

LARGE STATIONARY

FCE power for missile range facility in Hawaii

Connecticut-based FuelCell Energy has sold a DFC300 molten carbonate power plant to provide electric power and thermal energy at an isolated naval base in Hawaii, where traditional energy sources are expensive and logistically difficult to obtain.

The Direct FuelCell® (DFC) system is being purchased by FCE's distribution partner LOGANEnergy. LOGAN will own and operate the plant, supplying electricity to the Pacific Missile Range Facility (PMRF) on Kauai, a US Navy base. The DFC300 plant, which will provide approximately 36% of PMRF's power, is scheduled for installation by September 2009.

The DFC300 will be used to generate electricity for baseload power, while the high-grade heat it produces will be processed through an adsorption chiller and used for air-conditioning. Because of this combined heat and power feature and the high cost of electricity in Hawaii, the Navy should realize a significant reduction in its power costs.

'We are pleased to have the opportunity to expand our relationship with the Navy, specifically the Naval Air Warfare Weapons Division located in China Lake, California, which has authorized funding for this project,' says Chris Davis, chief operating officer of LOGANEnergy. 'The site that China Lake has selected for this project, the Pacific Missile Range Facility, is an energy-intensive operation and requires absolute reliability 24/7.'

Davis adds that while energy is always a challenge in Hawaii, this site is more isolated than most, making grid electricity very expensive. The PMRF plant will run on HD-5 propane, a standard fuel available at PMRF.

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Linde buys FCE power plants for renewable distributed generation

In the US, FuelCell Energy has sold 3.9 MW worth of power plants to The Linde Group, the leading gases and engineering company. Linde will install four power plants at various customer locations in the San Diego area, which will utilize purified biogas from the

Point Loma Wastewater Treatment Plant as the primary fuel source. The four power plants include three 1.2 MW units and one 300 kW unit.

Until now, the use of wastewater treatment gas has been limited to producing power at the facility where the methane is generated, since transporting fuel elsewhere entails financial and logistic obstacles. Now Linde will use methane that is currently flared at the Point Loma Wastewater Treatment Plant (PLWTP) in San Diego to fuel the four Direct FuelCell® molten carbonate power plants.

Most of the gas collected and purified by Linde will be transported off-site to three separate customer locations in southern California where DFC1500 ultra-clean power plants will be installed. The remainder of the methane will be used on-site to fuel a DFC300, which will provide renewable baseload power for Linde's purification plant. The electricity generated by the three DFC1500 units will be sold to the host customers under power purchase agreements – establishing the first commercial DFC fuel cell installations to run on transported renewable fuel.

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FCE powers refrigerated warehouse, wastewater processing in California

Connecticut-based FuelCell Energy has sold a 600 kW power plant to M&L Commodities in California, operating as Inland Cold Storage – Stockton, to provide electricity to power its large new temperature- and humidity-controlled warehouse facilities. FCE has also sold three DFC300 power plants to Eastern Municipal Water District (EMWD) in California. The power plants will supply 750 kW to the EMWD wastewater processing facility, while significantly reducing local greenhouse gas emissions.

The two Direct FuelCell® molten carbonate units for M&L Commodities, sold through FCE's distribution partner Alliance Power, will be located at the warehouse now being built in Stockton. Inland Cold Storage (ICS) currently maintains seven warehouses in California – which has more than 400 such facilities, so there is significant market potential.

In its Stockton warehouse, M&L/ICS will use the 600 kW of electricity from the power plants to run the warehouse 24/7. The thermal energy generated by the DFC300 plants will be used to

either heat the building's floor – required in cold storage to prevent the ground from freezing and damaging the structure's foundation – or to provide absorption chilling.

Construction of the site is under way, and the fuel cell power plant is expected to be operating by mid-2008. M&L will own and operate the DFC300 units, with service and support provided by FuelCell Energy.

Eastern Municipal Water District generates significant quantities of methane using anaerobic digesters for biosolids treatment. The DFC power plants will purify 100% of this gas and use it for fuel. The fuel cells' low emissions will also help the District meet California's CARB 07 requirements, some of the most stringent in the US.

The EMWD power plants will also capture heat generated by the DFC units and use this thermal energy in the wastewater treatment process itself. By eliminating a boiler and the gas-fired machinery previously used as heat sources, the new power plant further reduces air pollution and greenhouse gas emissions.

Alliance Power will serve as project manager, and is expected to install the three power plants in the first half of 2008.

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PORTABLE & MICRO

Horizon, Millennium Cell to launch 'water-activated' portables

US-based Millennium Cell and Horizon Fuel Cell Technologies in Singapore are nearing completion of a 'beta' version of a portable power generator that incorporates a unique water-activated cartridge system. The product will be a clean and quiet power generator for use by consumers and professionals for emergency and recreational purposes.

Horizon recently demonstrated the 'alpha' product of this unit at the CEATEC show in Japan [*FCB*, December 2007]. System prototypes have been finalized, and the first customer evaluations were expected to start in December. The beta product will be demonstrated at the Consumer Electronics Show (CES) in Las Vegas in January 2008.

The product will provide a common AC outlet and two USB connectors for low-power devices to operate for more than 16 h when the electric grid is unavailable. Horizon and Millennium Cell