Microturbine CHP Project Development

EPA CHP Partners Meeting
October 1, 2009

Safe Harbor Statement

During the course of this presentation, we may make projections or other forward-looking statements regarding future events or financial performance of the Company within the meaning of the safe harbor provisions of the Private Securities Litigation Reform Act of 1995, including:

- reference to the potential market for our products;
- future results of operations;
- sales expectations;
- manufacturing improvements and cost reductions;
- The reliability, low emissions and energy efficiency of our products;
- our business initiatives and relationships with third parties and related expanded market opportunities;
- the advantages of our products over our competitors;
- the maintenance advantages of our products;
- compliance with certain government regulations;
- new products and product platforms, including our C200 and C1000 products; and
- the value and savings to be realized by our customers.

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- our expectations about expansion into additional markets;
- new applications of our products may not be realized;
- certain strategic business initiatives may not be sustained and may not lead to increased sales;
- we may not be able to reduce costs, improve customer satisfaction, or increase our cash flow or profitability;
- our release of new products such as the C200 and C1000 may be delayed or new products may not perform as we expect;
- We may not be able to comply with all applicable government regulations;
- we may not be able to obtain or maintain customer, distributor and other relationships that result in an increase in volume and revenue; and
- we may not be able to retain or develop distributors or dealers in our targeted markets, in which case our sales would not increase as expected and product quality expectations may not be met.

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Customer Needs

“we want to save on energy costs”

“we need reliable power”

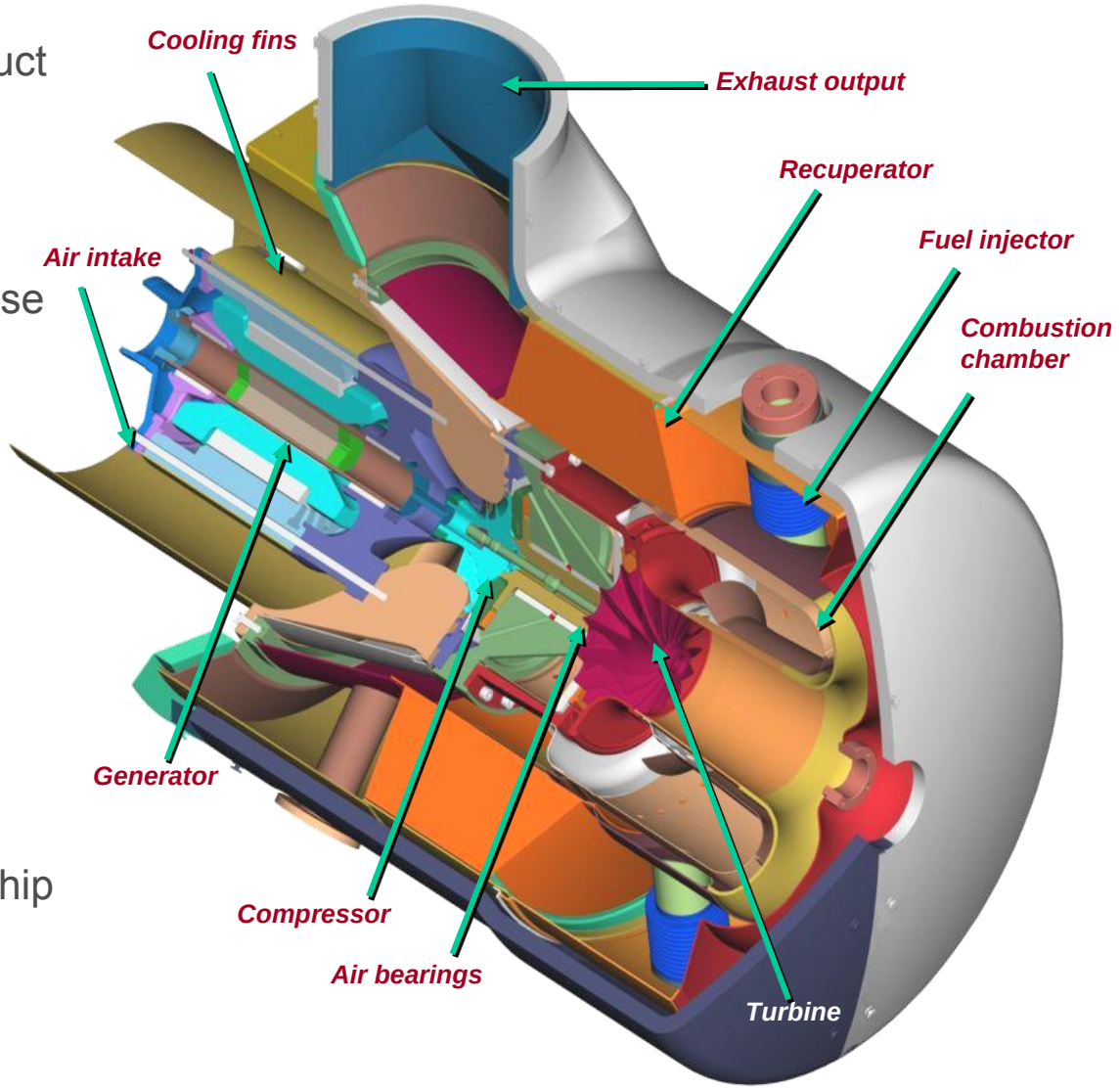
CHP

“we want to be clean and green”

“we want energy independence”

The Capstone MicroTurbine

- Over $100M invested in product development and 95 U.S. Technology Patents
  - Air bearing technology
  - One moving part
  - No coolants, oils or grease
- Flexible and economic technology
  - Flexible configuration
  - Lightweight & small footprint
  - Multi-fuel capability
  - Cost competitive positioning
- Capstone value proposition
  - Low total cost of ownership
  - Ultra low emissions
  - High reliability
  - Minimal scheduled maintenance



Scalable Power Solutions

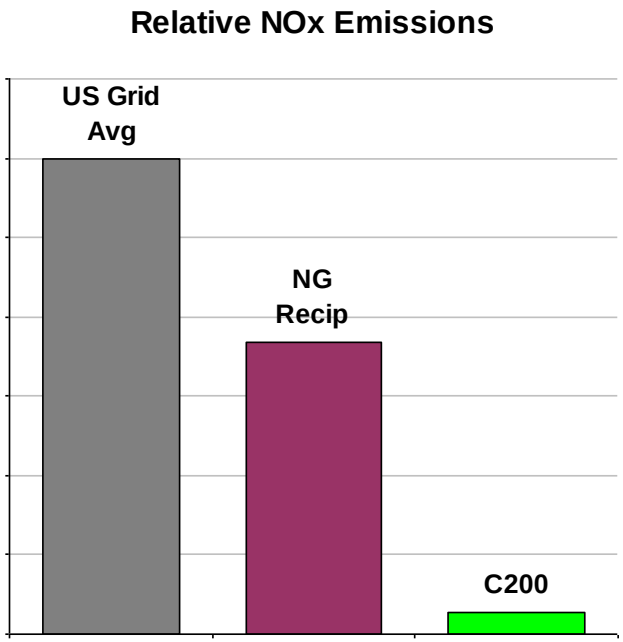
- Can fit any customer need
  - C30 = 30kW
  - C65 = 65kW
  - C200 = 200kW
  - C600 = 600kW
  - C800 = 800kW
  - C1000 = 1000kW
  - Capability to “multi-pac” several units together up to 10 MW

C65

C200

C1000

Ultra Low Emissions



California Environmental Protection Agency
AIR RESOURCES BOARD

CARB Natural Gas Emission Standard				
	Units	**2003**	**2007**	**Reduction**
NOx	lb/MWh	0.5	0.07	86%
CO	lb/MWh	6.0	0.10	98%
VOC	lb/MWh	1.0	0.02	98%

- C65 and C200 meet strict CARB Requirements
- Lean Premix + Passive Exhaust Catalyst
- Much Lower Than Traditional NG Reciprocating Engines

Diverse Customer Base


Large Retailers


Hospitals


Telecom


Office Buildings


Hotels


U.S. Gov't

Schools


Hybrid EV


Landfills


Digesters


Waste Water Plants


Oil & Gas

Syracuse IBM Data Center

- **Problem**: Energy consumption of data centers requires innovative solution
  - 62 billion kWhs ($4.5 billion) per year in US; could double by 2011
  - $2 Billion wasted yearly nationally
- **Goal**: Demonstrate innovative technology solution that is reliable yet efficient (green)
  - UPS Power Quality
  - Thermal Energy Recovery (Trigeneration)
- **Solution**: Instead of separate onsite generator and UPS, SU & IBM selected Hybrid UPS

NYSERDA
New York State Energy Research and Development Authority

SYRACUSE UNIVERSITY
SUOS CULTORES SCIENTIA CORONAT
FOUNDED A·D·1870

IBM

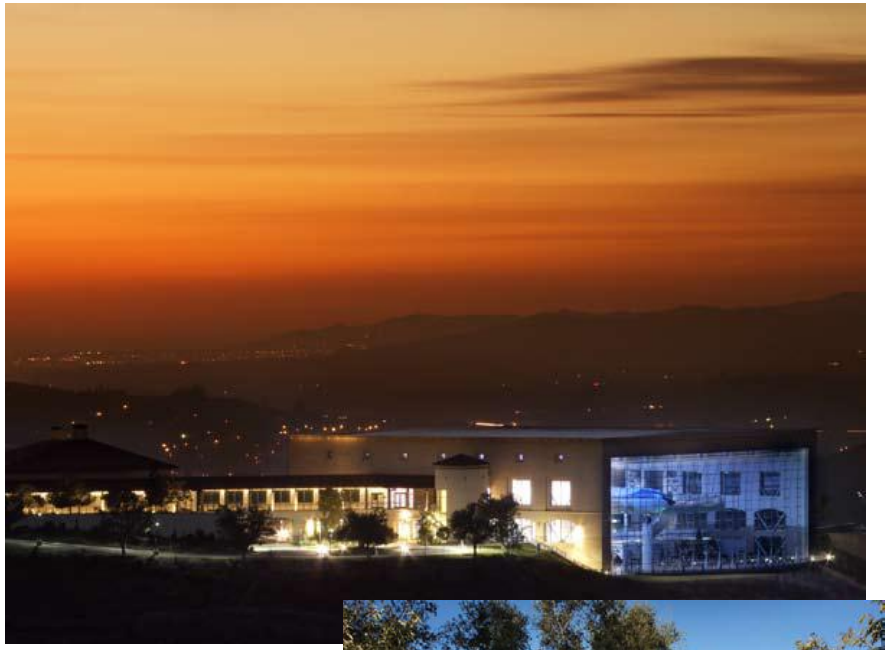
Hybrid UPS Solution

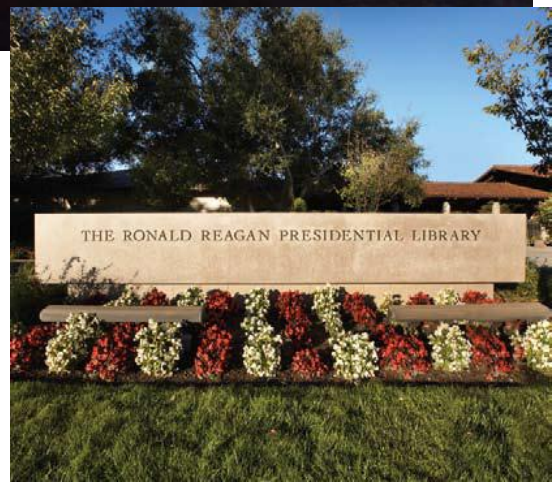
- Twelve NG-fired 65kW Capstone MicroTurbines
  - Electricity generates all electricity with redundancy
  - Thermal energy goes to absorption chiller to cool servers and adjacent building; during winter for heating
  - Three modes: Standard UPS, High Efficiency, Emergency Back-up
- IBM's Rear Door Heat eXchanger removes heat from each rack more efficiently than conventional methods
- DC power distribution system rather than less efficient AC

- Center is expected to use **50 percent less energy** than typical data center
- $12.4 million Total Cost
  - IBM = $5 million
  - NYSERDA = $2 million
  - Partnership was CRITICAL

Ronald Reagan Presidential Library, Simi Valley, CA

- **Problem**:
  - New Air Force One pavilion required Library to construct its own central plant for 100,000 sq. ft. facility
- **Goal**:
  - Provide electricity, chilled and hot water in economically-feasible yet environmentally-friendly system
- **Solution**:
  - Use natural gas to power, heat and cool the facility while taking advantage of state rebate program





UTC Power
A United Technologies Company

DEPARTMENT OF ENERGY · UNITED STATES OF AMERICA ·

CCHP Case Study

- System adopted:
  - Three UTC Pure Comfort packages (12XC60) with direct exhaust fired absorption chillers
  - Four stand-alone Capstone C60s provide hot water
  - Total 960 kW electrical and 387 tons of cooling
- System benefits:
  - Runs 24/7
  - Supplies 95% of electrical load and all of cooling needs
  - 100 percent availability since installation
  - Required only routine filter changes
  - Saves 10% on utility costs; $300,000 annually
- Self-Generation Incentive Program
  - Provided $823,156 rebate, reducing cost by 30%

- Environmental benefits:
  - Reduced GHGs by 40%
  - Reduced NOx by 90%
  - Operates at 80% efficiency

Sheboygan Wastewater Plant

- **Problem**:
  - Digesters created additional gas because of incoming cheese whey waste
  - Extra methane was flared
  - Need to upgrade boiler
  - Siloxanes an issue
  - WWTPs a GHG emitter
- **Goal**:
  - Add electrical generation and heat recovery capacity while also offsetting utility costs
- **Solution**:
  - Install, and then expand, a Capstone renewable energy system with gas conditioning

- *"We wanted something that made sense for the bottom line and the environment. We wanted to get the latest, most efficient system available."*
  - Plant Superintendant

- Plant treats 15 million gal/day

An "Outside the Box" Solution

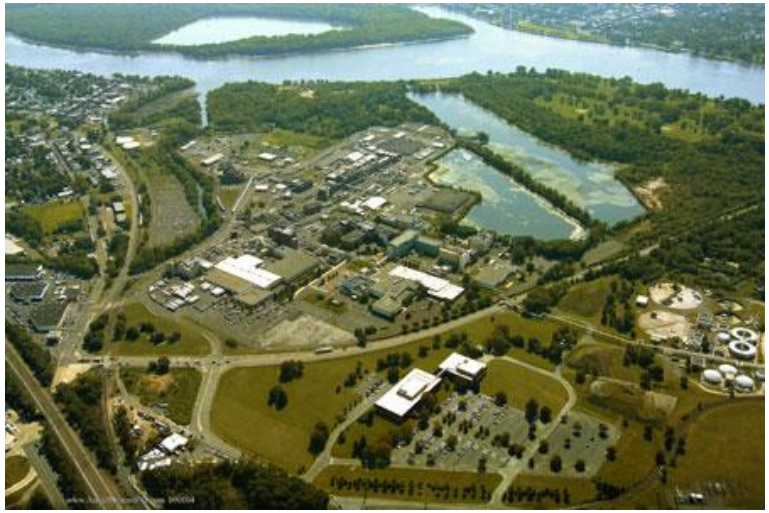
- Alliant Energy:
  - Purchase MicroTurbines, gas cleaning system, gas compression system, and electrical connections
- Sheboygan WWTP:
  - Purchase all electricity from MicroTurbine plant, install waste heat recovery module and provide methane fuel
  - Eventually city purchase plant from Alliant
- Stages:
  - February 2006: 10 X CR30
    - Logged 95% reliability
  - June 2010: 2 X CR200

- Incentives & Revenues
  - Electricity rates unchanged in last 5 years
  - In 2007
    - System produced 1,671 MWh of electricity valued at $121,000 and 61,000 therms of biogas valued at $57,000
    - City sold 2,076 RECs for $6,540 ($33,600 total revenues in 2007)
  - Simple payback on City's $200k investment < 2 years
  - For 2010 expansion,
    - Alliant Energy's Shared Savings low interest loan for RE projects
    - State of Wisconsin's Focus on Energy grant program

Bridge Business Center

- **Problem**:
  - BBC had to disconnect from old Rohm & Haas fuel oil steam and electric chiller plant
- **Goal**:
  - Drive down operating cost facility while creating jobs and qualifying for green energy grant
- **Solution**:
  - Natural gas CHP utilizing ARRA funds

- Site Characteristics:
  - BBC is 50,000 sq. multi-tenant facility on brownfield site at former manufacturing plant
  - Bristol Township has lost 600 jobs since 2005
  - Keystone Innovation Zone



KEYSTONE COMPANIES GROUP, INC.

BRIDGE BUSINESS CENTER
TECHNOLOGY INNOVATION RESEARCH

"Shovel Ready" Project

- Commission date: October 2009
- Seven C65 MicroTurbines with heat recovery placed on roof
- Reduce CO2 by 3,000,000 lbs/year
- Will save $2 million over 10 years
- Electricity sales to PECO = up to $150,000 per year
- Will create 100 jobs
- How Keystone Obtained $1MM in ARRA Funding:

1. Having a complete engineered design for the project;
2. Educating state government of cost/benefit of CHP as compared to other "Tier 1" and "Tier 2" renewables; and
3. Having private financing in place.

- *"This is how recovery funds are making a real difference in people's lives. In a community that has suffered from an economic downturn, we see this developer making not only a $4.5 million investment in adaptive reuse of a building on a designated brownfield site, but also in providing a clean, affordable and reliable source of energy for its tenants."*
  - Secretary of Pennsylvania Dept. of Environmental Protection John Hanger

German Biogas Feed-In Tariff

- Eiterfeld Farm, Germany = World's first CR200 running on biogas
- Commissioned October 2008
- Thermal energy heats digesters and nearby barn and buildings
- Additional methane is piped 2.1 km away to a school to power three 65kW MicroTurbines at a school
- Project Payback = < 2 years
- Feed-in Tariff: a guaranteed rate paid for renewable energy by utilities to promote deployment and bolster customer certainty

greenVIRONMENT

- Small systems enjoy 19.5 €¢ per kWh
  - Basic rate = 11.5 €¢
  - Biomass bonus = 6 €¢
  - CHP bonus = 2 €¢
- Utilities are obligated to buy
- Electricity for own consumption is eligible for FIT

At 8,000 hours per year FIT revenues for a 200kW system are over $400,000 per year

Conclusions

- Diverse customer base for smaller, commercial CHP
- The “green” factor is more important than most people think
- Use incentives and get creative with partnerships
- Involve gas and electric utilities early and often
- With so many institutional and public sector CHP customers, policymakers must offer more than just tax credits to promote deployment
- Industry needs an new, turnkey financing model to ramp up deployment

Capstone

Capstone® Turbine Corporation

The world needs a dependable and ultra-clean power source more than ever before.

Oil&Gas Landfill/Biogas CHP HEV

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