

Fuel Cells

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Background

- Micro Fuel Cell CHP Are Sub 50 Kw Power Range
- Market Segment – Residential And Commercial
- Large CHP Systems From 100kw To 10+mw
- On-site 24/7 Generation Of Electrical Base Load For Commercial, Industrial And Public-sector Installations
- Technology Maturity – Demonstration/Early Commercialization

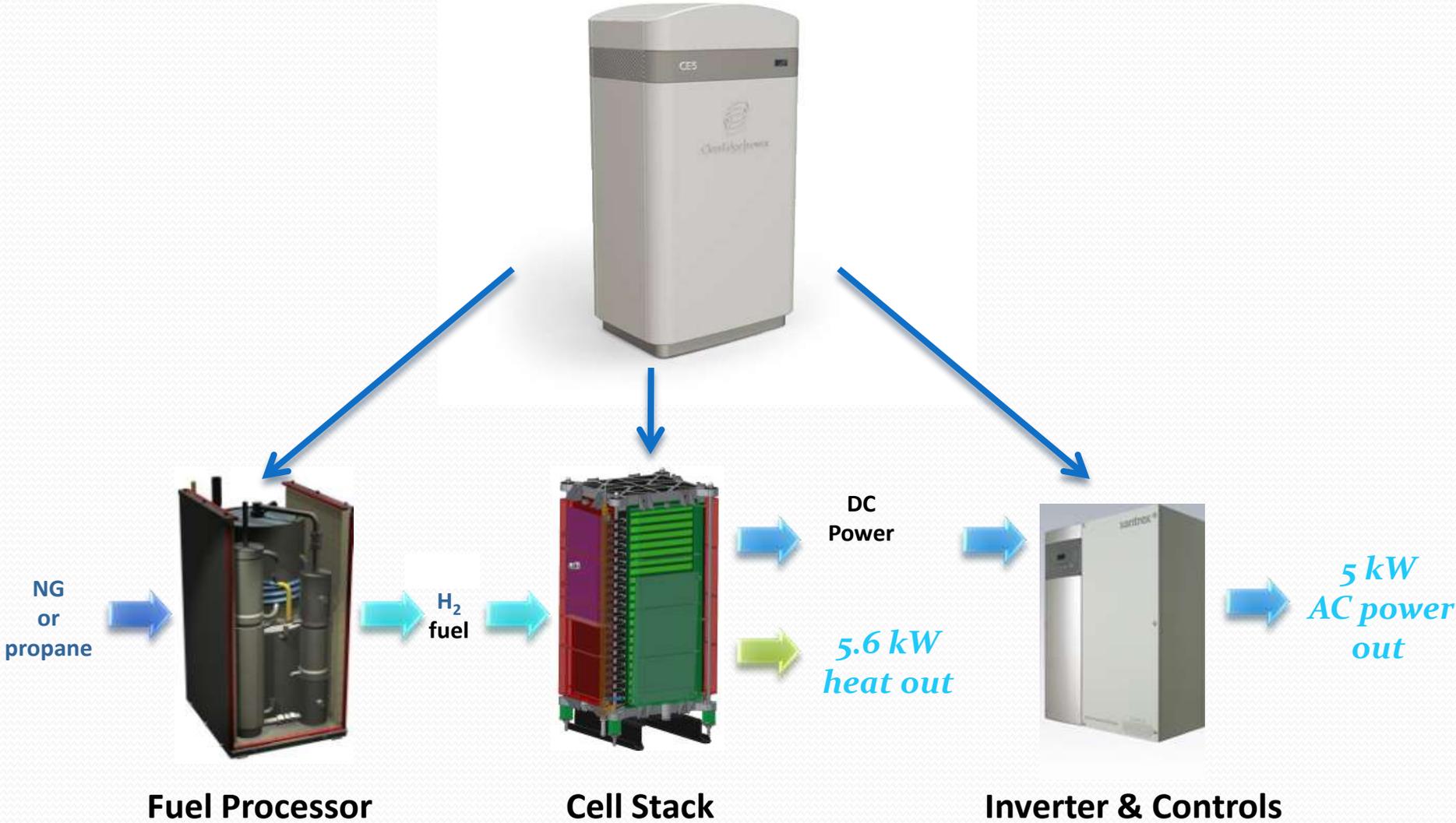
Drivers for Fuel Cell CHP Systems

- Air quality
- Distributed Generation
- Energy Independence
- Global climate change
- Population and economic growth

Advantages of HT PEM for Micro CHP System

- Low cost & high volume manufacturing
- Thin parts with low resistance
- No issues with stack building as a single piece MEA
- Fuel cell has no flooding issue and no water management issues
- CO sensitivity to $>20,000$ ppm
- Simple, low cost FPS
- Waste heat is available at 150 °F
- Stack life up to $100,000$ hrs

System Components



Proposed Projects

- Install two 5kW units at the cafeteria
 - Units can be connected together for increased power
- Or**
- Install one unit at the Child Care facility and one unit at the cafeteria
 - Project cost: \$152,000

System Specification

- Base-load 5 kW AC electricity
- Heat: 20,000 BTU/hr @ 150F
- Greater than 40% electrical efficiency
- Continuous CHP with grid outage
- Natural gas or propane fuel



Demonstrate Large Fuel Cell CHP System At AQMD

- RFP to solicit proposals to install a natural gas, stationary fuel cell unit in the power range of 250-300kW
- Focus of the project: accelerate commercialization, operational experience, develop database, and public awareness
- Cost, scope and services will be determined as part of the competitive bidding process