

Refinery Generation

By Al Senia

IF ALL GOES according to plan, a collaborative venture between a giant oil company and a California power generator and distributor will unlock within five years the secret to producing clean energy with virtually no carbon dioxide emissions.

Edison Mission Group, a subsidiary of Edison International, and oil company BP plan to invest approximately \$1 billion in a 500-megawatt clean power plant in Carson, Calif., 20 miles outside of Los Angeles. The plan is being propelled by several factors, including federal subsidies, a renewed state commitment to clean, alternative energy sources and simple geography. The hydrogen plant would be located close to BP's oil fields and refineries.

The new project represents a commitment to hydrogen power utilizing carbon capture and sequestration, a process that combines several existing technologies in a unique method to create low-carbon, clean electricity. A fossil fuel such as coal, oil or natural gas is "decarbonized" by stripping the fuel's carbon from its hydrogen atoms. The clean hydrogen then is burned in a modified gas turbine to produce electricity, with the carbon dioxide captured and held in depleted underground gas or oil fields or coal beds.

Proponents of hydrogen power believe once the concept proves viable and is commercialized, it will have wide appeal worldwide because both coal and oil byproducts are ideal fuels for the technology. In the case of the facility in Carson, petroleum coke produced at California's refineries will be converted to hydrogen and carbon dioxide, with approximately 90 percent of the carbon captured and separated. It would then be transported by pipeline to an oilfield and ejected into underground reservoir rock formations.

Larry Kostrzewa, managing director, development for EMG, said, "We see this as a commercially viable undertaking."

One problem is that hydrogen power costs about twice as much as power from traditional fuels. So the Carson project is dependent on anticipated financial incentives to be provided by the energy act of 2005, as well as on unspecified state incentives.

The project still has a few hurdles to overcome. Engineering and commercial studies must be finalized this year; a final investment decision must be authorized in 2008; and the plant would go online in 2011. BP would own 51 percent of the project, and EMG 49 percent.

BP announced plans last year to partner in another hydrogen power plant in Scotland using a slightly different process. The company is committed to hydrogen power and plans to invest \$8 billion in clean energy technologies over the next 10 years, said Cindy Wymore, a BP spokesperson.

Ross Pillari, president of BP America, called the planned Carson facility the cleanest power plant in the United States. "Wide-scale deployment of technology such as hydrogen power can make a significant contribution towards the reduction in greenhouse gas emissions needed worldwide," Pillari said in a statement.

State officials say the facility will provide enough power for 325,000 homes and will eliminate 4 million tons of carbon dioxide from the atmosphere through the sequestering process. It could also stimulate additional production from existing state oil fields by injecting the carbon dioxide into the oil reservoirs. ☞



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