

## Issue Paper December 2008

### **Issue: Nuclear energy**

As Minnesota and the entire nation explore new energy options, nuclear energy expansion continues to be a part of the discussion. While no new nuclear energy plants have been built in the U.S. since the 1970s, plant expansions have been allowed. Proponents argue for new nuclear power plants, which would be more advanced than older ones and able to recycle nuclear waste. They also cite the need for more clean energy options and energy independence. Opponents have strong safety and environmental concerns and prefer to focus on alternative energy sources such as wind and solar.

Minnesota has two nuclear power plants, one located in Monticello and the other at Prairie Island. Since 1994, there has been a ban on new nuclear plants in the state (Minnesota is one of the few states to have a ban). However, supporters are pushing state legislators to lift the ban.<sup>1</sup>

### **Background**

- Minnesotans' electricity needs are growing, and there are efforts to expand nuclear energy in the state. During the 2009 session, legislative leaders are expected to hold hearings on whether to repeal the state's moratorium on new nuclear plants that was enacted in 1994.
- Minnesota is in the minority of states that have policies banning new nuclear energy. Its policy limits base-load electricity resources, which are plants that run 24 hours a day, seven days a week. Natural gas is the primary base-load option for new plants in Minnesota.<sup>2</sup>
- In Minnesota, 24% of the state's electric power comes from its Monticello and Prairie Island nuclear plants.
- In the U.S., energy is broken down by the following:
  - 86% fossil fuels (coal, natural gas, and oil)
  - 8.2% nuclear
  - 3.3% biomass and other sources
  - 2.6% hydropower

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<sup>1</sup> Minnesota Chamber of Commerce, "Nuclear Energy," October 2008.  
Dave Beal, "He sees energy's future: it's nuclear," *Pioneer Press*, October 14, 2008,  
[http://www.twincities.com/ci\\_10637105](http://www.twincities.com/ci_10637105) (October 7, 2008).

<sup>2</sup> Minnesota Chamber of Commerce, "Nuclear Energy."

- Forecasts for oil consumption show that the world will be depleted of oil reserves in 30 years, natural gas in 50 years, and coal in 75 years. About 62% of the oil consumed from the U.S. is from unstable nations.<sup>3</sup>

### **Economic impact of new nuclear power opportunities in Minnesota**

- Nuclear energy expansion would help meet the growing electricity needs of Minnesotans. It would also be a new base-load electricity option (electricity produced around the clock) for producers to use instead of primarily relying on natural gas, which exposes customers to an expensive, volatile regional market.<sup>4</sup>
- New power plants would create construction jobs and other impacts that support Minnesota's economy.
- Studies suggest that the capital and operating costs for nuclear power plants are often less than or about the same as the costs of power plants that use fossil fuels.<sup>5</sup>

### **Nuclear technology and safety**

- Using a process called UREX-Plus, nuclear energy waste can be recycled. This recycled fuel would then be used to generate fast neutron reactors, a new technology that results in a shorter life for used fuel rods before they become benign. This process will help reduce the need to store nuclear waste on site or in a remote repository.
- Doubts about the UREX-Plus process have surfaced, but proponents suggest developing pilot plants to demonstrate the new nuclear technology and recycling process.
- While safety of nuclear energy and storing radioactive waste continue to be major concerns, safety of nuclear energy compares favorably to energy produced by fossil fuels.

### **Nuclear energy expansion in Minnesota**

- Although Minnesota's moratorium on new nuclear energy plants has made it difficult to update and expand current nuclear facilities, the Monticello plant was allowed to add 70 megawatts to its 600-megawatt capacity. The plant's life was also extended from 2010 to 2030. Xcel Energy also wants to extend the life of its Prairie Island plant and add 160 megawatts to its 1,240-megawatt capacity.

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<sup>3</sup> Information provided by Joe Shuster, founder of New Prague-based Minnesota Valley Engineering and author of "Beyond Fossil Fool: The Roadmap to Energy Independence."

Shuster, Joe, meeting with Civic Caucus, September 12, 2008, summary, Bloomington, MN.

<sup>4</sup> Minnesota Chamber of Commerce, "Nuclear Energy."

<sup>5</sup> Joe Shuster meeting summary.

- Nuclear power plants could take about 7-10 years to develop, or longer depending on opposition.
- Minnesota Governor Tim Pawlenty supports efforts to remove the state's ban on new nuclear energy plants. Legislative leaders are expected to address this issue during the 2009 session.<sup>6</sup>

### **Conclusion and recommendations**

The majority of the nation's energy sources comes from fossil fuels. With pushes to use more clean energy and less foreign resources, leaders are looking to nuclear energy expansion as a way to meet the growing energy demands while making strides toward energy independence. New technologies have made nuclear power more efficient in recycling waste into new fuel. But safety and environmental concerns still abound.

In Minnesota, there has been a moratorium on new nuclear plants since 1994. As nuclear power is a clean energy, the Minnesota Legislature should lift this ban to help meet the state's greenhouse gas reduction goals. Legislative leaders are expected to take up the issue during the 2009 session.

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<sup>6</sup> "He sees energy's future: it's nuclear," *Pioneer Press*.