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Obama Goes Nuclear:
What Happened to Clean Energy?

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President Obama’s embrace of nuclear power as a “clean energy” source – coupled with his announcement last month of $8.3 billion in federal loan guarantees for the first nuclear reactors to be built in the United States since the 1970s – has been met with dismay by many of the president’s supporters as well as his usual critics.

For environmentalists, who generally back the president’s climate policy goals, the rebirth of nuclear power is a nightmare come true. They point to the risk of accidents, remembering the partial meltdown at the Three Mile Island reactor in Pennsylvania in 1979 and the Soviet Union’s Chernobyl disaster seven years later. They draw attention to the serious environmental and health costs of uranium mining. Above all, they point to the unsolved problem of what to do with high-level radioactive waste generated by nuclear power plants.

For those concerned about terrorism, nuclear power is a worry because it provides targets for intentional disasters along the entire chain from uranium mines to power plants to radioactive waste disposal, and along the transportation routes that connect them.

For proponents of the free market, the loan guarantees are a blatant misuse of public money to overturn the verdict of private insurers and bankers (although some blame government regulations for the high cost of nuclear power). Obama’s choice of the venue to announce the loan guarantees – a gathering of trade union officials – did nothing to reassure these critics.

In the same week, as it happens, my local electric power company – the Western Massachusetts Electric Co. – announced that it plans to build a new solar power plant in the town of Pittsfield, Massachusetts. Pittsfield is not the sunshine capital of America. But WMECO reckons that it is a cost-effective site for the first large-scale solar power facility to be built in New England.

The Pittsfield facility will be small by nuclear standards, generating only 1.8 megawatts of electricity. The two nuclear reactors that Southern Company proposes to build in poor (and predominantly black) Burke County, Georgia, with the federal loan guarantees will generate 1,100 megawatts apiece.
Of course, their price tags are very different, too. As a reality-based economist, I wondered how these two projects compare in cost per megawatt. Here’s the answer:

* The total cost of the nuclear reactors is “currently projected to be approximately $14 billion,” according to a press release from Southern Company. This works out to $6.4 million per megawatt.

* The Massachusetts solar project is expected to cost between $10 million and $12 million, according to a WMECO spokesperson. Splitting the difference, this works out to $6.1 million per megawatt.

In other words, the projected costs are basically the same. We can generate electricity from sunshine or from splitting atoms – for roughly the same price.

Large-scale solar plants have been built in sunnier climates for even less: the 64-megawatt Nevada One plant near Las Vegas, completed in 2007, had a price tag of $266 million: $4.2 million per megawatt.

These cost comparisons alone ought to be enough to torpedo the case for going nuclear. But the economic logic is even stronger when we add two further observations:

First, there is a long and expensive history of huge differences between initial cost estimates and final costs in the nuclear industry. There is already a nuclear power plant at the same site in Burke County. Its initial cost estimate in 1971 was $660 million. Its final price tag: $8.87 billion.

Second, these are only the capital costs. In addition, there will be the operating costs, notably the costs of fuel and the costs of waste disposal.

Nuclear power plants are fueled by uranium, which is scarce and increasingly expensive. Solar plants are fueled by sunshine, which is free.

No one can pin an estimate on the costs for disposal of high-level radioactive wastes, because even after generating these wastes for more than 50 years, and after spending billions of dollars on research and development, scientists have not come up with a viable disposal solution. All we can say for certain is that whatever the cost turns out to be, it will be borne for a very, very long time, since the wastes will remain radioactive for thousands of years. Sunshine, on the other hand, leaves behind no toxic legacy for the generations waiting to be born. The waste issue is not just a question of economics: it is a question of morality.

Whether nuclear power will experience a revival in the United States is still an open question. Obama’s blessing and the federal loan guarantees are steps down that road, a road paved by years of lobbying by the nuclear industry. There is still a real chance that counter-arguments – based on economic logic, moral values, and sheer common sense – will prevail. Evidently this will require deeper changes in American politics than those wrought by the election of President Obama.