Fuel Cells at Supermarkets: NYSERDA’s Perspective

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NYSERDA Programs to Install Fuel Cells

- Distributed Generation as Combined Heat and Power
  - 14 Fuel Cell as CHP Systems Installed Since 2002

- Renewable Portfolio Standard (RPS) Customer Sited Tier (CST) Fuel Cell Program
  - $21.6 Million through 2015
  - 1 Large Fuel Cell System and 23 Small Fuel Cell Systems Since 2007
Benefits of Fuel Cells

• Efficient Means of Electric Generation (~40-50%)
• High Quality By-Product Heat for CCHP
  – Can Approach 90% Efficiency when used in CCHP Applications
• Very Low Emissions
• Quiet Operation
• Low Maintenance/High Availability
• Reliable
Fuel Cells at Supermarkets

- **Thermal and Electric Load Profiles**
  - Coincident Thermal and Electric Loads
  - Year Round Thermal and Electric Loads

- **Good Potential for Replication**

- **Capable of Operating During a Grid Outage**
  - Permits Nearly Full Operation
  - More Reliable than Traditional Back-up Generators

- **Essential Part of our Critical Infrastructure**
Fuel Cells as Reliable Back-up Power

Fuel cell systems that run every day are more reliable in an emergency than a system that only runs when you need it.
August 2003 Blackout

• Half of NYC’s 58 hospitals suffered backup power failures. (New York Times 8/16/03)

• Generator failures at Verizon office caused 9-1-1 call gaps. (Daily News 8/17/03)

• Montefiore Medical Center (NYC) – site down for 5 minutes, then fully operational throughout the blackout using their CHP system

• South Oaks Hospital (Amityville) – Seamless transfer to CHP only
Critical Infrastructure

Those systems and assets essential to the functioning of society and the economy.

NY State Office of Emergency Management
http://www.semo.state.ny.us/
Critical Infrastructure That Could Benefit from Installing Fuel Cells as CHP

• Healthcare – Hospitals, clinics, nursing homes
• Wastewater treatment plants
• Public safety – 911 call centers, jails/prisons, Fire/EMS
• Transportation centers (airports)
• Communications/data centers
• Facilities of refuge
  – College campuses, high schools
  – Hotels w/ kitchens and laundries, conference centers
• Food distribution including cold storage and supermarkets
Supermarkets are Considered Critical Infrastructure in NY

• Continued Operation during a Grid Outage or Natural Disaster
  – Ensures a Reliable Food Supply
  – Can Ensure a Reliable Supply of Drinking Water and Personal Care Products
  – Helps Maintain the Health and Safety of the Local Population
  – Protects Against Costly Food Spoilage
NYSERDA Fuel Cell Program
Essential Public Services

• Emergency Services
  • Fire
  • Police
  • Ambulance/Emergency Medical Services

• Health Care Services
  • Hospitals

• Communication Services

• Food Distribution/Retail

• Fuel Distribution/Retail
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