

# Distributed Generation

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## KeySpan-Sponsored CHP Projects

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# Benefits of Natural Gas

- Greatly Reduce Environmental Pollutants
  - Cleaner Air (reduction of NO<sub>x</sub>, SO<sub>x</sub>, Particulates)
  - Cleaner Land (No UST Environmental Leaks!)
- Less Reliance on Foreign Fuel
  - 88% of Natural Gas is from the US; the rest is from Canada!
  - 45% of LI companies use foreign oil!
  - 39% of NYC companies!



# Benefits for Businesses

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- Less Maintenance on Equipment
- Clean and Quiet Energy Technology
- No Storage of Fuel
  - Pay for it after you use it!
  - No Cost Outlay
  - No tanks or associated environmental liability

# What is Distributed Generation?

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- Distributed Generation is the production of power and by-products (heat) on-site at a facility.
- History
  - Not New - In the 1920's, over 1/2 the electricity in the U.S. was cogenerated!

# Why are businesses considering D.G. ? . . . BENEFITS?

- Clean! All new generation is Gas Fired!
- Great reduction in electrical bills!
- Heating, hot water, process steam is free!
  - With an absorber, cooling is free!
- Distributed Generation is extremely Energy Efficient & Environmentally Friendly!
- Proven and Reliable Technology!

# DG Applications

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- Commercial Office Buildings
- Manufacturing Facilities / Industrial Plants
- Multifamily Complexes
- Healthcare - Hospitals / Nursing Facilities
- Hotels / Motels
- Schools / Universities
- Health & Recreational Facilities

# Distributed Generation Technologies

- Advanced Internal Combustion Engines
  - 60 kW to 5 MW
- Gas Turbines
  - 1 MW to 50 MW
- Fuel Cells (Alternative Technology)
  - Typically 200 kW per unit
- Microturbines - Clean, Quiet Modular Power
- Direct Drive Applications - Pumps/Compressors

# St. James Healthcare Facility



- Coast Intelligen 60 kW induction CH&P unit.
- Produces 60 kW power in parallel.
- Thermal output pre-heats boiler feedwater which results in less Boiler Cycling.
- High efficiency - 91%

# Other Small Scale DG Sites

- Grace Plaza
- East Neck Nursing Center
- Hillside Manor
- Carillon Nursing Home
- Margaret Tietz Center
- Birchwood Center
- Fairfield Towers
- St. James Plaza
- Brooklyn Methodist Church Home
- Haven Manor Nursing Home
- Seacrest Health Care
- Bellhaven Center

# St. Vincent's Medical Center

- UTC - ONSI Fuel Cells (over 49,000 hrs. to date!)
  - IFC PC-25A 200 kW fuel cell (KeySpan R&D!)
  - 1992 commissioning; one of the 1st!!!
  - High efficiency overall -
    - Electric - 40.42%
    - Thermal - 55.23%
  - Green Technology
    - Extremely low emissions



# Other Fuel Cell Sites

- Sun Chemical (Two, 200 kW units)
- NYPD Precinct located in Central Park, NYC
- Coney Island Aquarium
- NASDAQ sign in Times Square
- LIPA Plug Power site in West Babylon (75, 5 kW units)
- Planned Verizon Garden City site with seven, 200 kW fuel cells. Largest in the World!

# Atlantis Marine World

- Capstone 28 kW microturbine
  - 1st installation in NY/LI area
  - Unifin heat recovery provides domestic hot water and heat to the aquarium!
  - Quiet, Modular power
  - Very Low emissions
    - < 9ppm NO<sub>x</sub> !



# Other Microturbine Sites

- Frito Lay (Two, 28 kW units installed)
- Floyd Bennett Field (Planned installation of two, 60 kW Capstone units)
- Suffolk County Forensic Science Building (Planned installation of a 100 kW Turbec (Sweden) unit.

# Hi Temco Corporation

- GASCOM GCM-420  
110 BHP gas air  
compressor units (2)
- Replaces 120 HP  
electric compressors
- Operation savings of  
30% plus, FREE  
HEATING to facility!



# Other Direct Drive Sites

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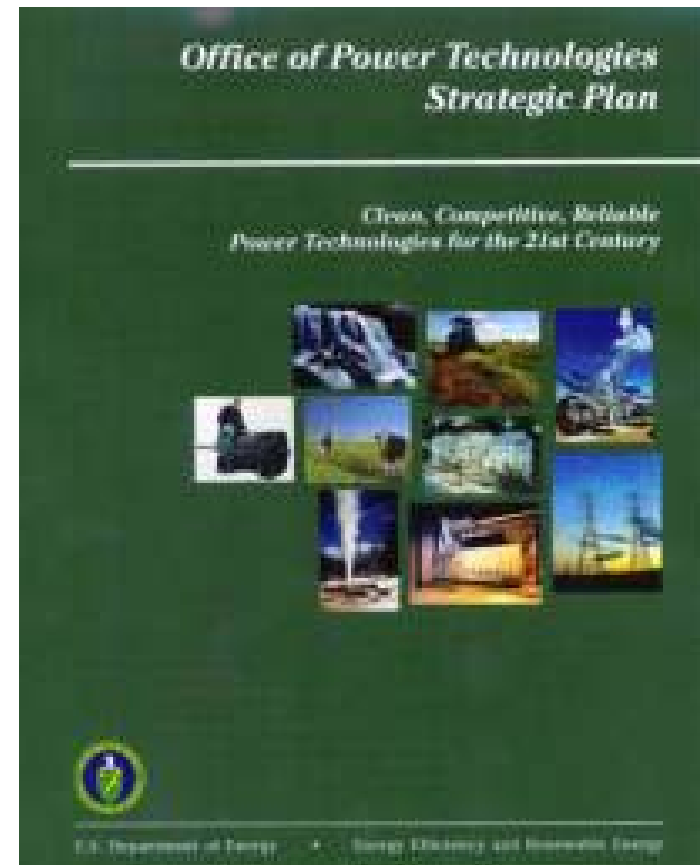
- Jericho Water District
- ADP
- Augros
- Ultra-Creative
- Allied Extruders
- Tri-Molded Plastics
- V.B.C.
- Case Paper

# Why consider Clean D.G. now?

- SkyRocketing Electric Rates
  - Deregulation along with Laws of Supply & Demand.
- Power Quantity & Power Quality Issues
  - Potential Shortfalls of Electricity
  - Potential Low Voltage Situations
- Incentives & Funding Available
  - NYSERDA, NYC ECSP, ICIP, EDGAR, DOE, etc.

# KeySpan's DG Partners

- **NYSERDA**
- **Gas Technology Institute**
- **American Gas Association**
- **U.S. Department of Energy**
- **Distributed Power Coalition of America**
- **NYS-CHP Council**
- **Industrial Center in Washington, DC**



# Questions on Natural Gas Technology?

- If you have questions or require assistance, KeySpan's Technical Sales Section can provide you a "No Cost, No Obligation" Technical Screening Analysis ---

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