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**For more information on the National Hydrogen Association, go to:** [www.hydrogenus.com](http://www.hydrogenus.com)

## Cellex, Wal-Mart in fuel cell forklift trials

**The logistics subsidiary of Wal-Mart Stores is to participate in the next set of field trials designed to test BC-based Cellex Power's fuel cell products for powering electric forklift trucks. The field trials are set to begin later this year at an unspecified Wal-Mart Distribution Center.**

Cellex is developing fuel cell power solutions for electric forklift truck fleets, and recently received C\$2m (US\$1.5m) in funding from Sustainable Development Technology Canada towards its Class 3 forklift project [*FCB*, June].

Cellex's power units are designed to replace the lead-acid batteries and charger systems used in forklifts, for longer runtimes and faster refueling than batteries, and no harmful emissions.

The company has been conducting field trials since February 2002, successfully completing its third set late last year [*FCB*, January], and has logged hundreds of truck days.

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## Spanish research on micro fuel cells for portable electronics

**Researchers at the independent CIDETEC Center for Electrochemical Technologies in northern Spain are working on a project to assess fuel cell technology for very small-scale applications in the 1–10 We power range, such as cell phones or PDA chargers, or for remote signalling etc.**

Several technology themes are being developed in order to obtain the institute's own micro fuel cell technology, including the design and enhancement of MEAs, structural elements (current collectors, shutoff devices), and electronics for current enhancement (including the use of ultracapacitors to boost peak power output).

This work is currently following two lines of investigation, depending on which fuel is used. The first uses hydrogen stored in a small metal hydride cartridge for mini fuel cells, while the current focus is on the use of direct methanol

fuel cells. To date it has been possible to assemble and test a 1.5 We hydrogen mini fuel cell prototype which, combined with ultracapacitors, has been able to power a cell phone and enable calls to be made and received.

Apart from the use of methanol, other lines of investigation under way are the perfecting of a design of a new mini fuel cell (for which a patent application has been made), and the use of new thin-layer MEAs which will provide greater yields with a significant reduction in the use of noble metals as electrocatalysts, and thus reduce the cost of the cell.

This project is being directly funded by CEGASA, a leading Spanish manufacturer and distributor of alkaline batteries.

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## Quantum delivers refueling system to GM

**California-based Quantum Technologies has delivered a mobile 700 bar (10 000 psi) hydrogen refueling system to General Motors. This transportable unit will be used to refuel the automaker's fuel cell vehicles in Washington, DC which are equipped with Quantum's 700 bar hydrogen fuel systems.**

Quantum has developed and launched a line of portable 350 (5000 psi) and 700 bar hydrogen refueling systems, aimed at supporting the introduction of FCVs and helping to establish the early foundation of a hydrogen refueling infrastructure. The units are also designed with a 'defueling' capability, which facilitates vehicle service operations. Targeting fleets from just one to as many as 20 vehicles, the units are designed to be user-friendly, and incorporate multiple redundant safety mechanisms and fueling controls compatible with California Fuel Cell Partnership hydrogen refueling protocols. They are certified for use by the German regulatory agency, TÜV.

In addition to refueling infrastructure applications, Quantum manufactures components and end products for the transportation and stationary fuel cell power generation sectors.

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**For more information on GM FCV, go to:** [www.gm.com/company/gmability/adv\\_tech/400\\_fc](http://www.gm.com/company/gmability/adv_tech/400_fc)

## In Brief

### Japan committed to 15m FCVs by 2030

The number of fuel cell vehicles in Japan is expected to reach 15 million in 2030, equivalent to 20% of the nation's current automobile count of about 75m. The long-term target was revealed by Akihiko Morota of the Agency for Natural Resources & Energy (ANRE), part of the Ministry of Economy, Trade & Industry, and reported by the *Jiji Press*.

The official Japanese fuel cell scenario comprises three phases. The introductory Phase 1 (2005–2010) will accelerate the launch and gradual establishment of the fuel supply system, and the leadership of public services and the fuel cell industry in promoting FCVs and buses, leading to 50 000 FCVs and 2200 MWe of stationary fuel cell capacity.

The diffusion stage, Phase 2 (2010–2020), will see the wider establishment of the fuel supply system and self-sustained market growth, in tandem with the private sector's promotion of the new technologies. By 2020 there will be 5m FCVs and 10 GWe of stationary systems.

Phase 3 is the penetration stage, between 2020 and 2030, which will see a hydrogen supply infrastructure across the country with 15m FCVs served by 8500 filling stations, and genuinely commercialized and practical combined-cycle fuel cells contributing to 12.5 GWe of installed stationary fuel cell systems.

### Hydrogenics to build hydrogen generator for ChevronTexaco

Toronto-based Hydrogenics has been contracted by ChevronTexaco Technology Ventures (CTTV) to design and build a hydrogen energy station for stationary power generation and transportation fuel applications. Hydrogenics is providing engineering and product-related services to integrate a fully packaged hydrogen generator based on CTTV's proprietary reformer technology.

The contract is the first under a master services agreement recently signed between the two companies. The CTTV project is funded by the US Department of Energy.

### Hitachi Cable produces titanium DMFC electrode

Tokyo-based Hitachi Cable Ltd has developed what it claims is the world's first titanium electrode material for direct methanol fuel cells. The company says that using titanium instead of graphite for DMFC electrodes could allow them to be reduced to around half the size, and manufactured for only 1–2% of the cost.

The company is working with researchers at parent company Hitachi Ltd to prototype a 20 We cell, around the size of a business-card holder, that can power a notebook computer. The goal is to have a practical version of the fuel cell ready in fiscal 2005, according to a report in the *Nihon Keizai Shimbun*.