

PROJECT FACT SHEET



Project Overview

The Hydrogen Energy California (HECA) Project, located in Kern County, California, will be a state-of-the-art facility combining commercially demonstrated technologies to convert fossil fuels into clean-burning hydrogen fuel. This hydrogen-rich fuel will be used to generate low-carbon electricity and manufacture fertilizer. HECA will permanently capture over 90 percent of its carbon dioxide (CO₂) emissions, which will be transported to nearby oilfields for use in enhanced oil recovery that will result in simultaneous, permanent CO₂ storage.

SCS Energy is an independent power producer that is nationally recognized for its involvement in clean power project development and environmental stewardship. SCS Energy California LLC acquired HECA from its initial owners and is moving the project forward through permitting, engineering, construction and operation. Commercial operation of the project is expected to commence in 2017. HECA has the support of the U.S. Department of Energy as a safe and cost-effective way to produce clean energy. The project is co-funded by the U.S. Department of Energy's Office of Fossil Energy, and administered by the National Energy Technology Laboratory.

Highlights of the HECA Project:

- The Integrated Gasification Combined Cycle (IGCC) facility is designed to operate on a fuel blend consisting of 75 percent western subbituminous coal and 25 percent California petroleum coke, a by-product of oil refining. The feedstocks will be converted into a syngas that will be further processed and cleaned to produce clean-burning, hydrogen-rich fuel.
- More than 90 percent of the carbon dioxide (CO₂) in the syngas, approximately 3 million tons per year, will be captured, compressed and transported by pipeline to the nearby Elk Hills Oil Field for injection into deep underground hydrocarbon reservoirs for CO₂ enhanced oil recovery (EOR). EOR will enable the recovery of additional oil from California oil fields while simultaneously storing CO₂, preventing its release into the atmosphere where it would contribute to global climate change.
- HECA will utilize clean-burning hydrogen fuel to generate 405 megawatts (MW) of gross power and will provide a nominal 300 MW of low-carbon baseload electricity to the grid during operations, enough electricity to power approximately 160,000 homes.
- HECA will support California's agricultural industry by producing over 1 million tons per year of low-carbon fertilizer products.
- There will be no direct surface water discharge of industrial wastewater or storm water. Process wastewater will be treated on site and recycled for reuse within the Project. Other wastewaters will be collected and directed to an onsite Zero Liquid Discharge (ZLD) unit. Water recovered by the ZLD unit is recycled for reuse within the facility.
- The Project is designed with state-of-the-art emission control technology to achieve minimal air emissions through the use of Best Available Control Technology (BACT).

Community and Environmental Benefits

- HECA will prevent approximately 3 million tons per year of greenhouse gases from entering the atmosphere through carbon capture and CO₂ EOR, resulting in simultaneous sequestration.
- HECA will increase domestic oil production by enabling additional oil production from existing California oilfields by providing CO₂ for EOR, through which previously unrecoverable oil will be extracted.
- At a time when unemployment is near an all-time high, HECA will boost the local economy by creating more than 2,000 construction jobs and up to 200 permanent operational positions. HECA's construction and annual operations will generate millions of dollars in new tax revenues.
- HECA will create clean-burning hydrogen fuel, making it available for power generation as well as other potential uses, including clean transportation, contributing to the realization of the hydrogen highway.
- HECA will preserve limited fresh water resources by using brackish groundwater supplied by Buena Vista Water Storage District (BVWSD) for process water needs. Currently the poor quality and location of this water negatively impacts local agricultural activity. The use of high-salt content water for HECA's process water needs will protect and conserve fresh water for agricultural use.
- The power and fertilizer produced by the Project will have a significantly lower carbon emission profile relative to similar power and products that are traditionally generated from fossil fuels, such as natural gas or coal. Natural gas is the fuel source predominantly used for power generation in California.

Safety and the Community

HECA will be designed, constructed and operated to meet or exceed the strictest environmental, safety and health standards, and will exceed California and the San Joaquin Valley Air Pollution Control District emission standards. Each component of hydrogen power technology is proven and in use today. Hydrogen itself is commonly used in a variety of applications, including in oil refining for the formulation of clean fuels. The CO₂ captured at the facility is not flammable and presents no danger of fire during removal, transportation or permanent storage.

Why Kern County, California?

Kern County is the ideal location for HECA because of the existing, adjacent and available oil reservoirs for enhanced oil recovery operations and CO₂ storage. Existing electric transmission lines and substations are nearby, providing the opportunity to interconnect to the electricity grid. Refineries producing the petroleum coke by-product are nearby, as are local delivery points for western coal. Pipeline corridors already exist and are within proximity to existing reservoirs to store carbon dioxide. There also is a local supply of brackish groundwater unsuitable for agriculture.

California has long led the nation and the world in the search for new ways to meet basic energy needs while simultaneously addressing the need to reduce air pollution and minimize greenhouse gas emissions that contribute to global climate change. Recently, laws have been passed in California to encourage a reduction in greenhouse gases, and now both the government and the private sector are taking the necessary steps to move toward a cleaner and more sustainable hydrogen energy economy. The Hydrogen Energy California Project will fit into these objectives and will help California remain on the forefront of clean energy technology, while providing essential, reliable, low-carbon electricity and fertilizer to local markets.

