

Fuelling speculation

While fuel cells are beginning to find wider application, developing them for portable devices remains problematic. By **Graham Pitcher**.

While countries like Germany, Japan and the US have embraced fuel cell technology, its adoption in the UK has been less enthusiastic, claims Tom Sperrey, ceo of standby power specialist UPS Systems. However, Sperrey is forecasting significant commercial growth and believes the UK fuel cell landscape will change in the next 12 months as costs fall and new products hit the market.

"2010 is bringing with it a new wave of fuel cell activity," he noted. "Already, new products are launching into the market and companies continue to show interest in learning more about fuel cells and adopting clean technology."

The deployment of fuel cell and hydrogen technologies has received a major boost from the Technology Strategy Board (TSB), which recently announced a £7million investment in 15 demonstrator projects.

The TSB believes these innovative technologies, once fully developed, will

contribute to meeting UK and EU climate change targets and provide significant opportunities for British companies.

The capital funding provided by the programme will be used to accelerate the demonstration of products for both the stationary power and transport markets.

Iain Gray, the TSB's chief executive, said: "We expect the technologies that will be developed and demonstrated to make real progress towards market adoption, providing significant global opportunities for the British companies involved."

Amongst the growing opportunities for hydrogen and methanol based fuel cells are traffic signals, remote monitoring and security. Sperrey sees two types of cell being needed: those with power ranging from 25 to 150W will be suited to prime power applications, while devices with up to 15kW capacity will be suited to standby power.

"In these growth hotspots, fuel cells offer extended runtimes," said Sperrey. "For example, a fuel cell equipped with a

28litre canister of methanol could operate equipment continuously for up to six months, reducing the costs of manpower, transport and materials costs associated with sending someone to replace batteries on a regular basis."

One possible transportation application, shown in October 2007 at Tokyo Motor Show, is Suzuki's Crosscage, a concept motor bike powered by an Intelligent Energy fuel cell power system and rechargeable lithium batteries. However, there is no indication when the bike might be available commercially.

While much has been said about the potential for fuel cells to replace conventional batteries in consumer products, little has been seen in the way of real products.

A number of companies announced technologies during the past five years, only to fall by the wayside. One of the more promising was PolyFuel, which ceased operations in August 2009.

Early in 2006, PolyFuel claimed that its refinement of a fuel cell membrane had led to a 33% increase in the amount of power generated by passive direct methanol fuel (DMF) cells. DMF cells use a catalysed reaction between methanol and water to produce energy. The by products of the reaction are CO₂, water and heat.

PolyFuel's membrane was expected to produce 200mW/cm² at 70°C which, it believed, would enable a 'significant reduction' in the size, weight and cost of fuel cell stacks.

Despite the enthusiasm, it may well be some time before your portable devices feature fuel cells, rather than rechargeable batteries.

Suzuki unveiled Crosscage, a concept motor bike powered by an Intelligent Energy fuel cell power system and rechargeable lithium batteries

