



CERAMIC FUEL CELLS LIMITED

Clean power for your home



Interim Results and Company Update

Presented to

**Analyst Open Day
Candy Park**

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Overview

- **Financial Results**
- **Operational Highlights**
 - Product Development
 - Manufacturing
- **Technical Achievements**
 - Patents
 - Power Output
 - Lifetime
- **Current Snapshot**





Financial Results

- **FY08 Half Year to 31 December 2007**
- **Revenue: A\$1.8m / £0.8m**
 - FY07 Interims A\$2.5m / £1.1m
 - 34% higher field trial income, offset by lower interest income
- **Net operating cash outflow: A\$9.1m / £4.2m**
 - FY07 Interims A\$7.7m / £3.6m
 - Higher due to expanded operations, product development projects
- **Net loss: A\$9.7m / £4.4m**
 - FY07 Interims A\$7.9m / £3.7m
 - UK and German manufacturing costs, staff option expensing, reduced interest earnings and impairment charge on financial assets – offset by forex gain
- **Balance Sheet: removed contingent liability of A\$22.7m / £10.7m**
(grant agreement expired)
- **Total cash & financial assets at 31 December 2007: A\$47.1m / £22.1m**



Operational Review - Product Development

- Signed agreements for UK and Benelux markets in July 2007
- Developing products in four large European markets
 - CFCL's utility customers have >20 million customers
- January 2008, added Japan
 - World's most advanced market for fuel cell CHP units
 - Partner is the Paloma Group
 - 10 million homes in Japan
 - Largest hot water maker in the USA
 - Owns Rheem, Solahart, Raypak, Everhot
- Shipped five units to appliance partners
- February 2008 - First commercial order received, from Nuon
- Capex investment in manufacturing plant



Operational Review - Volume Order

February 2008

- **Volume Order from Nuon for 50,000 mCHP units**
- **10,000 units per year for five years, from H2 2009**
- **Based on commercial mCHP unit specifications**
 - Physical weight and size
 - Power and heat output
 - Efficiency
 - Lifetime
 - CO2 savings
 - Price
- **Substantial revenue over five years**





Blue Chip Customers and Partners



E.On group is the world's largest investor owned utility. UK's largest integrated power and gas company, 8.5M customers. Experience with deploying CHP units. www.eon-uk.com



Largest boiler and storage vessel expert in the UK. <http://www.gledhill.net>



Largest gas utility in Europe, sales of €22.4B. 11M customers in France. Entering the electricity market. www.gazdefrance.com



Largest gas heating company in France. Extensive distribution network. Part of the Remeha group. www.dedietrich-heating.com



Large, innovative Benelux utility, operations in Germany. >2M customers, sales of €5.6B. www.nuon.com



Large global boiler and heating systems manufacturer. Sells into 40 countries. 2,500 staff, sales of €40M. www.remeha.com



5th largest German utility. Leader in DG, fuel cells. 5,200 staff, sales of €7.4B. www.ewe.de



Specialist boiler maker, various brands. www.bruns-heiztechnik.de



Leading global gas appliance company. Based in Japan, operations in Asia, Oceania, Americas. Largest water heater manufacturer in the USA. Owns Rheem, Raypak, Solahart. Revenue of US\$2.5B, 15,000 staff. www.palomaglobal.com



Operational Review – Complete Systems

Complete in-house balance of plant and system expertise

- **‘CE’ approval**
 - Rigorous requirements
 - First obtained November 2005 for field trial units
 - NetGenPlus units approved November 2007
 - **Balance of plant components are critical**
 - **Development skills and time often underestimated**
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- **Annexure – Balance of Plant component status**



Operational Review - Manufacturing

UK Powder Plant

- Proprietary processes to make high quality zirconia powder
- Internal use - mitigate supply chain risk
- External sales - significant revenue opportunity
- 20T plant, commissioned October 2007

Australian Pilot Plant

- R&D, Testing, Product Development
- Pilot Fuel Cell manufacturing plant
- Making Gennex fuel cell modules for product development projects





Operational Review - Fuel Cell Plant, Heinsberg

- **Scale up Manufacturing to make commercial fuel cell modules**
 - Volume production, quickly, low cost, low risk
- **Manufacturing processes proven in Melbourne**
- **Site prepared, hired local staff 2007**
- **Initial capacity 10,000 units per year**
 - Existing leased building
 - Total project cost €12.4m
 - Completion June 2009
- **Future expansion**
 - 160,000 units per year in the same building
 - Option to buy Greenfield site
- **Long term supply partnerships**





Technical Achievements

Strategic IP Portfolio

- **Two patents granted July – December 2007**
 - Design for metal / ceramic Fuel Cell Stack
 - Electrical collection inside a Fuel Cell Stack
 - Both inventions can increase stack performance and lifetime
- **Two new patents granted February 2008**
 - Coating to protect steel from corrosion & chromium
 - Improves fuel cell stack electrical efficiency and lifetime
 - Process for using hydrogen to remove sulfur from fuel
 - Fuel cell can use many fuels - gasoline, diesel, kerosene, LPG, natural gas
 - Access to more products & markets
- **At 29 February 2008, 77 patents granted for 29 inventions**



Technical Achievements

Increased Power Output

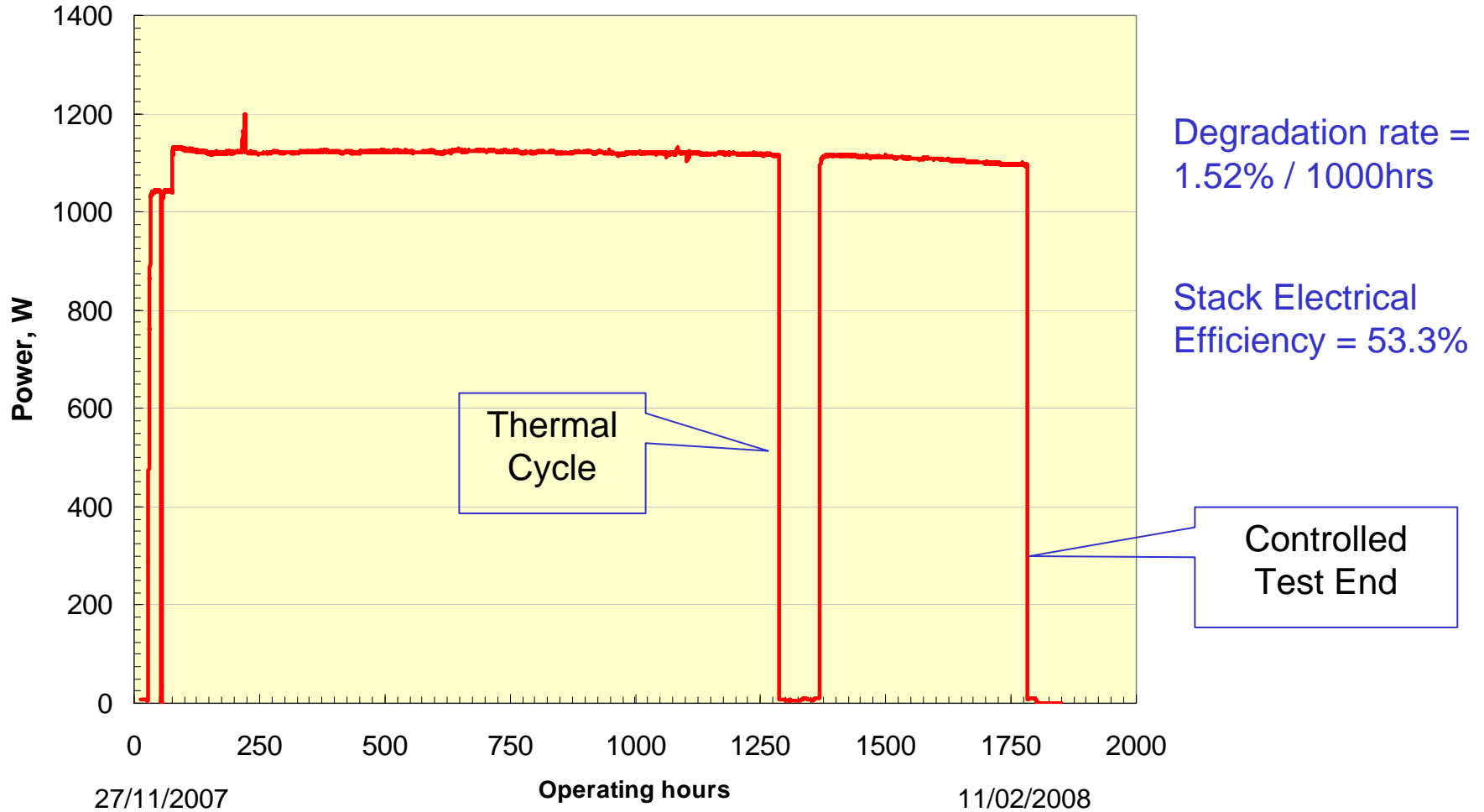
- Fuel Cell module power output doubled from 1kW to 2kW
- More power from the same balance of plant
- Significantly lower cost per kW
- Higher CO2 savings per unit
- Fuel cell stack design frozen





Stack Lifetime

1kW Stack Test @ 750°C in Natural Gas





Current Snapshot

- **Delivered on a clear and focused Strategy**
 - Expansion into Europe
 - Validated path to market via utilities and appliance partners
 - First Volume Order secured
- **Technology De-risked**
 - Successful real world field trials
 - Breakthrough increases in power density, efficiency, cost reductions
- **Blue Chip partners in five key markets**
 - Multiple markets increases scale, reduces commercial off-take risk
 - Real commitment, real resources
 - Developing products today
 - Endorsed CFCL technology & value model
- **Manufacturing Scale Up**
 - Outsourcing volume components
 - In house core IP & strategic strengths
 - Volume manufacturing before peers
- **Powder Sales**





Annexure - Fully Developed Balance of Plant

Fuel Delivery	
Gas pump	Not required
Fuel Control Valves	Solved
Fuel Isolating Valve	Solved

Air Delivery and Air Pre-Heat	
Air blower	Solved
Air pre-heater	Solved
Auxiliary Burner	Not required
Air pre-heater by-pass valve	Solved

Heat Recovery	
Heat recovery heat exchanger	Development
Cooling water pump	Not required



Water Delivery	
Steam generator water feed pump	Solved

Fuel Processing	
De-sulphuriser	Solved
Reformer	Solved
Stack after-burner	Solved
Fuel pre-heater	Solved
Steam generator	Solved
Fuel / steam mixer	Solved
Exhaust mixer	Not required

Control & Electronics	
Temperature recorders	Solved
Temp recorder & control	Solved
Pressure recorders	Solved
Differential pressure recorders	Solved
Controller & power electronics	Solved