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Power

Fuel cell start-up CEO speaks to EW

by **David Manners**
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You might not think that mackintoshes have much in common with fuel cells, but the boss of one of the leading fuel cell technology companies, Polyfuel, reckons that one of the leading mackintosh material companies has the right business strategy for him.

"Goretex make the material for jackets. We think that if you have a unique technology, which is well protected by patent, that is a more profitable way to go than selling the end-product," says Jim Balcom, CEO of Polyfuel, "we think the same is true in portable fuel-cells."

Polyfuel, a spin-out from Stanford Research, supplies a membrane used in methanol-based fuel-cells, and is about to complete development of a fuel-cell reference design and fuel-cell prototype which will deliver the long-sought goal of fuel cells which will allow laptops to run all day and cellphones to run all week.

Goretex is a more profitable than its customers but, in order to succeed with the Goretex business model, you have to have a product which customers either have to have because it is narrowly sourced, or which is clearly superior.

Polyfuel's confidence in pursuing the Goretex business model is because it reckons its membranes are better than those of the industry's leading membrane supplier, DuPont

Isn't his business model vulnerable to having people design around his patents? "That's always a risk," replies Balcom, "one of the reasons we have strong customer interaction is so we can build a strong brand to withstand a competitor."

Another reason for his confidence in the protectability of Polyfuel's technology is that the problems involved in developing fuel-cells are tough.

"It's really difficult to do. It involves deep science. It's really a multi-disciplinary problem," says Balcom.

Although primarily a membrane company, Polyfuel decided to develop the whole fuel-cell system for portable applications because success in that will jump-start a significant expansion in the market for membranes.

First, Polyfuel had to develop a suitable membrane which is a barrier to methanol but permeable to water, and then find a way of re-cycling the water which is a show-stopping by-product of methanol-based fuel cells. Both of those have been achieved and the concept has been proved in a working demo.

It has one task to complete before it presents its design to the market, and that is to incorporate that cell into a functioning notebook PC power module and demonstrate it powering a commercially-available notebook computer.

Balcom reckons he'll have that cracked by the end of the year and then it will be up to his customer base to take it to market.

"We think it will then take about twelve months to go from prototype and reference design to complete the technology transfer to our customers, and we expect it will take our customers another twelve months to get manufacturing up and running," says Balcom.

Polyfuel's customer base is blue chip: NEC, Toshiba, Sony, Sanyo, Hitachi, Samsung, Fujitsu, Sharp, Panasonic and BYD the Chinese battery company.

The portable fuel-cell will first be seen in laptops with other applications coming later. "The reference design is for laptops but the architecture is scalable from 10W to 100W," says Balcom, "we will work on new reference designs on sub-10W and 100W-plus."

So, look for the all-day laptop in 2010, and for the all-week cellphone, a little bit after that.