Financing Fuel Cells

Warren Leon
Clean Energy States Alliance
August 30, 2011
This Webinar

- Part of a series sponsored and organized by:
  - US Department of Energy Fuel Cell Technologies Program
  - Clean Energy States Alliance
  - Technology Transition Corporation

- Also briefing papers and materials for state policymakers and others on the Hydrogen and Fuel Cells Project page at [www.cleanenergystates.org](http://www.cleanenergystates.org)
What is CESA?

- A nonprofit coalition of state and sub-national clean energy funds and programs working together to develop and promote clean energy technologies and markets.

www.cleanenergystates.org
Financing Fuel Cells: A Simple Proposition

- For more rapid commercialization of fuel cells, easy financing is essential.
- Businesses and individuals are hesitant to tie up significant amounts of money in an installation that will pay back gradually.
- State agencies worry about end-users taking on all of the risk of a fuel cell installation.
- The experience of the solar industry shows the importance of financing options.
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Fuel Cell Financing Options
(CESA/DOE Webinar - August 30, 2011)
The UTC Power Advantage

Rising energy costs

- Significant Energy savings through:
  - 80 - 90% system efficiency
  - Combined heat and power
- Payback in 3-5 years

Strained Utility Grid, unreliable power

- Assured power generated on-site:
  - Business continuity
  - Risk mitigation
  - Can serve as emergency shelter

Sustainability and carbon reduction

- Clean, quiet & virtually pollution free:
  - Reduced emissions
  - Zero water consumption
  - Qualifies for LEED points
Why choose UTC Power for your fuel cell?
- Company history
- Financial stability
- Technology Leadership
- Product support
- Financial incentives
- Flexible options

Fuel Cell Financing Options
(Webinar - August 30, 2011)
United Technologies Corporation

Fortune 50 corporation
$54.3B in annual sales in 2010
~60% of sales are in building technologies

UTC Power
OTIS
Carrier
UTC Fire & Security

Research Center
Hamilton Sundstrand

Paul J. Rescsanski, Manager, Business Finance
UTC Power

About Us

- Fuel cell technology leader since 1958
- ~ 430 employees
- 750+ Active U.S. patents, more than 300 additional U.S. patents pending
- Global leader in efficient, reliable, and sustainable fuel cell solutions

Stationary Fuel Cells

Transportation

Space & Defense

Paul J. Rescsanski, Manager, Business Finance
Examples of Best Fit Customers: Facilities with 24/7 Power and Heating Demand

Supermarkets  Bottling  Hospitals  Mixed Use

Hotels  Bio-tech/Industrial  Educational Institutions  Utilities

Paul J. Rescsanski, Manager, Business Finance
Stationary Fuel Cell Solutions
Flexible fuel cell application and varied experience

- Price Chopper
  New York

- St Helena’s Hospital
  California

- World Trade Center
  New York

- Coca-Cola Refreshments
  New York

- Samsung/GS Power
  South Korea

- New Haven Public Schools
  Connecticut

Paul J. Rescsanski, Manager, Business Finance
Customer Support

- 24/7 powerplant monitoring, troubleshooting, maintenance
  - Reducing mean time to repair – increasing customer uptime
- Customer service headquarters located in CT with easy access to on-site engineering and manufacturing support
- Global network of UTC Power service employees
  - UTC Power provides complete 10-year service package
Fuel Cell Incentives:

- **Federal Investment Tax Credits**
  - Max of $3,000/kW or 30% of project cost, in effect until 12/31/2016.

- **1603 Grant (in lieu of FITC)**
  - Max of $3,000/kW or 30% of project cost, in effect until 12/31/2011.

- **Accelerated Depreciation**
  - (100% in 2011, 50% in 2012, 5-Year MACRS)

- **State Grants/Incentives**
Energy Service Agreement (ESA):

- No upfront capital investment.
- Ownership/maintenance resides with UTCP.
- Inclusive of equipment, installation, maintenance.
  - Includes bumper-to-bumper service; preventive maintenance, scheduled and unscheduled overhauls.
- Pricing reflects monetization of available incentives; FITC, State Grants, etc.
- Fuel not included.

(May pay for use of system with operating energy budget)
Summary

PureCell® Model 400 kW Power Plants Deliver:

- Energy Savings
- Reliable Power
- Carbon, Water and Pollution Reductions
- Sustainable Attributes (LEED®)

UTC Power Offers:

- Experienced Project Management
- Full 24/7 Aftermarket Service
- Option to Purchase or Lease

Visit [www.utcpower.com](http://www.utcpower.com) to learn more

Paul J. Rescsanski, Manager, Business Finance
About ClearEdge Power

- Established in 2003
- Privately funded through:
  - Kohlberg Ventures
  - Applied Materials
  - Artis Capital
  - Sempra
- An Energy Technology Company
  - Design & Manufacture
  - Service & Maintenance
- 75,000 sq. ft. manufacturing floor
- Certifications/Listing:
  - KGS - Global Certification
  - ISO 9001 - Quality Management Systems
  - ISO 14001 - Environmental Systems
  - ETL Listing - Gas NRTL
  - CSA Listing – Pending Approval
  - CE Certification - Underway (European)

- Designed to address the urgent concerns:
  - Increased demand on grid infrastructure
  - Base Load Power
  - High energy costs
  - Environmental impact
Energy is on the same journey

- More changes in the energy industry in the next 20 years than in the last 100 years
  - Technological innovations
  - Disruptive business models
- Federal and state energy and environmental policies are driving the change
- Customers expect greater choice, control, and sustainability

From This

- [Image of a red vintage telephone]

To This

- [Image of a man holding a modern smartphone]

To This

- [Image of a hand holding a smartphone with multiple icons]

ClearEdge POWER
Delivering Smart Energy Today™
ClearEdge5 – Delivering Smart Energy Today

Combined heat and power 5kWh distributed power system

CE5 converts natural gas into power and heat without burning it

High efficiency, low cost, on-site generation

Smart fuel cell technology

5 kW Power

Natural Gas

HEAT

5 kW
ClearEdge Power Fuel Cell Attributes

- Mass Produced
- Safety
- Modular
- Reliable
- Cost Effective
- Natural Gas
- Efficient
- Lifetime
- Combine Heat & Power
- Environmentally Clean

ClearEdge5
Modular System Architecture

**Base Unit**

- **CE5**
  - Base unit – 5kW
  - High efficiency
  - Low maintenance
  - Standard components

**Product Expansion**

- **CE FT**
  - 5-10kW applications
  - Data center
  - Large residential

- **CE15**
  - 10-15kW applications
  - Light commercial

- **CEXX**
  - 20-50kW applications
  - Medium commercial

**All Products Leverage:**
- Technology
- Process stability
- Supply chain
- Reliability
- Certifications

**Derivative Capability:**
- Fault tolerance
- Grid independence
- 208V 3 phase
- 48V DC
- Extreme weather
- Propane compatible

**Market Expansion**

- **Data Centers**
  - Data centers
  - Server rooms

- **Residential**
  - Niche market
  - Short sales cycle

- **Commercial**
  - Small business
  - Hotel
  - Retail
  - Fitness

- **International**
  - Off-grid applications

- **Utility**
  - Power generation expansion
# Top Vertical Markets

<table>
<thead>
<tr>
<th>Category</th>
<th>Markets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-Tenant</td>
<td>• Senior Living Centers, Affordable, REIT, Multi-Family</td>
</tr>
<tr>
<td>Hospitality</td>
<td>• Hotels, Full Service Multi-Unit Restaurants, Country Clubs and Spas</td>
</tr>
<tr>
<td>Education</td>
<td>• Public and private: K-12 Schools, Community Colleges, Universities (including dormitory housing)</td>
</tr>
<tr>
<td>Utilities</td>
<td>• Priority – 1. Gas Companies  2. Hybrid Electric &amp; Gas 3. ESCOs</td>
</tr>
<tr>
<td>Public Sector</td>
<td>• DOE, DOD, Civilian, Emergency first responders, City/State/Federal Buildings</td>
</tr>
<tr>
<td>Residential</td>
<td>• High-end residential</td>
</tr>
<tr>
<td>Data Centers</td>
<td>• Small-to-medium size business data centers / server rooms</td>
</tr>
</tbody>
</table>
## Industry Segment Leaders

<table>
<thead>
<tr>
<th>Hampstead Lafayette Hotel</th>
<th>Village Lindo Paseo Dormitory (SDSU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• City of San Diego Historic Landmark</td>
<td>• $1M savings in construction costs</td>
</tr>
<tr>
<td>• 8 Unit Install</td>
<td>• 9 Unit Install</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Irvine Unified School District</th>
<th>Cambrian Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>• (2) High school facilities / pools</td>
<td>• Low Income Senior Living (HUD)</td>
</tr>
<tr>
<td>• 12 Unit Install</td>
<td>• 4 Unit Install</td>
</tr>
</tbody>
</table>

- Paseo Dormitory (SDSU)
Benefits of Fuel Cells:

• Optimize Energy Efficiency and Lower Costs

• Reduce Harmful Emissions

• Increase Reliability through Distributed Generation

• Reduce Demand on the Grid

• Comply with Regulatory Mandates

• Insulate against Rising Electricity Rates
Key Challenges and Barrier for Fuel Cell Adoption

- Regulatory Hurdles
- Other Clean Energy Alternatives
- Fluctuating Incentives
- Flexible Financing Options

The CHASM

- Visionaries
- Pragmatists
- Conservatives
- Skeptics
Customers Expect Choices
- Purchase System
- Lease Systems
- Utility Model

ClearEdge Power Initiatives
- We Sell Systems not Power
- Direct Lease Offering
- Working to Offer 3rd Party Offering
- Work with Partners for PPA’s
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