits no matter how disastrous these projects turn out to be?

I have copied below only one of hundreds of published articles I have read concerning the impact these proposed new nuclear reactors will have on the water, land, public health, and safety.

As a private individual, I do not have the resources to run all over the country or photocopy extensive packages of information to the NRC. Please be sure to download and include the following in my comments:

- www.energyjustice.net/nuclear,

- ww.ieer.org/carbon-free/nuclear-free

- Three Associated Press Articles I have copies of but don't how to find the web information:

- "Deadly Nuclear Waste Needs Good Home" January 20, 2008, detailing how France and other countries are at a loss what to do with nuclear waste that will remain radioactive for thousands of years, and

- "Drought May Shut Down Nuclear Reactors" January 24, 2008, fLake Norman, NC, outlining the strong possibility that nuclear reactors, particularly in the South, could be shut down later this year because drought is drying up rivers and lakes that supply power plants with the awesome amounts of cooling water they need to operate.

- "Cooling Water Drawn From River Too Hot - TVA Reactor Shut Down" August 16, 2007. The article details how "the nation's largest public utility shut down because water drawn from the Tennessee River was exceeding a 90-degree average over 24 hours...."

I understand Duke Energy is trying to get federal approval to build a new nuclear reactor in Gaffney, SC, not far from the Gastonia, Charlotte, Monroe NC area where my 9 grandchildren live. This is in addition to Duke's proposed coal plant at Cliffside in the same area.

With the drought conditions that so severely impacted these States this past year. I find this unbelievable. I'm sure you are aware that nuclear energy is such a water guzzler, worse than the population, because it evaporates the water instead of returning it to the ground. With water wars already in place in GA, AL, LA, NC, SC and FL, how could Duke even contemplate such a move or the NRC take it seriously? Is it because they are being offered public funds to subsidize and give corporate welfare to a for-profit company without the approval of those of us in the public who will be made to pay the bill when it fails.? Is it because Duke Energy stands to profit handsomely no matter what the outcome? Is it to ensure Duke 20 years of certainty if you grant this permit that they can build whatever they want even if future droughts prove it impractical? Where will the water come from to cool this proposed new reactor?

✓ What about the health of my precious grandchildren? I understand there is a book out now that proves children are getting sick in the vicinity of nuclear plants, something in the title about radioactive materials in their baby teeth! And, last summer, there was an article in the Charlotte Observer about handing out anti-nuclear capsules of iodine in case of a meltdown. Who wants to live that way? Where will the waste that remains hazardous for thousands of years be stored?

What about the article "Radioactive byproduct in groundwater At Nuclear Plant, DUKE says Substance found only at site; area to be monitored" in the Charlotte Observer Thursday October 11, 2007, "Radioactive Tritium has leaked into groundwater from the Catawba nuclear power plant on Lake Wylie, Duke Energy told federal regulators..." Why didn't federal regulators know about it before it got so obvious Duke had to admit it?

✓ I have another article from the Pathfinder, Fall, 2006 "Wisconsin's Kewaunee Reactor Contaminates Groundwater" regarding tritium leaks that have been ongoing for years with the NRC always just a little too late to make their investigation. How can the NRC claim to be able to monitor new nuclear plants when they can't even handle existing plants. Tritium has been linked to developmental problems, cancers, genetic defects, miscarriages and damage to fetuses even at low levels. What is the NRC's specific dose estimates for tritium (radioactive hydrogen) and Nobel gases for all metropolitan areas within 100 miles (INCLUDING MY GRANDCHILDREN!).

What is the purpose of the Nuclear Regulatory Commission and who do they work for? I trust it is the American people and not the Energy Companies. Therefore, we, the people, expect you to deny any new nuclear proposals.

✓ Please deny this permit and make Duke wait to see what the next few years bring in politics, solar, wind, wave, geothermal, efficiency and green building before committing all of us, yourselves and your children included, to such an extravagant and unnecessarily wasteful energy policy as more new nuclear especially in this drought-stricken area.

✓ "The nuclear elephant in the living room" of radioactive waste, the vulnerability of nuclear plants to terrorist attack, sabotage human error or natural disaster, the potential to restart nuclear proliferation as well as the human health risks, all combine to make any new nuclear projects an enormous and unnecessary risk.

✓ Proposed nuclear projects will also divert much needed funds, time and attention away truly safe and sustainable solutions like solar, wind, wave and geothermal energy development.

✓ As Lew Hay, CEO, of Florida Power and Light said in the Q&A period of its shareholder webcast on 3/28/08, "I think its the right thing to do, but **honestly, nuclear scares me to death.**" **Me, too.** This permit is my business. It has the potential to gravely impact my grandchildren!

✓ Please insist that Duke Energy check out all sorts of renewable energy options at www.renewableenergyworld.com A free subscription is available at www.rew-subscribe.com. We want to know how much wind energy capacity exists within the Duke service area? What is the solar capacity of all rooftops within the Duke service area? Why are the true costs of all associated activities not being factored into Duke's projections?

Be sure to read the article below and carefully evaluate all its contents.

I have over 400 signatures from folks across the South that say, "No Coal, No Nukes, Go Solar" and would be happy to mail them to you upon request.

Sincerely, Deb Amason, 360 Webb Rd, Wadesboro, NC 28170 and 12 Dill St, Alva, FL 33920
386-288-4454 cell

WHAT NUCLEAR RENAISSANCE? Nation -- posted April 24, 2008 (May 12, 2008 issue)

by Christian Parenti

If you listen to the rhetoric, nuclear power is back. Smashing atoms will replace burning carbon-based coal, gas and oil. In the face of a disaster movie-like future of runaway climate change—bringing drought, floods, famine and social breakdown—carbon-free nukes are cast as the *deus ex machina* to save us at the last minute.

Even a few greens support nuclear power—most famously James Lovelock, father of the Gaia theory. In the popular press, discussion of nuclear energy is dominated by its boosters, thanks in part to sophisticated industry PR.

In an effort to jump-start a "nuclear renaissance," the Bush Administration has pushed one package of subsidies after another. For the past two years a program of federal loan guarantees has sat waiting for utilities to build nukes. Last year's appropriations bill set the total amount on offer at \$18.5 billion. And now the Lieberman-Warner climate change bill is gaining momentum and will likely accrue amendments that will offer yet more money.

The Nuclear Regulatory Commission (NRC) expects up to thirty applications to be filed to build atomic plants; five or six of those proposals are moving through the complicated multi-stage process. But no new atomic power stations have been fully licensed or have broken ground. And two newly proposed projects have just been shelved.

The fact is, nuclear power has not recovered from the crisis that hit it three decades ago with the reactor fire at Browns Ferry, Alabama, in 1975 and the meltdown at Three Mile Island in 1979. Then came what seemed to be the coup de gr^âce: Chernobyl in 1986. The last nuclear power plant ordered by a US utility, the TVA's Watts Bar 1, began construction in 1973 and took twenty-three years to complete. Nuclear power has been in steady decline worldwide since 1984, with almost as many plants canceled as completed since then.

All of which raises the question: why is the much-storied "nuclear renaissance" so slow to get rolling? Who is holding up the show? In a nutshell, blame Warren Buffett and the banks—they won't put up the cash.

"Wall street doesn't like nuclear power," says Arjun Makhijani of the Institute for Energy and Environmental Research. The fundamental fact is that nuclear power is too expensive and risky to attract the necessary commercial investors. Even with vast government subsidies, it is difficult or almost impossible to get proper financing and insurance. The massive federal subsidies on offer will cover up to 80 percent of construction costs of several nuclear power plants in addition to generous production tax credits, as well as risk insurance. But consider this: the average two-reactor nuclear power plant is estimated to cost \$10 billion to \$18 billion to build. That's before cost overruns, and no US nuclear power plant has ever been delivered on time or on budget. As Dieter Helm, an Oxford professor and leading economic expert on energy markets, has found, there never has been and never will be a nuclear power program totally dependent on the market. Sixty years ago, the technology was swathed in manic space-age optimism—its electricity was going to be "too cheap to meter." While that wasn't true, nuclear power did serve a key role in the cold war: spent nuclear fuel rods are refined for weapons-grade plutonium and enriched uranium. That fact aside, rarely has so much money, scientific know-how and raw state power been marshaled to achieve so little. By some estimates, an investment of several hundred billion dollars has led to a US nuke industry of 104 operating plants—about a quarter of the global total—that produces a mere 19 percent of our electricity.

In fact, the sputtering decline of nuclear power has been one of the greatest industrial failures of modern times. In 1985 *Forbes* called the nuke industry "the largest managerial disaster in history." Atomic optimism run amok caused the largest municipal bond default in US history. In 1983 Washington Public Power Supply System abandoned three nuke plants in midconstruction. The projects were plagued by massive cost overruns—one infamous section of piping was reinstalled seventeen times, safety inspections were blatantly ignored, incompetent contractors were allowed to continue work and on and on. When the project finally died, unfinished costs had ballooned to \$24 billion, and the utility walked away from \$2.25 billion worth of bonds. That project, like many others, drowned in the financial riptides of rising interest rates that were

the central feature of the "Volcker recession" of the early '80s. (That was when Federal Reserve chairman Paul Volcker smashed inflation by jacking the Fed's interest rate from 8 percent in 1979 to more than 16 percent in 1982.) But nukes were also killed by the corruption and incompetence that so often plague large state projects, like Boston's Big Dig, the New Orleans levees, space-based weapons systems and Iraq's reconstruction.

Another reason atomic energy is so expensive is that its accidents are potentially catastrophic, and activists have forced utilities to build in costly double and triple safety systems. Right-wing champions of atom-smashing blame prohibitive costs on neurotic fears and unnecessary safety measures. They have a point in that safety is expensive, but safety is hardly excessive—details on that in a moment.

More important is the fact that nuclear fission is a mind-bogglingly complex process, a sublime, truly Promethean technology. Let's recall: it involves smashing a subatomic particle, a neutron, into an atom of uranium-235 to release energy and more neutrons, which then smash other atoms that release more energy and so on infinitely, except the whole process is controlled and used to boil water, which spins a turbine that generates electricity.

In this nether realm, where industry and science seek to reproduce a process akin to that which occurs inside the sun, even basic tasks—like moving the fuel rods, changing spare parts—become complicated, mechanized and expensive. Atom-smashing is to coal power, or a windmill, as a Formula One race-car engine is to the mechanics of a bicycle. Thus, it costs an enormous amount of money.

Worldwide, about twenty nuclear power plants are being built, but most are in Asia and Russia and are closely linked to nuclear weapons programs. Japan and France have large nuke programs, but both countries heavily subsidize their plants, use a single design and built their fleets not to make profits but to ensure some minimum strategic energy independence and, for France, to build an atomic arsenal.

Even if a society were ready to absorb the high costs of nuclear power, it hardly makes the most sense as a tool to quickly combat climate change. These plants take too long to build. A 2004 analysis in *Science* by Stephen Pacala and Robert Socolow, of Princeton University's Carbon Mitigation Initiative, estimates that achieving just one-seventh of the carbon reductions necessary to stabilize atmospheric CO₂ at 500 parts per billion would require "building about 700 new 1,000- Mw megawatt nuclear plants around the world." That represents a huge wave of investment that few seem willing to undertake, and it would require decades to accomplish.

None of this has stopped the Bush Administration and Congress from channeling more money toward nukes. The current push to build nukes began in 2002, when the Administration launched its Nuclear Power 2010 program, which sought to spur construction of at least three major nuclear power plants. Then came the US Energy Policy Act of 2005, which offered three major forms of subsidy. New nuclear power plants could get production tax credits, federal loan guarantees and construction insurance against cost overruns and delays—together worth \$18.5 billion.

The notion that nukes make sense and are the version of green preferred by grown-ups is being conjured by a slick PR campaign. The Nuclear Energy Institute—the industry's main trade group—has retained Hill and Knowlton to run a greenwashing campaign.

Part of their strategy involves an advocacy group with the grassroots-sounding name the Clean and Safe Energy Coalition. At the center of the effort are former EPA chief Christine Todd Whitman and former Greenpeace co-founder turned corporate shill Patrick Moore. (Moore is also a huge champion of GMO crops, which are notorious for impoverishing farmers in developing economies and using massive amounts of pesticides.) The industry also places ghostwritten op-eds under the bylines of scientists for hire.

All the major environmental groups oppose nuclear power. But the campaign is having some impact at the grassroots: the online environmental journal *Grist* found that 54 percent of its readers are ready to give atomic energy a second look; 59 percent of *Treehugger.com* readers feel the same way. In other words, people who understand climate change are feeling downright desperate.

But even the Oz-like magic of corporate spin, public subsidies and presidential speechifying have their limits. In late December the man whose name is synonymous with sound money turned his back on nuclear power.

Warren Buffett's MidAmerican Nuclear Energy Company scrapped plans to build a plant in

Payette, Idaho, because no matter how many times its managers ran the numbers (and they spent \$13 million researching it), they found that it simply made no sense from an economic standpoint.

South Carolina Electric and Gas has also suspended its two planned reactors, citing costs as the key factor. But the company says, "We remain very upbeat about the future of nuclear power." If a nuke plant breaks ground soon, it will likely be NRG Energy's double-reactor plant, set to be erected in South Texas. But that one has also been delayed.

The fact that new nukes make little economic sense does not mean that old nukes are not profitable. In fact, these nightmarishly complex radioactive boondoggles have recently been turned into cash cows. Utilities achieved this remarkable transformation the old-fashioned way—they used socialism.

Beginning in the 1990s, most American energy markets were deregulated one state, one region at a time. In the process many old utilities were broken up into different firms: some generated power, others sold it, still others handled transmission. One of the crucial details of deregulation was allowing utilities to pass on to rate payers the "stranded costs"—the outstanding mortgage payments of their nuclear power plants.

Perhaps the most egregious example of this occurred in California. In 1996 the State Assembly passed legislation—written by utility lobbyists—that allowed Southern California Edison and Pacific Gas & Electric to hold rates high as prices dropped nationally. The two utilities were on target to receive \$28 billion over four years. This money would pay off the stranded costs of the Diablo Canyon and San Onofre atomic plants. Halfway through the deal the California power crisis hit and deregulation was put on hold—utilities were forced to stop selling off their assets, and third-party speculation in energy markets was halted. But the state floated bonds to mop up the remaining stranded costs.

Similar deals were struck across the country. Once unburdened of old debts, the nuke plants—now having relatively low overhead costs—became valuable assets. A new generation of firms began buying them up. By 2002 ten companies owned seventy of the nation's 104 reactors.

Among the big players in this game are Exelon, Entergy and Dominion Resources.

Many of the old plants went for a song. A particularly disturbing example of this is Vermont Yankee, a thirty-five-year-old reactor purchased by Entergy seven years ago for a mere \$180 million. That's about half the price it would cost to build an equal-sized coal plant or wind farm. Now Entergy is trying to run the power station as hard and as long as possible. In 2006 it received approval to increase power output at the plant by 20 percent. This "uprate" means the plant operates with 20 percent more pressure, heat and flow. And in just one year it earned Entergy \$100 million in profits. Over the last decade, almost all US nuclear power plants have received uprates, but few match Vermont Yankee's full-throttle, 120 percent capacity.

Just after the uprate, one of Vermont Yankee's twenty-two cooling towers collapsed. That's right—it crumbled and fell over. Entergy officials said the collapse "baffled" them. The plant's spokesman, Rob Williams, admitted that "our inspections were not effective enough." Reached by phone, Gregory Jaczko, a commissioner at the NRC, admitted that the collapse "didn't look good." But he went on to reassure the public that the plant is essentially safe.

Now Entergy is petitioning the NRC to extend its operating license so that it can run the old plant for twenty years longer than was intended. Nationally, forty-eight facilities have had their licenses extended. In fact, despite critics' arguments that aging plants pose serious dangers, no license renewal requests have ever been denied.

"The NRC falls all over itself to facilitate the industry," says Ray Shadis, a consultant who has worked for both environmental groups and on NRC panels and research projects. The Project on Government Oversight and other watchdog groups point to a revolving door between the commission's staff and the nuclear industry. To take just one example, in 2007 former commissioner Jeffrey Merrifield joined the Shaw Group after spending his last months on the commission pushing to ease restrictions for precisely the type of construction activities that were the Shaw Group's specialty.

Diana Sidebotham, an antinuclear activist in Putney, Vermont, twenty miles north of the Vermont Yankee plant, thinks Entergy and the NRC are courting disaster. In 1971 Sidebotham helped found the New England Coalition on Nuclear Pollution, and she has been trying to shut down nuclear plants ever since. Her hillside farm looks out over the ridge lines of the Connecticut River

Valley.

"One of these days a plant will blow," says Sidebotham, with just a touch of a genteel but steely New England accent. "And when it does, it will cause a great many deaths and widespread suffering, not to mention extraordinary economic damage."

Accidents do happen. In 2002 the Davis-Besse Nuclear Plant in Ohio was forced to close for two years after inspectors found a football-sized corrosion hole in the reactor's six-inch-thick steel cap. The plant was very close to a major accident. Repairs cost \$600 million.

Democratic presidential candidate Barack Obama says he opposes any more relicensing of old nuclear plants. His rival Hillary Clinton has stopped just short of saying that. However, as was reported by the *New York Times*, Obama has close ties to the nuclear industry, particularly the Illinois-based Exelon, which has contributed at least \$227,000 to his campaigns. Two of his top advisers have links to the firm, including his chief strategist, David Axelrod, who was a consultant for Exelon. Obama voted yes on the 2005 Energy bill, which lavished subsidies on oil, coal, ethanol and nukes; Senator Clinton, like almost half the Senate Democrats, voted against it. The Obama campaign says that as President he would not cut nuclear subsidies, only that he would boost subsidies for green power.

Activists like Sidebotham say the real issue is not how to build more nukes but how to handle the old, decrepit plants and their huge stockpiles of radioactive waste. Most of the atomic plants in this country are reaching the end of their life span; seventeen have been decommissioned. And increasingly the question is what to do with the accumulated waste—the extremely radioactive spent fuel rods. This is dangerous stuff. If exposed to air for more than six hours, spent fuel rods spontaneously combust, spewing highly poisonous radioactive isotopes far and wide. This spent fuel will be hot for 10,000 years.

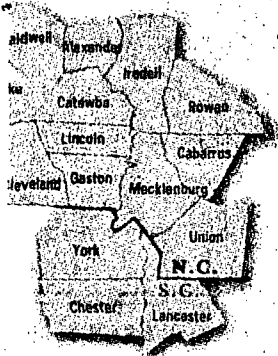
Since 1978 the Energy Department has been studying Yucca Mountain in Nevada as a possible permanent repository for atomic waste. But intense opposition has held up those efforts. In the meantime, the partially burned uranium is stored at the old power plants, in pools of water called "spent fuel pools." Lying near great cities, on crucial river systems, in small rural towns, these pools are potentially a far greater risk than a reactor meltdown. Scenarios for how terrorists might attack and drain them range from driving a truck bomb to crashing an explosive-laden plane into them.

Just after 9/11, when security at nuke plants was supposed to be high, lead pellets started raining down on the containment structure and guard shack at Maine Yankee, in Wiscasset. (The plant has since been decommissioned.) A group of four men in camouflage, armed and intent on killing, had infiltrated into a swamp and were firing weapons from somewhere in the reeds. This "cell" turned out to be four local duck hunters who had no idea they were hitting the power plant.

Their foray against innocent mallards proved just how easy an attack could be. Activists demanded, and got, a safety review, which led to a shockingly blunt NRC document called "Report on Spent Fuel Pool Accident Risk," or NUREG-1738. The report found that containment structures, such as that at Vermont Yankee, "present no substantial obstacle to aircraft penetration." According to the NRC, a fire in the spent fuel pool at a reactor like Vermont Yankee (which stores 488 metric tons of spent fuel) would cause 25,000 fatalities over a distance of 500 miles if evacuation was 95 percent effective. But that evacuation rate would be almost impossible to achieve. The NRC claims to have the threat of terrorism under control, but for reasons of national security it can't explain how. And after 9/11 it admitted, "At this time, we could not exclude the possibility that a jetliner flying into a containment structure could damage the facility and cause a release of radiation that could impact public health."

Humanity's Faustian bargain with atomic power is a story still in its early stages. No one knows how long nuclear facilities will last or what will happen to them during future social upheavals—and there are bound to be a few of those during the next 10,000 years.

This much seems clear: a handful of firms might soak up huge federal subsidies and build one or two overpriced plants. While a new administration might tighten regulations, public safety will continue to be menaced by problems at new as well as older plants. But there will be no massive nuclear renaissance. Talk of such a renaissance, however, helps keep people distracted, their minds off the real project of developing wind, solar, geothermal and tidal kinetics to build a green power grid. <http://www.thenation.com/doc/20080512/parenti>



CATAWBA PLANT ON LAKE WYLIE

Radioactive byproduct in groundwater at nuke plant

Duke says substance found only at site; area to be monitored

BY BRUCE HENDERSON bhenderson@charlotteobserver.com

Radioactive tritium has leaked into groundwater from the Catawba nuclear power plant on Lake Wylie, Duke Energy told federal regulators Wednesday.

Tritium occurs naturally and as a byproduct of nuclear plants. It emits a weak form of radiation, but people exposed to it may face increased risks of cancer or pass on genetic abnormalities.

One well at the Catawba plant had a tritium concentration twice as high as the federal government says is safe in drinking water. Duke says the contamination poses no threat to the public because it is confined within the plant's boundaries.

The S.C. Department of Health and Environmental Control will sample water from about two dozen residential wells near the plant, spokesman Thom Berry said. The department learned of the leaks late Tuesday or Wednesday.

At least six other nuclear plants, none in the Carolinas,

have reported tritium leaks in recent years. The Nuclear Regulatory Commission says the leaks posed no threats to public health, but revised inspection procedures to ferret out potential leaks.

Nuclear reactors produce tritium from the use of a chemical, boron, to help control the chain reaction that produces heat. Boron is also added to the water in which fuel cools after it has been used in a reactor.

Under an industry initiative, Duke spokesman Valerie Patterson said, Catawba installed 30 new wells to monitor groundwater at the plant. One of those wells - not used for drinking water purposes - detected the concentration Duke reported Wednesday.

"We have no reason to believe, based on other testing of other wells, that they have elevated levels," Patterson said.

Duke's McGuire nuclear plant on Lake Norman has installed 41 wells and will add nine. It was unclear Wednesday whether reportable levels of tritium had been detected there.

The Oconee plant in northwestern South Carolina will install 28 wells later this year, Patterson said.

Duke said it's investigating the source of the leak. Other nuclear plants have traced leaks to spent fuel pools and to valves.

See Article

New Scientist April 24, 2008

Reasonable Doubt? by Ian Fairlie

London based Consultant on Mediation in the environment



(RALEIGH) NEWS & OBSERVER PHOTO

masters

the Fish-O-Matic game

h information is asked to it 704-377-9200. — MELISSA

ed with sexually stranger at motel

man has been charged in a sexual attack last month at a south Charlotte motel.

Glenn Vinson, 42, is accused of walking up to a stranger at the America's Best Value Inn on Archdale Drive, groping

NEAR CLANTON ROAD

NUKEWATCH

No Nuclear Waste in Utah!
Story on page 1

PATHFINDER

A publication of the Progressive Foundation — Fall 2006

News & Information on Nuclear Weapons, Power, Waste & Nonviolent Resistance

Wisconsin's Kewaunee Reactor Contaminates Groundwater

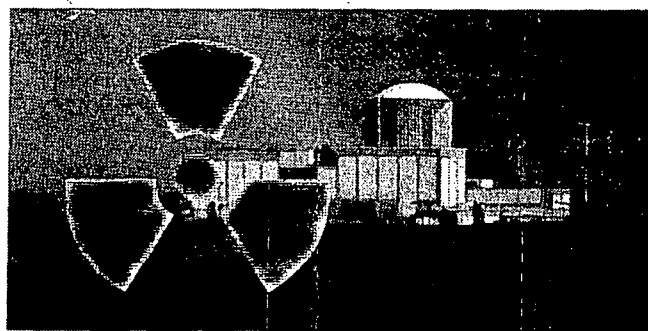
By Paul Vos Benkowski and Bonnie Urfer

A tritium leak at the Kewaunee nuclear site on the shore of Lake Michigan has contaminated the groundwater beneath the reactor in eastern Wisconsin. A Nuclear Regulatory Commission report, issued on August 9, said the radioactive groundwater had infiltrated into narrow shafts beneath two buildings. The alarming notice and subsequent sketchy reports reveal that tritium contaminated water is leaking at the rate of one gallon every five minutes. No one knows when the leak began. Kewaunee is not the only leaking reactor in the country. To date close to one quarter of U.S. reactors have leaked tritium into the ground and in the case of Braidwood in Illinois, into drinking water.

The situation at Kewaunee was discovered when Dominion, owner and operator of the reactor, voluntarily investigated the site for signs of leakage. They found elevated levels of radioactive contamination onsite. Detected tritium levels were between 6,000 and 103,000 Pico curies per liter. The U.S. Environmental Protection Agency's safety limit for tritium is 20,000 Pico curies per liter. The source of the leak is unknown, but the cooling pool for irradiated fuel rods has been ruled out and investigators are looking at piping beneath the reactor.

Dominion contacted the State of Wisconsin's Department of Emergency Management and Department of Natural Resources Regional Office, the Kewaunee and Manitowoc County Emergency Directors and the NRC Resident Inspector.

An unacceptable number of tritium leaks have occurred within the past six months, shattering the notion that nuclear reactors are a safe and reliable source of energy. Reactors with tritium leaks include: Callaway, Missouri; St. Lucie, Florida; Diablo Canyon and San Onofre, California; Prairie Island, Minnesota; Braidwood, Dresden and Byron in Illinois;



A tritium leak at Wisconsin's Kewaunee nuclear reactor on the shore of Lake Michigan has contaminated the groundwater beneath the site. A Nukewatch press release alerted the media which resulted in limited coverage state wide.

Pickering (site of eight reactors), Ontario, Canada; Indian Point and Brook Haven Research reactor, New York; Palo Verde, Arizona; Connecticut Yankee, Connecticut; Sequoyah and Watts Bar, Tennessee and the Kewaunee reactor in Wisconsin. The groundwater beneath the Braidwood, Dresden, Brook Haven, Palo Verde, Indian Point, Diablo Canyon, San Onofre and Kewaunee sites are all at contamination levels above EPA and NRC standards.

The NRC investigates these reactor leaks, but always a little too late. These leaks have been steadily occurring for years. A case in point is the San Onofre nuclear reactor near San Clemente, California which has been shut down for 15 years but is still leaking tritium into the groundwater below the site. It is unknown how much has seeped out, where it came from or when the leak started, although the closest guess is 1968.

Tritium is a radioactive isotope of hydrogen which is produced in the reactor core. It has a half life of 12.5 years. It remains radioactive for 120 years. Even in low levels it has been linked to developmental problems, cancer, genetic defects, miscarriages and damage to fetuses as it crosses the placenta. A poison any way you look at it, yet the NRC and the nuclear industry have been slow to confront this growing problem and the agency assures the public that there is no danger.

It's Nukewatch's opinion that it's best to shut the nuclear industry down — before we drink the radioactive water.

THE RACE TO UPGRADE MCGUIRE

Nov 1 2007

Charlotte Observer

704-358-5090
Ask them to look up date in archives Summer 07



GARY O'BRIEN - gobrien@charlotteobserver.com

For the backup safety system at Duke Energy's McGuire nuclear power plant to operate, the water level on Lake Norman must be at a certain level. The company is in the process of replacing the system so it can operate at a lower lake level.

Thurs Nov 1st
Nicole - 2007
Dayton
UM to get
nuclear info
12/31/07

Drought fueling power concerns

12/29/07
CKirkpatrick
@charlotteobserver.com

Duke facing a problem as water level drops on Lake Norman

See 4D-Duke

req'd copy of article + date for nuclear drought concerns here in file PSC next week

By CHRISTOPHER D. KIRKPATRICK
ckirkpatrick@charlotteobserver.com

At the McGuire nuclear power plant on Lake Norman, engineers race a ticking drought clock.

For one of the plant's backup safety systems to work, the lake has to be above a certain water level. But persistent drought is taxing the water supply as Duke Energy Corp. races to redesign and replace the system so it can operate at a lower lake level.

If Duke loses the race with Mother Nature, it could be forced to temporarily shut down the plant, according to its operating license with the U.S. Nuclear Regulatory Commission.

At stake is the 2,200 megawatts McGuire provides at full power - nearly 12 percent of Duke's capacity in the Carolinas. Shutting down the plant could put a strain on the system as power demand soars. When Duke needs extra

power, the company often buys from outside sources, passing the sometimes-higher costs on to ratepayers.

"We have put every available resource into this job," said spokeswoman Rita Sipe.

For now, Duke, through its series of 13 dams on the Catawba River, has been keeping Lake Norman at a high enough level to keep McGuire online. But the company says the water supply in the river basin is shrinking about 2 percent a week and persistent drought into March could compromise some of its operations.

The McGuire plant, near Huntersville, is about 20 miles north of uptown Charlotte. The Lake Norman area and its waterfront, once rural, have sprouted with high-end homes and communities, often developed or sold by Crescent Resources LLC, Duke's former real estate

Watching Duke

At McGuire nuclear plant, like similar plants across the country, U.S. Nuclear Regulatory Commission officials work side by side with plant employees. Two officials at McGuire watch day-to-day activities to ensure plant operations are within federal guidelines.

"It's like having a state trooper in the passenger seat while you're driving down the highway," said Duke spokeswoman Rita Sipe.

Duke's three nuclear plants are an integral part of Duke's power plant fleet, providing 46 percent of Duke's power generation. Coal accounts for 52 percent. The rest comes from hydroelectric plants and ones run on natural gas and oil.

Duke's fleet
Estate Company
no Gas?
renewables?
nuclear

Nuclear Experts Warn Against Repeating Errors

Public Citizen Brings Delegation to United States to Educate Lawmakers, Citizens

BY ROBERT YULE

On a recent visit to the United States, international nuclear experts warned Americans not to repeat the costly and dangerous mistakes other countries have made by creating a program to "reprocess" nuclear waste.

Public Citizen brought the experts here to educate lawmakers and the American public about the problems with reprocessing programs, which separate plutonium and uranium from nuclear waste.

The three experts - who spoke about the debacles of the reprocessing programs in France, the United Kingdom and Japan - all commended the United States for its decision 30 years ago to abandon such efforts.

However, things are poised to change in the U.S. The Bush administration has created a new program, the Global Nuclear Energy Partnership (GNEP), which will revive reprocessing in the U.S. as a way to deal with the nation's radioactive waste. In theory, the plutonium would be used to make fuel for so-called "fast reactors" - a kind of reactor that has not been successfully commercialized anywhere in the world.

The Department of Energy is looking at 11 sites to build not only a reprocessing plant, but also a

central Washington; the Savannah River Site in southwestern South Carolina; and the Idaho National Laboratory, located west of Idaho Falls, Idaho.

The agency also is proposing to build a research facility for developing the reprocessing technology and fuel for the fast reactor.

The fast reactor is a key component of the GNEP program. However, the reactors remain unsafe, uneconomical and

unable to address the problems of nuclear power, even after decades of research and experimentation.

In addition to meeting with Washington-based journalists and lobbying lawmakers on Capitol Hill, two of the experts - Shaun Burnie, an independent consultant from the United Kingdom, and Aileen Mioko Smith, founder of a Kyoto, Japan-based citizen group - traveled to South Carolina, Georgia

reprocessing programs and nuclear waste.

According to Burnie, who specializes in reprocessing and waste disposal and transportation consulting, other countries with reprocessing programs for spent nuclear fuel have found that the technology is too costly and does not solve the problem of radioactive waste.

For example, a July 2000 report commissioned by the French government concluded that reprocessing is uneconomical - costing about \$25 billion more than a normal fuel cycle - and does little to reduce the amount of long-lived radioactivity in the waste.

The Rokkasho reprocessing plant in Japan was also uneconomical, costing \$20 billion and taking 12 years to build, Smith said. Smith pointed out that Japan's

reprocessing plant would contribute tens of tons more plutonium to the nation's waste stockpile within just five years

In England, a recent leak of 20 tons of uranium and plutonium fuel from the government-owned reprocessing plant in Sellafield led to the plant's operator calling on the government to permanently close the facility, which had been losing money even when it was operational. Walker warned that once governments begin reprocessing programs, they tend to have trouble stopping them - even when they are not successful.

Although the Ford and Carter administrations both took steps to end commercial reprocessing in the U.S., we have not cleaned up the high-level radioactive waste and other pollutants more than 30 years later from a reprocessing site at West Valley, N.Y. - estimated to cost \$5.2 billion. The U.S. also reprocessed to get plutonium for nuclear weapons, which resulted in highly radioactive liquid waste in tanks at Hanford and the Savannah River Site that continues to threaten important water resources, including the Columbia and Savannah rivers.

As an alternative, storing radioactive materials in hardened facilities at individual reactor sites is the safest means to deal with nuclear waste in the near-term, said Michele Boyd, legislative director of Public Citizen's Energy Program.

"The U.S. government should heed the lessons of reprocessing failures from around the globe. The technology is costly, highly polluting and will only add to our nuclear waste problem, not reduce it."
- Michele Boyd, legislative director, Public Citizen's Energy Program

Walker
reprocessing
- Michele Boyd

NUCLEAR WASTES WATER
~~THE~~ NUCLEAR WASTES MONEY
NUCLEAR WASTES TIME
NUCLEAR WASTES ENERGY
NUCLEAR IS A WASTE
NUCLEAR CAN WASTE THE PLANET!

THE ASSOCIATED PRESS

member ultimately was cleared
for flight and rocketed into space.

NATION & WORLD

CONTACT US

■ Keith Gibson, News Editor
344-4804 | kgibson@news-press.com
6 p.m.-2 a.m. Sunday-Thursday

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news-press.com | THE NEWS-PRESS | THURSDAY, JANUARY 24, 2008

Drought may shut down nuclear reactors

Plants need water for cooling, condensing steam after turning turbines

The Associated Press

LAKE NORMAN, N.C. — Nuclear reactors across the Southeast could be forced to throttle back or temporarily shut down later this year because drought is drying up the rivers and lakes that supply power plants with the awesome amounts of cooling water they need to operate.

Utility officials say such shut-

downs probably wouldn't result in blackouts. But they could lead to shockingly higher electric bills for millions of Southerners, because the region's utilities may be forced to buy expensive replacement power from other energy companies.

Already, there has been one brief, drought-related shutdown, at a reactor in Alabama over the summer.

"Water is the nuclear indus-

try's Achilles' heel," said Jim Warren, executive director of N.C. Waste Awareness and Reduction Network, an environmental group critical of nuclear power. "You need a lot of water to operate nuclear plants." He added: "This is becoming a crisis."

An Associated Press analysis of the nation's 104 nuclear reactors found that 24 are in areas experiencing the most severe levels of drought. All but two are

built on the shores of lakes and rivers and rely on submerged intake pipes to draw billions of gallons of water for use in cooling and condensing steam after it has turned the plants' turbines.

Because of the yearlong dry spell gripping the region, the water levels on those lakes and rivers are getting close to the minimums set by the Nuclear Regulatory Commission. Over the next several months, the water could drop below the intake pipes altogether. Or the shallow water

could become too hot under the sun to use as coolant.

"If water levels get to a certain point, we'll have to power it down or go off line," said Robert Yanity, a spokesman for South Carolina Electric & Gas Co., which operates the Summer nuclear plant outside Columbia, S.C.

Extending or lowering the intake pipes is not as simple as it sounds and wouldn't necessarily solve the problem. The pipes are usually made of concrete, can be up to 18 feet in diameter

and can extend up to a mile. Modifications to the pipes and pump systems, and their required backups, can cost millions and take several months. If the changes are extensive, they require an NRC review that itself can take months or longer.

Even if a quick extension were possible, the pipes can only go so low. If they are put too close to the bottom of a drought-shrunk-en lake or river, they can suck up sediment, fish and other debris that could clog the system.

Deadly nuclear waste needs good home

As reactors again gain favor, problem looms

The Associated Press

BEAUMONT-HAGUE, FRANCE — Thousands of canisters of highly radioactive waste from the world's most nuclear-energized nation lie, silent and deadly, beneath this jutting tip of Normandy. Above ground, cows graze and Atlantic waves crash into heather-covered hills.

The spent fuel, vitrified into blocks of black glass that will remain dangerous for thousands of years, is in "interim storage." Like nearly all the world's nuclear waste, it is still waiting for the long-term disposal solution that has eluded scientists and governments in the six decades since the atomic era began.

Industry officials hope renewed worldwide interest in nuclear energy will break a long, awkward silence surrounding nuclear waste. They want to revive momentum for scientific and political breakthroughs on waste that stalled after the accidents at Three Mile Island in 1979 and Chernobyl in 1986, which raised worldwide fears about radioactivity's risks to human and planetary health.

So far, though, recent talk of a nuclear renaissance has focused on the "front end," or reactor construction. Engineers are designing the next generation of reactors to be safer than today's — and they're being billed as a solution to global warming. Nuclear reactors do not emit carbon dioxide, blamed for heating the planet.

Few people have been talking about the "back end," industry-speak for the hundreds of thousands of tons of waste that nuclear plants produce each year, and the lucrative, secretive business of storing it away.

Waste "is the main problem with this so-called nuclear rebirth," said Mycle Schneider, an independent expert who co-authored a recent study for the European Parliament casting doubt on a global nuclear resur-



THE ASSOCIATED PRESS

■ France stores nuclear waste in wells at the Areva Nuclear Plant of La Hague, near Cherbourg, in the western part of the country.

gence. He says government efforts to revive nuclear energy will stall without a "miracle" solution to waste disposal.

Workers at this waste treatment and storage site on France's Cherbourg peninsula, run by industry giant Areva, don't see a problem.

Though much of the technology here dates from the 1970s and 1980s, they point to a strong safety record and the 26,000 environmental tests conducted every year as evidence that the public has nothing to fear from their activity.

The tests routinely find crabs, cows and humans living nearby to be healthy. One longtime plant employee gestured toward her pregnant abdomen, holding her third child, as proof that there's nothing to worry about. Plant officials say strict security measures, tightened since the Sept. 11, 2001, attacks, rule out terrorism risks.

Greenpeace questions state-run Areva's safety figures, and accuses the government of playing down accidents and soil and water contamination. A group

called Meres en Colere, or Angry Mothers, was formed in the region after a 1997 study showed higher than usual local rates of child leukemia, a malady linked to radiation exposure.

Now the "pros" are on a new mission to dispel a generation of scares and suspicion, saying nuclear power is less dangerous to humans and the Earth than burning oil or coal. The "ants" say nuclear energy can never offer 100 percent protection from its radioactive ingredients.

The splitting of uranium atoms in a nuclear reactor creates the exceptional heat that drives turbines to provide electricity. The process also creates radioactive isotopes such as cesium-137 and strontium-90 that take about 30 years to lose half their radioactivity. Higher-level leftovers includes plutonium-239, with a half-life of 24,000 years.

Direct exposure to such highly radioactive material, even for a short period, can be fatal. Indirect exposure, through seepage into groundwater, can lead to life-threatening illness for those

living nearby, and environmental damage.

For now, the best scientific solution for getting rid of the most lethal waste is to shove it deep underground.

Yet no country has built a deep geological repository. Governments meet protests each time one is proposed. The Yucca Mountain waste site in Nevada was commissioned in 1982 and is still awaiting a license.

Another option is recycling. Countries such as France, Russia and Japan reprocess much nuclear waste into new fuel. That dramatically reduces the volume: Forty years' worth of France's highly radioactive waste is stored under just three floor surfaces, each about the size of a basketball court, at Beaumont-Hague.

Recycling, though, produces plutonium that could be used in nuclear weapons — so the United States bans it, fearing proliferation.

And not all waste can be reprocessed. The deadliest bits — such as fuel rod casings and other reactor parts as well as

WHAT COUNTRIES DO WITH WASTE

Countries around the world are starting, expanding or reviving nuclear power programs. Here's a look at how various nations handle the radioactive waste:

■ **UNITED STATES:** The country with the most nuclear reactors, more than 120 spread over 39 states, has no central system for dealing with waste. Plans for a long-term repository at Yucca Mountain in Nevada have stalled for 25 years. For now waste is stored in dry casks and cooling pools at reactor sites. The U.S. government shuns waste reprocessing because of risks it could lead to nuclear weapons proliferation. The Bush administration is pushing for a new reprocessing method, but that effort is likely to stall due to pending November elections.

■ **FRANCE:** France, more dependent on atomic energy than any country, recycles most of its nuclear fuel — and fuel from several other countries, as well. French researchers are conducting experiments in an underground lab beneath Champagne country toward building a long-term storage facility. Meanwhile, it "vitrifies" its deadliest waste, turning it into

glass to make it more stable, and stores it in shallow underground canisters.

■ **RUSSIA:** In Russia, home of the world's largest nuclear waste site, reprocessing is common. International environmental groups complain of poor safety records and oversight at reprocessing plants. Greenpeace has accused western European countries of secretly and illicitly shipping nuclear waste to Russia over several years.

■ **FINLAND:** Finland may become the first country to build a deep earth repository. The government has approved a long-term storage site, though it is not expected to be operational until after the country finishes building the world's first "third-generation" reactor, expected in 2011.

■ **TAIWAN:** Taiwan, which has three plants and is building a fourth, sought to build long-term waste sites in North Korea and the Marshall Islands but was blocked by protests. Taiwan has stored 100,000 barrels of nuclear waste on a tiny island but protests from an aboriginal group are forcing it to move the waste to another site, as yet unchosen, by 2013.

concentrated fuel residue containing plutonium and highly enriched uranium — must be sealed and stored away.

That's what lurks 10 feet underground at this Normandy plant: More than 7,000 cylindrical steel canisters, each about the height of a parking meter, stacked and sealed upright in holes beneath the slick floor. Some contain compacted radioactive metal, the others hold spent fuel that has been vitrified into glass.

Among other ideas once floated for disposing of nuclear waste have been shooting it into space (deemed too risky because of the volatile rocket fuel) or injecting it in the ocean floor (stalled because testing its feasibility is too costly), or shipping all the world's waste to a collective nuclear dump.

The last idea proved too diplomatically delicate. But Greenpeace and Norwegian environmental group Bellona say European nations have for years been

illegally shipping radioactive waste to Russia and leaving it there.

Current research in industry leader France — which relies on nuclear energy for more than 70 percent of its electricity, more than any other country — is focusing on new chemical processes that would shrink nuclear waste and cool it faster.

It will be at least 2040, though, before these might be put to use, scientists estimate. Schneider says scientists are "creating work for themselves" by researching methods that may never be commercially feasible or do much to solve the long-term waste quandary.

Nuclear scientists' dream is a wasteless reactor, and some sketches for the next crop of reactors, the Generation IV, include those that recycle 100 percent of their refuse.

Both nuclear fans and foes agree, however, that it will take a few more human generations for that dream to come true.

FRANCE FORCED TO SHUT DOWN 314 NUCLEAR REACTORS BECAUSE WATER TOO WARM TO COOL DOWN
 SUMMER 07 - SHUT DOWN OR MELT DOWN - NUCLEAR UNSAFE, UNRELIABLE, WATER SUCKER, WASTE, WIND + WAVE IN THE

Why Wall Street Wants America's Taxpayers to Finance Nuclear Power

For Wall Street, investment in new nuclear power projects is too risky.

Recently, six of Wall Street's largest investment bankers informed the Energy Department that they are unwilling to accept any financial risk for nuclear power loans. *"We believe these risks, combined with the higher capital costs and longer construction schedules of nuclear plants as compared to other generation facilities, will make lenders unwilling at present to extend long-term credit."*¹

Pointing to the past experience, the banks stated that *"lenders and investors in the fixed income markets will be acutely concerned about a number of political, regulatory and litigation-related risks that are unique to nuclear power, including the possibility of delays."*

At the behest of the nuclear industry, the energy bill now before Congress shifts financial risk from Wall Street to taxpayers.

The legislation authorizes the Department of Energy (DOE) to *"guarantee up to 100 percent of any loan or debt obligation"* for energy projects, as long as the loan is no more than 80 percent of the total cost of the project.² Two years earlier the Congress authorized the DOE to provide loan guarantees for energy projects in the Energy Policy Act of 2005, but set a limit of 80%. According to the Nuclear Energy Institute, the nuclear industry's lobbying arm, some 17 companies and consortia are currently pursuing licenses for 31 new reactors, which would require more than \$100 billion in loans.

Wall Street's financing fears are well founded.

Despite massive subsidies and R&D investments, there has not been an order for a new nuclear power plant in the U.S. for almost three decades. By early 1985 the business magazine, Forbes declared, *"the failure of the U.S. nuclear power program ranks as the largest managerial disaster in business history."* In October 2007, Moody's Investor Service concluded that reactor costs could be twice as high as market estimates resulting in higher debts and a *"reasonably high likelihood their credit rating will also decline."*³ There are several reasons why Wall Street wants American taxpayers to take the financial risks for nuclear power:

- **Cost inflation** – On average, capital costs for nuclear power plants in the U.S. increased two to three-fold during the 1970's and 1980's. The current experience with new reactor construction in Europe does not bode well. Olkiluoto-3 in Finland, the first nuclear plant ordered in Western Europe since the 1986 Chernobyl disaster, is **more than \$2.5 billion over budget because builders have been unable to implement safety measures.**
- **Construction Delays** – Based on past experience new reactor licensing and construction is likely to take about 15 years. Eight new and different reactor designs are being considered in the U.S. – all which could impose significant demands on regulatory approval, and costly delays for one-of-a-kind construction equipment, reactor components and material.
- **Nuclear Waste Uncertainties** –The proposed Yucca Mountain disposal site is almost 20 years behind schedule. Moreover, DOE has concluded, by the time the Yucca Mountain Site would be full, nuclear power plants will have accumulated nearly the same amount of spent fuel stored at reactor sites today – requiring a second repository.

FACT SHEET: Nuclear Power

Nuclear power is an expensive, polluting, dangerous, racist, depletable, and now foreign source of energy. 80-90% of uranium used in the U.S. is imported from Canada, Australia, the former Soviet Union and Africa. At the current consumption rate, low-cost uranium reserves will be exhausted in about 50 years.

Uranium Mining

The nuclear chain begins with uranium mining, a polluting activity that devastates large areas. Uranium ore can contain as little as 500 grams recoverable uranium per million grams of earth. Enormous amounts of rock have to be dug up, crushed and chemically processed to extract the uranium.

The remaining wastes, still containing large amounts of radioactivity, remain at the mines. These "tailings" are often stored in a very poor condition, resulting in the contamination of surface- and groundwater.

Natural uranium contains two different forms, or isotopes: U-238 and U-235. U-235 is fissionable, which means its atoms can be split, releasing large amounts of heat. However, natural uranium consists of more than 99% U-238 and less than 1% U-235. To be used as a fuel, large amounts of U-238 must be removed to increase the proportion of U-235 to 3-5%.

Nuclear Weapons

Depleted uranium (DU) is the U-238 waste product that has been "depleted" of U-235. DU has been used to make armor piercing bullets, tank shielding and more. When used in warfare, DU bursts into flames upon impact, spreading uranium dust into the environment. DU is radioactive for billions of years and hundreds of tons of it have contaminated Iraq, Afghanistan, Bosnia and testing locations like Vieques, Puerto Rico. It's the primary culprit in Gulf War Syndrome and many other health problems.

The same process used to make reactor fuel can be used to highly enrich uranium for nuclear bombs. This is why nuclear power programs have led to nuclear weapons programs in other countries.

Pollution in the Nuclear Fuel Cycle

Many steps are required to make uranium suitable for use in nuclear reactors. From mining to milling to conversion to enrichment to fuel fabrication, each step involves separate facilities throughout the U.S. poisoning communities with radioactive and chemical pollution (mostly in western and mid-western states).

Global warming

While the nuclear reactors themselves release few greenhouse gases, the nuclear fuel cycle is a significant contributor. In 2001, 93% of the nation's reported emissions of CFC-114, a potent greenhouse gas, were released from the U.S. Enrichment Corporation, where uranium is enriched to make nuclear reactor fuel. These facilities are so energy intensive that some of the nation's dirty, old coal plants exist just to power the nuclear fuel facilities.

Reactors and Health Impacts

Nuclear reactors themselves have serious environmental and public health impacts. Radioactive air and water pollution is released through the routine



operation of all nuclear reactors. A wide range of radioactive isotopes are released with varying radioactive and chemical properties – some toxic, some not, some more radioactive than others, some lasting minutes, some lasting billions of years.

Living near a nuclear facility increases your chances of dying from breast cancer. A nationwide survey of 268 counties within 50 miles of 51 nuclear reactors, found breast cancer deaths in these "nuclear counties" to be 10 times the national rate from 1950 to 1989.

In the 7 years after the closure of 8 nuclear reactors, infant mortality rates (deaths to infants under 1 year of age) fell dramatically in downwind communities.

Strontium-90, a radioactive pollutant now released only from nuclear reactors, ends up in milk and bones, contributing to bone cancer and leukemia. Studies of Sr-90 in baby teeth found levels 30-50% higher in teeth of children living near reactors. Background levels are rising with continued use of nuclear reactors, rising to levels comparable to when atmospheric nuclear bomb tests contaminated the nation in the 1940s and '50s. Levels in the teeth of babies born in the late 1990s are about 50% higher than those born in the late 1980s.

Of the 7 areas examined so far in the baby tooth studies, the highest Sr-90 levels have been found in southeastern PA – around the Limerick reactor.

Living near reactors is also correlated with increases in leukemia and childhood cancer.

Water Use: Harming Wildlife

Reactors require huge amounts of cooling water, which is why they're often located near rivers, lakes or oceans. Reactors with cooling towers or ponds can use 28-30 million gallons of water per day. The 48 reactors with once-through cooling systems use far more (up to 1.5 billion gallons per day). A typical two-unit reactor using once-through cooling takes in about a square mile of water, 14 feet deep, each day.

The initial devastation of marine life and ecosystems stems from the powerful intake of water into the nuclear reactor. Marine life, ranging from endangered sea turtles and manatees down to delicate fish larvae and microscopic planktonic organisms vital to the ocean ecosystem, is sucked irresistibly into the reactor cooling system. Some of these animals are killed when trapped against filters, grates, and other structures, or, in the case of air-breathing animals like turtles, seals, and manatees, they drown or suffocate.

An equally huge volume of wastewater is discharged at temperatures up to 25 ° F hotter than the water into which it flows. Indigenous marine life suited to colder temperatures is eliminated or forced to move, disrupting delicately balanced ecosystems.

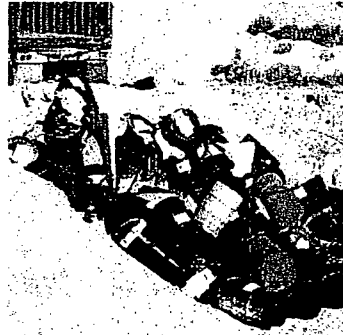
Waste

Radioactive wastes are produced continually in reactors. There are two basic types of nuclear waste: high-level nuclear waste (the used fuel rods) and "low-level radioactive waste" (everything else).

High-level nuclear waste (also called irradiated or "spent" fuel) is literally about one million times more radioactive than when the fuel rods were loaded into the reactor. This waste is so lethal that standing near it without shielding would kill you within minutes. This waste will be hazardous for millions of years. No technology exists to keep it isolated this long. Irradiated fuel rods are stored in storage pools inside reactor buildings, often several stories high, where they're highly vulnerable to aircraft attacks. If the water is drained from the pool, exposing the rods to open air, a meltdown would cause a massive release of radiation. Some utilities have begun storing this waste in dry casks on outdoor concrete pads in the backyard of the reactors, introducing separate storage, packaging and security problems.

A permanent "disposal" site planned for Yucca Mountain, Nevada has many problems. It's far from

where most waste is produced, requiring unprecedented numbers of shipments through 43 states, risking accidents and attacks. Yucca Mountain is on Native American lands and is too leaky to keep the waste dry. The site is amid active fault lines and is too small to store the amount of waste that would be generated by the time it opens (if it ever does).



LLRW dumps exist in the U.S. All are leaking, contaminating groundwater.

"Low-level" radioactive waste (LLRW) is defined as all other radioactive waste from reactors, regardless of radioactivity levels of health hazards. Large amounts of this waste have been dumped or burned. Six official

Environmental Racism

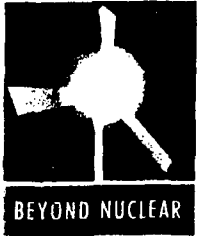
Nuclear power disproportionately affects communities of color, from the mining of uranium on Native American and Aboriginal lands, to the targeting of black and Hispanic communities for new uranium processing facilities to the targeting of black and Hispanic and Native American communities for "low-level" nuclear waste dumps. All sites proposed for "temporary" and permanent storage of high level nuclear waste have been Native American lands.

Too Expensive

Nuclear power is the most expensive form of power and could not exist without massive subsidies, including the "Price-Anderson" law that places a cap on industry liability in the event of a nuclear accident. Pursuing nuclear power wastes money that could be going to the cheaper and truly clean and safe energy solutions: conservation, efficiency, wind and solar.

Fusion

Fusion still produces nuclear waste, including tritium, a very dangerous, hard-to-contain air and water contaminant. Like fission, it would be very expensive and highly centralized. Despite massive research spending, it's still decades away from reality. The same money spent on clean solutions (conservation, efficiency, wind and solar) would do far more.



Ten Reasons to Say No to Nuclear Power

- 1 Nuclear power can't "solve" climate change. There are cheaper, cleaner, safer and faster alternatives.
- 2 Reactors are sitting-duck targets and are currently not defended even to the standard of the 9/11 attacks.
- 3 Nuclear power is not emissions-free. Reactors release radioactivity and, from uranium mining to waste storage, nuclear power uses fossil fuels.
- 4 More reactors in the U.S. sends the wrong message abroad. Commercial nuclear technology inevitably leads to nuclear weapons capability.
- 5 Continued nuclear generation means more waste with nowhere to go. Yucca Mountain is unsound and will be full before new wastes can be stored there.
- 6 Evacuation plans are unrealistic. Katrina taught us that a mass evacuation during a serious radiological release would be a chaotic catastrophe.
- 7 Nuclear reactors produce enough plutonium each year to make 40 atomic bombs, an unacceptable risk.
- 8 New and old reactors are most prone to go wrong. U.S. reactors are old. New ones double the risk.
- 9 The U.S. agency mandated to watchdog the nuclear industry instead protects industry profit over public health and safety.
- 10 At every phase of the nuclear chain, the most defenseless are at the greatest risk—children, the elderly, minorities, the poor and animals. →

www.beyondnuclear.org

Tell Florida Public Service - No New Nukes
Contact @psc.state.fl.us

Ten Brighter Ideas

- 1 If every U.S. household installed one compact fluorescent light bulb it would displace one nuclear power plant. 1=1!
- 2 Twenty compact fluorescents in every U.S. home would displace at least 25% of U.S. nuclear plants.
- 3 Updated lighting, appliances, heating, cooling and other electrical systems can save more energy than all 104 operating U.S. reactors produce annually.
- 4 Cost-effective energy efficiency measures for homes and businesses can save at least 20% of electricity use.
- 5 Turning off and unplugging electrical equipment not in use; or line-drying clothes seem like small measures but make a big difference.
- 6 Homeowners and renters alike can choose to buy green power instead of nuclear-generated electricity.
- 7 Proper sealing and insulating your home can save 25-40% of building heat loss.
- 8 Renewable energy sources can meet 25% of U.S. energy needs by 2025.
- 9 Shifting to locally generated electricity avoids waste, reduces brownouts and blackouts, increases efficiency of service and creates jobs.
- 10 Climate change is underway. Renewable energy can be brought on line faster and more cheaply and safely than nuclear power.

Marshmaid@hughes.net Rhonda

Diamondteldeb@aol.com Pres



Beyond Nuclear at NPRI
6930 Carroll Avenue, Suite 400
Takoma Park, MD 20912
Tel: 301.270.2209 Fax: 301.270.4000
info@beyondnuclear.org www.beyondnuclear.org

Locally: Save It Now Glades.org

www.beyondnuclear.org
www.nirs.org
www.1eer.org
www.carbon-free.nuclear-free.org
www.download



Why Solar Power is Our Best Solution

The more we study America's energy options, the more convinced we are that the fastest and best way to shift our energy economy from fossil fuels to clean renewable sources is to support solar power in all its forms (including wind). As MOTHER's contributing editor Steve Heckerth explains on Page 50, several powerful solar options are already up and running:

Electric vehicles charged by photovoltaics or wind power are about to hit the mainstream as new and existing automakers finally begin to produce more plug-in hybrids and all-electric cars and trucks.

Photovoltaics, together with super-insulation and energy-efficient windows, are making it possible to build homes that generate all the energy they need from the solar panels on their roofs.

Concentrating solar power (CSP), which uses parabolic mirrors to focus solar heat and generate steam to drive electric generators is already producing utility-scale power. The U.S. Department of Energy estimates that installing CSP plants on 9 percent of the Southwestern deserts could produce enough electricity to meet the needs of the entire United States!

Electricity from **large-scale wind farms** is already cost-competitive, and in some cases cheaper than electricity from natural-gas-fired power plants.

Do-it-yourselfers can easily tap the huge potential of solar energy with projects such as Gary Reysa's innovative "Solar Heating Plan for Any Home," Page 36.

What makes Reysa's new design so flexible is that the solar collector is built into a

small outbuilding, and you can locate that building anywhere on your property to get the best solar exposure. Solar heat captured by the collector is stored in a water tank and then piped into the house and circulated in radiant floor tubing or baseboard radiators. And even existing homes can be converted to use radiant floor heating.

Some solar technologies already cost less than some of the fossil fuels we're burning. Others are poised to drop in cost as manufacturing capacity increases, and as batteries and other technologies undergo improvements. For example,

ENERGY CAPTURED (kilowatts per acre)

Ethanol (from corn, etc.)	3 to 4
Wind turbines	12 to 16
Photovoltaics	240 to 730
Concentrating solar	1,600

Heckerth is testing new lithium iron phosphate (LFP) batteries that he thinks can provide electric vehicles with twice the range and twice the speed for one-quarter the weight, compared

to lead batteries. (We're planning a report about LFP batteries soon.)

MOTHER EARTH NEWS readers have been using and improving solar technologies ever since the magazine began reporting about them back in 1970. (Our first article about a hybrid car was published nearly 30 years ago!) Today's declining fossil fuel supplies and growing concerns about climate change are making our national energy policy a critical issue. Right now, solar is looking like a far better option than trying to resurrect nuclear power or use land to grow crops for biofuels—see the charts on Page 50. We already have super-abundant solar resources and the technologies we need to shift from fossil fuels to a bright solar-powered future. Now all we need is the collective wisdom to make the right choices.

—MOTHER

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Publisher and Editorial Director
BRYAN WELCH

Editor in Chief CHERRY LONG

Managing Editor JOHN ROCKHOLD

Senior Associate Editor MEGAN PHELPS

Associate Editor TABITHA ALTERMAN

Associate Editor TROY GRIEPPENTROG

Assistant Editor HEIDI HUNT

Assistant Editor STEPHANIE BLOYD

Assistant Editor ALISON ROGERS

Editorial Assistant AUBREY VAUGHN

Editorial Interns

JAIME NETZER • PEXTON BALDWIN

Advisers and Contributing Editors

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Production Staff

TERRY ALGARIN • DEBBIE GLESSNER • AMANDA LUCERO

KIRSTEN MARTINEZ • KAREN ROOMAN • NATE SKOW

General Manager BILL UHLER

National Advertising Sales Office

1503 SW 42nd St., Topeka, KS 66609

(800) 678-5779; fax (785) 274-4316

Group Advertising Director JEFF TILDEN

Advertising Materials Coordinator BARB HURWITZ

Account Executives

HELEN BURKETT • JIM HASTERT • DEREK HELMS

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Ogden Publications, 1503 SW 42nd St., Topeka, KS 66609

(866) 848-5416; fax (785) 274-4316

classifieds@MotherEarthNews.com

Director of Circulation & Marketing CHERLYN OLMSTED

Circulation & Production Manager BOB CUCCINIELLO

Founders JOHN and JANE SHUTTLEWORTH

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Thursday, April 17, 2008

S.C. utilities staff: Duke should disclose nuclear plant's cost

Charlotte Business Journal - by John Downey Senior Staff Writer

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Disputes over Duke nuclear plant costs are heating up [Charlotte]

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Survey: Support for Duke Energy coal project is weak [Charlotte]

Crescent Resources venture seeks to develop 2,300 acres in York County [Charlotte]

South Carolina's public advocate for utility issues has joined environmentalists in calling for Duke Energy Carolinas to disclose its new cost estimates for the proposed Lee Nuclear Station.

In 2005, Duke said the twin-reactor plant near Gaffney, S.C., would cost \$5 billion to \$6 billion. But two Florida utilities have recently released estimates for two units similar to Duke's that peg their costs at \$12.5 billion to \$17.8 billion.

Duke has acknowledged its initial estimate is outdated and the plant will cost more, but it declines to say publicly how much more.

At a state Public Service Commission hearing Thursday in Columbia, S.C., Nannette Edwards said the S.C. Office of Regulatory Staff favors public disclosure of the updated cost estimate.

Friends of the Earth, a Washington, D.C.-based environmental organization, has asked the S.C. commission to force disclosure of the plant's cost. Duke and potential Lee plant contractors Westinghouse Electric Co. and Stone and Webster Inc. have submitted filings to keep the estimate confidential.

Bob Guild, attorney for Friends of the Earth, told the commission Thursday the organization would be satisfied with estimates similar to those disclosed in Florida.

Edwards took up that position, saying her office "is hard pressed to see why figures like that should not be available here." The S.C. Office of Regulatory Staff represents the interests of ratepayers on state utilities issues.

"It's hard, thinking of the public interest, to say that we don't need those estimates," she said. "It's very difficult not to see that request as reasonable"

Frank Ellerbee, Duke's attorney in the meeting, objected. He said competitors and potential vendors could use even broad estimates to figure out what Duke expects to pay for specific contracts in the project. That would put Duke at a disadvantage, he said, in negotiating the best possible price.

The commission is expected to rule on the issue soon.

Duke Energy Carolinas is an electric utility of Charlotte-based Duke Energy Corp. (NYSE:DUK).

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Cooling water drawn from river too hot - TVA reactor shut down;

DUKE-NUKER WATER
COOLING WOES -TVA

Page 1 of 2

Send to DPlaza re?
also re: ?

Subj: **Fw: Cooling water drawn from river too hot - TVA reactor shut down;**

I guess you saw also that Duke couldn't use some of its power plants near here last week because the river water was too hot. These big plants will become less and less usable as the world gets hotter and droughts increase. That's why they're so determined for customers to pay up front.

Sent: Friday, August 17, 2007 8:35 PM

Subject: Cooling water drawn from river too hot - TVA reactor shut down;

TVA reactor shut down; cooling water drawn from river too hot
8/16/2007, 9:05 p.m. CT
The Associated Press

ATHENS, Ala. (AP) - The Tennessee Valley Authority shut down one of three units at the Browns Ferry nuclear plant on Thursday because water drawn from a river to cool the reactor was too hot, a spokesman said.

The nation's largest public utility shut down Unit 2 about 5:42 p.m. CDT because water drawn from the Tennessee River was exceeding a 90-degree average over 24 hours, amid a blistering heat wave across the Southeast.

"We don't believe we've ever shut down a nuclear unit because of river temperature," said John Moulton, spokesman for the Knoxville, Tenn.-based utility.

He said TVA would compensate for the loss of power by buying power elsewhere. The utility announced earlier Thursday that it was imposing a fuel surcharge on customers because of lower hydroelectric power production caused by drought conditions.

Two other units at the plant were operating, as well as towers to cool the water. But searing temperatures and a lack of cooler water in the upper part of the Tennessee River system made it too difficult to provide cool water for all three reactors. There was no safety threat posed by the shutdown.

Moulton said the average high temperature Thursday was 103 for five of the largest cities in TVA's coverage area: Huntsville and Knoxville, Chattanooga, Memphis and Nashville in Tennessee.

"It's the hottest in 20 years," he said.

He would not estimate when the unit would go back on line, saying it will depend on the weather.

"Temperatures are supposed to moderate some, but it will take a while for the river temperature to do that, too," Moulton said.

He said demand for TVA power set a record Thursday but the figures would not be available until Friday. The old record was 33,344 megawatts set last WEDNESDAY.

Sunday, August 19, 2007 America Online: DiamondtelDeb

TVA gets about 60 percent of its electricity from coal-fired power plants, 30 percent from nuclear plants and 10 percent from its 29 hydroelectric dams. Renewable energy sources such as wind and solar account for less than 1 percent.

TVA, the country's largest public utility, supplies electricity to about 8.7 million consumers across an 80,000-square-mile territory that includes most of Tennessee and parts of Alabama, Mississippi, Kentucky, Georgia, North Carolina and Virginia.

All three of the plant's reactors were mothballed in 1985 for safety reasons, but the other two units returned to service in the 1990s after extensive work.

The Unit 1 reactor, which is still online, was restarted in June after 22 years following a five-year, \$1.8 billion renovation.

TVA: <http://www.tva.gov>

No virus found in this incoming message.

Checked by AVG Free Edition.

Version: 7.5.484 / Virus Database: 269.12.0/957 - Release Date: 8/16/2007 1:46 PM

Subj: **Behind closed doors - NRC, Progress, new nukes**
 Date: 3/11/2008 10:07:14 A.M. Pacific Daylight Time
 From: ncwarn@ncwarn.org
 To: diamondteldeb@aol.com

NC WARN: Waste Awareness & Reduction Network

News Release
 March 11, 2008

Contact: Jim Warren
 919-416-5077

NRC cut public out of meeting on new nukes at Shearon Harris

Group says agency went into "closed session" after Progress Energy ran into trouble

Durham, NC – Federal regulators abruptly halted a public meeting Thursday after problems arose with Progress Energy's application for new nuclear plants, then continued private discussions with company officials. Watchdog group NC WARN said the move violates federal policy, and today asked Rep. David Price to help ensure that all future meetings are held in the Triangle area, near the Harris plant.

The charge against NRC comes amid widespread criticism that the review process for proposed new reactors is heavily slanted against open involvement by public interest groups, or local and state governments. Thursday's session was the first scheduled discussion of the technical aspects of Progress' February 19th application, which is thousands of pages long.

The meeting was held at NRC's headquarters in Rockville, Maryland, but NC WARN's attorney, executive director and others participated by phone bridge, and followed the power point slides via computers. It was scheduled for 2.5 hours but was called to an end after only 70 minutes.

In a letter sent today to NRC, attorney John Runkle explained, *"You essentially went into 'closed session' after some tough questions from the NRC staff that lengthy discussions did not resolve. Representatives from Progress Energy were the ones to suggest that issues be resolved 'after the meeting.' Nothing being discussed was proprietary or safeguards-related, so all of the meeting should have been public."*

The problems discussed involved site geology and the availability of cooling water. In the letter, Runkle insisted that NRC send him a recording or staff notes of the private meeting with Progress.

"This is an early warning sign for the so-called Nuclear Revival," said NC WARN's Jim Warren today. *"For Progress Energy to already be dodging difficult issues – until the doors are closed doors – does not bode well for the chance of completing a new design reactor safely or on budget."* He noted that cost estimates for new plants have tripled in the past two years, and that project delays or cancellations are likely. In the 1980s, Progress and other utilities cancelled 60 plants in midstream due to what Forbes magazine called "the worst managerial disaster in business history."

In seeking Rep. Price's help, NC WARN noted that just last month, he criticized the NRC following a report by the agency's Inspector General showing that Harris and 14 other plants have been in violation of fire safety regulations for 15 years. In a February 15th letter to NRC Chairman Dale Klein, Price said *"... it seems clear that the agency's credibility in the eyes of the public has been severely damaged,"* and he urged Klein to spare no effort to demonstrate *"that its actions are fully transparent."*

"The process is already rigged against the public," Jim Warren added today. *"We can't tolerate any more secrecy."*

The NRC needs to come have these discussions in the vicinity of Shearon Harris – in front of the impacted population and news media – not behind closed doors in Rockville, Maryland.”

##

NC WARN

N.C. Waste Awareness & Reduction Network
P.O. Box 61051
Durham, NC 27715-1051
919-416-5077
email: ncwarn@ncwarn.org
www.ncwarn.org

New Nuclear Reactors: A Risk to Our Economy, Safety and Climate

- 1. Current, aging plants are more dangerous than ever** due to technical failures, cost-cutting pressures and unresolved design flaws. In 2006 the Union of Concerned Scientists reported that 51 times, US nuclear plants have been shut down for over a year to restore minimum safety levels. Extended outages would be even more likely with new designs that have never been built.
- 2. A severe accident or terrorism anywhere in the world could cause new projects to fail in midstream.** Economic downturn, cash flow problems, or evolving energy markets could also leave billions in stranded costs – as happened in the 1980s in North Carolina when Duke Power and Progress/CP&L cancelled nine reactors.
- 3. Nuclear plants are vulnerable to terrorism and acts of insanity.** Due to industry pressure, the US Nuclear Regulatory Commission in January refused to require plant owners to defend against attacks by aircraft or more than a handful of attackers by ground. (1/30/07 Associated Press, etc)
- 4. The nuclear industry insists that taxpayers insure new reactors,** belying their public relations about new designs being safer. Federal studies (e.g. 1997 Brookhaven National Lab) show that nuclear plant accidents could cost a half-trillion dollars in off-site damage.
- 5. The nuclear industry insists taxpayers give billions in subsidies** for new plants, contradicting the claim that nuclear power is economical. The cost is highly uncertain: Duke Energy CEO Jim Rogers testified at the NC Utilities Commission (1/19/07), predicting that if ever built, nuclear plants will cost at least 45% more than Westinghouse now claims.
- 6. Nuclear plants are increasingly unreliable due to drought and heat waves.** The type of reactor at Harris, McGuire and Catawba uses 60 million gallons of water per day, and will suffer more costly shutdowns – as happening in Europe – as our climate warms.
- 7. Pursuing new plants is squandering our chances to slow global warming.** Quicker, safer and much more economically sound ways to cut greenhouse gases already exist. To hold carbon at year 2000 levels, up to 3,000 new nuclear plants would be needed by 2050 (Council on Foreign Relations, April 2007), far exceeding global construction and financial capability – trillions of dollars. Also, though less than coal power, nuclear plants generate large amounts of greenhouse gases during construction and the energy-intensive fuel cycle.
- 8. There is no waste solution in sight.** Pro-industry NRC Commissioner Ed McGaffigan recently admitted the proposed Yucca Mountain dump project is very unlikely to be finished (1/23/07 Las Vegas Review-Journal, etc). Even if Yucca ever opens, highly radioactive “spent” fuel rods will be stored at Shearon Harris and other NC plants for decades.
- 9. The industry controls the regulator and the process.** The new licensing process would prevent local or state governments from challenging deficiencies that arise during construction. The US Nuclear Regulatory Commission is not an independent regulator.
- 10. New plants are not needed.** An aggressive plan for energy efficiency, cogeneration and renewable energy can clearly meet realistic projections of electrical energy demand for far less money, while creating thousands of jobs dispersed across the state.

Energy ~ Climate ~ Security

<http://www.nirs.org/southeast/nukeclimatetalk092007.pdf> (citation links are hot—includes section on nuclear nonproliferation as well.)

Nuclear Power is Not a Solution to the Climate Crisis

*Mary Olson, Director of the Nuclear Information and Resource Service Southeast Office
Prepared as a hand-out for the Middle Powers Initiative Round Table, September 26, 2007, NYC. Updated 10/09/07.

As the world reeled in the wake of the atomic destruction of Hiroshima and Nagasaki, it is understandable that many people innocently embraced the idea that splitting atoms could be a good thing. Atoms for Peace spoke to a generation that needed to address their collective conscience and anxiety. Unfortunately atoms that are split are *not* peaceful: all industrial-scale fission results in massive new radioactivity with the capacity to do harm at both high levels (causing tissue and organ damage) and low levels (causing cellular damage, often to DNA resulting in mutations that cause cancer, sterility, birth defects and a host of other complications¹). Splitting uranium atoms for energy results in the production of plutonium; this plutonium can be (and has been) used to make nuclear weapons. Even in medicine, it is the destructive force of radiation that is harnessed to attack disease or to penetrate tissue.

Radioactive atoms are not peaceful!

Just as nuclear energy is intrinsically incapable of stopping the spread of nuclear weapons, atomic power is also intrinsically incapable of reversing – or even significantly slowing the global Climate Crisis. Nonetheless, Bush and Cheney are promoting nuclear power as a key remedy to climate change, and concomitantly listing climate as a key reason for the world to re-invest in this failed energy technology. Nuclear energy *is* failed -- it is only the considerable liability of CO2 production that creates any kind of an “economy” in which investment of either public or private funds in new nuclear infrastructure would be considered in the USA, at all – *but nuclear should be rejected as a climate “fix” since a technology that cannot compete with other options should not be the preferred strategy in the face of crisis.*²

Nuclear Power Will Not, and Cannot Solve the Climate Crisis³

There are multiple issues that must be considered when engaging with the issue of nuclear power. Expanding the nuclear power infrastructure worldwide will not be an effective response to the climate crisis precisely because nuclear energy is known not to be viable in non-monopoly free markets – it cannot compete. It has been three decades since any energy corporation in the United States ordered a nuclear power reactor that was not subsequently canceled. Indeed, the current rush for new reactor applications is *only* because of massive subsidies that have been signed into law under the Bush administration. Few energy corporations located in states where energy is no longer fully regulated by the state and where there are no longer monopolies of production, distribution and sale are considering participation in this nuclear welfare due, no doubt, to the fact that without such monopolies consumers are no longer hostage to the higher electric power prices that new nuclear investment will bring.⁴ Wall Street analysts also noted early in this attempt at nuclear revival that trying nuclear in anything but a fully regulated market would be more than risky.⁵

The good news is that nuclear is not only expensive when compared to burning coal (which must be phased out to reduce carbon emissions) – it is significantly more expensive than truly green, sustainable energy options as well.

* NIRS Southeast Office: P.O. Box 7586 Asheville, NC 28802 USA 828-675-1792, nirs@main.nc.us www.nirs.org

technology with an atomic "fire." The closed-loop steam system relies on the heat differential between the temperature of the steam, and the temperature of a condenser, to turn the steam back into liquid, in order to repeat the process. When the water used to cool the condenser gets too warm, this temperature differential is lost; the steam no longer condenses back to liquid. When river and lake water gets too hot, electric power cannot be generated.²² As temperatures rise, nuclear power will be less and less qualified as a means to even try to generate electric power.

To sum up, no one has said it better than my friend David Lochbaum: "We're going to have to solve the climate-change problem if we're going to have nuclear power, not the other way around." David is a nuclear engineer with the Union of Concerned Scientists; his comment was reported in the May 20, 2007 International Herald Tribune.

Nuclear power will never solve any crisis – nuclear energy is a crisis. The following references are offered to support your understanding of this situation.

¹ For basic information on ionizing radiation see Nuclear Information and Resource Service fact sheets posted at: <http://www.nirs.org/radiation/radiationhome.htm>. Milestone work on radiation health effects was done by the late Dr. John Gofman who's many works are available via: <http://www.ratical.org/radiation/CNR/CNRtitles.html>

² The classic analysis by Amory Lovins "Nuclear Power: Economics and Climate-Protection Potential" posted at: http://www.rmi.org/images/PDFs/Energy/E05-08_NukePwrEcon.pdf

³ For more NIRS documents on nuclear energy and climate, see: <http://www.nirs.org/climate/climate.htm>

⁴ Olson, Mary "We Don't Need New Nukes" <http://www.nirs.org/southeast/wedontneednewnukes.pdf>

⁵ Bradford, Peter and David Schlissel 2007. "Why A Future For the Nuclear Power Industry is RISKY" posted at: <http://www.cleanenergy.org/resources/reports/WhyNewNukesAreRiskyFACTSHEET.pdf>

⁶ See a variety of sources including: Greenpeace France "Wind Vs Nuclear 2003" posted at: <http://www.greenpeace.org/raw/content/international/press/reports/wind-vs-nuclear-2003.pdf>, Amory Lovins as cited in note 27 above and also IEER's interesting comparison of wind and plutonium (MOX) fuel for Japan posted at: <http://www.ieer.org/reports/wind/index.html>

⁷ See Lovins, Amory as cited in note 27.

⁸ See for instance, US State Department press release in 2005:

<http://usinfo.state.gov/xarchives/display.html?p=washfile-english&y=2005&m=April&x=200504221305411cnirelep0.9051172>

⁹ See 2005 press release of Alliance to Save Energy: <http://www.ase.org/content/news/detail/2249> and also Amory Lovins, "More Profit With Less Carbon," Scientific American: September 2005.

¹⁰ Amory Lovins coined the name "nega-watt" to describe energy formerly but no longer consumed. Perhaps it was his brisk business in helping corporations trade in this newly "excess capacity" during the California electric power crisis in 2001 that lead him to remove this term from his parlance.

¹¹ J. Deutsch and E. Moniz (co-chairs), The Future of Nuclear Power, MIT, 2003. <http://web.mit.edu/nuclearpower/>

¹² In recent years the media has reported that a nuclear power reactor can be built for \$2 billion – however all current construction is running much higher than that –and the last reactors in the US to go on line weighed in at \$4.5 -- \$6 billion dollars per unit. See also: <http://www.nirs.org/factsheets/quickeconfact1206.pdf>

¹³ See Mark Serreze cited in note # 4.

¹⁴ Drey, Kay "Hidden Radioactive Releases from Nuclear Power Plants in the United States" posted at: http://www.nirs.org/factsheets/drey_usa_pamphlet.pdf Note: region-specific pamphlets are in the same directory.

¹⁵ For a wealth of information on radioactive waste see: <http://www.nirs.org/factsheets/fctsht.htm>

¹⁶ For a compendium of information on the 1986 Chernobyl nuclear power plant disaster and updated reports as of the 20 year mark: <http://www.nirs.org/c20/c20us.htm>

¹⁷ "Source term" describes the type of radioactivity (what elements are present) and the duration of the hazard.

¹⁸ A current, very telling editorial about the connection of electric power and water, "Water Power," September 24, 2007 Raleigh (North Carolina) "News and Observer" posted at:

<http://www.newsobserver.com/opinion/editorials/story/714061.html>. Here is a selection of news reports of nuclear power reactors being taken off-line due to elevated temperatures of the cooling water supplies:

May 20, 2007 "Climate Change Puts Nuclear Energy in Hot Water" International Herald Tribune, <http://iht.com/articles/2007/05/20/business/nuke.php?page=2>

June 8, 2007 "Court Blocks Yankee's Warm Water Discharge" Rutland Herald (VT)

<http://www.rutlandherald.com/apps/pbcs.dll/article?AID=/20070608/NEWS04/706080387>

July 31, 2007 "US Heat Wave..." Bloomberg.com
<http://www.bloomberg.com/apps/news?pid=20601087&sid=aNtzVaLCaNc8&refer=home>

August 17, 2007 "TVA Reactor Shut Down: Cooling Water Drawn From River Too Hot" reported on WAFF48 News <http://www.waff.com/global/story.asp?s=6944527> and "Heat Wave Ignites Problems in ET" Knoxnews <http://www.knoxnews.com/news/2007/aug/18/heat-wave-ignites-problems-in-et/>

August 23, 2007 "Rising Temperatures Undermine Nuclear Power's Promise" Union of Concerned Scientists <http://www.nirs.org/climate/background/ucsrisingtemps82307.pdf>

July 30, 2006 "Heat Wave Shuts Down Nuclear Power Plants" The Observer (London)
<http://observer.guardian.co.uk/world/story/0,,1833620.00.html>

July 27, 2006 "Heat Wave Shows Limits of Nuclear Energy" IPS <http://www.ipsnews.net/news.asp?idnews=34121>

August 10, 2006 "Hot Temps Chill Nuclear Power's Appeal" Christian Science Monitor, posted at <http://www.cbsnews.com/stories/2006/08/10/tech/main1881980.shtml>

¹⁹ Summary of findings given in: <http://www.nirs.org/reactorwatch/mox/nirmsmcguirecatawbacontentions.htm>

²⁰ U.S. Nuclear Regulatory Commission, "Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants," NUREG-1150, 1990.

²¹ For a review of French reactors off line due to heat listen to NPR's Morning Edition August 21, 2007: <http://www.npr.org/templates/story/story.php?storyId=13818689>

GO SOLAR, WIND, WAVE, GEOTHERMAL, EFFICIENCY, GREEN BUILDING

Energy and Environmental Justice

BUILDING

Nuclear power

- Nuclear power disproportionately affects communities of color, from the mining of uranium on Native American lands, to the targeting of black and Hispanic communities for new uranium processing facilities to the targeting of black and Hispanic and Native American communities for so-called "low-level" nuclear waste disposal sites. All of the sites proposed for "temporary" and permanent storage of high level nuclear waste (nuclear reactor fuel rods) have been Native American lands.
- Nuclear reactors pollute, releasing radioactive pollution to the air and water, in addition to the solid wastes they produce. Much of the radiation lasts for generations, some for millions of years.
- Radioactive waste from uranium production has been used as "depleted uranium" (DU) ammunition in wars and test sites around the world, contaminating Iraq, Afghanistan, Yugoslavia and Vieques, Puerto Rico. This has largely been used against people of color in war, and low-income people and people of color are overrepresented in the U.S. military (and therefore are more affected by Gulf War Syndrome caused by DU exposure).
- Nuclear power isn't a solution to global warming. In 2001, 93% of the nation's reported emissions of CFC-114, a potent greenhouse gas, were released from the U.S. Enrichment Corporation, where nuclear reactor fuel is produced. These facilities are so energy intensive that some of the nation's dirty, old coal plants exist just to power the nuclear fuel facilities.
- Many new nuclear power reactors are now being proposed in the U.S. Most of the new reactor proposals are in the southeastern U.S., where sites are more likely to target communities of color, like the proposal in Claiborne County, Mississippi, a county which is 82% African-American.

Coal

- Over 120 new coal plants are proposed in the U.S., including plans for a wave of new coal-to-oil refineries, to produce coal-based liquid fuels for vehicles as well as hydrogen.
- Coal plants disproportionately affect African-American communities. 68% of African-Americans live within 30 miles of a coal-fired power plant – the distance within which the maximum effects of the smokestack plume are expected to occur. By comparison, about 56% of the white population lives within 30 miles of these plants.
- Coal mining destroys low-income rural communities in Appalachia, where mountains are dismantled and valleys are being filled with coal waste. Native American communities in the southwest are also being exploited for their coal by genocidal government policies and corporate abuses.

Oil & Gas

- Wars have been fought against people of color in Iraq, Afghanistan, Colombia and many other countries in order to control their oil and gas resources.
- In the U.S., our Great Lakes, our public forests, the Rocky Mountains, our off-shore continental shelf, and pristine lands such as Alaska's National Petroleum Reserve are under assault by oil and gas corporations.
- New gas pipelines have been proposed around the nation, including a new gas pipeline to bring Alaskan natural gas to the lower 48 states. The areas in Northern Alaska where most of the oil and gas drilling would occur are inhabited by Native Americans whose survival depends on the health of the wildlife in the area.
- In recent years, hundreds of gas-fired power plants have been proposed. Many have been defeated by local opposition. Many which were built were constructed in poor or minority communities.

"Biomass" Incineration

- Incinerators to burn trash, tires, sewage sludge, animal wastes, construction/demolition wood wastes, paper and lumber mill wastes, trees, crops and toxic landfill gases have been described as "biomass" – masquerading as some sort of "renewable" energy, regardless of the major environmental hazards posed by these burners.
- Many incinerators have been located in low-income or minority communities. Their pollution accumulates in places where minority populations are disproportionately affected. Mercury pollution contaminates fish, which low-income and minority people consume more than other Americans. Dioxins in the U.S. migrate to the Canadian Arctic, where the highest levels of dioxins in breast milk have been found in the Native Americans who subsist on a dioxin-contaminated food chain.

Hydroelectric

- Hydroelectric dams proposed in Canada would flood out large areas, displacing Native Americans from their traditional lands.
- Dams can cause methane, a greenhouse gas, to be released when vegetation is flooded. They can also help liberate naturally-occurring mercury in the ground, enabling it to contaminate fish.

To learn more about energy and environmental justice, visit www.energyjustice.net

WE, THE PEOPLE OF COLOR, gathered together at this multinational People of Color Environmental Leadership Summit, to begin to build a national and international movement of all peoples of color to fight the destruction and taking of our lands and communities, do hereby re-establish our spiritual interdependence to the sacredness of our Mother Earth; to respect and celebrate each of our cultures, languages and beliefs about the natural world and our roles in healing ourselves; to insure environmental justice; to promote economic alternatives which would contribute to the development of environmentally safe livelihoods; and, to secure our political, economic and cultural liberation that has been denied for over 500 years of colonization and oppression, resulting in the poisoning of our communities and land and the genocide of our peoples, do affirm and adopt these Principles of Environmental Justice:

The Principles of Environmental Justice (EJ)

- 1) **Environmental Justice** affirms the sacredness of Mother Earth, ecological unity and the interdependence of all species, and the right to be free from ecological destruction.
- 2) **Environmental Justice** demands that public policy be based on mutual respect and justice for all peoples, free from any form of discrimination or bias.
- 3) **Environmental Justice** mandates the right to ethical, balanced and responsible uses of land and renewable resources in the interest of a sustainable planet for humans and other living things.
- 4) **Environmental Justice** calls for universal protection from nuclear testing, extraction, production and disposal of toxic/hazardous wastes and poisons and nuclear testing that threaten the fundamental right to clean air, land, water, and food.
- 5) **Environmental Justice** affirms the fundamental right to political, economic, cultural and environmental self-determination of all peoples.
- 6) **Environmental Justice** demands the cessation of the production of all toxins, hazardous wastes, and radioactive materials, and that all past and current producers be held strictly accountable to the people for detoxification and the containment at the point of production.
- 7) **Environmental Justice** demands the right to participate as equal partners at every level of decision-making, including needs assessment, planning, implementation, enforcement and evaluation.
- 8) **Environmental Justice** affirms the right of all workers to a safe and healthy work environment without being forced to choose between an unsafe livelihood and unemployment. It also affirms the right of those who work at home to be free from environmental hazards.
- 9) **Environmental Justice** protects the right of victims of environmental injustice to receive full compensation and reparations for damages as well as quality health care.
- 10) **Environmental Justice** considers governmental acts of environmental injustice a violation of international law, the Universal Declaration On Human Rights, and the United Nations Convention on Genocide.
- 11) **Environmental Justice** must recognize a special legal and natural relationship of Native Peoples to the U.S. government through treaties, agreements, compacts, and covenants affirming sovereignty and self-determination.
- 12) **Environmental Justice** affirms the need for urban and rural ecological policies to clean up and rebuild our cities and rural areas in balance with nature, honoring the cultural integrity of all our communities, and provided fair access for all to the full range of resources.
- 13) **Environmental Justice** calls for the strict enforcement of principles of informed consent, and a halt to the testing of experimental reproductive and medical procedures and vaccinations on people of color.
- 14) **Environmental Justice** opposes the destructive operations of multi-national corporations.
- 15) **Environmental Justice** opposes military occupation, repression and exploitation of lands, peoples and cultures, and other life forms.
- 16) **Environmental Justice** calls for the education of present and future generations which emphasizes social and environmental issues, based on our experience and an appreciation of our diverse cultural perspectives.
- 17) **Environmental Justice** requires that we, as individuals, make personal and consumer choices to consume as little of Mother Earth's resources and to produce as little waste as possible; and make the conscious decision to challenge and reprioritize our lifestyles to insure the health of the natural world for present and future generations.

More info on environmental justice and environmental racism can be found online at www.ejnet.org/ej/

Delegates to the First National People of Color Environmental Leadership Summit held on October 24-27, 1991, in Washington DC, drafted and adopted these 17 principles of Environmental Justice. Since then, the Principles have served as a defining document for the growing grassroots movement for environmental justice.

Say no to nuclear power

The governor sees atomic power as a response to global warming. We need to look at the big picture.

Los Angeles Times, March 25, 2008

<http://www.latimes.com/news/opinion/la-ed-nuclear25mar25,0,6215661.story>

Californians might have thought the subject of nuclear power was laid to rest in 1976, when the state banned construction of new plants. But 32 years is a long time, and Gov. Arnold Schwarzenegger can now be counted among a rising number of people who think that the threat of global warming provides a good reason to reconsider our distaste for radioactive waste.

If he's sending up this idea as a trial balloon, we'd like to borrow Schwarzenegger's Harrier jet from "True Lies" to blow it out of the sky.

In a recent speech in Santa Barbara, Schwarzenegger decried environmentalists who use scare tactics to "frighten everyone that we're going to have another blowup and all of those things." He was referring to the Chernobyl and Three Mile Island disasters, which thoroughly soured Americans on the concept of nuclear power. It's true that Chernobyl was an ill-maintained monstrosity, and nuclear safety has improved since the 1979 Three Mile Island meltdown. It's flatly wrong to conclude that this means nuclear plants are safe.

Nuclear waste remains highly toxic not for a few years but for millenniums; if the ancient Egyptians who built the Great Pyramid had also built nuclear plants, the waste would still be deadly. This material is being stored on-site at nuclear plants, including the two in California (San Onofre and Diablo Canyon) because Congress has been unable to agree on the location for a national repository. As these plants age, the chance of a system failure increases.

"There's no greenhouse gas emissions" with nuclear plants, Schwarzenegger told the Sacramento Bee. This is a constant refrain of the nuclear power industry, but it isn't true. Nuclear plants are fueled by uranium, which is becoming harder to find; uranium mining generates a good deal of carbon, which increases as we dig deeper for the radioactive material.

Although nuclear power is considerably cleaner from a greenhouse-gas standpoint than alternatives such as coal-generated power, those mining emissions are nonetheless significant.

More compellingly, given the cost and time frame for building nuclear plants, it would be impossible to build them quickly enough to make an impact on global warming. There are safer, quicker, cheaper and cleaner alternatives, such as solar and wind power, greater efficiency measures and decentralized power generators that produce electricity and heat water at the same time. Let's exhaust them before even considering the nuclear option.

Got Solar!

Building new nuclear power plants would cost more per kilowatt than retail PV solar... Some may be surprised to find that even retail prices for PV Solar power can out compete¹ nuclear. See below – check out the references... and go solar!

	Solar Hot Water Installed	Crystalline Photovoltaic (PV) Installed	Thin-film Photovoltaic (PV)	New Nuclear Construction
Cost per kW – construction	\$1,250 -- \$2,000 ²	\$4000 ³ -- \$4750 ⁴ and dropping	\$3000 -- \$4000 and dropping -- to \$1000 ⁵	\$5000 -- \$8000 ⁶ and rising
Cost of Fuel per kW	none	none	none	\$19 and rising ⁷
Water required for operation	As consumed	none	none	varies – thousands to millions of gallons per minute ⁸
Waste per kW hr	equipment production waste + unit itself divided by total kilowatt-hours saved	equipment production waste + unit itself divided by total kilowatt-hours generated	equipment production waste + unit itself divided by total kilowatt-hours generated	construction waste + total so-called “low-level” waste + irradiated fuel + toxic wastes + solid waste divided by total kWhrs generated
Liability	negligible	negligible	negligible	waste hazardous for millennia, worst industrial accident in history, attractive terrorist target

Prepared by Mary Olson, NIRS Southeast Office www.nirs.org nirs@main.nc.us 828-675-1792

¹ No, the sun does not shine at night, but for residential and many commercial applications, sufficient additional capacity could be purchased at these prices to generate stored power to use during solar off-hours.

² Various web based info – see for instance: ToolBase.org posted at:
<http://www.toolbase.org/Technology-Inventory/Plumbing/solar-water-heaters>

³ See: “A Solar Grand Plan” Scientific American, January 2008. Web Posted at:
<http://www.sciam.com/article.cfm?id=a-solar-grand-plan>

⁴ See: “Solar Module Price Highlights - January 2008” on Solar Buzz.com posted at:
<http://www.solarbuzz.com/Moduleprices.htm>

⁵ See above – and see also: “Solar Cheaper than Coal and Falling” on Gristmill, posted at:
<http://gristmill.grist.org/story/2007/12/23/2919/8613>

⁶ See: “FPL's plans for two nuclear reactors at Turkey Point draw mixed reviews” South Florida Sun-Sentinel, January 10, 2008 and “Nuclear Costs Explode,” Tampa Tribune, January 15, 2008 posted at
<http://www2.tbo.com/content/2008/jan/15/bz-nuclear-costs-explode/>

⁷ See: US Energy Information Administration “Assumptions to the Annual Energy Outlook, 2007” posted at:
<http://www.eia.doe.gov/oiaf/aeo/assumption/electricity.html>

⁸ See: “Got Water?” David Lochbaum, Union of Concerned Scientists:
http://www.ucsusa.org/clean_energy/nuclear_safety/got-water-nuclear-power.html