

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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