



## Commitment to Technology

The Pleasant Prairie Power Plant, located in the village of Pleasant Prairie in southeast Wisconsin, is hosting a demonstration project of new chilled ammonia technology that aims to achieve a highly efficient capture rate of carbon dioxide (CO<sub>2</sub>) emissions from a coal-fueled generating facility.

## Partners

- Alstom Power Inc., a leading power equipment supplier in the world, technology developer and operator
- Electric Power Research Institute (EPRI), the project supporter and research arm of the electric power industry
- We Energies, the carbon capture project host

## Project Summary

Using less than one percent of the flue gas from one boiler unit, Alstom Power Inc. will operate the carbon capture technology with a patented process invented by Eli Gal, an individual who licensed Alstom Power Inc. as the exclusive, worldwide licensee.

- The project is the first-of-its-kind in the United States.
- This process has the potential to capture 90 percent of the CO<sub>2</sub> in the flue gas.

## Timeline

The construction of the carbon capture facility is complete. The project will be operated by Alstom for about one year. During this time, EPRI will conduct an extensive test program to collect data and evaluate technology performance. Results of the demonstration project are anticipated to be published mid-2009.

## Carbon Capture Process

The carbon capture technology is a three-step process. It begins with the cooling and conditioning of the flue gas from the boiler and existing air quality control system. The flue gas then proceeds to the CO<sub>2</sub> absorber where the carbon dioxide is absorbed through contact with an ammonium carbonate solution. The solution containing the absorbed CO<sub>2</sub> is then pumped to a regeneration system. As this solution is heated under pressure, the absorption process is reversed and pure CO<sub>2</sub> is recovered. The solution with CO<sub>2</sub> removed is recycled back to the CO<sub>2</sub> absorber while the pure CO<sub>2</sub> from the regenerator is further compressed for eventual disposal underground.

## Anticipated Project Outcomes

The use of this new technology has the potential to dramatically reduce the cost of removing CO<sub>2</sub> from pulverized coal (PC) power plants.

Note: Almost all current analyses show a PC plant with carbon capture sequestration (CCS) is less expensive than an integrated gasification combined cycle (IGCC) plant with CCS.

