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Nuclear Power's Scorned Small-Scale Competitors Are Walloping It in the Marketplace, Rocky Mountain Institute Research Shows

Snowmass, Colo., 20 June 2005—Rocky Mountain Institute researchers today doused the hype about “nuclear revival” in an icy bath of real-world data. They documented that worldwide, the decentralized, low- or no-carbon sources of electricity—cogeneration and renewables, all claimed by nuclear advocates to be too small and too slow to help much with climate change—are already bigger than nuclear power and are quickly leaving it in the dust.

“Nuclear advocates are desperately trying to create an illusion that their failed option is being revived,” said RMI CEO and cofounder Amory Lovins, the lead author of the analysis, “so all its remaining costs and risks, which private investors have rejected, can be loaded onto taxpayers. This bailout, now being debated in Washington, is claimed to be vital because nuclear power is the only power source big and fast enough to combat climate change. But industry and official data reveal that claim to be false. While nuclear power dies of an incurable attack of market forces, its derided smaller-scale competitors are already a bigger global power source and are growing very rapidly, while nuclear power continues to fade away.”

The cover story in RMI’s summer 2005 newsletter, published today, documents the global growth of two kinds of decentralized electricity generation: cogeneration (producing electricity and useful heat together) and renewable sources (wind, biomass power, geothermal, small hydro, and solar, but excluding big hydro dams—any over 10 megawatts). In 2004 alone, these small-scale, low- or no-carbon sources added 5.9 times as much net generating capacity and 2.9 times as much electricity production as nuclear power did. By the end of 2004, the decentralized competitors’ global installed capacity totaled roughly 411 gigawatts—12 percent more than global nuclear plants’ 366 gigawatts—and produced about 92 percent as much electricity. (The difference is because some kinds of renewable sources run fewer hours per year.)

Thus, the article notes, these so-called “minor” alternative sources—often claimed to be unimportant, uncompetitive, and far in the future—actually overtook nuclear’s global capacity in 2003, rivaled its 2004 and will match its 2005 electricity output, and should exceed its 2010 output by 43 percent. Official and industry forecasts indicate that in 2010, they’ll add 177 times as much capacity as dwindling nuclear power will—the ultimate test of energy technology in the free market. Not, of course, that the market is actually free: nuclear power is far more heavily subsidized (http://earthtrack.net/earthtrack/index.asp?page_id=177&catid=66) than its competitors. That makes their market victory even more remarkable, with manufacturers earning

about ten times as much 2004 revenue selling renewable power equipment as nuclear plants—and the latter all selling to centrally planned power systems, not those disciplined by markets.

Due to a lack of global data, these comparisons don't even count competition from the demand side—more efficient *use* of electricity, wringing more and better work from each kilowatt-hour. Lovins says that's generally bigger, faster, and cheaper than *any* way to produce electricity. (He's widely considered one of the world's leading authorities on saving electricity, of which he led a uniquely detailed assessment in the 1980s and '90s. RMI earns most of its revenue by consulting for major companies on advanced energy efficiency.)

“So the big question about nuclear ‘revival’ isn't just who'd pay for such a turkey, but also...why bother?” Lovins asks. “Why keep on distorting markets and biasing choices to divert scarce resources from the winners to the loser—a far slower, costlier, harder, and riskier niche product—and paying a premium to incur its many problems? Nuclear advocates try to reverse the burden of proof by claiming it's the portfolio of non-nuclear alternatives that has an unacceptably greater risk of non-adoption, but actual market behavior suggests otherwise.”

Lovins also debunks the notion that nuclear energy is the best investment against carbon dioxide emissions and global climate change. The goal, he says, should be to displace the most emissions soonest for each dollar invested. As the market is proving, both efficient use of electricity and decentralized production can be installed faster than nuclear plants, and thus can displace coal-fired generation earlier. But the key difference isn't just speed; it's also cost. An alternative that delivers electricity at one-third the cost of a new nuclear plant, as many do, will buy three times as much climate solution per dollar as spending that same dollar on the nuclear plant. Conversely, because nuclear power is the costliest option, choosing it actually makes climate change worse than if the best buys were bought instead.

Operating a nuclear plant emits essentially no carbon, but the same is also true of renewable sources and efficient use. Fossil-fueled cogeneration's emissions depend on its fuel (~60–70% worldwide uses low-carbon natural gas); generally it emits ~30–80% less carbon than the separate power stations and boilers it replaces (often fueled with coal, the highest-carbon fuel).

“I've always been, and am today, open-minded about the possibility that [nuclear energy] may have hidden merits,” Lovins notes. “But based on the literature and on deep practical experience of electric efficiency and production in scores of countries, I see no evidence that nuclear power, using any technology, under any political system (let alone an attractive one), is or promises to become an economically, technically, or socially sound energy solution.”

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Rocky Mountain Institute is a twenty-three-year-old, independent, nonpartisan, entrepreneurial, nonprofit organization. Its mission is to foster the efficient and restorative use of resources to make the world secure, just, profitable, and life-sustaining. RMI's nearly fifty staff members show businesses, communities, individuals, and governments how to meet their goals in ways that create more wealth and protect the environment simultaneously—often through advanced resource efficiency. For more on our work, please visit our main website at www.rmi.org, or go to our Media Materials section at www.rmi.org/sitepages/pid65.php.