



## Department of Energy

Washington, DC 20585

DOE/EA-1645

### FINDING OF NO SIGNIFICANT IMPACT DEPARTMENT OF ENERGY LOAN GUARANTEE FOR SAGE ELECTROCHROMICS SAGEGLASS® HIGH VOLUME MANUFACTURING FACILITY IN FARIBAULT, MN

**AGENCY:** U.S. Department of Energy, Loan Guarantee Program Office

**ACTION:** Finding of No Significant Impact

**SUMMARY:** The U.S. Department of Energy (DOE) has conducted an environmental assessment (EA) that analyzed the potential environmental impacts associated with the design, construction, and startup of a SageGlass® High Volume Manufacturing Facility (Facility) on a 15-acre undeveloped parcel of land in Faribault, Minnesota. DOE, through its Loan Guarantee Program Office (LGPO), proposes to provide a Federal loan guarantee pursuant to Title XVII of the Energy Policy Act of 2005 (EPAct 05) to Sage Electrochromics to support the design, construction, and startup of the proposed facility<sup>1</sup>. The purpose of DOE's proposed action is to expedite the deployment of a new energy technology into commercial use in the U.S. and to reduce emissions of greenhouse gases and other air pollutants.

Energy lost through today's inefficient window stock accounts for approximately 30% of building heating and cooling energy. Buildings are the largest source of energy consumption in the country and electrochromic (EC) windows can significantly reduce lighting, cooling, and heating costs in buildings. Increased use of EC windows would help in reducing the demand for electricity during peak periods and for restraining growth in the demand for electricity over the long term. Additionally, EC windows can be integrated into an intelligent grid management system designed to minimize peak energy requirements. Use of EC windows would help to avoid air pollutants and anthropogenic emissions of greenhouse gases that would otherwise be produced to supply the energy lost through today's inefficient window stock.

Widespread deployment of electrochromic window technology could help reduce dependence on fossil fuels, lower energy costs, and reduce carbon dioxide emissions and other forms of pollution. Modeling and field trials show that EC windows can substantially reduce lighting, cooling, and heating requirements in buildings. By the year 2030, assuming 40% market penetration of EC windows, this could equate to an approximate reduction of about 6 million metric tons per year of CO<sub>2</sub>-equivalent emissions resulting from EC windows usage.<sup>2</sup>

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<sup>1</sup> The amount requested for the loan guarantee is not being disclosed at this time because it is business sensitive. Moreover, should DOE approve a loan guarantee, the amount may differ from the original request.

<sup>2</sup> E.S. Lee, et al. April 30, 2004. "The Energy-Savings Potential of Electrochromic Windows in the US Commercial Buildings Sector," LBNL-54966.



The annual production of the proposed Sage Facility would be approximately 2 million square feet of EC windows per year starting in 2012. If all 2 million square feet of EC windows are installed in typical commercial buildings it would result in energy savings of approximately  $6 \times 10^{-5}$  quad per year<sup>3</sup>. Assuming that 60 million tons of CO<sub>2</sub>-equivalent emissions are saved per quad, the total of all windows produced each year will result in 3600 tons of CO<sub>2</sub>-equivalent emissions saved per year. Given a window's useful life of 25 years, all the windows produced at the Sage Facility in any given year would help to avoid 90,000 tons of CO<sub>2</sub>-equivalent emissions annually.

All discussion and analysis related to the potential impacts of construction and operation of the proposed Sage Facility are contained in the Final EA (DOE/EA-1645), which is incorporated here by reference. DOE examined potential impacts on the following resources and found none to be significant: floodplains; wetlands; water resources and water quality; threatened or endangered species and critical habitats; prime or unique farmlands; geology and soils; visual, recreational, and aesthetic resources; property of historic, archaeological, or architectural significance; Native American concerns; environmental justice; public health and safety; air quality; global climate change; waste management; transportation; socioeconomic conditions; noise; and terrorism-related impacts.

In accordance with applicable regulations and policies, DOE sent a notification letter regarding the Department's determination to prepare an EA to the Minnesota Environmental Quality Board and the City of Faribault on December 5, 2008. The letter described the proposed action and stated that a draft EA would be sent to the state for review. On May 21, 2009, DOE sent the draft EA to the Minnesota Environmental Quality Board and the City of Faribault and invited their comments on the draft. The draft EA was also posted on the Loan Guarantee Program Office website. DOE received no comments on the draft EA.

**DETERMINATION:** On the basis of the Final EA, DOE has determined that providing a Federal loan guarantee to Sage Electrochromics for design, construction, and startup of a SageGlass® High Volume Manufacturing Facility in Faribault, MN, will not have a significant affect on the human environment. The preparation of an environmental impact statement is therefore not required, and DOE is issuing this Finding of No Significant Impact.

Copies of the Final EA are available at the DOE Loan Guarantee Program Office website at [www.lgprogram.energy.gov/keydocs.html](http://www.lgprogram.energy.gov/keydocs.html) or from

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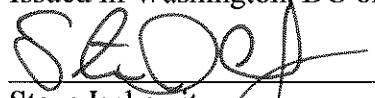
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<sup>3</sup> Based on Lawrence Berkeley National Laboratory (LBNL) building simulation models.

Additional information on the DOE NEPA process is available from

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Issued in Washington, DC on the 1 day of July in the year 2009.

  
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