

# Hartford Steam Company CHP Systems

by Derek H. Rudd, President.

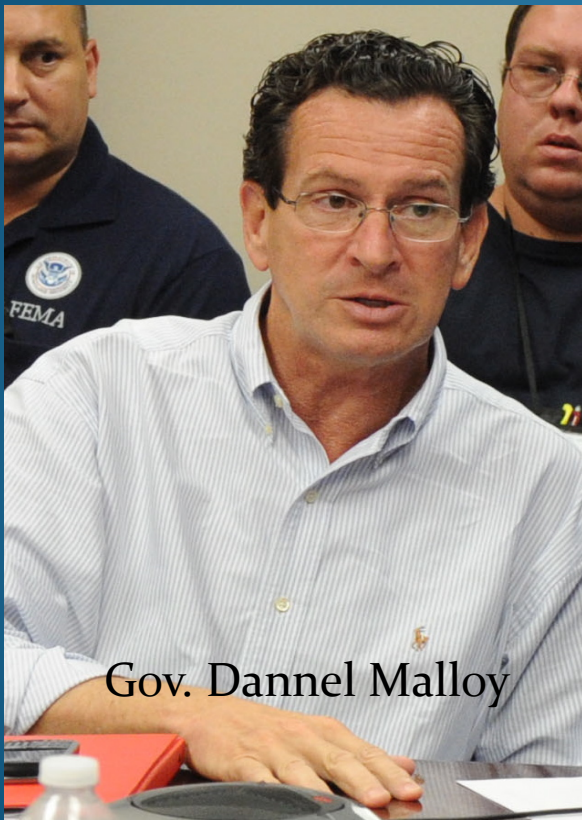
Hartford Steam Company, LLC

**A CHP POLICY CASE STUDY - CITY OF  
HARTFORD, CONNECTICUT**

# Parkville Microgrid

Hartford, Connecticut

# Nation's First Microgrid Program



Gov. Dannel Malloy

Connecticut has been hard hit with severe weather between 2010 and 2013

2010 snowstorms

Tropical Storm Irene

Freak October snowstorm

Superstorm Sandy

Blizzard of 2013

Storms have left hundreds of thousands without power for long periods of time, in some cases in excess of 10 days

# A fresh approach in Connecticut

Governor Dannel Malloy wanted to do something different.

Worked with Connecticut legislature to design a “microgrid” program.

Program provides enhanced levels of safety and quality of life for Connecticut residents in large-scale outage situations.

Grant program released in November, 2012.

First Grants awarded to (9) projects in July, 2013.





# First round results

Project	Facilities	Generation	Grant Value
UConn Depot Campus/Storrs	Campus Buildings	400 kW fuel cell, 6.6 kW PV	\$2,144,234
City of Bridgeport-City Hall/Bridgeport	City hall, Police Station, Senior Center	(3) 600 kW natural gas microturbines	\$2,975,000
Wesleyan/Middletown	Campus, Athletic Center (Public Shelter)	(1) 2.4 MW and (1) 676 kW Natural Gas Combined Heat and Power Reciprocating Engine	\$693,819
University of Hartford- St. Francis/Hartford	Dorms, Campus Center, Operation Building	(2) 1.9 MW diesel (existing), 250 kW diesel, 150 kW diesel	\$2,270,333
SUBASE/Groton	Various Buildings and Piers	5 MW cogen turbine, 1.5 MW diesel	\$3,000,000
Town of Windham/Windham	2 Schools (Various Public Purposes)	(2) 130 kW natural gas, 250 kW solar, 200 kWh battery; (2) kW diesel,	\$639,950
Town of Woodbridge/Woodbridge	Police Stations, Fire Station, Department of Public Works, Town Hall, High School, Library	1.6 MW natural gas, 400 kW fuel cell	\$3,000,000
City of Hartford- Parkville Cluster/Hartford	School, Senior Center, Library, Supermarket, Gas station	600 kW natural gas	\$2,063,000
Town of Fairfield- Public Safety/Fairfield	Police Station, Emergency Operations Center, Cell Tower, Fire Headquarters, Shelter	50 kw natural gas recip engine, 250 kW natural gas recip engine, 27 kW PV, 20 kW PV	\$1,167,659

# Parkville Microgrid

- Will provide electricity to (3) City facilities:
  - Parkville Elementary School.
  - Parkville Senior Center.
  - Dwight Branch of Hartford Public Library.
- And to (2) private facilities:
  - C-Town Supermarket.
  - Shell Fuel Station.

# Parkville Microgrid



# Parkville Microgrid

- Components of the project will include:
  - 750 kW fuel cell gas generator.
  - Underground electrical conduit.
  - Interconnect to the regional CL&P grid.
- Engineering changes from original proposal include:
  - Change from 600 kW natural gas combustion engine to 750 kW fuel cell (increased efficiency).
  - CHP component eliminated. (Existing rooftop units cannot accommodate heating coils.)



# Parkville Microgrid

- Project Team:
  - City of Hartford, Department of Public Works
  - Weston & Sampson Engineers (Consultant)
  - Constellation Energy (Developer)
  - GI Energy (Developer)
  - Bloom Energy (Fuel Cell Manufacturer)
  - Connecticut Light & Power (Utility/Interconnect)

# Parkville Microgrid

- Project Cost and Financing:
  - Cost: \$2.9 million.
  - State Financing (CT-DEEP): \$ 2,063,000
  - City Financing (Municipal Bonds): \$ 846,000
- Schedule
  - Currently in design.
  - To be operational in 2015.

# Timeline to Grant Award

- November, 2012: CT DEEP releases MicroGrid Grant Applications.
- November-December, 2012: City brainstorming involves Grants Office, DPW and Engineering Consultants.
- January, 2013: City files (2) applications: Parkville, and Jennings Road. CT DEEP selects both Hartford projects to proceed into RFP development.
- June, 2013: City files RFP's on both projects.
- July, 2013: CT DEEP awards grant to Parkville.

# Implementation Timeline

- October, 2013: CT DEEP issues Contract, which is signed by Mayor Pedro Segarra in December, 2013.
- February, 2014: Engineers propose a design change from a 600 kW natural gas engine to a 750 kW Bloom Energy fuel cell.
- June, 2014: Mayor signs Letter of Agreement with Constellation to develop the fuel cell generator.
- September, 2014: City applies for Virtual Net Metering.
- May 31, 2015: Projected project completion.



# Contact Information

Daniel Haim

City of Hartford

Department of Public Works

50 Jennings Road

Hartford, CT 06120

Tel. (860) 757-9994

Email: [haimdoo1@hartford.gov](mailto:haimdoo1@hartford.gov)