



The Capstone Turbine Corporation CHP Packaged System Team

Benefits of Packaged CHP Systems

Capital Cost Reduction

Packaged systems can cut CHP system capital costs by 15% to 30%.

Shorter & Less Expensive Installation

IES can reduce CHP system installation time by as much as two-thirds, and provide corresponding installation cost savings.

Replicability

System designs are suitable for multiple applications in facilities around the country.

Optimize Facility Energy Use

Packaged systems allow facility operators to manage power generation, cooling and heating to optimize energy use as well as reduce electricity use during peak periods.

Simplified Systems

The use of exhaust-fired absorption chillers eliminates the need for steam/hot water generation equipment.

Optimized Benefits

Using programmable controls and other technologies, the NiSource IES provides benefits customized to each individual facility.

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Project Overview

Capstone Turbine Corporation is developing and integrating packaged CHP systems driven by its ultra-low-emission 30- and 60-kW microturbines. Initial efforts focused on: 1) creating packages that provide optimal savings for small turbine-based integrated systems; 2) improving end-user power quality, costs and reliability; and 3) providing the best value for clean, on-site cooling, heating and power generation.

To best achieve these goals, the Capstone team engaged in a collaboration with the United Technologies team that has resulted in the development of the PureComfort™ Solution featuring four Capstone 60 kW microturbines coupled with a Carrier 110-ton double-effect, direct-fired absorption chiller. This system "powers" air conditioning with heat instead of electric power, conserving energy while maximizing fuel efficiency and energy cost savings. The teams are currently fast-tracking preparations for a test facility.



Chiller/Heater



C-60 (4-pack) MicroTurbine

Team Objectives

- Minimize fuel usage by maximizing total system efficiency
- Reduce capital cost and maximize installation ease and flexibility, drawing on Capstone's built-in direct grid interconnectivity
- Reduce emissions and O&M costs compared to other technologies
- Permit hardware-free arraying of up to 20 microturbine-driven systems
- Produce a commercially available packaged system that delivers the economic and environmental benefits of CHP

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