

SPEAKING OUT

Plug Beebee Station into producing hydrogen power



ROMAN PRESS
MARIANNE BUEHLER

GUEST ESSAYISTS

At the dawn of the 21st century, the United States consumes 25 percent of the world's energy although it comprises only about 5 percent of the world's population.

Limited petroleum and gas reserves are being rapidly depleted. Availability is expected to be scarce by 2050, causing prices to rise.

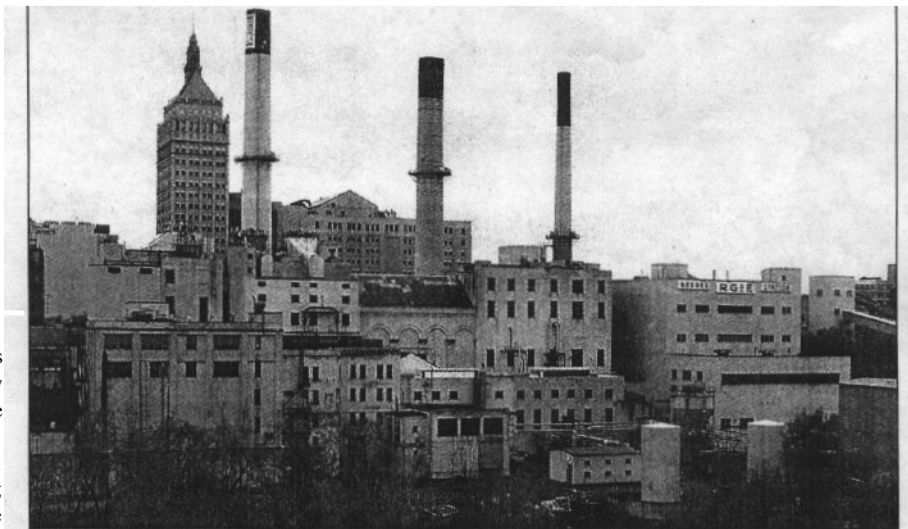
Adverse impacts of fossil-fuel use, production and transportation include contamination to beaches and soil, strip-mining erosion, air pollution and Middle East tension. As energy resources are depleted and environmental concerns rise, scientists must develop safe, clean energy alternatives.

Hydrogen has great potential to end the world's reliance on oil. For it to be usable, it must be extracted from either hydrocarbons or water.

Fossil fuels such as oil and gas are being used to harvest hydrogen as the most cost-effective way to produce power. However, that defeats the goal of using renewable resources such as wind, water and sun.

Rochester Institute of Technology is evaluating technology for municipal solid waste conversion into hydrogen by reforming landfill gas into hydrogen and hydrocarbon dioxide. Rochester's Upper Falls likewise could produce a limited amount of electricity.

Gov. George Pataki set a goal of 25 percent of all electricity purchased in New York coming from renewable resources by 2012. In response to President Bush's call for intensified research of hydrogen fuel, Sen. Hillary Clinton



JAMIE GERMANO staff photographer 2003

Rochester Gas and Electric Corp.'s Beebe Station stands unused along the Genesee River near the Upper Falls and the High Falls Entertainment District.

proposed legislation that would provide \$6.5 billion over 10 years to develop fuel cells and hydrogen infrastructure. "This would be good for the environment and good for the economy, and specifically, it would be very good for the economy of upstate New York," Clinton said.

Thanks to General Motors' Global Alternative Propulsion Center in Honeoye Falls and the Delphi Energy and Engine Management Center in Henrietta, the Rochester area is the center for the development of hydrogen fuel cells for transportation, which are about two times more efficient than gasoline engines. With 650 million vehicles worldwide fueled by gasoline, the market potential is immense. Hydrogen-fueled vehicles now include the converted GM Opel Zefira, a fuel efficient, zero-emissions minivan.

Rochester's vacant Beebe Station power plant is being considered for an entertainment center. However, its renovation for hydropower production via a restored water wheel and generator could feed a fuel cell electrolyzer, which converts water into hydrogen

and oxygen.

This project could generate an immediate return as a power source for corporations, hospitals, financial institutions and information technology companies that desperately need uninterrupted power sources.

A renovated Beebe Station could also host educational exhibits on hydrogen as well as related recreation small go-carts powered by hydrogen, for example.

Throughout history, people have sought ways to tap natural resources for energy. The Erie Canal transported people and goods, Brown's Race propelled water wheels to power dozens of businesses and the Triphammer Mill provided electrical generation.

Time is of the essence to keep Rochester's economy fueled for success. Generating and using hydrogen for the general public can be an attractive option, economically, socially and environmentally.

Press is a researcher and Buehler is distance online learning librarian at Rochester Institute of Technology.