According to Genesis, its fuel processors have consistently demonstrated very high net system efficiencies (>80%) and are the only compact hydrogen generators that automatically 'load track' and are instantly responsive to the hydrogen needs of a fuel cell.

As a result of the army contract, which was signed in the fall, Genesis has tripled in size, increasing its workspace to 5500 ft^2 (510 m^2) and its staff from two to seven employees in order to have the capability to perfect the prototype. Company president Phillip Piffer declined to disclose the amount of the contract, but said it was 'significant'. He expects a final prototype to be ready for testing by the end of the summer.

Genesis' larger Model 20L systems (1.3 kWe) are now being tested in long-term demonstration projects in New Zealand [*FCB*, December 2004] and Poland. A second generation of the Model 20L has also been developed for stationary and mobile power system projects now starting in Europe and the US.

Contact: Genesis Fueltech Inc, Spokane, Washington, USA. Tel: +1 509 534 5787, www.genesisfueltech.com

Medis ships power packs to GDC4S for testing

US/Israel-based Medis Technologies has shipped 200 of its fuel cell Power Pack products to General Dynamics C4 Systems, for testing in preparation for delivery of commercial units to its customer base. The program aims to determine the response of the direct liquid fuel cell products to a broad range of rigorous tests relating to military and civilian specifications.

'This delivery to General Dynamics meets a very important milestone in our program as we ready our Power Packs for introduction into the consumer markets,' comments Robert K. Lifton, chairman/CEO of Medis Technologies. 'We expect this intense testing program to push the Power Packs to their limits, and provide us with the feedback as to any area where improvement may be required.' The company will then embark on a testing program with Underwriters Laboratories and other certifying agencies.

Following product testing, Medis plans to offer several thousand Power Pack products at little or no cost to selected mobile operators, OEMs, distributors and other outlets for their own use and the use of their customers. The company will also present Power Packs to 1000 influential individuals in senior government positions around the world, in the telecoms industry, portable device OEMs, leaders in consumer-related companies and in the media who help mold public opinion.

Later this year, Medis expects to start deliveries of thousands of units to retail customers for the consumer product launch. The fully automated line will be managed by contract manufacturer Celestica [*FCB*, July 2005], and capable of 1.5m units a month when fully operational. Medis will deliver a further 100 Power Packs to Celestica in the next few weeks for a parallel testing program.

Contact: Medis Technologies Ltd, New York, NY, USA. Tel: +1 212 935 8484, www.medistechnologies.com

Or contact: General Dynamics C4 Systems, Scottsdale, Arizona, USA. Tel: +1 480 441 3033, www.gdc4s.com

Honda plans production of next-generation FCX

According to American Honda Motor Co, the company is to begin production of its next-generation FCX hydrogen-powered FCV in Japan in three or four years' time. The production car will closely resemble the FCX Concept vehicle, unveiled at the 2005 Tokyo Motor Show [*FCB*, December] and recently shown at the International Auto Show in Detroit.

The Honda FCX Concept is a sleek, low-slung sedan with a spacious cabin. It features the company's innovative new 100 kWe V Flow fuel cell stack, which employs vertical gas flow. The cells are arranged vertically in a central tunnel ('vertebral layout') to achieve a new, compact high-efficiency fuel cell packaging and a uniquely low floor platform, Honda says. The new system allows gravity to help discharge water from the stack, improving water management and consequently improving cold-weather performance and allowing low-temperature startup on a par with a gasoline engine, according to Honda.

The vehicle's drivetrain features three energy-efficient motors: an 80 kWe front motor, and two smaller 25 kWe in-wheel motors at the rear. The FCX Concept also utilizes a new hydrogen absorption material, which effectively doubles the tank's storage capacity to 5 kg of hydrogen at 5000 psi (350 bar) and extends the cruising range to 560 km (350 miles). The vehicle will also include many advanced gadgets, such as sensors and intelligent cameras than will recognize the driver and automatically unlock the doors, and then adjust the steering wheel, accelerator and instrument dashboard to the optimum position.

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Or contact: Honda Motor Company, Wako-shi, Saitama, Japan. Tel: +81 48 462 5467, Web: world.honda.com/tech

Applied Ventures invests in ClearEdge Power

California-based Applied Ventures – a subsidiary of Applied Materials Inc – has invested $2m in ClearEdge Power in Oregon, a privately held manufacturer of silicon-based, stationary fuel cells. The financing complements a joint development agreement under which Applied Materials will provide support to ClearEdge on several projects, according to an *Electronic News* report.

ClearEdge Power, which changed its name from Quantum Leap Technology last fall, manufactures fuel cell systems for backup and continuous power markets. The company sees Applied Materials as a strategic partner in its quest to commercialize reliable, low-cost stationary fuel cell generators using semiconductor manufacturing processes.

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Phenomena controlling PEMFC performance analyzed at Sandia

Two researchers at Sandia National Labs in New Mexico are working to understand several key phenomena that control hydrogen-fueled PEM fuel cells, and address proper water management and performance degradation.

Ken S. Chen is developing computational models to describe the phenomena using the Sandia-developed GOMA computer code, while Mike Hickner is performing physical experimentation. 'A natural by-product of using hydrogen and oxygen to produce electricity in a PEM fuel cell is water [the other being waste heat],' says Chen, project principal investigator. 'One challenge is maintaining the proper amount of water in a PEM fuel cell. Sufficient water in the membrane is needed to maintain its conductivity, whereas too much liquid water can result in flooding the cathode gas diffusion layer, which prevents reactant oxygen from reaching catalytic sites and causes performance deterioration.'

The work is leading to better understanding in two important areas, including how liquid water is produced, transported and removed efficiently in PEM fuel cells, and how PEM fuel cell