



ELECTRIC POWER
RESEARCH INSTITUTE



News Release

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PILOT PROJECT CAPTURES 90% OF CO₂

PLEASANT PRAIRIE, Wis.- (Oct. 8, 2009) – We Energies, Alstom and The Electric Power Research Institute (EPRI) announced today that a pilot project testing an advanced chilled ammonia process has demonstrated more than 90 percent capture of carbon dioxide (CO₂) from the flue stream of at a coal-fueled power plant in Wisconsin.

At a press conference at We Energies' Pleasant Prairie Power Plant, which hosted the project, We Energies Chairman, President and CEO Gale Klappa, Alstom U.S. President Pierre Gauthier, and EPRI Senior Vice President Hank Courtright discussed the demonstration of Alstom's patented chilled ammonia process for carbon capture. Testing at the pilot facility, using a 1.7-megawatt (electric) slipstream from the plant, began in early 2008 and will conclude later this year.

The project confirmed the predicted performance of the chilled ammonia carbon capture system at an operating power plant. It achieved key research metrics around hours of operation, ammonia release, CO₂ removal levels, and CO₂ purity. In doing so, the project demonstrated the fundamental viability of the carbon capture technology in real-world conditions such as changes in temperature and humidity, the inevitable starts and stops of a large power plant, and the environmental hurdles that go along with using any chemical process.

"One of the biggest challenges facing our industry is the development of cost effective technology that will allow us to capture carbon from the operation of power plants around the world," said Klappa. "Today, with the success we're reporting from the research here at Pleasant Prairie, the solution is one step closer to reality."

Lessons learned at Pleasant Prairie already have provided critical information for efforts to scale up effective carbon capture and storage technologies for new power plants and for retrofit to existing plants. A scaled-up 20-megawatt (electric) capture system has

been installed at AEP's 1,300-megawatt Mountaineer Plant, where it will remove an estimated 90% of carbon dioxide emissions from the flue gas stream it processes, capturing up to 100,000 metric tons of CO₂ per year.

The captured CO₂ will be compressed, pipelined, and injected into two different saline reservoirs located approximately 8,000 feet beneath the plant site. Battelle Memorial Institute will serve as the consultant for AEP on geological storage as an extensive monitoring system will be used to track the extent of the sequestered CO₂ over time.

"This project has been a success. It proved what we needed to know to stay on schedule to commercialize carbon capture technology for new and existing power plants by 2015, a necessary step to meet ambitious climate change targets being proposed by policy makers in the U.S. and around the world," Gauthier said. "Alstom believes carbon capture, along with energy efficiency and a full portfolio of low carbon technologies including renewable power, will all be needed to achieve urgent CO₂ reduction goals in a timely manner."

Alstom, a leader in carbon capture technology, is pursuing 10 demonstration projects in six different countries, including the We Energies project and partnership at Mountaineer with American Electric Power. The Mountaineer project is one of two current or planned post-combustion carbon capture and storage (CCS) demonstrations for which EPRI has formed an industry collaborative to support management of testing and evaluations.

The EPRI collaborative will support the integration process/design of CO₂ capture technologies and the monitoring and verification of CO₂ storage, and it will assess the large-scale impacts of CO₂ controls and storage on post-combustion coal-fueled generation. The data collected and analyzed by the collaborative will support efforts to advance CCS technologies to commercial scale and provide information to the public and industry on future electricity generation options.

EPRI is leading or supporting seven Industry Technology Demonstrations as part of its efforts to help develop a "full portfolio" of innovative technology approaches needed to make substantial CO₂ emissions reductions while minimizing economic impacts. EPRI's Prism and MERGE analyses (available at www.epri.com) found that deployment of a full portfolio of advanced technologies, including CCS, could reduce U.S. electric sector CO₂ emissions by 2030 to a level below 1990 emissions. EPRI currently is working on a global analysis that is expected to show similar energy mix changes and significant economic impacts.

"We Energies, Alstom, EPRI and 37 other companies worked together to successfully advance carbon capture technology to the next step in its development," said EPRI Senior Vice President Hank Courtright. "EPRI's analyses show carbon capture and storage will be essential to achieve meaningful CO₂ emissions reductions, and do it in a cost-effective way while meeting demand growth. Projects like this one, where a company steps up to lead a project and several more form a collaborative support it, are critical to advancing the technologies that we need to reduce the industry's carbon footprint."

To learn more about the Pleasant Prairie carbon capture project, go to P4chilledammonia.com

About We Energies

We Energies serves more than 1.1 million electric customers in Wisconsin and Michigan's Upper Peninsula and more than 1 million natural gas customers in Wisconsin. We Energies is the trade name of Wisconsin Electric Power Company and Wisconsin Gas LLC, the principal utility subsidiaries of Wisconsin Energy Corporation (NYSE: WEC). Visit the We Energies Web site at www.we-energies.com. Learn more about Wisconsin Energy Corporation by visiting www.wisconsinenergy.com.

About Alstom

Alstom (www.alstom.com) is a global leader in the world of power generation and rail infrastructure and sets the benchmark for innovative and environmentally friendly technologies. Alstom builds the fastest train and the highest capacity automated metro in the world, and provides turnkey integrated power plant solutions, equipment and associated services for a wide variety of energy sources, including hydro, nuclear, gas, coal and wind. The Group employs more than 81,000 people in 70 countries, and had orders of € 24.6 billion in 2008/09.

Alstom is at the forefront of carbon capture technology development. In the past few years, Alstom has announced plans to develop ten CO2 capture demonstration projects in six countries. All told, Alstom is mobilizing hundreds of employees and has invested hundreds of millions of dollars in support of its stated goal of making carbon capture technology commercially available within six years.

About the Electric Power Research Institute

The Electric Power Research Institute, Inc. (EPRI, www.epri.com) conducts research and development relating to the generation, delivery and use of electricity for the benefit of the public. An independent, nonprofit organization, EPRI brings together its scientists and engineers as well as experts from academia and industry to help address challenges in electricity, including reliability, efficiency, health, safety and the environment. EPRI's members represent more than 90 percent of the electricity generated and delivered in the United States, and international participation extends to 40 countries. EPRI's principal offices and laboratories are located in Palo Alto, Calif.; Charlotte, N.C.; Knoxville, Tenn.; and Lenox, Mass.

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