

Panel Discussion

Post Hurricane Sandy – The Resiliency Benefits of Combined Heat & Power

NASEO & ASERTTI

Energy Outlook Conference

Wednesday, Feb. 5th, 2013

Panel Moderator: John J. Cuttica, Energy Resources Center,
Univ. of Illinois at Chicago

Panelists:

Edward “Ted” Borer, PE; Energy Plant Manager, Princeton Univ.

Peter Douglas; Director of End-Use Application & Innovation,
New York State Energy Research & Development Authority

Electricity Availability Taken for Granted

- When we lose the electric grid, it affects:
 - Water & waste water facilities
 - Oil & gas pipelines
 - Communication systems
 - Transportation systems
 - Buildings of all types, sizes, and occupancy levels
 - Businesses (Industrial/Commercial)
 - Health & emergency systems

Losing Electricity Goes Beyond Inconvenience

- National Security
- Life Endangerment
- Significant Costs

| <u>Industry</u> | <u>Avg. Cost of Downtime</u> |
|-------------------------|------------------------------|
| Cellular Communications | \$41,000 per hour |
| Telephone Ticket Sales | \$72,000 per hour |
| Airline Reservations | \$90,000 per hour |
| Credit Card Operations | \$2,580,000 per hour |
| Brokerage Operations | \$6,480,000 per hour |

CHP and Energy Assurance Planning

- NASEO/DOE – State Energy Assurance Guidelines
.... Jeff Pillon and Alice Lippert
- Texas HB 1831 & HB 4409: Consider CHP before construction and/or major renovations for gov't owned facilities identified as critical in emergency situations
- Louisiana Resolution No. 171: Requests the DNR and PSC establish guidelines to evaluate CHP feasibility in critical government facilities

CHP and Energy Assurance Planning

- New York: NYSERDA strategic partnership with N.Y. State Office of Emergency Management
- **Coming Soon**: U.S. DOE SEEAAction Document --- “Guide to the Successful Implementation of State CHP Policies” .. Chapter 6 on Critical Infrastructure Applications
- **Coming Soon**: NASEO Paper: “Combined Heat and Power – A Resource Guide for State Energy Officials and Policymakers”

Numerous Examples of CHP in Energy Emergency Situations

- Today's Panel --- Super Storm Sandy
- Previous Examples:
 - Northeast Blackout 2003
 - Hurricane Katrina 2005
 - Hurricane Ike 2008
 - Hurricane Irene 2011

Super Storm Sandy

- One of the most expensive natural disasters in U.S history:
 - ~ 2.1 million facilities w/o power ... New York State
 - ~ 2.6 million facilities w/o powerNew Jersey
 - ~ 0.6 million facilities w/o powerConnecticut
 - \$ lost due to production/sales downtime, lost inventory, spoiled goods?
 - N.Y. and N.J. alone requested a combination \$82 Billion in federal support

Today's Panelists

- Edward “Ted” Borer:

- Advanced Planning for Electric Reliability In Princeton University Campus Microgrid

January 28th, 2013

New Jersey Governor's Annual
Environmental Excellence Awards

- Princeton one of 11 winners
- Clean Air Category
- CHP System key to award



Today's Panelists

- Peter Douglas
 - NYSERDA Support of CHP for the Last 10 Years