

and stationary applications. In working with Pacific Northwest National Laboratory, Ford Motor Co., Delphi Automotive Systems, Caterpillar, DaimlerChrysler, and General Motors in the Northwest Alliance for Transportation Technologies, we've achieved more than 30 percent reduction in particulate matter and a 55 percent reduction in NOx emissions. Our product development strategy will enable industry to meet off-road emissions requirements and make significant progress toward meeting 2007 on-highway targets.

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Battelle is developing commercial emission control products that clean diesel exhaust to meet current and anticipated NOx emission regulations, removing a primary roadblock to more widespread use of diesel engines.

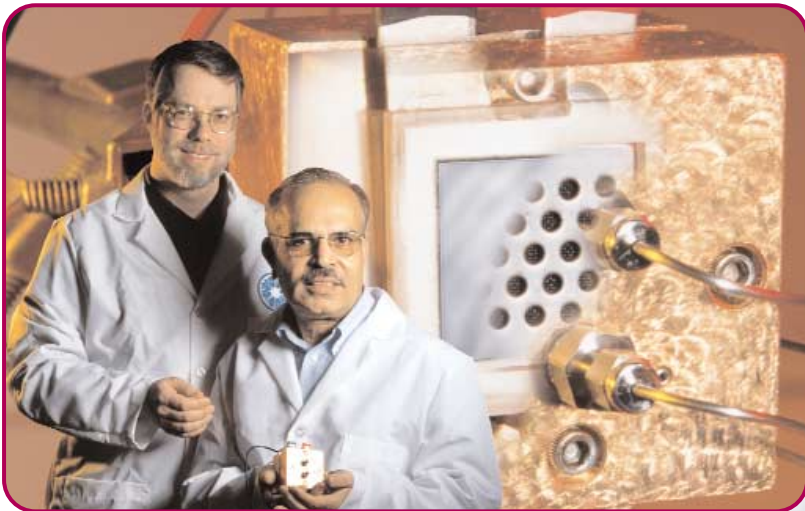
Energy Products

From commercializing fuel cells to disposing of CO₂ from power plant flue gas, Battelle is a powerhouse of commercial solutions for energy providers. Collaborative relationships with venture capital firms are bringing Battelle's energy technologies to the broader investment

Using a unique method of varying electrode voltage in polymer electrolyte membrane (PEM) fuel cells, (from left) Brad Glenn, Jim Saunders and Barry Hindin of Battelle Columbus are developing a dynamic electrode to make fuel cells more tolerant of carbon monoxide and other contaminants—improving performance, reducing costs, and pushing toward commercialization.



community. Management relationships with four DOE national laboratories give us a unique perspective on next-generation technology systems and controls for sustainable, renewable, clean energy.



Frank Jakob (left) and Bhima Vijayendran, Battelle Columbus, are helping develop Battelle's 'designed for purpose' polymer electrolyte membrane (PEM). PEM offers the potential of low-cost, high-performance fuel cells—putting them in the class of viable next-generation energy devices that are

clean with reduced pollution. Affordable fuel cells would give every household the power to produce the electricity they need to run their homes. That means no more dependence on the load on the grid and the whims of the weather to keep the energy coming.

"It will take technical breakthroughs that improve performance and reduce price to make fuel cells competitive in the energy marketplace. With their mine of technology 'diamonds in the rough,' Battelle is the perfect company to propel fuel cells into the category of a commercial success."

Wal van Lierop

Chief Executive Officer

Chrysalix Energy Limited Partnership

Battelle combined world-class credentials in global climate change, solid project performance on geological sequestration, and a healthy relationship with one of the world's largest energy providers to develop strategies for "cool power"—technologies that capture and permanently dispose of CO₂ from power plant flue gas.