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**CERAMIC FUEL CELLS LIMITED**



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Ceramic Fuel Cells Limited has announced a Letter of Intent (LOI) with the German energy utility EWE to develop fuel cell based combined heat and power (CHP) systems for the residential market. This follows the June signing of a contract with EWE for a commercial field trial of two CHP units. Ceramic Fuel Cells has already shipped the first of a number of field trial units to Powerco in New Zealand in June 2005. What is the significance of your first commercial partnership with a European utility?

**CEO Brendan Dow**

CFU has really entered the world stage with this deal with EWE. In the last twelve months CFU has signed four customers for field trials of our prototype fuel cell powered micro-CHP electricity generator. We've shipped our first unit and now also signed an agreement for ongoing collaboration. Not many fuel cell companies targeting small scale stationary electricity generation have achieved these milestones.

EWE is a significant partner because it's so large and it operates in central Europe and Germany, where the micro-CHP market is growing rapidly. EWE is Germany's fifth largest electricity and gas utility with a turnover of about €6 billion. It's been very active in validating fuel cell powered CHP systems over the last four to five years and is fully committed to the deployment of this technology.

We believe that the European market for fuel cell powered CHP will be very large and a first step in being able to access this market has been achieved by signing this contract with EWE. In the UK alone, British Gas has predicted micro-CHP sales could be around 200,000 in less than five years.

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EWE has been trialing Sulzer-Hexis and Valliant fuel cells and has operated trial units in private homes for some years. Why did EWE seek another supplier?

**CEO Brendan Dow**

EWE wants to make sure that it's evaluating all commercially relevant fuel cell CHP units. One difference with our technology is that we can offer a 1:1 heat to power ratio compared with other fuel cell technologies that have heat to power ratios of 2:1 or 3:1. That is, they produce 2 or 3 times as much heat as power. Other conventional engine CHP technologies have even higher ratios, for instance Stirling engine units are about 6:1. If a CHP unit produces too much heat, it has to be turned off during summer, meaning it's less efficient overall. We've designed our unit so it can be run as an electrical generator throughout the year providing year round base load power without the need to shut down during summer months.

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What differentiates your CHP units from those of Sulzer-Hexis and Vaillant?

**CEO Brendan Dow**

The main difference is the higher electric efficiency of our unit and thus our low heat to power ratio. High electric efficiency means less gas consumption per kW of power, which means of course lower gas costs per kW of power, and also less CO<sub>2</sub> emission per kW of power, and as mentioned earlier, a lower heat to power ratio which enables longer periods of operation throughout the year. Naturally, higher system efficiency delivers better outcomes - lower costs, extended life of fuel supplies, and a greater contribution to reaching targets on greenhouse gas emissions. Electric efficiency of CHP systems of more than about 35 percent enables a CHP unit to produce electricity more efficiently than that supplied by conventional and centralised systems on the electricity grid. This we believe can provide a significant competitive advantage.

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When will you supply the units, and what is the significance of the LOI?

**CEO Brendan Dow**

We expect to deliver the units in the last quarter of this calendar year.

The LOI allows us to work closely with EWE to share an understanding of the key drivers of CHP technology, develop field support and installation training programmes and promote the benefits and features of fuel cell technology. We're confident the relationship with EWE would have developed strongly through our field trials, even without this agreement, but the fact that we've both signed this

document gives some framework and commitment to our relationship, and means we can collaborate on the 'big picture', in parallel to the field trial.

The LOI specifically sets out how we'll work together to determine specifications, technical standards and opportunities for commercial market development for fuel cell systems. This could include verifying economic and technical models, environmental benefit analysis and determining most suitable generator sizes. We'll also work closely with the relevant standards and government agencies in the German domestic and pan-European markets.

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Do competitive pressures preclude you from establishing a similar relationship with other German energy utilities?

**CEO Brendan Dow**

At this early stage of entering the European market, we're choosing our partners carefully to maximise the value of our resources. In the medium term we would like to have relationships with other German utilities, ideally all of them, although the relationship may be an indirect one through one of our strategic partners. However in the short term, our immediate focus is on delivering our field trial contract and working closely with EWE.

Our aim is to partner a select number of utilities and to work closely with them to develop a fuel cell system that meets their commercial needs. Not all utilities have the same high-level strategy or plan to develop distributed energy generation as EWE, or fuel cells energy generation for that matter.

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You have attributed the successful negotiation of this contract to the establishment of your European subsidiary. What other European partnerships are you pursuing?

**CEO Brendan Dow**

We recognise the EU market is our first target market. The Europeans are so advanced with energy efficient appliances, distributed energy generation and co-generation. They have significant challenges to meet Kyoto targets whilst continuing to generate electricity. An increasing number of utilities are watching fuel cells to see how different companies are progressing with their technologies.

Likewise an increasing number of appliance manufacturers are watching fuel cell companies to see which systems will be best for integration into their appliances. After all, we expect that it'll be the appliance manufacturers, not the fuel cell developers, that will integrate the fuel cells into domestic appliances, such as micro-CHP or small generators, for sale to the broader market and utilities.

We have initiated discussions with all major UK and German utilities, and EWE has visited our head office and factory facilities in Melbourne, Australia. We've also initiated discussions with some potential Application Partners, specifically with all the major boiler manufacturers who may include a fuel cell in their appliances, and two of these companies recently visited us in Melbourne.

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The UK government is very supportive of renewable energy. Are there any prospects of winning UK government support?

**CEO Brendan Dow**

Indeed the UK government earlier this year cut the VAT specifically for micro-CHP appliances from 17.5 percent to 5 percent thereby making these units more attractive. The UK government has positive policies on fuel cell energy generation and on energy efficient appliances, such as condensing boilers and micro-CHP systems.

The UK government has also established project incentive programs for field trials of fuel cells, renewable fuel trials and more. We recently recruited a specialist, Dr Alan Chapman, who is based at our UK office, to access these government funded initiatives and we've already submitted several project proposals for funding.

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You have been CEO for the last four weeks. What attracted you to Ceramic Fuel Cells and how has your experience of its operations and commercial prospects compared with your expectations?

**CEO Brendan Dow**

I was initially attracted by the challenge of commercialising a technology that is a revolutionary change from centralised to decentralised electricity generation.

There are several industries which will affect the way we live in the future, but the most important will be the ones that are based on environmental sustainability. Fuel cells and electrical energy from fuel cells is one of those industries. For me this presents a great personal opportunity to make a difference.

Ceramic Fuel Cells is certainly one of the leading players in the global fuel cell industry. I really had no expectations in terms of the operations, but it is fair to say that the team at CFU has a very good understanding of micro-CHP technology and processes which places us in a strong position to scale up to mass production. During my recent visit to our European subsidiary and meetings with potential commercial partners I was certainly pleased to see how advanced toward commercialisation we are.

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What strategic goals have you set for Ceramic Fuel Cells?

**CEO Brendan Dow**

The company has already announced some goals for the coming financial year, including signing more contracts for field trials, engaging with application partners and continuing to improve the design and performance of our fuel cells. We'll secure further funding and list on the AIM market.

As you'd expect, like any new CEO I'll be reviewing the company's current strategy and business plan with the Board and my management team, both in Australia and Europe, but I don't expect any drastic changes as a result of that

process. Clearly, it's important for us to work closely with appliance manufacturers who we believe in the future will make units in larger volumes for sale to the utilities and the retail market.

We'll also continue to do field trials to demonstrate our prototype fuel cell powered micro-CHP to showcase the benefits of fuel cells as generators of electricity. These field trials are to prove our technology to relevant partners, both appliance manufacturers and utilities.

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Now that CFU is progressing to the commercial prototype trial stage do you consider the current business model appropriate when your competitors are subsidiaries of multinational industrial corporations?

#### **CEO Brendan Dow**

It's not strictly correct that all of our competitors are subsidiaries of multinationals, however our focus gives us a significant advantage over larger more diverse players who may have some conflicting priorities. If fuel cells are only a sideline of a much bigger business, it can be difficult to compete for internal resources and support. That's not the case at CFU. As a single focus organisation we can respond quickly to the emerging market for fuel cells.

In fact, among our closest competitors – that is, other companies developing small solid oxide fuel cell products – we are one of the few 'pure play' listed companies that are currently focused on that market segment. Other companies targeting that space are also chasing other opportunities – either different types of fuel cells or different product sizes, or the fuel cell operations of some of those companies are only a very small part of their overall business. We believe we give our shareholders an opportunity to invest in fuel cells without the 'baggage' of a huge multinational business.

Furthermore, because we do all our own design, development, testing and construction in-house we have a thorough understanding and control of all components in the fabrication and operation of our fuel cells and the balance of plant, that is the control systems. Some other companies, even those that are large multinationals, subcontract out production of their fuel cell components, which we believe can make it more difficult to maintain quality control.

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There has already been a change in the senior level reporting structure within the company with the CEO of Ceramic Fuel Cells (Europe) now reporting to you as CEO. What other changes are proposed and what will this mean for the operations of the company?

#### **CEO Brendan Dow**

Initially, when the European subsidiary was set up, the CEO of CFU Europe, Brendan Bilton, reported to the Executive Chairman. The logical progression now that I'm CEO of the group is for Brendan to report to me.

I do not have any significant senior reporting structural changes to make immediately - most changes will revolve around ensuring our structure internally can most efficiently deliver the strategy at the lowest possible cost.

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You are currently building another two CHP units for trials in Victoria and New Zealand. How will you fund the additional units for EWE?

**CEO Brendan Dow**

The additional units for our field trials, including with EWE, are being assembled now. The commercial terms of the EWE deal are confidential, however EWE has made a significant contribution towards the cost of the units.

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Your reported R&D expenditure was \$5.6 million for the half year to December 2004. Will R&D expenditure fall now that you have overcome the technical hurdles to get the first prototype into the market?

**CEO Brendan Dow**

The R&D team has turned its focus to making our fuel cells more powerful and cost effective with longer life; all this and the integration into appliances has to be achieved in a tight timeframe. Therefore, I'm not sure it's correct to say that our R&D costs will fall significantly in absolute terms. Certainly they have fallen as a percentage of total costs, as our focus shifts towards commercialising our technology. For instance, in FY03 R&D costs were 71 percent of our total expenses, and for FY04 they were 64 percent, and they're likely to stay at around the 60 percent level, at least in the short term.

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Thank you Brendan

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For further information on Ceramic Fuel Cells please visit [www.cfcl.com.au](http://www.cfcl.com.au) or call Helen Millicer (Investor and Public Relations Manager) on +61 3 9554 2300 or +61 (0) 413 875 872.

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