

YOU CAN'T **"NUKE"** GLOBAL WARMING

WHY NOT NUCLEAR POWER IN THE CLIMATE CRISIS FIGHT?

The notion that nuclear power can play a significant role in dealing with the current climate crisis has received a lot of unfortunate attention, coming as it does from vocal and high-profile individuals like respected climatologist James Hanson, former President Obama, and fake-environmentalists like Michael Shellenberger. However, it's the accuracy of the information, not the messenger that is most important in making rational decisions about what energy sources to use in a climate disrupted world. In this regard nuclear power comes up **a total failure**. Using nuclear plants will:

- ☠️ **"Break the bank."** They're not remotely cost-effective in carbon displacement compared to other currently available means; there are simply better, faster and cheaper ways to do the job of reducing greenhouse gases in a timely manner (IPCC study, May 9, 2011; 5-Labs study; *Natural Capitalism*)
- ☠️ **Take too long to be effective**, both compared to other available energy options, and to the 15-year deadline (i.e. by 2029) the 2014 IPCC report gives us for effective climate intervention
- ☠️ **Increase nuclear power's currently unsolved problems** like:
 - creating more high- and low-level radioactive wastes
 - increased accident probability, unintentional leaks, more uranium mining, other contamination
 - proliferation of technology, expertise, materials, and ultimately nuclear weapons
 - increased risk from terrorist attacks in a post-9/11 world, or becoming possible targets in wars (e.g. the 2014 Ukraine crisis, the Middle East, India/Pakistan, China/Taiwan/Japan, ISIS)
- ☠️ **Produce less electricity, and be more vulnerable to more frequent shut-downs** under expected global warming conditions (higher water temperature; rising coastlines; more frequent and violent weather events; unpredictable availability of water, e.g. summer of 1988; 2005-06-09), while creating other unacceptable environmental damage (e.g., increased thermal pollution to waterways)
- ☠️ **Stifle development, implementation, and expansion of REAL climate disruption fighters -- true local, sustainable and renewable energy resources, and energy efficiency**; further, they tie up inordinate amounts of increasingly scarce investment capital needed to expand renewable resources
- ☠️ **Proliferate** internationally the same set of unsolved problems nuclear power already has in developed countries, to countries that lack the capital, expertise, security, and political stability to manage nuclear power even at our current level of questionable standards
- ☠️ **Vastly increase the likely negative health and genetic effects** from allowable radiation releases during routine operation, accidental releases, and statistically expected increases in major accidents
- ☠️ Engender a form of **economic dependency** at best, **nuclear "neo-colonialism"** at worst in currently non-nuclear reliant nations, especially in the developing world

WHAT WE RECOMMEND:

- **real** emission reduction targets and programs, with carrots if possible, sticks if necessary, to achieve a 100% reduction in GHG by 2040 using IEER's **Carbon Free/Nuclear Free** Roadmap;
- **real, mandatory** federal/state renewable portfolio standards (RPS) and vehicle mileage targets;
- **aggressive expansion** of energy efficiency and renewable energy resources where appropriate, both domestically and internationally; adoption of national energy efficiency portfolio standard;
- **planned elimination** of nuclear and fossil power plants using steam-cycles (i.e., water-dependent systems) to produce electricity through the **Carbon Free/Nuclear Free** Roadmap for a US Energy Policy (www.carbonfreenuclearfree.org);
- **methodical preparation** for real, but not necessarily painful or economically disruptive lifestyle changes in areas where technologic or market innovation cannot succeed, exacerbate the old problems, or create/substitute new ones; and capita reduction in energy use.

Who says nuclear power won't work in fighting the climate crisis?

Wall Street:

"...[T]he 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.*"

--"Forget Nuclear," By Amory B. Lovins, Imran Sheikh, and Alex Markevich, Rocky Mt. Institute, April 2008.

"...[the investment in the Payette, Idaho nuclear reactor] does not make economic sense." --Warren Buffet, January 28, 2008--

The nuclear industry itself:

"I am emotionally biased but economically objective about this," said John Rowe, former chief executive of Chicago-based Exelon Corp., the country's largest nuclear operator. "Realistic expectations about the 'renaissance' of nuclear power suggest that it will unfold slowly over time."

--"Costs may slow nuclear upswing: Despite greener energy, industry faces many hurdles," *Chicago Tribune*, May 9, 2008—

"Nuclear Expansion Will Proceed Cautiously Over Next Decade, Wall Street Analysts Told," title of Nuclear Energy Institute (the nuclear industry trade association and mouthpiece) press release, Feb. 21, 2008. www.nei.com

"If you were a utility CEO and looked at your world today, you would just do gas and wind," Mr. [Jeffrey] Immelt says. "You would say [they are] easier to site, digestible today [and] I don't have to bet my company on any of this stuff. You would never do nuclear. The economics are overwhelming." -- Jeffrey Immelt, chairman and chief executive of General Electric, "US utilities are skeptical over nuclear energy revival," *Financial Times*, Nov. 19, 2007 --

[NOTE: Immelt went on to state his belief that only a third of those 32 reactors being proposed today in the US would come to fruition. This sentiment was echoed by **Charles Pardee, chief of nuclear operations for Exelon Nuclear** in his remarks at the Deane Conference on the Future of Nuclear Power at Lake Forest College, March 27-28, 2008. At best he expected 10 new reactors built in the US by 2020. <http://www.lakeforest.edu/academics/deane> As of 2015, only 5 are expected to be completed.]

Economists, physicists, government officials, regulators, energy analysts.....:

No Need to Build New U.S. Coal or nuclear plants – FERC Chairman, 4/22/09, Greenwire:

No new nuclear or coal plants may ever be needed in the U.S., the chairman of the Federal Energy Regulatory Commission said today. "We may not need any, ever," Jon Wellinghof told reporters at a U.S. Energy Association forum....There's enough renewable energy to meet energy demand, Wellinghof said. "...we just need to start using [it]."

Natural Capitalism, Paul Hawkin, Amory and L. Hunter Lovins, 1999:

"The collapse of nuclear power - once the hope for displacing coal-burning -- might at first appear a setback for climate protection. Actually, it's good news. Since nuclear power is the costliest way to replace fossil fuels, every dollar spent on it displaces less climatic risk than would have been avoided if that same dollar were spent instead on techniques to use energy more efficiently, because those methods cost far less than nuclear power." pp. 249

"Honey, I Shrunk the Renaissance: Nuclear Revival, Climate Change, and Reality," Peter Bradford, former Commissioner, U.S. Nuclear Regulatory Commission, Oct. 11, 2010

"Those who assert that the problem of climate change is so urgent that —we have to do everything (or, another popular substitute for serious thought, —seek silver birdshot, not silver bullets) overlook the fact that we can never afford to do everything. The urgency of world hunger doesn't compel us to fight it with caviar, no matter how nourishing fish eggs might be. Spending large sums on elegant solutions (especially those with side effects) that provide little relief will diminish what we can spend on more promising approaches."

World on Fire by former Senator George Mitchell, 1991:

"...If nuclear plants replaced all coal-fired plants in the world, global warming could be cut by 20 to 30 percent by the middle of the next century (2050). But it would require bringing a nuclear power plant on line somewhere in the world every one to three days for the next forty years. The cost would be \$9 trillion; the pace of construction would be ten times larger than any the world has ever seen. Both figures are unthinkable. A totally safe reactor, a totally safe place to dispose of its deadly wastes, and a totally safe way to keep the wrong kind of nuclear materials from falling into the wrong hands -- none of these things have been resolved. By the time they are resolved, if they ever can be, it will be too late. The projected global warming will be full upon us."

Greenhouse Warming: Comparative Analysis of Nuclear and Efficiency Abatement Strategies, by Bill Keepin and Gregory Katz, Energy Policy, December 1988: The authors posit a conservative scenario in which one-half of fossil energy is supplied by nuclear power with a construction program beginning in 1988: "...This results in a total nuclear installed capacity of 8,180 GW by the year 2025, equivalent to some 8000 large nuclear power plants. This represents a 20-fold increase in world nuclear capacity, requiring that nuclear plants be built at an average rate of one new 1000 MW plant every 1.61 days for the next 37 years. At an assumed cost of \$1.0 billion/[G]W installed, this results in a total capital cost of \$8.39 trillion (1987) dollars, an average of \$227 billion each year for 37 years to build the required nuclear plants. Total electricity generation cost is \$31.48 trillion, or an average of \$787 billion/year. The required capital investment is economically infeasible for the developing world..." The authors point out that even with a massive nuclear construction program, the use of fossil fuels will continue to grow: " Thus, in this scenario, even bringing a new nuclear plant on line every day and a half for nearly four decades does not prevent annual CO2 emissions from steadily increasing to a value 60% greater than they are today." **[NOTE: 447 operate worldwide as of 2017]**

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