OMNI NUCLEAR POWER NEWSLETTER #2. February 11, 2014.
Compiled by Dick Bennett for a Culture of Peace, Justice, and ECOLOGY.

For all children’s children and greatgrandchildren, as we prepare for the storms ahead for them, let us ask what we are leaving them.

WE, THE PEOPLE. These materials are offered to people interested in the history of the debate over the organization of energy in the US and the world, and perhaps to assist readers new to the discussion to become your own autonomous center, and I hope you will be informed and stimulated to action in association with OMNI and other environmental organizations. Several years ago, OMNI’s CCTF Climate Change Task Force (now OMNI350) voted for the abolition of coal, for nuclear power as its last alternative, with efficiency and wind/solar and other sustainable energy as its first. What should be OMNI’s position regarding nuclear power now? This may be a moot question, for several of the comments below point out that for diverse reasons (too dangerous, too expensive, requires too much water, leads to nuclear weapons and war) nuclear power is ending.  www.omnicenter.org

Here is the link to all OMNI newsletters:  http://www.omnicenter.org/newsletter-archive/  For a knowledge-based peace, justice, and ecology movement and an informed citizenry as the foundation for change. Here is the link to the Index:  http://www.omnicenter.org/omni-newsletter-general-index/

Contents #2

Nuclear One at Russellville, AR, and Babcock Reactors
Dick, Trying to Visit Arkansas Nuclear One at Russellville
Latest Number of Nukewatch Quarterly (Winter 2013-14)
Druding, Unsafe Babcock Reactors July 16, 2013
Laura Lynch, Profit Before Safety

Nuclear Power in the US and Around the World: Two Opposition Organizations
Nukewatch, Nukewatch Quarterly
Coalition Against Nukes C.A.N.
NIRS Nuclear Information and Research Service

Fukushima
Radioactivity at Fukushima Increases
Wasserman, Fukushima Danger
Sarich, Fukushima Radiation

Defenses of Nuclear Power
Rendall and Hart, Pro-Nuclear Power Documentary Pandora’s Promise Promoted by CNN

Tom Wigley, Barry Brook, Ben Heard, Case for Nuclear Power
James Hansen, Nuclear Necessary to Replace Coal, Warming the Greater Danger
Malcolm Cleveland: Nuclear Power Will Be Necessary to End Fossil Fuels
Gary Kahanak

More Against Nuclear Power
Rifkin, Nuclear Power Finished
Druding: European Nuclear Power Safety Report
Nuclear Power and Nuclear Weapons
Government Subsidy Petition
French Utility Company EDF Replaces Nuclear with Sustainable (with Art and David)
Nader vs. Nuclear Power
Cindy Sheehan: Helen Caldicott, Harvey Wasserman
David Druding on Nuclear Industry, David Orr on Nuclear Power, and Barbara Fitzpatrick on Water (needed for nuclear power)
David Druding, Damage to Western Australia by Uranium Mining and Milling
Fukushima Radiation Making US Sailors Ill
Three on Collapse of Industrial Civilization

RUSSELLVILLE AND BABCOCK

WANT TO VISIT ARKANSAS NUCLEAR ONE?
I tried the phone directory for Entergy. Nos. only for service etc.
Then online, scanning all relevant subject headings and several promising-sounding activities., all without success.
Then I called Russellville Chamber of Commerce, where I found a helpful person who explained that after 9/11 for “security reasons” Nuclear One ceased allowing visitors, even school children; and she gave me the name and number of Nuclear One’s public relations rep.—Donna Gregory, 479-858-5000.
I phoned and followed directions: give last and first name followed by pound, but directions repeated. So I tapped Operator and was told line not available or something like that.

So Nuclear One has ended public education and public scrutiny?! What response did you receive from it? If you are similarly have found a wall of silence down there, a disregard of the public by a government regulated utility, is it legal? And whether any nuclear plants have been attacked that might justify such secrecy? And already I am wondering whether the closed doors are really to prevent the public from discovering waste and incompetence and even crime.

Dick

---

**Profit Before Safety: B&H Engineer Exposes Coverup - B&W manuf of ANO in Russellville AR**

David Druding. how many yrs beyond its designed safe operating life will we allow another Babcock&Wilcox, low budget nuke, AR Nuclear One, identical in design to the failed Three Mile Island reactor, to continue operating here in AR?

From: Laura Lynch <notification+kjdm_hd7777d@facebookmail.com>
Date: Tue, Jul 16, 2013 at 11:17 AM
Subject: [C.A.N. Coalition Against Nukes] Profit Before Safety: Engineer Exposes Coverup of...
To: "C.A.N. Coalition Against Nukes" <113622485391538@groups.facebook.com>

Laura Lynch posted in C.A.N. Coalition Against Nukes

**Laura Lynch**

**11:17am Jul 16**

**Profit Before Safety:**
**Engineer Exposes Coverup of Reactor Flaw**

A designer for Babcock-Hitachi reveals the company hid a design flaw in the Fukushima fourth reactor pressure vessel which holds the reactor fuel which is key to
stopping the release of radioactivity if there is a meltdown. "During the fabrication of the vessel which took about 2 1/2 years, a deformation occurred and TEPCO was not informed and the government was not informed... we knew what we did was dangerous. We knew it was illegal but if we had followed the rules it was quite possible that it would have destroyed the company. High-pressure hydraulic jacks were used to pop the defect back into the correct shape, but he integrity of the vessel could not be guaranteed."

http://www.youtube.com/watch?v=KdRts5VHW4A

TWO ORGANIZATIONS AGAINST NUCLEAR

NUKEWATCH

Nukewatch is an independent watchdog of the nuclear power and weapons industries. “Radioactive materials from nuclear power, nuclear weapons production, the waste stream, medical procedures and the construction industry leak into the environment every day. Informing the public with the truth
about the dangers of radiation remains Nukewatch’s mission. Exposing the secrets remains at the top of our list.” The organization is a project of The Progressive Foundation, founded in 1979 by Samuel H. Day, Jr. Phone: 715-472-4185; nukewatch@lakeland.ws/www.nukewatchinfo.org

**LATEST NUMBER OF NUKEWATCH QUATERLY**

*This number is almost entirely about nuclear power. In several articles it discloses the extreme hazards deriving from catastrophe at Fukushima-Daiichi in Japan and the continued lying about the dangers to the public. In response, each issue of the Nukewatch Quarterly contains dozens of reports from independent scientists and researchers. For example in this number: “Nukewatch Joins Opposition to Rad Waste Dump on Lake Huron”; Ralph Nader, “Unnecessary, Uneconomic, Uninsurable, Unevacuable and Unsafe”; John LaForge “Fukushima’s Radiation Geyser”; Harvey Wasserman, “14,000 Hiroshimas Still Swing in Fukushima Air.”*

For comparison, here is an earlier article from the magazine:

*Nukewatch Quarterly* (Spring 2008) has a special section of articles on nuclear power. Here are a few of titles: “Nuclear Industry Subsidies Robbing Climate Change Crisis of Real Solutions.” “U.S. Can Cut CO2 Emissions 28% & Save Money, Without Nukes.” “Fewer Nukes, Better Health.” This is a strong organization and magazine against nuclear weapons and power. I have a complete list of similar organizations somewhere!

—Dick

---

**Coalition Against Nukes** C.A.N.

[coalitionagainstnukes.org/](http://coalitionagainstnukes.org/)

We'll invite others to your action, and make sure you have everything you need to make it a success. Even just a handful of people coming together will send a ...
Flyers

About C.A.N.. Mission Coalition Against Nukes is a proactive ...

Please put flyers up this week in your town and on college ...

NO NUKES Rally For A Nuclear Free Future!

Previous Next

→. Occupy the NRC: NO NUKES – NO WAR Rally. 

Rally For A Nuclear Free Future! Posted on May 23, 2012 by ...

About NIRS NUCLEAR INFORMATION AND RESOURCE SERVICE

2013 marks the 35th anniversary of Nuclear Information and Resource Service (NIRS). We were founded to be the national information and networking center for citizens and environmental activists concerned about nuclear power, radioactive waste, radiation and sustainable energy issues.

We still fulfill that core function, but have expanded both programatically and geographically. We initiate large-scale organizing and public education campaigns on specific issues, such as preventing construction of new reactors, radioactive waste transportation, deregulation of radioactive materials, and more. Our international programs and affiliation with WISE (World Information Service on Energy) means that our network spans more than a dozen offices and programs across the globe.

NIRS relies on activism and contributions from citizens across the world to support our efforts for a nuclear-free planet and a sustainable energy future. During 2013, NIRS has launched a new three-year capacity-building plan designed to bolster our ability to serve a new generation of activists, raised on the internet, social networking and ever more mobile and instant means of communication, that has emerged from the rubble of Fukushima. You can read this plan here.

We hope you'll help. Please join our e-mail Alert list and we'll keep you informed about ways you can make a difference in our energy and climate future.

And please join Bonnie Raitt, Jackson Browne, the Indigo Girls, Ani DiFranco, The Fray, Bob Weir, Mary Chapin Carpenter, Guster, Ed Begley, Jr., James Cromwell, Graham Nash and other well-known and lesser-known but vital NIRS supporters and contribute financially and/or with your time. NIRS is a 501(c)(3) organization; donations are tax-deductible in the U.S. You can mail your contribution to NIRS, 6930 Carroll Avenue, Suite 340, Takoma Park, MD 20912, or donate via credit card by clicking on the Donate Now link at the top of this page.

If you would like any further information about NIRS, please don't hesitate to call 301-270-NIRS (301-270-6477); fax: 301-270-4291, or e-mail tonirsnet@nirs.org

FUKUSHIMA (see Nukewatch Quarterly)
Radiation Levels Skyrocket at Fukushima

Submitted by George Washington on 06/27/2013 13:18 -0400

Painting by Jonathan Raddatz

Record high levels of radioactive tritium have been observed in the harbor at Fukushima. Japan Times notes:

The density of radioactive tritium in samples of seawater from near the Fukushima No. 1 nuclear plant doubled over 10 days to hit a record 1,100 becquerels per liter, possibly indicating contaminated groundwater is seeping into the Pacific, Tokyo Electric Power Co. said.

Tepco said late Monday it was still analyzing the water for strontium-90, which would pose a greater danger than tritium to human health if absorbed via the food chain. The level of
cesium did not show any significant change between the two sample dates, according to the embattled utility.

On June 19, Tepco revealed that a groundwater sample taken from a nearby monitoring well was contaminated with both tritium and strontium-90.

During a news conference Monday in Tokyo, Masayuki Ono, a Tepco executive and spokesman, this time did not deny the possibility of leakage into the sea, while he said Tepco is still trying to determine the cause of the spike.

Kyoto reports:
A sample collected Friday contained around 1,100 becquerels of tritium per liter, the highest level detected in seawater since the nuclear crisis at the plant started in March 2011, the utility said Monday.

The latest announcement was made after Tepco detected high levels of radioactive tritium and strontium in groundwater from an observation well at the plant.

Indeed, the amount of radioactive strontium has skyrocketed over the last couple of months at Fukushima.

The New York Times writes:
Tokyo Electric Power, the operator of the stricken nuclear power plant at Fukushima, said Wednesday that it had detected high levels of radioactive strontium in groundwater at the plant, raising concerns that its storage tanks are leaking contaminated water, possibly into the ocean.

The company has struggled to store growing amounts of contaminated runoff at the plant, but had previously denied that the site’s groundwater was highly toxic....

Xinhua reports:
Very high radioactivity levels were detected in groundwater from an observation well at the crippled Fukushima Daiichi nuclear plant, said the plant operator Tokyo Electric Power Co. (TEPCO) Wednesday.

The observation well was set up on the Pacific side of the plant’s No. 2 reactor turbine building last December to find out the reasons why radioactivity levels in seawater near the plant remained high. The company said the sampled water could be from the contaminated water that seeped into the ground.

Reuters points out:
Testing of groundwater showed the reading for strontium-90 increased from 8.6 becquerels to 1,000 becquerels per litre between Dec. 8, 2012 and May 24.

BBC notes:
High levels of a toxic radioactive isotope have been found in groundwater at Japan’s Fukushima nuclear plant, its operator says.

Strontium-90 is formed as a by-product of nuclear fission. Tests showed that levels of strontium in groundwater at the Fukushima plant had increased 100-fold since the end of last year, Toshihiko Fukuda, a Tepco official, told media.

Other types of radioactive materials will continue to pose a hazard for decades. As nuclear engineer Arnie Gundersen explains:
The radiation exposures are going up. What you’re seeing is a lot of this stuff is getting revolitized. It’s in the first couple of inches of dust, and when the wind blows it moves into areas that have been previously cleaned.

This will go on for decades, as the cesium goes down in to the soil, the roots bring it back up and into the plant structures and the leaves fall on the ground and the cycle continues.

(Some portion of this radiation will hit the West Coast of North America … which may end up with even higher radioactive cesium levels than Japan.)

The bigger picture is that the Fukushima reactors are wholly uncontained … and radiation will continue to spew for decades … or centuries.

Japan Times reports:

A U.N. nuclear watchdog team said Japan may need longer than the projected 40 years to decommission the Fukushima power plant and urged Tepco to improve stability at the facility.

The head of the International Atomic Energy Agency team, Juan Carlos Lentijo, said Monday that damage at the nuclear plant is so complex that it is impossible to predict how long the cleanup may last.

“As for the duration of the decommissioning project, this is something that you can define in your plans. But in my view, it will be nearly impossible to ensure the time for decommissioning such a complex facility in less than 30 to 40 years as it is currently established in the road map,” Lentijo said.

The government and Tokyo Electric Power Co. have predicted the cleanup would take up to 40 years. They still have to develop technology and equipment that can operate under fatally high radiation levels to locate and remove melted fuel. The reactors must be kept cool and the plant must stay safe and stable, and those efforts to ensure safety could slow the process down.

The plant still runs on makeshift equipment and frequently suffers glitches

The problems have raised concerns about whether the plant … can stay intact throughout a decommissioning process. The problems have prompted officials to compile risk-reduction measures and review decommissioning plans.

“It is expectable in such a complex site, additional incidents will occur as it happened in the nuclear plants under normal operations,” Lentijo said.

The IAEA team urged the utility to “improve the reliability of essential systems to assess the structural integrity of site facilities, and to enhance protection against external hazards” and promptly replace temporary equipment with a reliable, permanent system.

Indeed, the locations and condition of melted Fukushima fuel is still totally unknown. Shimbun reports:

The workers have yet to gain a grasp of the locations and condition of the fuel debris. They have yet to develop extraction equipment and determine removal methods.

Mainichi notes:

Uncertainty over the location of melted fuel inside the crisis-hit Fukushima No. 1 Nuclear Power Plant continues to cast a shadow over plans to remove the fuel at an early date…. Reactor Nos. 1-3 at the plant contained a total of 1,496 rods of nuclear fuel in their cores…. Each fuel rod weighs about 300 kilograms, and a high level of technical expertise would be required when undertaking a remote control operation to cut up and retrieve clumps of scattered radioactive materials weighing a combined 450 tons or thereabouts…. the cores of reactors at the Fukushima plant have holes, and the task at hand is finding which parts have been damaged.

Indeed, the technology doesn’t yet exist to contain – let alone clean up – Fukushima.

Mainichi notes:

In a news conference on June 10, a representative of the Ministry of Economy, Trade and Industry’s Agency for Natural Resources and Energy said that bringing forward the plans would be dependent on developing technology, and suggested that the plans might even end up being delayed.
Scientists are considering freezing the ground around the Fukushima reactors. Australian Broadcasting Corporation reports:

The Japanese government has ordered the operator of the Fukushima nuclear plant to freeze the soil around its crippled reactor buildings to stop groundwater seeping in and becoming contaminated…. According to a report compiled by a government panel on Thursday, there are no previous examples of using walls created from frozen soil to isolate groundwater being used for longer than a few years. This means the project at the Fukushima plant poses “an unprecedented challenge in the world”.

Japan Times reports:

The panel’s draft report said the government and Tepco hope to create the frozen-soil walls between April and September 2015…. A rough estimate suggests that groundwater seepage into the basements would be reduced from 400 tons [every day] to 100 tons once the frozen-soil walls are built.

Another high-tech solution being proposed: injecting cement into the Fukushima reactors.

And then there are the spent fuel pools, which continue to be one of the main threats to Japan, the United States … and all of humanity.

FUKUSHIMA DANGER (continued)

Laura Lynch posted in C.A.N. Coalition Against Nukes

CRUCIAL!...TIME-CERTAIN CRISIS...ACT NOW! by Harvey Wasserman http://www.freepress.org/columns/display/7

We are now within two months of what may be humankind’s most dangerous moment since the Cuban Missile Crisis.

There is no excuse for not acting. All the resources our species can muster must be focused on the fuel pool at Fukushima Unit 4.

Fukushima’s owner, Tokyo Electric, says that within as few as 60 days it may begin trying to remove more than 1300 spent fuel rods from a badly damaged pool perched 100 feet in the air. The pool rests on a badly damaged building that is tilting, sinking and could easily come down in the next earthquake, if not on its own.

Some 400 tons of fuel in that pool could spew out more than 15,000 times as much radiation as was released at Hiroshima.
The one thing certain about this crisis is that Tepco does not have the scientific, engineering or financial resources to handle it. Nor does the Japanese government. The situation demands a coordinated worldwide effort of the best scientists and engineers our species can muster.

Why is this so serious?

We already know that thousands of tons of heavily contaminated water are pouring through the Fukushima site, carrying a devil’s brew of long-lived poisonous isotopes into the Pacific. Tuna irradiated with fallout traceable to Fukushima have already been caught off the coast of California. We can expect far worse.

Tepco continues to pour more water onto the proximate site of three melted reactor cores it must somehow keep cool. Steam plumes indicate fission may still be going on somewhere underground. But nobody knows exactly where those cores actually are.

Much of that irradiated water now sits in roughly a thousand huge but fragile tanks that have been quickly assembled around the site. Many are already leaking, and could shatter in the next earthquake, releasing thousands of tons of potent poisons into the Pacific. Fresh reports show that Tepco has just dumped another thousand tons of contaminated liquids into the sea (http://www.alternet.org/environment).

The water flowing through the site is also undermining the remnant structures at Fukushima, including the one supporting the fuel pool at Unit Four.

More than 6,000 fuel assemblies now sit in a common pool just 50 meters from Unit Four.
Some contain plutonium. The pool has no containment over it. It’s vulnerable to loss of coolant, the collapse of a nearby building, another earthquake, another tsunami and more.

Overall, more than 11,000 fuel assemblies are scattered around the Fukushima site. According to long-time expert and former Department of Energy official Robert Alvarez, there is more than 85 times as much lethal cesium on site as was released at Chernobyl.

Radioactive hot spots continue to be found around Japan. There are indications of heightened rates of thyroid damage among local children.

The immediate bottom line is that the rods must somehow come safely out of the Unit Four fuel pool as soon as possible.

Just prior to the 3/11/11 earthquake and tsunami that shattered the Fukushima site, the core of Unit Four was removed for routine maintenance and refueling. Like some two dozen reactors in the US and many more around the world, the General Electric-designed pool into which the core now sits is 100 feet in the air.

Spent fuel must somehow be kept under water. It’s clad in zirconium alloy which will spontaneously ignite when exposed to air. Long used in flash bulbs for cameras, zirconium burns with an extremely hot flame.

Each uncovered rod emits enough radiation to kill someone standing nearby in a matter of minutes. A conflagration could force all personnel to flee the site and render electronic machinery unworkable.

According to Arnie Gundersen, a nuclear engineer with forty years in an industry for
which he once manufactured fuel rods. The ones in the Unit 4 core are bent, deformed and embrittled to the point of crumbling. Cameras have shown troubling quantities of debris in the fuel pool, which itself is damaged.

The engineering and scientific barriers to emptying the Unit Four fuel pool are unique and daunting, says Gundersen. But it must be done to 100% perfection.

Should the attempt fail, the rods could be exposed to air and catch fire, releasing horrific quantities of radiation into the atmosphere. The pool could come crashing to the ground, dumping the rods together into a pile that could fission and possibly explode. The resulting radioactive cloud would threaten the health and safety of all of us.

Chernobyl’s first 1986 fallout reached California within ten days. Fukushima’s in 2011 arrived in less than a week. A new fuel fire at Unit 4 would pour out a continuous stream of lethal radioactive poisons for centuries.

Former Ambassador Mitsuhei Murata says full-scale releases from Fukushima “would destroy the world environment and our civilization. This is not rocket science, nor does it connect to the pugilistic debate over nuclear power plants. This is an issue of human survival.”

Neither Tokyo Electric nor the government of Japan can go this alone. There is no excuse for deploying anything less than a coordinated team of the planet’s best scientists and engineers.

We have two months or less to act.

For now, we are petitioning the United
Nations and President Obama to mobilize the global scientific and engineering community to take charge at Fukushima and to moving these fuel rods to safety.

You can sign the petition at:  http://www.nukefree.org/crisis-fukushima-4-petition-un-us-global-response  
if you have a better idea, please follow it. But do something and do it now.

The clock is ticking. The hand of global nuclear disaster is painfully close to midnight.

Fukushima Update:
Highest Radiation Levels Found to Date

By Christina Sarich

NationofChange / Report

Published: Monday 23 December 2013

We’ve been hearing a lot about radiation levels of 400 millisieverts being reported in the vicinity of the Fukushima nuclear plant, but what does that mean?

If you’ve been paying attention to the incident, you will want to be informed of the newly released information by Tokyo Electric Power Company (TEPCO). 63,000 becquerels of radioactive materials have been detected in groundwater samples taken from a well...
A nuclear plant, just five miles from the coast, a massive increase from the previous high level of radiation leakage detected at just 67 becquerels, according to the company.

The sample was taken less than two weeks ago, and the company is taking no measures to be certain the tainted water doesn’t flow into the sea. Even TEPCO’s own standards require that anything tainted with strontium, tritium and caesium to these levels should not be dumped into the Pacific Ocean. In a recent press release, the company outlines the tritium and cesium density of the Daiichi plant water samples.

**Why are Strontium, Caesium and Iodine Health Hazards?**

Strontium-90, one of the toxins that is now pouring into the Pacific at mind-numbing rates, has numerous health repercussions. According to the U.S. Environmental Protection Agency (EPA), “When people ingest Sr-90, about 70-80 percent of it passes through the body. Virtually all the remaining 20-30 percent that is absorbed is deposited in the bone. About 1 percent is distributed among the blood volume, extracellular fluid, soft tissue and surface of the bone, where it may stay and decay or be excreted.”

The EPA likely never intended for people (or sea life, for that matter) to ingest the levels of Strontium-90 that have been flooding our oceans when they wrote this advisory. No way a human being can process 70-80 percent Strontium-90 at such high exposure levels. Numerous medical experiments and studies have proven this. We have no precedence for a radioactive disaster of this magnitude. At Chernobyl and bats exposed to lower radiation during that disaster, went, well, batty. They grew tumors from the ionizing radiation. This is just one species, aside from humans, that were affected. The International Atomic Energy Agency reports:

> “There have been at least 1800 documented cases of thyroid cancer children who were between 0 and 14 years of age when the accident occurred...”
which is far higher than normal. The thyroid gland of young children is particularly susceptible to the uptake of radioactive iodine, which can trigger cancers, treatable by surgery and medication. Health studies of the registered cleanup workers called in (so-called “liquidators”) have failed to show any correlation between their radiation exposure and an increase in other forms of cancer or disease. The psychological affects of Chernobyl remain widespread and profound, and have resulted for instance in suicides, drinking problems and apathy.”

Strontium-90 is not the only radioactive element that is pouring from Fukushima. Like Chernobyl, there are likely more than 100 radioactive elements, some with fast-decay rates, and others that will take hundreds of years to be removed from the environment. The half life of strontium and caesium, have a half-life of 28.8 days, 28.8 years and 30 years respectively. Radioactive iodine can lead to thyroid cancers. Strontium-90 to leukemia, as well as other cancers. During Chernobyl, caesium traveled the furthest and lingered the longest. It harms the entire body, but especially the spleen.

The fallout from Fukushima will not stay isolated to Japan. It is already hitting the West Coast of the U.S. Toxic water readouts keep getting higher, compounding the original problem we all hoped would somehow be stopped like a salve to a gushing wound. Some reports of radioactive fallout have already been recorded by measuring precipitation, but the levels reported by the Environmental Protection Agency (EPA) and the National Atmospheric Deposition Program (NADP) are still “well below any public health concern,” but that was in February of last year.

Furthermore, many NADP sites are not on the West Coast, where Fukushima fallout would be noticeable, but laced throughout the U.S. from California to Texas and Hawaii, all the way to Connecticut. The NADP did detect Iodine-131, Cesium-134, and Cesium-137. New reports from TEPCO’s recent admission should be taken, unlike the gag-order which the Japanese
government is trying to impose on further Fukushima information, the U.S. EPA should be forthcoming with the true contamination levels so that we can take measures to protect ourselves.

Understanding Radiation Measurements

The Editor of the Harvard Health Letter recently published a short but helpful article about radiation measurements, and how to put them into perspective. We've been hearing a lot about radiation levels of 400 millisieverts being registered in the vicinity of the Fukushima nuclear plant, but what does that mean?

Four hundred millisieverts is the equivalent of 40,000 millirem, or 40 rem. Rem is an older unit measure still often used in the U.S.

The Harvard Health Letter included the following helpful chart to show what levels of exposure should be concerning and which levels should not:

<table>
<thead>
<tr>
<th>Millisieverts</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest X-ray</td>
<td>0.1</td>
</tr>
<tr>
<td>Two-view mammogram</td>
<td>0.36</td>
</tr>
<tr>
<td>Average annual</td>
<td>3</td>
</tr>
<tr>
<td>background exposure</td>
<td>9.4</td>
</tr>
<tr>
<td>Cardiac nuclear</td>
<td>20</td>
</tr>
<tr>
<td>stress test</td>
<td>20</td>
</tr>
<tr>
<td>CT scan of abdomen</td>
<td>10</td>
</tr>
<tr>
<td>Coronary angiogram</td>
<td>20</td>
</tr>
<tr>
<td>Average exposure of</td>
<td>31</td>
</tr>
<tr>
<td>evacuees from Belarus after 1986 Chernobyl disaster</td>
<td>50</td>
</tr>
</tbody>
</table>
nuclear power plant workers

Spike reported at Daichi, Fukushima plant

Acute radiation sickness 1000 (1 sievert)

[Fukushima today] [Unknown]


DEFENSES OF NUCLEAR

[Fukushima has tended apparently to decrease defense of nuclear power. Some of the opinions expressed below might not still be held. –Dick]

This is a very nicely done FAQ about nuclear power. It counters most of the myths held by the public (and many environmentalists), and perpetrated by an uninformed and sensationalism-seeking media. http://ansnuclearcafe.org/2013/06/06/frequently-asked-questions-about-nuclear-power/

While I'm at it, here's a good intro to "Pandora's Promise," a documentary about nuclear power due to be released to theaters June 12. http://ansnuclearcafe.org/2013/06/04/pandoras-promise/

Environmentalism’s Merchants of Doubt
Anti-Nuclear Sentiment Brings Coal-Fired Future

Environmentalists have long been more anti-nuclear than anti-fossil fuels. In limiting their support to commercially immature, small, and unreliable sources of soft energy, they have made success in battling climate change dependent on a conjoined social/technological/economic revolution. The result has been misguided politics and greater use of carbon-intensive fuels like coal.

May 7, 2013 | Tom Wigley, Barry Brook, Ben Heard

RELATED ARTICLES

WHY PROGRESSIVES DON'T LIKE NUCLEAR
February 25, 2013

CHINESE NUCLEAR AND THE FUTURE OF ENERGY INNOVATION
March 14, 2013

NEXT NUKEs
November 16, 2012

AGAINST TECHNOLOGY TRIBALISM
January 31, 2013

OBAMA'S CLIMATE CUNNING
January 09, 2013

SHELENBERGER ON COLBERT REPORT
February 07, 2013

AL GORE'S NUCLEAR HYPOCRISY
February 11, 2013

OBAMA'S CLIMATE LEGACY
February 12, 2013

After clear warnings from scientists more than 20 years ago, the issues of human-caused climate change and fossil-fuel-dominated energy should be on the way into the environmental history books. Sadly, they're not, which is why we need a new global movement of nuclear support.
A bit like the CFC/ozone dilemma, we should by now be enjoying disputes about just how the
success came about, and focusing attention on more challenging sources of emissions. What happened instead? A denial machine that cut its teeth working for the tobacco industry moved on to climate change. Climate change denial took off as the vested interests did what they do best. In this they found a most unexpected ally: environmentalism and the emergent paradigm of sustainability.

With the roots of the movement being more strongly defined as anti-nuclear than anti-fossil fuels, environmentalism effectively pulled uranium from the table. Were it not for their opposition, uranium might have powered the boom of the developing world in the 90s and 00s while also gradually re-powering the developed world towards zero-carbon energy generation.

Instead environmentalism backed technologies that failed to resemble what they were intended to displace. Instead of commercially mature, high-volume, and highly reliable generators that ran on a dense fuel source, they supported commercially immature, small, and unreliable generators that worked on intermittent energy sources.

With this limited approach, success in battling the climate problem hinged more on a conjoined social/technological/economic revolution than what could have been a relatively straight-forward technology revolution. This engendered a combative stance that regarded the big business of big energy as an enemy, rather than a potentially efficient means to get something done.

In the last 25 years global emissions have sky-rocketed beyond expectations, as the path of least resistance for governments was to become ever more well-oiled and coal-fired. Governments and corporations slapped on the green face paint for a couple of decades while fossil fuels carried on providing more and more energy to a growing world. The success of fossil fuels was greased by the Merchants of Doubt. But it was helped by mixed messages from some streams of environmentalism. While making loud and sustained calls for market-based solutions (such as carbon pricing), the movement supported market manipulations by refusing to countenance an expanded role for uranium, while simultaneously promoting hard targets for renewables.

Ideas for further research and development, which would improve nuclear fission over fossil combustion regarding cost, were (and remain) heretical. This did not reinforce a message of climate urgency.

Worse, the science of nuclear power, and particularly radiation, was subjected to the same techniques of cherry-picking distortions and deliberate misrepresentations as that of the science of climate change, with appalling and immoral abuses of information. The impact has been devastating. There still exists a widely held belief that expanding electricity generation from nuclear fission poses a comparable or greater threat than climate change. This is a gross miscalculation of risk.

This erroneous framework has powered absurd politics. The 1994 closure of the United States’ advanced reactor program took down the Integral Fast Reactor when at its final demonstration stage. With a capability to recycle 99% of existing spent nuclear fuel and depleted uranium for zero-carbon generation we could now be powering on waste. But a strongly anti-nuclear administration trumped this possible future.

In 1998, Australia, the world’s largest exporter of uranium, singled out nuclear power for prohibition. Since that time, Australia has implemented a carbon price, a renewable energy target, and all the while kept up our fossil dependence.

The result? 

Greenhouse emissions from the electricity sector have risen 18%.
In the wake of irrational fears stemming from the Fukushima accident, Germany is shutting down its nuclear capacity. While renewables are growing, these simply cannot keep up with the two-edged sword of a continued growth in demand coupled with the reduction in supply from nuclear. Greenhouse-gas emissions for Germany in 2012 were 1.6% higher than 2011, and they will open 5.3 GW of new coal plants in 2013, while retiring 1 GW of old coal. Is this how environmentalism has come to define success?

As environmentalism fought a two-front war against both nuclear power and climate change, ingenuity in the fossil-fuel sector exploited and shifted towards ever more cheap, carbon-intensive fuel. This powered a period of poverty-reducing economic growth, leaving the developed and developing world alike justifiably loathe to consider a de-powered future. Unfortunately, while objecting stridently to these climate crimes, environmentalism failed to put forward a credible alternate energy pathway.

Now, in 2013, we find ourselves at a new crossroad. The failure is there for all to see in our soaring emissions and warming world. Another 2.5 billion people are in the pipeline: they deserve energy.

Rapid growth in renewable technologies cannot mask the fact that the requirement for energy keeps growing. Coal has barely budged in total global electricity share of around 40% (double that for Australia), while demand grew three and a half times between 1973 and 2010.

That’s why emissions have been soaring despite extraordinary rates of renewable growth. That is why it was sheer folly for environmentalism to preference coal by default. Only embracing nuclear along with renewables can extinguish fossil fuels.

Yet nuclear power remains in the energy no-man’s land of being cheaper than renewables at scale, but more expensive than unabated gas, with large establishment costs. Nuclear power is meeting with success in developing economies.

But the major breakthrough looks increasingly dependent on the success of ‘production line’ small modular reactors (SMR), and the resurgent interest in generation IV fast reactors like the integral fast reactor, or liquid fuelled thorium reactors (LFTR).

As mentioned at the start of this article, we need to see a new global movement of nuclear support. There are a few things that must happen to make this a reality.

First, we need balanced government-led climate strategies with scientific integrity to focus on actual, measurable, and rapid reductions in greenhouse-gas emissions, with a target of zero.

Second, we need rapid deployment of high-volume, zero-carbon technology for direct substitution with fossil fuels. That means picking some winners. Our winners of choice are small modular reactors progressing to the integral fast reactor: proven, zero-carbon, safe, constantly recharged with an inexhaustible supply of fuel through recycling and utilising what is currently known as “nuclear waste”.

We must get these reactors turned out by the dozen to answer every energy need being met by fossil fuels.

May the best technology win. But the approach needs to be firm and hands-on, as time is not on our side.

This requires a sustained early injection of money from a coalition of nations in order to create the manufacturing, distribution, education, security, and skills-base that is absolutely necessary for a 21st-century re-imagining of energy.
Finally, to achieve all this we need a popular movement to embrace nuclear power. The consequent pressure will hopefully force government and industry to respond.

If, 25 years from now, our children look back and see a continuance of the present epic failures in climate and energy policies, it is today’s limited views on sustainability that will stand condemned.

_This article first appeared on The Conversation._

*Photo Credit:* Center for Strategic & International Studies (left); the Anti-Yale blog (right)

**Climatologist James Hansen Defends Nuclear Energy**

* December 8, 2013  Uncategorized  Slashdot

First time accepted submitter prajendran writes “James Hansen, the former director of the Goddard Institute of Space Sciences, has been a strong defender of using nuclear energy to replace coal and renewable energy. He and three other researchers had written a letter, arguing just this. In this interview with rediff.com, an Indian news site, he was asked to address some concerns surrounding the issue, especially given the strong feelings generated by it. It may not be Hansen’s best interview, but it did bring out his passionate side.”

Read more of this story at Slashdot.

---

**CLEVELAND FOR NUCLEAR POWER, July 4, 2013**

Malcolm Kent Cleaveland  6:39 PM (13 hours ago)

Folks,

Sorry, nuclear energy is a good alternative to coal, oil and natural gas. What do you do when the wind stops blowing and the sun goes down? Until we find a way of storing very large amounts of energy, we’re going to need baseload energy sources. These include nuclear, geothermal, hydro and very large amounts of coal, oil and natural gas at present. What is your choice? (Note that no one considers wind and solar baseload energy sources.)
As for massive changes in lifestyle, I fear that will be possible only if we manage to go on a war footing as we did in WWII (note that historians have found that there was a thriving black market that evaded some of the rationing). So I don't really see a massive change in lifestyle; if you want to go live off the grid and grow all your own food, etc. good for you, but don't expect the vast majority of Americans to join you.

Malcolm K. Cleaveland, Ph.D.  U. of Arkansas
Professor Emeritus of Geosciences
Dept. of Geosciences, Stone House South F22
Fayetteville, AR 72701   tel: 479-575-3159
e-mail: mcleavel@uark.edu   fax: 479-575-3469

From Gary K 4-10-12

I want to share a book title some of you may find interesting; it is "Radiation and Reason--The Impact of Science on a Culture of Fear," by Prof. Wade Allison. You may find a bit more about the book and the author here.

I am not necessarily recommending this book as a candidate for our Climate Change book club. However, this topic has direct bearing on the acceptance of nuclear power, which many see as an essential technology to be embraced if we are to rapidly decarbonise our energy economy.

I have not yet read this book---it is on order---but I have read some of Allison's material, which is very good, and Allison seems highly regarded. He seems to be another veteran scientist, much as James Hansen, who feels morally obligated to step forward and influence public opinion with what he believes to be evidence-based observations and conclusions of the scientific community. I will share my views of the book after I complete it.

Gary Kahanak  [I cannot find a follow-up message on Allison, but it's probably somewhere among the numerous messages on nuclear power I have received. Gary?]

MORE CRITICISM OF NUCLEAR POWER

[I have been overwhelmed by the quantity of messages about nuclear power. The following selection is ragged to say the least. –Dick]

Fwd: [C.A.N. Coalition From: Laura Lynch <notification+kjdm_hd7777d@facebookmail.com>
Date: Sat, Mar 2, 2013 at 11:16 AM (from David D)
Subject: [C.A.N. Coalition Against Nukes] "Nuclear Power Is Dead" Jeremy Rifkin
To: "C.A.N. Coalition Against Nukes" <113622485391538@groups.facebook.com>

Laura Lynch posted in C.A.N. Coalition Against Nukes
“Nuclear Power Is Dead” Jeremy Rifkin

"I don't spend much time on nuclear technology, unless somebody asks me about it, because frankly from a business perspective, I think it's over. ... Nuclear power was pretty much dead in the water in the 1980s after Three Mile Island and Chernobyl. It had a comeback. The comeback was the industry said 'we are part of the solution for climate change because we don't emit CO2 with nuclear' ... it's polluting, but there's no CO2. Here's the issue though, all of our scientific projections are interesting on this. Nuclear power right now is 6% of the energy of the world. There are only 400 nuclear power plants and they rely on 6% of the energy of the world. These are old nuclear plants. But our scientists tell us to have a minimum impact on climate change, which was the whole rationale for bringing this technology back, nuclear would have to be 20% of the energy mix to have the minimum impact on climate change. That means we would have to replace the existing 400 nuclear plants and build 1600 additional plants ... 3 nuclear plants have to be built every 30 days for 40 years to get to 20% and by that time climate change would have run its
course for us. So I think from a business point of view, I just don't see that investment. I'd be surprised if we replace 100 of the 400 existing plants which would take us down 1 or 2% of the energy. Number two, we still don't know how to recycle the nuclear waste, and we're seventy years in. Now we have good engineers in the U.S. and we've spent 18 years and $8 billion building an underground vault in Yucca Mountain to store the waste for 10,000 years, we can't use it. We can't even store them, it's already no good because there are cracks in the mountain. But any geologist could have told them we live on tectonic plates. You can't keep underground faults secure. Number three, we run into uranium deficits according to the International Atomic Energy Commission ... between 2025 & 2035 with just the existing 400 plants, so that means the price goes up. Number four, we could do what the French generation of new plants are doing and recycle the uranium to plutonium, but then we have plutonium all over the world in an age of uncertainty and terrorism. And then finally, and this is the big one that people don't realize, we don't have the water. Over forty percent of all the fresh water consumed in France each year goes to cooling the
nuclear reactors, almost fifty percent now. When it comes back it's heated and it's dehydrating our agriculture and ecosystems and it's threatening our agriculture. And we don't have the water, this is true all over the world. We have salt water nuclear plants, but then you have to put them on coastal regions and you risk a Fukushima because of tsunamis and ocean currents. And the last thing on this, I would say is that nuclear power is centralized power like fossil fuels, it doesn't fit a new generation that's moving with the kind of technologies that are distributive, collaborative and laterally scaled. It's an old technology. It's no accident that Seimans is out, Germany is out, Italy is out, Japan is now... and they're moving toward a third industrial revolution model in France. I'd be surprised if nuclear has much of a life left. I don't think it's a good business deal." — Jeremy Rifkin, American Economist

http://nuclear-news.net/2013/03/02/nuclear-power-is-dead-jeremy-rifkin/
(From David Druding, Oct. 3, 2012) 'Hundreds of problems' at EU nuclear plants.
Hundreds of problems have been found at European nuclear plants that would cost 25 billion euros to fix, says a leaked draft report. The report, commissioned after Japan's Fukushima nuclear disaster, aimed to see how Europe's nuclear power stations would cope during extreme emergencies. BBC
http://bbc.in/RbLora

Hi friends - Although this group is primarily concerned with global warming, we also frequently talk about nuclear power and other energy issues. There's a fine article by Joseph Bevelacqua, "Fukushima Daiichi accident and its radiological impact on the environment," in The Physics Teacher, Sep 2012, pp. 354-358. It includes a nuclear physics overview, a blow-by-blow account of the accident, quantitative problems for classroom use, and classroom discussion questions. If you're on the UA campus you should be able to read it on their website http://tpt.aapt.org/, Cheers - Art

"U.S. N.R.C. Considering Giving 80-year Operating Licenses to Nuclear Power Plants" by Karl Grossman, News Investigation, NationofChange, June 4, 2012: For more than a decade, the NRC has been extending the operating licenses of nuclear plants from 40 years to 60 years. And just as the NRC has never denied a construction or operating license for a nuclear plant anywhere, anytime in the U.S., it has rubber-stamped every application that has come before it for a 20-year extension of the plant’s original 40-year license. READ | DISCUSS | SHARE
http://www.nationofchange.org/us-nrc-considering-giving-80-year-operating-licenses-nuclear-power-plants-1338816889
BUT THESE EASY EXTENSIONS MAY CEASE

Allison, Public Citizen, Refuting assumptions about nuclear waste Allison, Public Citizen energy@citizen.org via uark.edu 8-13-12

Dick,

The agency responsible for approving the construction of nuclear reactors may no longer be able to rely on its old “build reactors now and worry about radioactive waste later” approach.

Learn more about new challenges to nuclear waste policy.

For decades, nuclear reactors have been built under two assumptions:
One day there would be a place to permanently store the lethal waste generated from nuclear power.
While the final burial place was being determined, the nuclear waste could be safely stored on-site.
But when it comes to waste that remains dangerous for hundreds of thousands of years, assumptions can be a reckless gamble.

A federal court agrees.

In June, the U.S. Court of Appeals in Washington ruled that these assumptions are no longer good enough, prompting the Nuclear Regulatory Commission to address the shortcomings of the two rules which translate these assumptions into policy — the waste confidence decision and the storage rule.

In response, 24 groups, including Public Citizen, challenging both new reactor licenses and license renewals for existing reactors filed a petition urging the NRC to respond to the court ruling by freezing final licensing decisions.

On July 8, the NRC voted to suspend a final decision on all new reactor licenses. No doubt this is a short-term win for us.
But the intermediate and long-term implications for nuclear energy and the policies that govern radioactive waste are still unclear.

As these implications unfold, we will continue to keep you updated and when possible provide opportunities to take action toward improving the safety of our country’s mounting stockpile of nuclear waste.

To get more information on the court’s decision, check out my blog post, Will nuclear power continue to hobble along despite its radioactive Achilles’ heel?

Thanks for all you do.

Sincerely,
Allison Fisher
Public Citizen’s Climate and Energy Program

P.S. Make it count. Donate now to support all the work we’re doing together to challenge corporate power.

© 2012 Public Citizen

Full Body Burden: Growing Up in the Nuclear Shadow of Rocky Flats, Kristen Iversen

Iversen (Author)

Visit Amazon’s Kristen Iversen Page
Find all the books, read about the author, and more.
See search results for this author
Are you an author? Learn about Author Central

June 5, 2012

Full Body Burden is a haunting work of narrative nonfiction about a young woman, Kristen Iversen, growing up in a small Colorado town close to Rocky Flats, a secret nuclear weapons plant once designated "the most contaminated site in America." It's the story of a childhood and adolescence in the shadow of the Cold War, in a landscape at once startlingly beautiful and--unknown to those who lived there--tainted with invisible yet deadly particles of plutonium.

It's also a book about the destructive power of secrets--both family and government. Her father's hidden liquor bottles, the strange cancers in children in the neighborhood, the truth about what was made at Rocky Flats (cleaning
supplies, her mother guessed)--best not to inquire too deeply into any of it.

But as Iversen grew older, she began to ask questions. She learned about the infamous 1969 Mother's Day fire, in which a few scraps of plutonium spontaneously ignited and--despite the desperate efforts of firefighters--came perilously close to a "criticality," the deadly blue flash that signals a nuclear chain reaction. Intense heat and radiation almost melted the roof, which nearly resulted in an explosion that would have had devastating consequences for the entire Denver metro area. Yet the only mention of the fire was on page 28 of the *Rocky Mountain News*, underneath a photo of the Pet of the Week. In her early thirties, Iversen even worked at Rocky Flats for a time, typing up memos in which accidents were always called "incidents."

And as this memoir unfolds, it reveals itself as a brilliant work of investigative journalism--a detailed and shocking account of the government's sustained attempt to conceal the effects of the toxic and radioactive waste released by Rocky Flats, and of local residents' vain attempts to seek justice in court. Here, too, are vivid portraits of former Rocky Flats workers--from the healthy, who regard their work at the plant with pride and patriotism, to the ill or dying, who battle for compensation for cancers they got on the job.

Based on extensive interviews, FBI and EPA documents, and class-action testimony, this taut, beautifully written book promises to have a very long half-life.

http://www.amazon.com/Full-Body-Burden-Growing-Nuclear/dp/030795563X/ref=sr_1_fkmr0_1?s=books&ie=UTF8&qid=1339595644&sr=1-1-fkmr0

Dick on Mooney's *The Republican Brain* p. 229. 4-11-12

Mooney ridicules exaggerations about nuclear radiation, but makes no mention of the dangerous relationship between nuclear power and nuclear weapons neither here nor anywhere in his book (according to his Index), in fact no mention of nuclear weapons at all in a book on Republican Party behavior! Let's accept the fact of risks in all energy
sources and especially from coal, so that we can keep part of our brains concerned about nuclear bombs large and small, and those bombs enabled by nuclear power.

Art’s reply to my letter

Hi Dick -

Especially when thinking about nuclear power, it’s important to follow the science rather than the ideologues. During the 1970s, scientific opinion about nuclear power was divided, for good reason: we didn't know much at that time about accidents or waste storage, and it was hoped that restraint of global nuclear power might slow the spread of nuclear weapons. Now we have good information that accidents and waste storage (Yucca Mountain and the Waste Isolation Pilot Plant in New Mexico) are not really a problem, and there no longer seems to be much hope that US actions can restrain nuclear power globally. And the big new fact is global warming. Support of nuclear power makes it much more likely that we can either shut off coal or sequester it (with carbon capture and storage). These days, scientists support nuclear power almost uniformly. My colleague Malcolm Cleveland is of the same opinion.

A good reference on this is Stewart Brand’s recent book Whole Earth Discipline. He was the originator and editor of the Whole Earth Catalogue. He was anti-nuclear-power in the 1970s, but he's very pro-nuclear-power in his recent book. As you can see from reading his book, he hasn't changed much, but the situation has changed and so he’s changed his opinion. He's very concerned about the global warming.

I'll be glad to read Hoffman's review that you refer to, but can't locate it. Actually, I thought that Omni had already stated a position against nuclear power, at least in the sense that Omni supports solving global warming while simultaneously doing without nuclear power. This is a position I disagree with, but can ignore so long as Omni doesn't become active against nuclear power.
Cheers - Art
My reply: 3-10
Here's Hoffman.
I think OMNI's position is that nuclear power would the last option after efficiency and solar/wind/geothermal.

NEW PRO-NUCLEAR POWER BOOK

From Art: “Stewart Brand’s recent book Whole Earth Discipline. He was the originator and editor of the Whole Earth Catalogue. He was anti-nuclear-power in the 1970s, but he's very pro-nuclear-power in his recent book. As you can see from reading his book, he hasn't changed much, but the situation has changed and so he's changed his opinion. He's very concerned about the global warming.”

From: Nuclear Information and Resource Service [mailto:nirsnet@nirs.org]
Sent: Tuesday, March 02, 2010 2:14 PM
To: suesactivism@mchsi.com
Subject: Next Step: Sign New Petition to Stop Nuclear Bailout

SIGN PETITION TO STOP TAXPAYER BAILOUT OF WEALTHY NUCLEAR COMPANIES!

March 2, 2010

Dear Friends,

Here is the next step in our ongoing battle to end a taxpayer bailout of the nuclear power industry and stop President Obama’s proposal to triple the nuclear loan "guarantee" program to $54 Billion.

As we all now know, it’s not a loan "guarantee" program at all. It’s direct taxpayer financing provided to some of the richest utilities on earth--like Electricite de France, Progress Energy, NRG Energy, etc.-- to buy nuclear reactors from even wealthier nuclear corporations--like General Electric, the largest corporation in the world; Areva, Westinghouse/Toshiba, and so on.
They want to build reactors that would continue to be dangerous and dirty—just like those now leaking toxic tritium and other elements into our air and water. Reactors that would continue to generate lethal radioactive waste with no storage solution. Reactors that would continue to be extraordinarily expensive—even NRC Chairman Greg Jaczko says they'll average at least $10 Billion each. Reactors that would divert scarce taxpayer resources from solar, wind, energy efficiency and other technologies that can provide real energy independence and national security, and reduce carbon emissions safer, faster, cleaner and cheaper than nuclear power.

Please sign a taxpayers petition to Congress here.

We will hand-deliver the petition with signatures (and we hope it's hundreds of pages) to Members of Congress—especially the critical members of the Appropriations Committees—before any vote on this issue. Remember, Congress has to approve Obama's $54 Billion nuclear bailout: with your help, we can stop this.

Let's see if we can get 10,000 signatures on this petition in the next month or so before any votes come up! Help us spread the word: as always, tell your friends and family, send to your organizational mailing lists, post on Facebook and Twitter, write about it on your blogs. Make paper copies and post in your local food co-op, cafe, or other gathering place and send the completed sheets back to us. Want a pdf to copy? Just ask, we'll send you one.

We're happy to report that more than 2,200 new people have taken action in the past 2 months! That's thanks to your outreach efforts and to your contributions that helped us buy ads on Alternet and Google Adwords. If you want to see this kind of successful outreach continue and build (and we certainly do!), please make a tax-deductible contribution, of whatever size you can, now.

Your actions do matter, so please sign the petition.

Here is the direct link to the petition that you can pass on to friends and colleagues: http://org2.democracyinaction.org/o/5502/p/dia/action/public/?action_KEY=2096. It also will be posted soon on the front page of NIRS' website: www.nirs.org.

I know we sometimes ask a lot, but remember, we’re up against an industry that has spent more than $600 million on lobbying in the past decade. We can win, but it will take all of us acting together.

Thanks for all you do,

Michael Mariotte
Executive Director
Nuclear Information and Resource Service
nirsnet@nirs.org
OPPOSITION TO GEORGIA NUKE PLANTS

Democracy Now (2-24-10).

Anti-Nuclear Activists Mobilize to Oppose Obama-Funded Construction of Georgia Nuke Plants

The news in Vermont follows Obama’s announcement last week of $8.3 billion in loan guarantees for the construction of the first new nuclear power plants in the United States in close to three decades. The loan guarantees will help the Atlanta-based Southern Company build two more nuclear reactors in Burke County, Georgia, near the city of Augusta. We speak to Nuclear Watch South coordinator Glenn Carroll, who has been leading efforts against the construction of the new plants. [includes rush transcript]

ied under Nuclear Power


Interv. Democracy Now (11-25-09). Old nuclear plants have continued past their planned life, some already 20 years past. Built for 40 years but extend to 60, half the plants are unsafe. And new plants are extremely expensive, $10 to $20 billion. Banks want 100% government guarantee. Obama gave $18 billion subsidy in 2009 budget.

Nuclear Power Resources at the Mullins Library. Here’s a small sample drawn from the first 25 entries in the catalog: Dick

1. Integrated nuclear power systems for future naval surface combatants : hearing before the Seapower and Expeditionary Forces Subcommittee of the Committee on Armed Services, House of Representatives, One Hundred Tenth Congress, first session, hearing held, March 1, 2007- ISBN: 9780160814334

2. Opportunities and challenges for nuclear power : hearing before the Committee on Science and Technology, House of Representatives, One Hundred Tenth Congress, second session, April 23, 2008. ISBN: 9780160819186

3. Human factors considerations with respect to emerging technology in nuclear power plants [electronic resource] / prepared by J.M. O'Hara ... [et al.]

5. Fatigue crack flaw tolerance in nuclear power plant piping [electronic resource] : a basis for improvements to ASME code section XI Appendix L / S.R. Gosselin ... [et al.]


8. THE NEXT GENERATION OF NUCLEAR POWER... HEARING... COMMITTEE ON GOVERNMENT REFORM, U.S. HOUSE OF REPS.... 109TH CONGRESS, 1ST SESSION


11. THE ROLE OF NUCLEAR POWER GENERATION IN A COMPREHENSIVE NATIONAL ENERGY POLICY... HEARING... COMMITTEE ON GOVERNMENT REFORM, U.S. HOUSE OF RE

12. Nuclear Power 2010 program : hearing before the Committee on Energy and Natural Resources, United States Senate, One Hundred Ninth Congress, first session, on the Department of Energy's Nuclear Power 2010 program, April 26, 2005

13. The next generation of nuclear power : hearing before the Subcommittee on Energy and Resources of the Committee on Government Reform, House of Representatives, One Hundred Ninth Congress, first session, June 29, 2005


15. U.S. NUCLEAR POWER PLANT OPERATING COST AND EXPERIENCE SUMMARIES... NUREG/CR-6577, SUPP. 2... U.S. NUCLEAR REGULATORY COMMISSION

Nuclear Power Not A Safe Option

Professor Cecil O. Cogburn’s proposal to increase our dependence on nuclear power (Writer's Block, March 8) must be rebutted. As professor emeritus of nuclear
engineering, he writes from a respected professional point of view, and I strongly agree with his call to cut greenhouse gas emissions. However, as a member of PSR, Physicians for Social Responsibility, I must argue against his support for nuclear power as a means to that end.

Taking a long view, say 200 or 300 years, what is the likelihood that humankind will have curtailed the consumption of fossil fuels before the collapse of Earth's ecosystem? From the perspective of one who observes human nature, it doesn't look good. How about the likelihood that dirty nuclear bombs, if not outright thermonuclear warfare will contribute to the ultimate destruction? Unfortunately, nuclear arsenals cannot be expected to remain always and forever held in check, especially as the seas rise and the global climate crisis matures into a global political crisis. Greenhouse gases are dangerous, but the life destroying potential of nuclear material is even more dangerous.

Uranium is killing people right now. Most of the uranium used in U.S. nuclear power facilities is imported and much is mined from the land of indigenous people with insufficient legal resources to protect their habitat. Niger's traditional nomadic Touareg people have suffered widespread radioactive contamination of their air and water with a corresponding high incidence of cancer. In Australia, the government is attempting to seize Aboriginal land to mine its uranium. Our own indigenous people of the Navajo nation have been burdened with more than 1,300 uranium mines most of which, now closed, have never been adequately cleaned up and which have left drinking water contaminated and a legacy of fatal illnesses, particularly cancers.

Urban America has no reason to believe that nuclear isotope contamination will be restricted to other people's backyards. We've known for at least 30 years that significant quantities of refined, radioactive material regularly disappears from the ostensibly secure confines of research facilities and manufacturing plants. It's unaccounted for, but it's not gone and we have good reason to expect that when it does reappear, it will be in evil hands, bringing death and destruction.

Cogburn ignores these deeper issues in his discussion of the "reliability and affordability" of nuclear power. Like it or not, there are inextricable links between nuclear energy, nuclear weapons and terrorism. Consider for a moment that there is not a thermonuclear power plant on earth that is designed to withstand the impact of a 747.

We can learn from the brilliant physicist Theodore B. Taylor, now deceased, who worked
to design the first nuclear bombs, but spent his later years as an anti-nuclear advocate and proponent of renewable energy, particularly energy from the sun. He would say, "Just look outside and you’ll see the biggest reactor in the solar system." Let’s keep a safe distance from nuclear power; 93 million miles seems about right.

George Dean Patterson, Elkins

http://www.nwaonline.net/articles/2009/03/12/letters/031309letters.txt

NUCLEAR POWER PUSHBACK CAMPAIGN

Nuclear Information and Resource Service
6930 Carroll Avenue, #340, Takoma Park, MD 20912
301-270-6477; nirsnet@nirs.org; www.nirs.org, July 29, 2008

Dear Friends:

We’re launching a new Nuclear Power Pushback Campaign to counter the pro-nuclear, dirty energy propaganda that is so prevalent in the media these days. But we can’t do it alone, we don’t have money for big TV or newspaper ads nor unlimited staff to monitor every broadcast, newspaper and blog. As always, your participation will make the difference.

Over the next few months, we’ll be submitting letters to the editor to numerous publications, helping you write letters to go under your name, writing op-eds and sample op-eds for you to submit, posting and advertising on blogs, putting up new YouTube videos, contacting reporters directly, and a lot more. **Below is a sample letter we hope you’ll submit** to your local newspaper, blog, magazine or any other outlet you think is appropriate. Please use your name, and feel free to change it however you like. John McCain is continuing to talk up new nuclear power and dirty energy (most recently yesterday in Bakersfield, Calif.), and he thinks that’s a winning stand. We need to push back against that type of dangerous energy thinking and remind the public that nuclear power is a failed energy technology that doesn’t deserve resurrection.

We hope you’ll take this action, and will also let us know when you see an article in your local media that deserves a reply. While we hope you will often reply to such articles on your own, perhaps using information gathered from NIRS website, we’ll try to help you craft a reply as often as possible.

One resource you might want to use is *False Promises*, NIRS recent book countering nuclear industry propaganda on safety, economics, sustainable energy, radiation and health, and more. You can
download it for free on NIRS website (www.nirs.org) or you can buy a printed copy for $15 (including postage and handling). If you want bulk copies, contact us.

Thanks for all you do! No Nukes! (and our apologies if you received this more than once today, we’re using a couple different e-mail lists today).

Michael Mariotte
Executive Director

**Sample Letter to the Editor**

Dear Editor,

Senator John McCain is calling for an energy policy right out of an industry textbook from the 1970s: more offshore oil drilling and more nuclear power. Offshore oil drilling, while posing a clear threat to our beaches and coastlines, wouldn’t produce any oil for 20 years, would be the proverbial drop-in-the-bucket given rising world oil demand, and would do nothing to help us meet current high prices at the gas pump. A more far-reaching oil policy would be to accelerate and strengthen new vehicle mileage standards. Since burning oil is a chief cause of the climate crisis, this would be a two-fer: less demand means we’d be paying less at the pump and also spewing less carbon into our atmosphere.

Because of nuclear’s skyrocketing costs, by the time any new atomic reactors could be built, solar power will be cheaper than nuclear. Wind power already is cheaper—and is the fastest growing energy source in the world. Combine those with geothermal, energy efficiency technologies, smart electrical grids, and distributed generation—none of which produce radioactive waste or offer the threat of atomic meltdown or terrorist attack—and you get a 21st century energy policy that will provide us with safer, cleaner and cheaper electricity, without carbon emissions, than nuclear power.

Going back to the 1970s might be a nostalgia trip for some. As an energy policy, the days of disco, polyester, oil spills and nuclear accidents should be left behind for good.

You can help support the Nuclear Pushback Campaign on our secure website [here](http://www.nirs.org). Your tax-deductible contributions will help us buy blog ads, monitor and respond to the media, and help turn around the current energy debate! Please make a donation of $5, $10, $25 or any amount you choose—your donations will be put to good use!

And if you haven't done so yet, don't forget to sign the statement on nuclear power and climate at [www.nirs.org](http://www.nirs.org) (but please don't sign more than once!). If you've already signed, please ask your friends and
colleagues to sign!

We’ve passed 7750 7830 7930 8130 8330 8400 signatures, let’s get to 10,000! And just let us know at nirsnet@nirs.org if you want more paper copies of the statement to gather signers at events, concerts, conferences, etc. We’re adding paper signers as fast as we can (but seem to be always a few hundred behind….).

ART HOBSON’S RESPONSE

I’m neither a supporter nor an opponent of nuclear power. We might need it to help solve global warming. I certainly would prefer a new nuclear plant to the Hempstead coal plant! I hope that Omni and CCTF will neither support nor oppose nuclear power. I know of very few scientists who really oppose nuclear power. Most scientists are strong supporters of nuclear power (although I am not), and many scientists agree with my position, but hardly any are strong opponents of nuclear power. Up until about 10 years ago I was moderately opposed to nuclear power, but since global warming has become more urgent I have become neutral on the nuclear power issue. The worst nuclear power issue—proliferation of nuclear weapons—doesn’t compare in importance with global warming. Cheers – Art

NIRS/MARIOTTE’S REPLY:

Dick,

Thanks for writing. And indeed, we have anticipated that question [of the precedence and greater urgency of global warming]. We believe the climate crisis is the number one problem before us. Given all of nuclear power’s unsolved problems of radioactive waste, threat of meltdown and terror attack, skyrocketing costs, environmental devastation caused by uranium mining, etc., climate is really the only argument the industry has. But, as Dr. Arjun Makhijani has shown, we don’t need nuclear power to address climate and as Amory Lovins of Rocky Mountain Institute argues persuasively, spending our resources on nuclear power would actually be counterproductive at reducing carbon emissions. Their works, and many other studies, are listed on the attached document, which references a number of studies and articles (all available through NIRS’ website, www.nirs.org) from around the world on the ineffectiveness of nuclear power as a climate solution. I hope this helps!

Michael Mariotte, NIRS

STATE SECRET? NUCLEAR LEAK PORT HOPE HARBOUR, CANADA
PORT HOPE - The leak from Cameco's uranium hexafluoride (UF6) plant has reached the harbour, federal nuclear regulators were told on May 14, in Ajax.
"If this has been going on for decades it could have been contaminating the harbour and who knows what else," said Dr. Christopher Barnes, a Canadian Nuclear Safety Commission (CNSC) tribunal member.
Cameco officials replied that while the underground leak has reached the harbour, the company has been closely testing the water of Lake Ontario for years and found no change.
"We have to say there are trace quantities of contamination reaching the harbour but it's not enough to be a risk," said Cameco Vice-President Andy Oliver.
The CNSC tribunal heard there are actually two plumes of contaminated groundwater coming from the UF6 plant — one heading east and another heading south and then turning east. The plume that edges along the harbour contains arsenic as well as uranium.
"The contamination could have been going on for 10 to 20 years," said Dr. Barnes. "It's been since Cameco took over the plant. In other words it's been on your watch."
Cameco has installed 170 wells to track the groundwater contamination. The company installed seven monitoring wells along the harbour in 2007 and 22 new monitoring wells should be put in at the harbour before the end of the month. The spacing between the wells is planned so there is very little chance of subsurface contamination not being detected.
"One of the things we've learned is these plumes can follow a fairly narrow path," said Kirk Vetor, manager of the Port Hope conversion facility.
The company removed the top two feet, almost 1,000 cubic metres, of soil underneath the UF6 plant, to lessen the contamination, the tribunal was told. The soil is being stored on site until it can be sent to an industrial waste management facility in the U.S. A new concrete floor with a chemically-resistant coating has been put in.
The CNSC tribunal had questions about whether taking two feet of soil had removed all the contamination from under the UF6 plant.
"We did not go below the two feet, even though there is contamination below that, because it starts to threaten the stability of the building," said Mr. Oliver.
Cameco has a plan to keep the contamination from the UF6 plant from spreading. Contaminated groundwater will be collected and treated by evaporation. There are currently five collection wells working, one east of the plant and four to the south. The company plans to install one more collection well and increase the evaporator capacity. A permanent collection system will connect the wells by
pipes to the evaporators and should be running by the end of July.
"When we have those all operational that plume will be essentially stopped," Mr. Oliver said.
The evaporation treatment will not work well at the harbour so Cameco is investigating passive
treatment options.
"It's probably not the best option, we'd effectively be treating lake water," said Mr. Vetor.
The CNSC tribunal asked about whether the ground underneath Cameco's UO2 plant had been
checked for contamination.
"If the UO2 plant is built on rock and rubble the ability for contamination to travel will be very
different," said Dr. Barnes.
Cameco officials said the company is planning a soil and groundwater study for the rest of the plant
that will look at hydro-geological conditions.
"We want to learn from the UF6 plant and apply that to the UO2 plant," Mr. Oliver said.
Production at the UF6 plant has been shut down since July 2007. The clean up work has been done
by Cameco's 440 employees and over 200 contractors have been brought in to help with the leak. Mr.
Oliver told the CNSC he was hopeful Cameco employees would be back to their regular work and
the UF6 plant would be up and running by the end of September.
"Of this year?" asked Michael Binder, president of the CNSC tribunal.
Despite a massive amount of work ahead Cameco officials are hoping for business as usual by the
end of the third quarter.
"I can assure the members that Cameco is taking the necessary steps to correct the environment that
lead to the incident," said Tim Gitzel, Cameco's chief operating officer.
PORT HOPE - The leak from Cameco's uranium hexafluoride (UF6) plant has reached the harbour, federal nuclear regulators were told on May 14, in Ajax. "If this has been going on for decades it could have been contaminating the harbour and who knows what else," said Dr. Christopher Barnes, a Canadian Nuclear Safety Commission (CNSC) tribunal member.

Cameco officials replied that while the underground leak has reached the harbour, the company has been closely testing the water of Lake Ontario for years and found no change. "We have to say there are trace quantities of contamination reaching the harbour but it's not enough to be a risk," said Cameco Vice-President Andy Oliver.

The CNSC tribunal heard there are actually two plumes of contaminated groundwater coming from the UF6 plant — one heading east and another heading south and then turning east. The plume that edges along the harbour contains arsenic as well as uranium. "The contamination could have been going on for 10 to 20 years," said Dr. Barnes. "It's been since Cameco took over the plant. In other words it's been on your watch."

Cameco has installed 170 wells to track the groundwater contamination. The company installed seven monitoring wells along the harbour in 2007 and 22 new monitoring wells should be put in at the harbour before the end of the month. The spacing between the wells is planned so there is very little chance of subsurface contamination not being detected. "One of the things we've learned is these plumes can follow a fairly narrow path," said Kirk Vetor, manager of the Port Hope conversion facility.

The company removed the top two feet, almost 1,000 cubic metres, of soil underneath the UF6 plant, to lessen the contamination, the tribunal was told. The soil is being stored on site until it can be sent to an industrial waste management facility in the U.S. A new concrete floor with a chemically-resistant coating has been put in.

The CNSC tribunal had questions about whether taking two feet of soil had removed all the contamination from under the UF6 plant. "We did not go below the two feet, even though there is contamination below that, because it starts to threaten the stability of the building," said Mr. Oliver.

Cameco has a plan to keep the contamination from the UF6 plant from spreading. Contaminated groundwater will be collected and treated by evaporation. There are currently five collection wells
working, one east of the plant and four to the south. The company plans to install one more collection well and increase the evaporator capacity. A permanent collection system will connect the wells by pipes to the evaporators and should be running by the end of July.
"When we have those all operational that plume will be essentially stopped," Mr. Oliver said. The evaporation treatment will not work well at the harbour so Cameco is investigating passive treatment options.
"It's probably not the best option, we'd effectively be treating lake water," said Mr. Vetor. The CNSC tribunal asked about whether the ground underneath Cameco's UO2 plant had been checked for contamination.
"If the UO2 plant is built on rock and rubble the ability for contamination to travel will be very different," said Dr. Barnes. Cameco officials said the company is planning a soil and groundwater study for the rest of the plant that will look at hydro-geological conditions.
"We want to learn from the UF6 plant and apply that to the UO2 plant," Mr. Oliver said. Production at the UF6 plant has been shut down since July 2007. The clean up work has been done by Cameco's 440 employees and over 200 contractors have been brought in to help with the leak. Mr. Oliver told the CNSC he was hopeful Cameco employees would be back to their regular work and the UF6 plant would be up and running by the end of September.
"Of this year?" asked Michael Binder, president of the CNSC tribunal. Despite a massive amount of work ahead Cameco officials are hoping for business as usual by the end of the third quarter.
"I can assure the members that Cameco is taking the necessary steps to correct the environment that lead to the incident," said Tim Gitzel, Cameco's chief operating officer.

http://www.waterkeeper.ca/content/drink/uf6_leak_reaches_harbour_cnsc.php

NUCLEAR POWER NOT GREEN

Karl Grossman, “Money Is the Real Green Power: The Hoax of Eco-friendly Nuclear Energy,” Extra! (Jan. Feb. 2008). Nuclear advocates in government and the nuclear industry are engaged in a massive, heavily financed drive to revive atomic power in the U.S.—with most of the mainstream media either not questioning or actually assisting in the promotion.”

OMNI'S CARBON CAPS TASK FORCE TO GOVERNOR'S COMMISSION ON CLIMATE CHANGE

Robert McAfee
Climate Change Messenger - The Climate Project
2610 W Hackett Rd, Hackett, AR 72937

350 PPM: The Most Important Number YOU Need to Remember! Cap & Reverse CO2 Emissions Now.
Once again, greetings Commissioners and advisors,

Dr. Amory Lovins, founder and Chief Scientist of the Rocky Mountain Institute (www.rmi.org), recently produced an economic analysis of nuclear technology. While including competitive technologies, he included both capital/operational costs and relative emission abatement costs. His analysis points out what many of us have already realized: nuclear is simply too expensive.

I have been disappointed by the discussion of the Commission surrounding nuclear as an alternative to fossil fuels. Even with active subsidies [and loan guarantees] topping $45 billion, the nuclear industry has been unable to receive approval for a new facility in three decades. The nuclear industry is NOT a new industry, and one has to wonder why a mature industry continues to fight for help from the taxpayers. Shouldn’t a great technology compete on its own, once established?

In summary, and without counting insurance or disaster recovery costs, the cost of nuclear is estimated as $0.17 per kWh. You may know that current solar photovoltaic arrays costs between $0.20 and $0.40 per kWh. Wind, however, is ~$0.08 per kWh, and coal is ~$0.11. For reference, efficiency improvements cost ~$0.04 per kWh. What should Arkansans invest their tax dollars in? That is for you to decide - I am sure you can infer my opinion.

For reference, far more carbon dioxide is abated per dollar spent on wind or efficiency than on nuclear, due to the emissions associated with the construction of nuclear facilities. I am confident that CCS's analysis will support Dr. Lovins’ conclusions.

In my usual style, I have included the full text of the article below my signature, but you should visit the website to study his charts and graphs, because I am not sure if they will be included. You can find it here: http://www.rmi.org/sitepages/pid467.php

There are other reasons to oppose nuclear, but their relevance to your discussion of GHG emissions may be questioned, so I refrain from presenting those arguments. I have received technical training on future energy policy, and if you wish to discuss any part of this message further, please do not hesitate to contact me directly.

Godspeed,
Matthew Petty

--
Matthew Petty, W: 479.595.8303, C: 479.871.9212
Available for organizing workshops, technical training, and other speaking engagements on climate change, energy policy, and sustainability
Fayetteville City Council Candidate, Founder of SocialSustenance.Org, Co-chair of Carbon Caps Task Force

Unless otherwise noted, all statements made are the personal statements of Matthew Petty and do not reflect the views of any organization which he works for or directs.

Forget Nuclear
Nuclear power, we're told, is a vibrant industry that's dramatically reviving because it's proven, necessary, competitive, secure, widely used, increasingly popular, and carbon-free—a perfect replacement for carbon-spewing coal power. Many thus sound vital for climate protection, energy security, and powering a growing economy.

There's a catch, though: the private capital market isn't investing in new nuclear plants, and without financing, capitalist utilities aren't buying. The few purchases, nearly all in Asia, are all made by central planners with a draw on the public purse. In the United States, even government subsidies approaching or exceeding new nuclear power's total cost have failed to entice Wall Street.

This non-technical summary article compares the cost, climate protection potential, reliability, financial risk, market speed, and energy contribution of new nuclear power with those of its low- or no-carbon competitors. It explains why soaring taxpayer subsidies aren't attracting investors. Capitalists instead favor climate-protecting competitors with less cost, construction time, and financial risk. The nuclear industry claims it has no serious rivals, let alone those competitors—which, however, already outproduce nuclear power worldwide and are growing enormously faster.

Most remarkably, comparing all options' ability to protect the earth's climate and enhance energy security reveals why nuclear power could never deliver these promised benefits even if it could find free-market buyers—while its carbon-free rivals, which received $71 billion of private investment in 2007 alone, do offer highly effective climate and security solutions, sooner, with greater confidence.
Uncompetitive Costs

*The Economist* observed in 2001 that "Nuclear power, once claimed to be too cheap to meter, is now too costly to matter"—cheap to run but very expensive to build. Since then, it's become several-fold costlier to build, and in a few years, as old fuel contracts expire, it is expected to become several-fold costlier to run. Its total cost now markedly exceeds that of other common power plants (coal, gas, big wind farms), let alone the even cheaper competitors described below.

Construction costs worldwide have risen far faster for nuclear than non-nuclear plants, due not just to sharply higher steel, copper, nickel, and cement prices but also to an atrophied global infrastructure for making, building, managing, and operating reactors. The industry's flagship Finnish project, led by France's top builder, after 28 months' construction had gone at least 24 months behind schedule and $2 billion over budget.

By 2007, as Figure 1 shows, nuclear was the costliest option among all main competitors, whether using MIT's author...
2003 cost assessment\textsuperscript{1}, the Keystone Center's mid-2007 update (see Figure 1, pink bar), or later and even higher industry estimates (see Figure 1, pink arrow)\textsuperscript{2}.

Cogeneration and efficiency are "distributed resources," located near where energy is used. Therefore, they don't incur the capital costs and energy losses of the electric grid, which links large power plants and remote wind farms to customers\textsuperscript{3}. Wind farms require "firming" to steady their variable output, and all types of generators require some backup for when they inevitably break. The graph reflects these costs.

Making electricity from fuel creates large amounts of byproduct heat that's normally wasted. Combined-cycle industrial and buildingscale cogeneration recover most of that heat and use it to displace the need for separate boilers to heat the industrial process or the building, thus creating the economic "credit" shown in Figure 1. Cogenerating electricity and some useful heat from industrial heat is even cheaper because no additional fuel is needed\textsuperscript{5}.

End-use efficiency lets customers wring more service from each kilowatthour by using smarter technologies. As RMI's work with many leading firms has demonstrated, efficiency provides the same or better services with less carbon, less operating cost, and often less up-front investment. The investment required to save a kilowatt-hour averages about two cents nationwide, but has been less than one cent in hundreds of utility programs (mainly for businesses), and can even be less than zero in new buildings and factories—and in some retrofits that are coordinated with routine renovations.

Wind, cogeneration, and end-use efficiency already provide electrical services more cheaply than central thermal power plants—nuclear- or fossil-fuelled. This cost gap will only widen, since central thermal power plants are largely mature while their competitors continue to improve rapidly. The high costs of conventional fossil-fuelled plants would go even higher if their large carbon emissions had to be captured.
Uncompetitive CO2 Displacement

Nuclear plant operations emit almost no carbon—just a little to produce the fuel under current conditions\(^6\). Nuclear power is therefore touted as the key replacement for coal-fired power plants. But this seemingly straightforward substitution could instead be done using non-nuclear technologies that are cheaper and faster, so they yield more climate solution per dollar and per year. As Figure 2 shows, various options emit widely differing quantities of CO2 per delivered kilowatt-hour.

Coal is by far the most carbon-intensive source of electricity, so displacing it is the yardstick of carbon displacement\(^6\). A kilowatt-hour of nuclear power does displace nearly all the 0.9-plus kilograms of CO2 emitted by producing a kilowatt-hour from coal. But so does a kilowatt-hour from wind, a kilowatt-hour from recovered-heat industrial cogeneration, or a kilowatt-hour saved by end-use efficiency. And all of these three carbonfree resources cost at least one-third less than nuclear power per kilowatt-hour, so they save more carbon per dollar.

Combined-cycle industrial cogeneration and building-scale cogeneration typically burn natural gas, which does emit as much as coal, so they displace somewhat less net carbon than nuclear power could: around 0.7 kilograms of CO2. Even though cogeneration displaces less carbon than nuclear does per kilowatt-hour, it displaces more carbon than nuclear per dollar spent on delivered electricity, because it costs far less. With a net delivered cost per kilowatthour approximately half that of nuclear power, cogeneration delivers twice as many kilowatt-hours per dollar, and therefore displaces around 1.4 kilograms of CO2 per dollar spent, or 0.9 kilograms of CO2 with nuclear power.

Figure 3 compares different electricity options' cost-effectiveness in reducing CO2 emissions. It counts both their cost-effectiveness in delivering kilowatthours per dollar, and their carbon emissions, if any.

Nuclear power, being the costliest option, delivers less electrical service per dollar than its rivals, so, not surprisingly,
protection loser, surpassing in carbon emissions displaced per dollar only centralized, non-cogenerating combined-cycle power plants burning natural gas. Firmed windpower and cogeneration are 1.5 times more costeffective than nuclear at displacing efficiency at even an almost unheard-of seven cents per kilowatthour. Efficiency at normally observed costs beats nuclear margin— for example, by about ten-fold for efficiency costing one cent per kilowatthour.

New nuclear power is so costly that shifting a dollar of spending from nuclear to efficiency protects the climate seven-fold more than shifting a dollar of spending from coal to nuclear. Indeed, under plausible assumptions, spending a dollar on new nuclear on efficient use of electricity has a worse climate effect than spending that dollar on new coal power!

If we're serious about addressing climate change, we must invest resources wisely to expand and accelerate climate protection. Because nuclear power is costly and slow to build, buying more of it rather than of its cheaper, swifter rivals will instead reduce and retard climate protection.
All sources of electricity sometimes fail, differing only in why, how often, how much, for how long, and how predictable. Reliable giant power plants are intermittent: they fail unexpectedly, in billion-watt chunks, often for long periods. Of the 132 nuclear plants built (52 percent of the 253 originally ordered), 21 percent were permanently and prematurely closed due to reliability problems, while another 27 percent have completely failed for a year or more at least once. Even reliably operating plants fail, shutting down, on average, 39 days every 17 months for refueling and maintenance. To cope with such intermittence, both nuclear and centralized fossil-fuelled power plants, which typically fail about 8 percent of the time, utilities must maintain a percent "reserve margin" of extra capacity, some of which must be continuously fuelled, spinning ready for instant use. Independent regions are particularly at risk because drought, a serious safety problem, or a terrorist incident could close many smaller units simultaneously.

Nuclear plants have an additional disadvantage: for safety, they must instantly shut down in a power failure, but for economic reasons, they can't then be quickly restarted. During the August 2003 Northeast blackout, nine perfectly operating U.S. nuclear plants shut down. Twelve days of painfully slow restart later, their average capacity loss had exceeded 50 percent. For the two times when they were most needed, their output was below 3 percent of normal. The big transmission lines that highly concentrated plants require are also vulnerable to lightning, ice storms, rifle bullets, and other interruptions. The bigger our power lines get, the more frequent and widespread regional blackouts will become. Because 98–99 percent of power failures start in the grid, it's more reliable to bypass the grid by shifting to efficiently used, diverse, dispersed resources sited at or near the customer. If many smaller units is unlikely to fail all at once: its diversity makes it especially reliable even if its individual units are.

The sun doesn't always shine on a given solar panel, nor does the wind always spin a given turbine. Yet if properly forecast, windpower, whose global potential is 35 times world electricity use, and solar energy, as much of which falls on the earth's surface every ~70 minutes as humankind uses each year, can deliver reliable power without significant cost for backup or storage. Steady renewables become collectively reliable when diversified in type and location and when integrated with the three steady renewables (geothermal, small hydro, biomass, etc.), existing fuelled plants, and customer demand response. Weather forecasting to predict the output of variable renewable resources, just as utilities now forecast demand patterns and hydropower output. In general, keeping power supplies reliable despite large wind and solar fractions will require less backup or storage than today's power systems. Such integration uses weather forecasting to predict the output of variable renewable resources, just as utilities now forecast demand patterns and hydropower output. In general, keeping power supplies reliable despite large wind and solar fractions will require less backup or storage than today's power systems.

Large Subsidies to Offset High Financial Risk

The latest U.S. nuclear plant proposed is estimated to cost $12–24 billion (for 2.2–3.0 billion watts), many times industry's claims, and off the chart in Figure 1 above. The utility's owner, a large holding company active in 27 states, has annual revenues of only $15 billion. Such utilities have already bought to manage big thermal stations' intermittence. The myth of renewable energy's unreliability has been debunked both by theory and by practical experience. For example, three north German states in 2007 got upwards of 39% of their electricity from windpower-39% in Schleswig-Holstein, whose goal is 100% by 2020.

Lacking investors, nuclear promoters have turned back to taxpayers, who already bear most nuclear accident risks and say in licensing. In the United States, taxpayers also insure operators against legal or regulatory delays and have long subsidized nuclear plants by ~1–5¢ per kilowatt-hour. In 2005, desperate for orders, the politically potent nuclear industry got the 2005 DOE to ~5–9¢ per kilowatthour for new plants, or ~60–90 percent of their entire projected power cost. Wall Street still demands government rules that made its 100 percent loan guarantees (for 80 percent-debt financing) ever worth, one utility's data revealed, about $13 billion for a single new plant. But rising costs had meanwhile made the government loan guarantees scarcely sufficient for a single reactor, so Congress raised taxpayers' guarantees to $18.5 billion. Congress will be asked for another $30+ billion in loan guarantees in 2008. Meanwhile, the nonpartisan Congressional Budget Office has concluded that defaults in loan guarantees scarcely sufficient for a single reactor, so Congress raised taxpayers' guarantees to $18.5 billion. Congress will be asked for another $30+ billion in loan guarantees in 2008.
Institute is therefore trying to damp down the rosy expectations it created. It now says U.S. nuclear orders will come not in a tidal wave but in two little ripples—a mere 5–8 units coming online in 2015–16, then more if those are on time and within budget. Even that sounds dubious, as many senior energy industry figures privately agree. In today's capital market, governments can have only as many nuclear plants as they can force taxpayers to buy.

The Micropower Revolution
While nuclear power struggles in vain to attract private capital, investors have switched to cheaper, faster, less risky alternatives that Economist calls "micropower"—distributed turbines and generators in factories or buildings (usually cogenerating useful heat), and all renewable sources of electricity except big hydro dams (those over ten megawatts). These alternatives surpassed nuclear's global capacity in 2002 and its electric output in 2006. Nuclear power now accounts for about 2 percent of worldwide electric capacity additions, vs. 28 percent for micropower (2004–07 average) and probably more in 2007–08.

An even cheaper competitor is enduse efficiency ("negawatts")—saving electricity by using it more efficiently or at smarter times. Despite subsidies generally smaller than nuclear's, and many barriers to fair market entry and competition, negawatts have lately turned in a stunning global market performance. Micropower's actual and industry-projected electricity production is running away from nuclear's, not even counting the roughly comparable additional growth in negawatts, nor any fossil-fuelled megawatt (see Figure 4).\(^9\)

The nuclear industry nonetheless claims its only serious competitors are big coal and gas plants. But the marketplace has already abandoned that outmoded battleground for two others: central thermal plants vs. micropower, and megawatts vs. negawatts.
the U.S. added more windpower capacity in 2007 than it added coal-fired capacity in the past five years combined. By beating all central thermal plants, micropower and negawatts together provide about half the world's new electrical services. Micropower now provides a sixth of the world's electricity, and from a sixth to more than half of all electricity in twelve industrial countries (the U.S. lags with 6 percent).

In this broader competitive landscape, high carbon prices or taxes can't save nuclear power from its fate. If nuclear did compete only with coal, then far above-market carbon prices might save it; but coal isn't the competitor to beat. Higher carbon prices will advantage all other zero-carbon resources—renewables, recovered heat cogeneration, and negawatts—as much as nuclear, and will partly advantage fossil fueled but low-carbon cogeneration as well.

Small Is Fast, Low-Risk, and High in Total Potential

Small, quickly built units are faster to deploy for a given total effect than a few big, slowly built units. Widely accessible choices that sell like cellphones and PCs can add up to more, sooner, than ponderous plants that get built like cathedrals. And small units can match to the many small pieces of electrical demand. Even a multimegawatt wind turbine can be built so quickly that it probably have a hundred billion watts of them installed before it gets its first one billion watts of new nuclear capacity.

Small, quickly built units also have far lower financial risks than big, slow ones. This gain in financial economics is the tip of a very large iceberg: micropower's more than 200 different kinds of hidden financial and technical benefits can make it about ten times more profitable (www.smallisprofitable.org) than implied by current prices or by the cost comparisons above. Most of the same benefits apply to negawatts as well.

Despite their small individual size, micropower generators and electrical savings are already adding up to huge totals. Indeed, over decades, negawatts and micropower can shoulder the entire burden of powering the economy.

The Electric Power Research Institute (EPRI), the utilities' think-tank, has calculated the U.S. negawatt potential (cheaper than just running an existing nuclear plant and delivering its output) to be two to three times nuclear power's 19 percent share of the U.S. electricity market; RMI's more detailed analysis found even more. Cogeneration in factories can make as much U.S. electricity as nuclear does, plus more in buildings, which use 69 percent of U.S. electricity. Windpower at acceptable U.S. sites can cost-effectively produce at least twice the nation's total electricity use, and other renewables can make even more without significant land-use, variability, deployment. Thus just cogeneration, windpower, and efficient use—all profitable—can displace nuclear's current U.S. output roughly 14 times over.

Nuclear power, with its decade-long project cycles, difficult siting, and (above all) unattractiveness to private capital, simply cannot compete. In 2006, for example, it added less global capacity than photovoltaics did, or a tenth as much as windpower added, times less than micropower added. Renewables other than big hydro dams won $56 billion of private risk capital; nuclear, as usual, got zero. China's distributed renewable capacity reached seven times its nuclear capacity and grew seven times faster. And Spain, and the U.S. each added more windpower capacity than the world added nuclear capacity. The nuclear industry's growth, yet micropower is bigger and growing 18 times faster.

Security Risks

President Bush rightly identifies the spread of nuclear weapons as the gravest threat to America. Yet that proliferation is greatly facilitated by nuclear power's flow of materials, equipment, skills, and knowledge, all hidden behind its innocent disguise. (Reprocessing nuclear fuel, which the President hopes to revive, greatly complicates waste management, increases cost, and boosts proliferation.) Yet acknowledging nuclear power's market failure and moving on to secure, least-cost energy options for global development would unmask and penalize proliferators by making bomb ingredients harder to get, more conspicuous to try to get, and politically costlier to be caught trying to get. This would make proliferation far more difficult, and easier to detect in scarce intelligence resources on needles, not haystacks.

Nuclear power has other unique challenges too, such as long-lived radioactive wastes, potential for catastrophic accidents.
vulnerability to terrorist attacks. But in a market economy, the technology couldn't proceed even if it lacked those issues, so we needn't consider them here.

**Conclusion**

So why do otherwise well-informed people still consider nuclear power a key element of a sound climate strategy? Not because that belief can withstand analytic scrutiny. Rather, it seems, because of a superficially attractive story, an immensely powerful and nearly all main governments, deeply rooted habits and rules that favor giant power plants over distributed solutions and over efficient use, the market winners' absence from many official databases (which often count only big plants owned), and lazy reporting by an unduly credulous press.

Isn't it time we forgot about nuclear power? Informed capitalists have. Politicians and pundits should too. After more than half a century of devoted effort and a half-trillion dollars of public subsidies, nuclear power still can't make its way in the market. If we accept that unequivocal verdict, we can at last get on with the best buys first: proven and ample ways to save more carbon per dollar, more surely, more securely, and with wider consensus. As often before, the biggest key to a sound climate and security strategy is to take market economics seriously.

Mr. Lovins, a physicist, is cofounder, Chairman, and Chief Scientist of Rocky Mountain Institute, where Mr. Sheikh is and Dr. Markevich is a Vice President. Mr. Lovins has consulted for scores of electric utilities, many of them nuclear operators. The authors are grateful to their colleague Dr. Joel Swisher PE for insightful comments and to many cited and uncited sources for research help. A technical paper preprinted for the September 2008 Ambio (Royal Swedish Academy of Sciences) supports this summary with full details and documentation (www.rmi.org/sitepages/pid257.php#E08-01). RMI's annual compilation of global micropower data from industrial and governmental sources has been updated through 2006, and in many cases through 2007, at www.rmi.org/sitepages/pid256.php#E05-04.

**Notes:**

1. This is conservatively used as the basis for all comparisons in this article. The ~2-3¢/kWh nuclear "production costs" often quoted are the bare operating costs of old plants, excluding their construction and delivery costs (which are higher today), and their contracts that are expected to rise by several-fold when most of them expire around 2012.

2. All monetary values in this article are in 2007 U.S. dollars. All values are approximate and representative of the respective technologies in 2007. Capital and operating costs are levelized over the lifespan of the capital investment.

3. Distributed generators may rely on the power grid for emergency backup power, but such backup capacity, being rarely used, doesn't require a marginal expansion of grid capacity, as does the construction of new centralized power plants. Indeed, in ordinary operation, diversified distributed generators free up grid capacity for other users.

4. Solar power is not included in Figure 1 because the delivered cost of solar electricity varies greatly by installation type and financing method. As shown in Figure 4, photovoltaics are currently one of the smaller sources of renewable electricity, and solar thermal generation is even smaller.

5. A similar credit for displaced boiler fuel can even enable this technology to produce electricity at negative net cost. This paper conservatively omits such credit (which is very site-specific) and shows a typical positive selling price.

6. We ignore here the modest and broadly comparable amounts of energy needed to build any kind of electric generator.
long-run energy use for nuclear waste management or for extracting uranium from low-grade sources.

7. Since its recovered heat displaces boiler fuel, cogeneration displaces more carbon emissions per kilowatt-hour than a large gas-fired power plant does.

8. However, at long-run gas prices below those assumed here (a levelized 2007-$ cost of $7.72 per million BTU, equivalent to assuming that this price escalates indefinitely by 5%/y beyond inflation-yielding prices far above the $7-10 recently forecast by Chesapeake, the leading independent U.S. gas producer) and at today's high nuclear costs, the combined-cycle plants could save more carbon per dollar than nuclear plants do. This may also be true even at the prices assumed here, if one properly counts the plants ability to load-follow, thus complementing and enabling cleaner, cheaper variable renewable resources like wind power. Natural gas could become scarce and costly only if its own efficiency opportunities continue to be largely ignored. RMI's 2004 study Endgame (www.oilendgame.com) found, and further in-house research confirmed in detail, that the US could save at least half the projected 2025 gas use at an average cost roughly one-tenth of the current gas price. Two-thirds of the potential savings come from efficient use of electricity and would be more than paid for by the capacity value of reducing electric loads.

9. Data for decentralized gas turbines and diesel generators exclude generators of less than 1 megawatt capacity.

Correction: April 28, 2008
Due to new data, footnote 1 and 8 have been edited to reflect this new information.
More than 500 organizations from every corner of the U.S. and across the world have signed a statement explicitly rejecting the use of nuclear power as a means of addressing the climate crisis.

The signers include many of the world’s largest and most influential environmental organizations, such as Greenpeace, Friends of the Earth International, Sierra Club, Clean Water Action, Rainforest Action Network and many others, along with major peace groups like Code Pink, Peace Action, and Nuclear Age Peace Foundation, and hundreds of grassroots environmental, sustainable energy, religious, peace and other groups and businesses large and small from 46 states and 38 countries on six continents. 5900 individuals also have signed the statement, and more sign every day.

The statement is being released as the U.S. Congress prepares to consider billions of dollars of taxpayer-backed loan guarantees for new nuclear reactor construction based in large part on the incorrect assumption that nuclear power is a useful means of reducing our carbon emissions.

“We keep hearing from nuclear industry lobbyists that environmentalists are ‘re-examining’ nuclear power,” said Michael Mariotte, executive director of Nuclear Information and Resource Service (NIRS), which has been collecting the signatures. “That re-examination is long over, and it is clear that nuclear power is not helpful at addressing the climate crisis. Indeed, because of its high costs, long construction times, and its own considerable carbon footprint, its use would actually make matters much worse by diverting the resources necessary to take genuinely effective steps to end carbon emissions.”

Moreover,” Mariotte added, “nuclear power has not successfully addressed any of the problems that caused the failure of its first generation: safety, radioactive waste disposal and the poor economics that led to soaring electric bills, bond defaults and utility bankruptcy. Add to that the newer problem of security, and nuclear power can’t win any rational argument over renewable energy and energy efficiency technologies.”

“Our energy future ultimately must and will be carbon-free and nuclear-free. Fortunately, such a future is attainable, and in time to avert the worst of climate change. But the sooner we get there, the better,” said Mariotte. “It’s time for the Bush Administration and U.S. Congress to let go of their 20th century thinking and start taking meaningful steps to reduce both carbon and radioactive emissions and build a truly sustainable energy future. As we saw in Bali, the world is crying out for action.”

The statement, signed (as of December 17, 2007) by 515 organizations, states simply: "We do not support construction of new nuclear reactors as a means of addressing the climate crisis. Available renewable energy and energy efficiency technologies are faster, cheaper, safer and cleaner strategies for reducing greenhouse emissions than nuclear power."

The statement has been translated into French, Spanish, Russian and Ukrainian.

The statement can be signed at: http://www.nirs.org/petition2/index.php

More information on why nuclear power is not a suitable choice for addressing the climate crisis can be found at http://www.nirs.org (Reports, Papers and Info You Can Use) and http://www.nirs.org/climate/climate.htm

CALLING A CONGRESSIONAL COMMITTEE

Dear Folks,

I found a Website that claims to allow one person to target an entire congressional committee over the phone. http://www.committeecaller.com/

CommitteeCaller.com is a site that allows one person to target an entire congressional committee over the phone. The web application utilizes the open source Asterisk PBX system to connect you to every senator or house member on a particular committee. No more digging around the 'net entering zip-codes to retrieve phone numbers of representatives -- CommitteeCaller.com automates the tedium of repetitively dialing your favorite politicians.

Select a committee, enter in your phone number and click "Put me in touch with democracy!" and you'll be called by our system and sequentially patched through to the front office of each member on that committee. You can even rate how each call went -- information that will enable us to rank representatives on how accountable and responsive they are to their constituents.

For more information about how Committee Caller works, click here.

To begin, follow these steps:

1. Select the committee you wish to target on the left. (Selecting a fictional committee will redirect all calls to Fandango, but will demonstrate the system's functionality.)
2. Enter your phone number below.
3. Press 'Put me in touch with democracy!'
4. Wait for Committee Caller's automated voice application to call you.
5. Pick up the phone and stay on the line while Committee Caller starts connecting you to the members on the committee you selected.

Once connected Committee Caller will tell you which representative you’re calling, who their legislative director or chief of staff is, and what district they represent. At any point you can use the * to hang up the call and move on to the next one. After each call you will have the opportunity to rate how your call went.
yes, Prof Hobson, what you are saying here is absolutely correct

fracking and all the disastrous climate change impacting effects of the entire fossil fuel industry cannot be the fall back plan for eliminating nuclear generated electricity

we both know there is no reason other than depraved greed and lies or ignorance that an argument to pursue a course of action including fossil fuels will be made in the wake of nuclear power's demise

and we both are aware that illogical argument will resound from the present admin in Wash DC & the real US energy policy makers at Exxon, BP, Chevron, Shell, Chesapeake Energy, locally, and the host of other international criminals who place their personal greed above our survival.

we and future generations have our work cut out for us

On Fri, Aug 9, 2013 at 11:15 AM, Art Hobson <ahobson@uark.edu> wrote:
Hi David and others -

This is indeed good news IF the energy from those five reactors is replaced from non-fossil non-nuclear sources: renewables or efficiency. But if the replacement is natural gas, oil, coal, or other fossil fuel, then this is bad news. Nuclear power is problematic, but it's not as problematic as fossil fuel. So we need to follow up on how this energy is "replaced" in New York and Maryland, in order to determine whether the closure of these nuclear plants really is good news. If we see an increase in fossil energy, in order to compensate for this loss of electricity due to the loss of the nuclear plants, then this will on balance be a bad thing.

Note: The above paragraph is not a pro-nuclear-power argument. It is only an anti-fossil-fuel argument.

Cheers - Art

Art Hobson, Emeritus Professor of Physics, U Arkansas, Fayetteville.
See my liberal-arts physics textbook and other stuff at http://physics.uark.edu/hobson/.

On Aug 8, 2013, at 9:36 PM, David Druding wrote:

have you heard the good news ?

EDF is selling its stake in Calvert Cliffs Nuclear Power Plant in Maryland. (photo: NRC)
The world's largest operator of nuclear power plants is dumping its stake in American reactors, turning its focus instead to wind and solar power.

French utility company EDF announced this week that it will sell its stake in Constellation Energy Nuclear Group (CENG), which operates five nuclear reactors in New York and Maryland.

EDF cited cheap power produced by fracked natural gas as the big reason why it's abandoning its American nuclear facilities. But the company said it will now focus its American business strategy not on fossil fuels but on renewable energy. From Reuters:

"Circumstances for the development of nuclear in the U.S. are not favorable at the moment," [EDF Chief Executive Henri] Proglio said.

International Energy Agency analyst Dennis Volk said CENG's eastern U.S. power plants were located in some of the most competitive power markets in the country, with high price competition, growing wind capacity and cheap gas.

"It is simply not easy to invest in nuclear and recover your money there," Volk said.

Proglio said EDF would now focus on renewable energy in the United States. EDF employs 860 people in U.S. solar and wind, and since 2010 its generating capacity has doubled to 2.3 gigawatts. It manages another 7 gigawatts for other companies.

The French utility's pullout comes as nuclear power plants shutter in California, Florida, and Wisconsin. The price of operating nuclear power plants has risen as the plants have grown older. Hopes of nuclear power being "too cheap to meter" were long ago dashed. Mark Cooper, a senior fellow at the Vermont Law School's Institute for Energy and the Environment, recently published a 40-page obituary [PDF] for the nuclear industry. From an article published a couple of weeks ago in The Plain Dealer:

Cooper, who thinks nuclear energy's cost overruns and frequent shutdowns have always made it more expensive than it appears, recommends that the industry develop an orderly closing plan over the next few years, avoiding the rate chaos that unplanned closings might create.

"In 2013, more (nuclear) capacity retired early than in any year of the U.S. commercial nuclear sector," he said in a press briefing. "In recent months, four reactors have been closed in early retirement, five major up-rates (increases in generating capacity) were cancelled.

"The bottom line is that the tough times the nuclear power industry faces today are only going to get tougher. Over three dozen reactors in almost two dozen states are at risk of early retirement. And a dozen face the greatest risk of being shut down," he said.

Still, we won't be rid of nuclear energy any time soon. About 100 reactors are still operating around the country, and two more are being built at an existing plant is in Georgia.

And even closing down retired nuclear power plants is a long and costly affair. The shutdown and cleanup at the Kewaunee plant in Wisconsin could cost $1 billion and take more than 50 years.
t has been over two years since the earthquake and tsunami that brought about the nuclear reactor crisis in Fukushima -- the largest nuclear disaster since Chernobyl in 1986. The situation at the six plants is still grim. Four of the reactors are damaged. Hundreds of tons of contaminated groundwater are reportedly seeping into the ocean every day. Nearly 83,000 people were displaced from their homes in the approximately 310 square mile exclusion zones. On Wednesday October 9, an accident resulted in six workers being doused in radioactive water. Accidents and mishaps at the Fukushima site are regular occurrences. Japan's Prime Minister Shinzo Abe has now asked the world community for help in containing the ongoing Fukushima disaster, as it continues to spiral out of control.

Earlier this week, I participated in a panel discussion in New York City called "The Fukushima Daiichi Nuclear Accident: Ongoing Lessons." The event featured notable long-time experts on nuclear technology discussing the crisis in Fukushima and the current state of the heavily subsidized nuclear industry in the United States. The panel participants were former U.S. Nuclear Regulatory Commission (NRC) Commissioner and later Chairman Peter Bradford, former NRC Chairman Dr. Gregory Jaczko, former Japanese Prime Minister Naoto Kan, and nuclear engineer, Arnie Gundersen.

Mr. Bradford presented a detailed power point that showed how competing forms of energy already are leading to the decline of the nuclear industry.

The panel discussed safety concerns regarding the Indian Point nuclear power plant located about 30 miles from New York City. Indian Point has long been rife with safety problems and its location near an earthquake fault is a source of great concern for many New York residents. You can view Tuesday's event, in its entirety, here.

In the 1960s, The Atomic Energy Commission determined that a class-nine nuclear power plant accident could contaminate an area the size of Pennsylvania and render much of it uninhabitable. A nuclear disaster at Indian Point would threaten the entire population of New York City and its outlying metropolitan area. The continued existence and operation of Indian Point is like playing a game of Russian Roulette with the lives and homes of the nearly 20 million people who live within a 50 mile radius of the plant. Consider the difficulty New Yorkers have simply commuting to and from their workplaces during rush hour and imagine the horror of a mandatory evacuation due to a nuclear emergency at Indian Point. The NRDC estimates that a serious accident could, in addition to massive casualties, "cost ten to 100 times more than Fukushima's disaster" which would be in the trillions of dollars.

If Indian Point were closed today, there is enough surplus energy capacity to last the state until 2020 as alternative energy sources are developed and deployed. Governor Andrew Cuomo has called for the shutdown of Indian Point, as did Hillary Clinton during her time in the Senate. A main reason is that an emergency evacuation of the population up to 50 miles around these two nukes is impossible.

So what's the delay? Mainly resistance from the nuclear industry and a compliant regulatory agency. The NRC has faltered in its watchdog role by acting to protect and even bolster the dangerous, expensive and unnecessary nuclear industry. The industry's last claim is that it
avoids greenhouse gases. But as physicist Amory Lovins says, if the investment in nuclear plants was shifted to renewables and energy conservation, it will produce less demand and more environmentally benign BTUs by far, and with more jobs.

Anti-nuclear advocates have warned against potential dangers such as earthquakes for decades. Although a new nuclear power plant has not been ordered and built in the United States since 1974, there are currently 65 nuclear plants operating 100 reactors in the United States -- many of them aging, many of them near earthquake faults, many of them still not in compliance with NRC fire prevention regulations, all of them significant national security risks. Under President Obama, the first two nuclear reactors since 1978, were authorized to be built at the Vogtle Electric Generating Plant in Georgia. (Panel participant Dr. Gregory Jaczko was the lone dissenter in the 4-1 NRC approval vote.)

To truly understand the cost of nuclear energy, one must consider the absurdity of the nuclear fuel cycle itself. It begins with uranium mines and their deadly tailings, then the fabrication and refinement of the fuel rods, the risky transport of these rods to the multi-shielded dome-like plant where they are installed, and then firing up the plant so it goes critical with a huge amount of radioactivity. Dealing with volatile nuclear reactions requires flawless operation. And then there is the storage and guarding of hot radioactive wastes and contaminated materials that persist for 250,000 years. No permanent site has been located and licensed for that lengthy containment.

What is the end purpose of this complex and expensive chain of events? Simply to boil water -- to generate steam to turn turbines to produce electricity.

With all the technological advancements in energy efficiency, solar, wind and other renewable energy sources, surely there are better and more efficient ways to meet our electricity needs without burdening future generations with deadly waste products and risking the radioactive contamination of entire regions should anything go wrong.

It is telling that Wall Street, which rarely considers the consequences of gambling on a risk, will not finance the construction of a nuclear plant without a full loan guarantee from the U.S. government. Nuclear power is also uninsurable in the private insurance market. The Price-Anderson Act of 1957 requires taxpayers to cover almost all the cost if a meltdown should occur.

No other industry that produces electricity poses such a great national security risk should sabotage or malfunction occur. No other means of generating power can produce such long-lasting catastrophic damage and mayhem from one unpredictable accident. No other form of energy is so loaded with the silent violence of radioactivity.

Nuclear energy is unnecessary, uninsurable, uneconomic, unevacuable and most importantly, unsafe. The fact that it continues to exist at all is a result of a ferocious lobby, enlisting the autocratic power of government, that will not admit that its product is unfit for use in the modern world. Let us not allow the lessons of Fukushima to be ignored.

“CNN's Pro-Nuclear Bias
Cheerleading documentary followed by more stacked commentary”
by Steve Rendall and Peter Hart, EXTRA! (Jan. 2014).

The highly biased and evidentially weak video was defended by CNN’s post-film
rountable composed of three proponent’s of nuclear power--Robert Stone, the film’s director, James Hansen, and former nuclear plant operator, Michael Friedlander—and one opposed, NRDC’s Dale Bryk. The panel was moderated by CNN’s Anderson Cooper, who “seemed at times to play the role of a fourth pro-nuclear panelist. --Dick

CINDY SHEEHAN: HELEN CALDICOTT, HARVEY WASSERMAN

Dear Friend,

**Helen Caldicott Live and Lively on Cindy Sheehan's Soapbox**

On Monday, October 28th

7pm-8pm PST

COMMUNITY CALL-IN SHOW

JOIN US FOR THIS IMPORTANT AND URGENT CONVERSATION!

Dr. Helen Caldicott will take your questions about

Fukushima specifically, and nuclear power/weapons in general.

Dr. Caldicott is well known for her humor and intelligence and this should be a very enlightening, educational, and entertaining experience.

If you would like to ask Dr. Caldicott a question, please submit your question(s) beforehand in writing to Soapbox host, Cindy Sheehan at: [CindySheehansSoapbox@gmail.com](mailto:CindySheehansSoapbox@gmail.com)

This is done not to screen the calls, but because Cindy Sheehan’s Soapbox is very low-tech.

Don’t forget to include your first name so we are able call on you to ask your question; or the host, Cindy Sheehan, can ask the question if you prefer.

CALL IN NUMBER and CODE:

Your Conference Access Number:
Don't Shoot the Messenger! Oct. 27 Soapbox Podcast

I don't want to hear the bad news about Fukushima, either, but it's there.

Cindy Sheehan's Soapbox believes that the containment of the multiple meltdowns and dangling spent fuel rods are the most urgent problems facing humanity today.

GUEST: HARVEY WASSERMAN


TOPIC: Absolute Urgency of Fukushima

GUEST: DON DEBAR

TOPIC: PACIFICA MELTDOWN?

www.CPRMETRO.org
Please listen to this week's show and call in for our LIVE conversation with Dr. Helen Caldicott on Monday, October 28th. CLICK HERE FOR INFO

CLICK HERE TO LISTEN TO THE SHOW "Don't Shoot the Messenger"

(LINK LIVE 2PM PACIFIC SUNDAY, OCTOBER 27TH)

Watch World Action Now with Harvey Wasserman

http://www.youtube.com/watch?v=NucjTiOXxSQ

HUMAN RIGHTS EXPERTS RAP UN REPORT ON F'SHIMA

DICK’S LETTER ON HANSEN AND REPLIES: David Druding, David Orr, Barbara Fitzpatrick

David,

I have read Hansen’s book and some articles. He is not ignorant. I doubt if he is invested (can you check?), but even if he is I believe he will argue the science not his pocket book. So will you consider a third possibility— that because he believes it scientifically impossible for sustainables to replace coal and oil, the great destroyers, as quickly and adequately as needed, nuclear must be employed in transition, despite its serious liabilities. That’s also Malcolm’s position I think. Instead of ad hominem argument, question justifications for nuclear. Art is following that path, and I think it is hard work but persuasive. He may have written a column on the subject.

Identify the most powerful books and articles that show the feasibility of wind and solar etc. taking over from the present energy system without serious economic collapse, widespread job-loss, hunger, and violence, and urge us to read them and spread the word. I am copying to Art so that between the two of you I can discover if I have presented the alternatives accurately.
Dick

I appreciate your perspective and see value in someone putting toward the bountiful evidence that already exists that clearly demonstrates why refocusing to find an answer that will allow us to extract ourselves from the terrible climate change dilemma we have created with our continued reliance on fossil fuels to the silver bullet of nuclear generated power is short sighted and foolish.

PASE just signed on to an international letter being sponsoring by Nuclear Information Resource Services (NIRS) sent to Dr Hansen and his fellow nuclear power embracing scientists that does an excellent job laying out the argument. I would encourage you to visit nirs.com to read that letter and review the some of the other material they have archived. Anyone sincerely interested in learning the truth about nuclear power has all the information needed at their fingertips with the worldwide web.

But to be frank Dick, I cannot understand how anyone can still cling to these nuclear industry lies and distortions after what has already and continues to unfold at Fukushima Daiichi. Dr Cleveland is not interested in researching the facts or even gaining a realistic understanding of the dire situation we are in here in the US and across the globe. He is a terribly confused and disengaged man. I have no interest in spending my time attempting to assist him or more accurately debate him about nuclear power or really any of his addled misconceptions about the corporate control of our US govt. He is welcome to live in his dazed fantasyland.

I suppose that may seem harsh or condescending but I have studied this matter for nearly 4 decades now and everything I have seen happen during that time has only reinforced my conviction that the nuclear power/weapons proliferation industry is a failed technology. I do not believe that my time is well spent trying to convince the ignorant of that fact. And I think we both understand that endless facts and evidence demonstrating that fact to the invested will not make a difference to them either. Financial gain is their sole determining factor in making up their minds not the future they are leaving for their grandchildren.

When there have been scientists since time immemorial who have “argued from their pocketbook” as you describe rather than from an impartial weighing of the evidence I cannot share your conviction that Dr Hansen is not doing that very same thing right now since I agree with you he is NOT ignorant. Remember Dennis L's sage axiom. **Nuclear power proponents are ignorant or invested.**

Coralie just responded to my PASE email about Dr Hansen's endorsement of the nuclear industry with a wise comment. She suggested that any fair minded individuals who are still not able to see the facts concerning nuclear power should investigate what evidence has convinced the highly educated and scientifically advanced German govt to make the clear decision to abandon nuclear energy NOW. The fact is that the US and other developed countries that have fallen prey to cannibalistic corporate boardroom control certainly have nothing to offer anyone interested in pursuing the truth. Sadly that corporate cabal also controls Dr Hansen and his former employer, the NASA, and the shadow govt making the decisions within our US of A from Pres Obama on down.
I appreciate Dick's comments, and I would like to add my voice in support of the interpretation that this seems not to be a discussion driven by vested interests but rather by a sincere faith in the nuclear engineers; nuclear power/utility industry execs; the nuclear weapons industry (deeply intertwined with the nuclear power utilities for fuel and related technologies); the uranium exploration, mining and refining companies; and the politician hirelings who derive campaign contributions from all the above - all of whom have obvious vested interests - and by the apologists and haters such as right-wing media talkers and the pimps like those who produced the recent "Pandora's Promise" film.

People who think like Hansen, Brand, Lovelock, et al., that nuclear is the only solution to the challenge of meeting CURRENT DEMAND for electric power, and who have placed their confidence in the industry to design, build and operate nuke plants safely, and in the case of the UNTESTED I.F.R. technology, miraculously convert spent fuel rods from conventional reactors into - ta da! - useable fuel, and that does not generate any new waste products (a high-tech perpetual motion machine?), are missing the point. We as advocates for environmental safety and right livelihoods should be emphasizing the dramatic and immediate reduction of current demand. We have heard the promises before from the same industries that nuclear power will save us from - ourselves? - and will permit us to continue on our unsustainable growth trajectory. Don't be misled: the industry has no plans to scale back on power production. Any new nukes that may be built - and that may end up being zero, if the Vogtle and Calvert Cliffs projects collapse, as now seems likely - will be built with the basic aim to meet FUTURE demand, as projected by optimistic growth models and by boosters who seek to attract new, high-consuming industries to their local service areas. We simply have no business supporting these development plans. And no matter how well-intended the "green" nuke supporters may be, they are just being used by the powers-that-be as propagandists for THEIR agenda.

David Druding and Coralie are correct to point out that the nuclear power industry is in bed with the nuclear weapons industry. Power plants have been getting their fuel for the last decade or more from down-blended plutonium and HE uranium from decommissioned bombs. We're hearing that Russian bomb materials will soon be unavailable, which the uranium extraction industries hope will result in resuming demand for their operations and fuels. Whether that happens, or whether nuclear weapons makers here or elsewhere in the world step in to continue supplying material for fuel, we see a mutually dependent relationship. Nuclear power plants drive the US Navy's carriers and submarine fleets. Both the civilian and military nuclear power programs depend on nuclear engineers trained in American universities. And that implicates the nuclear physics and engineering programs at universities as a fourth leg supporting the nuclear stool, along with congressional lackeys.

But aside from the question of the bottom line for me is that until the nation's leaders commit to a ramp-down of electric power CONSUMPTION, we need to oppose all new large-scale, centralized power plants, i.e. nuclear reactors, fossil steam plants, or even solar mega-projects and landscape-level wind projects - because they are just add-ons to the existing grid and are designed to supply more power to the system.
Barbara Fitzpatrick on Nuclear Power Water Fallibility

Hi Folks - my opportunities to join in this conversation are few (not a good idea to do it from work and my non-work internet access is mostly limited to coffee shops or the library) but I'd like to throw in a few cents worth. Whether or not nuclear power is safe is immaterial. It uses too much water to be a viable solution. In fact, the "traditional" fossil fuel extraction and power plants use too much water to be a viable solution for current as well as future needs - be they greater or smaller. Nuclear power plants also take too long to build to be a viable solution - between 3 and 5 times as long as building renewables, but that's secondary - water is LIFE and there just plain old isn't enough of it (remember summer of 2012 when 2 plants had to shut down - 1 because the "cooling" water wasn't cool enough and the other because the reservoir level had dropped below the intake pipe) to continue using it for power plants. Period. That is the argument to take to Hansen, et. al. It doesn't matter whether or not they can make them safe, they can't make them use less water. Bf

David Orr on Prohibitive Financial Cost of Nuclear Power and on Ruin Caused by Uranium Mining and Milling

Barbara makes an excellent point! I would like to add yet another compelling reason to the list of why we should be opposing nuclear power and new nuclear power development: the costs are out of control and only going higher. The financial sector has, for very good reasons, refused to step up with the billions of dollars needed to construct these plants, be they light water or IFR reactors. Especially in light of the rock-bottom price of (fracked) natural gas which utilities are taking advantage of. It's much faster to build a combined-cycle gas turbine plant than it is to build a new nuke plant. I hate fracking but no one asked me or anyone else in the environmental community for permission to do it. It's here and it's undercut the cost of nuke power so much that the utilities that have been clamoring to build new nukes are backtracking as fast as they can. It may come to pass that environmental concerns have little effect on utilities' decisions on new nukes; their investors will demand the lowest cost, safest-to-produce power available. In this case, the market may actually produce a less-bad outcome than what the atomic reactor jockeys want to see. What a shame, another generation of nuclear power engineers may have to find something else to do.

Thanks for commenting on this discussion. I would point out that the environmental impacts of uranium mining, milling and refining, and the inherent risks in transporting radioactive materials to and from the sites where these functions are performed, are often forgotten. Fracking is a serious threat to groundwater wherever it's done, and wherever the waste chemicals are transported and injected into abandoned wells. Because fracking is so widespread, I agree that its impacts are potentially far greater than nuclear power when the system is operated as designed, but let's keep in mind that a major meltdown such as at Fukushima, or a terrorist bombing, are far greater and more widespread from a single event. It's important to compare risks of major disasters when discussing the relative environmental harm
that any form of energy development causes.

I lived in Moab, Utah, which was in the 1950s and 1960s was called the "Uranium Capitol of the World." I have seen the extensive damage caused by uranium exploration, mining, milling, and refining and transportation. I assure you that that industry causes as much environmental

DAVID DRUDING SENDS INFORMATION ABOUT WESTERN AUSTRALIA GROUP ANAWA  [The materials are so abundant, the best I can do is forward the connection. This group especially struggles against uranium mining and milling. See exchange between David O and Gerry S immediately above.–Dick]

Anti-Nuclear Alliance of Western Australia via mail27.wdc03.rsgsv.net

Dec 19, 2013.

David Druding 9:51 AM (1 hour ago)

to David, Dennis, Abel, alliance, hel

I want to just forward the last email newsletter here from folks at ANAWA

much of their work there in Australia surrounds and confirms the facts that David O is discussing here about the devastating impact Coralie and others are saying

PASE has shown an excellent video presentation from ANAWA locally about the horrible impact this technology and the accompanying milling continues to have there. They have numerous resources that they can offer that substantiate what David O and Coralie and others are saying

PASE has shown an excellent video presentation from ANAWA locally about the horrible impact this technology and the accompanying milling continues to have there. They have numerous resources that they can offer that substantiate what David O and Coralie and others are saying

best wishes for a non-nuclear safe energy future for all of us, david d

Anti-Nuclear Alliance of Western Australia via mail27.wdc03.rsgsv.net
On Saturday, January 11, 2014 5:27 PM, Harvey Wasserman <noreply@list.moveon.org> wrote:

Hello...

US sailors, irradiated at Fukushima, need our support. The USS Ronald Reagan and others now report serious health problems, and the number is growing.

They are being stonewalled on their class action lawsuit for compensation. Please link to below.

Thanks!!! HarveyW

Toll of U.S. Sailors Devastated by Fukushima Radiation Continues to Grow

was devastated when they were irradiated while delivering humanitarian help near the stricken reactor. The lawsuit charges that Tokyo Electric Power knew large quantities of radiation were pouring into the air and water, but said nothing to the Navy or the public. ......

and elsewhere.

Bay area lawyer Charles Bonner says a re-filing will wait until early February to accommodate a constant influx of sailors from the aircraft carrier USS Ronald Reagan and other American ships.

Within a day of Fukushima One’s March 11, 2011, melt-down, American “first responders” suffered a metallic taste that poured over the Reagan.

Then-Prime Minister Naoto Kan, at the time a nuclear supporter, says “the first meltdown occurred five hours after the earthquake.” The lawsuit charges that Tokyo Electric Power knew large quantities of radiation were pouring into the air and water, but said nothing to the Navy or the public. ......

read the rest at www.ecowatch.com and www.nukefree.org. Thanks!!
THREE ON COLLAPSE OF INDUSTRIAL CIVILIZATION

1. Kurt Vonnegut | Collapse of Industrial Civilization
   collapseofindustrialcivilization.com/tag/kurt-vonnegut/
   Dec 5, 2013 - When, not if, the power grid fails, not only will the citizens of the U.S.A. be at risk ... Unfortunately, the world's nuclear power plants, as they are ..... 2013; Tech Talk - The IEA World Energy Outlook December 18, 2013 ..... “Not Nothing”: New Statement from Grand Jury Resister Jerry Koch December 26, 2013 ...

2. Greenpeace | Collapse of Industrial Civilization
   collapseofindustrialcivilization.com/tag/greenpeace/
   Nov 6, 2013 - I learned a few days ago that September 2013 was the warmest in ... “The laws of physics and chemistry are not negotiable,” said Michel Jarraud. ... system's omnicidal nature is the construction of nuclear-powered ice-breaker ships by ..... 2013; Tech Talk - The IEA World Energy Outlook December 18, 2013 ...

3. Ecocide | Collapse of Industrial Civilization
   collapseofindustrialcivilization.com/tag/ecocide/
   2 days ago - There will be no Bottleneck for humans because we're headed toward the... change officer, at our meeting on Friday, 29th November, 2013. .... 18. Nothing whatsoever is being done to curtail emissions. .... A further example of the system's omnicidal nature is the construction of nuclear-powered ice-breaker ...

END OF NUCLEAR POWER NEWSLETTER #2

--
Dick Bennett
Newsletters
http://www.omnicenter.org/newsletter-archive/

Index:
http://www.omnicenter.org/omni-newsletter-general-index/
National/International Days
MY NEW EMAIL ADDRESS
j.dick.bennett@gmail.com
(479) 442-4600
2582 Jimmie Ave.
Fayetteville, AR 72703