

Nuclear Energy and Missouri

Missouri has a single nuclear plant within its boundaries, the Callaway Plant, southeast of Fulton. It is the 4th or 5th biggest generating station in the state, generating just over 8.9 million megawatt-hours of electricity per year. Over its history it has been known as a well-operated nuclear plant.ⁱ It went on-line in 1984, and its operating license expires in 2024ⁱⁱ. Most nuclear plants reach the end of their useful life in 30-60 years.ⁱⁱⁱ

I have not been able to find a forecast for Missouri electrical demand, however national electrical demand is expected to double by 2030.^{iv} I have argued that conservation and increased efficiency are the most effective ways to address that challenge, but it is likely that Missouri will choose to build significant new generating capacity. We will see in other white papers that alternative energy sources should be fully pursued before turning to non-sustainable sources. The most environmentally desirable non-sustainable fuel would be natural gas. However, price pressures may cause consideration of other alternatives. Missouri may eventually face the decision of whether to pay for expensive natural gas, build large new coal fired plants, or build nuclear plants. Each choice has advantages, each has serious disadvantages.

Nuclear power's main advantage is that it supplies large amounts of power without releasing smokestack pollutants. Given the threat of climate change, it is essential that we reduce the amount of CO₂ we release into the atmosphere, even as we face increased demand for electricity. Nuclear power can contribute to meeting that goal.

However, nuclear power is a system that has to work 100% of the time; the system for storing nuclear waste must not fail for thousands of years. Were nuclear systems to fail, the consequences would be catastrophic. The history of humankind demonstrates that we never achieve such perfection. Rockets blow up or burn upon reentry, buildings fall down because contractors cheated on the materials, madmen fly airplanes into skyscrapers, people in the most sensitive positions commit treason, and even the most precious materials get stolen.

The nuclear energy industry also faces a number of economic and political barriers: entrenched opposition, lengthy permitting processes, limited site availability, shortages of engineering, construction, and operating talent, and unfavorable economics. These barriers are severe, and if nuclear power is selected as a desirable option going forward, coordinated, long-term government intervention will be required to overcome them. Such a policy direction would have to be selected relatively early. The average age of the largest 8 power plants in Missouri is 40 years. Thus, once construction proceeded on units using any particular type of fuel, the viability of other options would decrease.^v

These white papers can present the basic issues, but they cannot begin to make such choices. I will simply reiterate the point I have made many times previously: the more progress we make in conservation and efficiency, and the more progress we make in reducing population, the less dire these choices will be.

ⁱ *Callaway nuclear generating station*. Wikipedia. Viewed online 11/27/2007 at http://en.wikipedia.org/wiki/Callaway_Nuclear_Generating_Station.

ⁱⁱ *U.S. nuclear plants: Callaway*. Energy Information Administration, Department of Energy. Viewed online 11/27/2007 at http://www.eia.doe.gov/cneaf/nuclear/page/at_a_glance/reactors/callaway.html.

ⁱⁱⁱ *Decomissioning nuclear facilities: Nuclear issues briefing paper 13*. Uranium Information Center, Australian Uranium Association. Viewed online 11/27/2007 at <http://www.uic.com.au/nip13.htm>

^{iv} *International energy outlook, 2006*. (June 2006). Energy Information Administration. Downloaded from www.eia.doe.gov/oiaf/ieo/index.html.

^v McKinsey & Co. (2007). *Reducing U.S. greenhouse gas emissions: How much at what cost?* Obtained online 12/1/2007 at www.mckinsey.com. This is a comprehensive report studying the potential to reduce greenhouse gas emissions at reasonable cost without altering lifestyle.