

Technology Fact Sheet

Combined heat and power (CHP) systems have been available for large-scale industrial, commercial, and institutional applications for decades. However, their size, noise levels, and cost have prevented them from being adopted for smaller applications.

CHP systems provide heat and generate electricity with higher efficiency and lower emissions levels than conventional heating and power generation alternatives. The quiet, compact Freewatt Plus micro-CHP system, available in warm-air and hydronic versions, brings the benefits of propane-fueled CHP to homes and small businesses.



Installation of either a warm-air or hydronic Freewatt Plus unit may qualify a residence owner for an energy efficiency tax credit.

– Energy Star



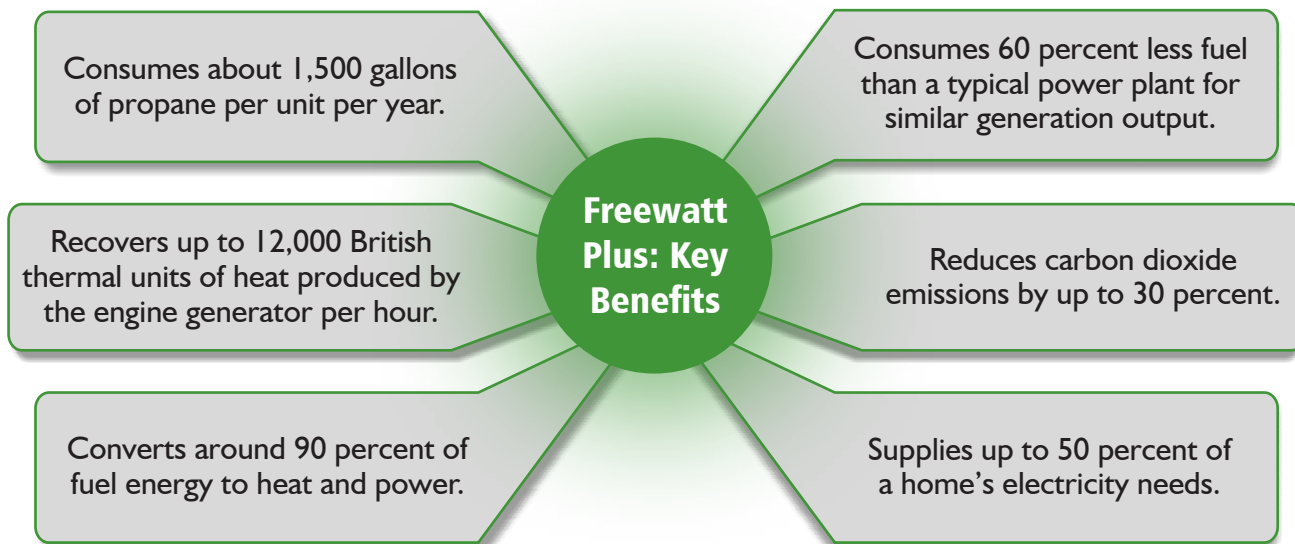
Current Status: Commercialization Phase

Research Development and Testing Demonstration **Commercialization**

- The Freewatt Plus warm-air and hydronic micro-CHP systems are commercially available.
- Over the next two years, the Freewatt Plus system will compete for a share of the 3.7 million annual sales of furnaces and boilers.

Technology Features

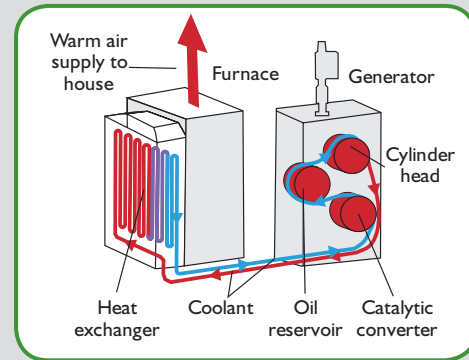
- Advanced Energy Star furnace or boiler.
- Propane-fueled generator engine.
- Heat exchanger module.
- Warm air and forced hot water options.
- Minimum operating life of 10 years.
- Compact design.



A Closer Look

The Freewatt Plus System: How It Works

- The Freewatt Plus micro-CHP system combines a high-efficiency warm-air furnace or boiler, a propane-fueled combustion engine-driven generator, and a heat exchanger module to produce heat and power.
- As the generator produces power, coolant pulls heat away from engine components, preheating the air entering the furnace or water in the boiler.
- The engine generator provides continuous low-level heat during the heating season, improving indoor air quality and comfort. Auxiliary burners in the furnace or boiler supplement the heating capacity of the engine-generator when needed.



Warm-Air Freewatt Plus System

Projects:

Climate Energy Propane Warm Air Micro-CHP System ([Docket 12199](#))
Commercialization of Freewatt Micro-CHP System ([Docket 15625](#))

Partners:

ECR International, Gas Technology Institute, and Yankee Scientific

Research Process (✓ = completed; ➤ = in progress; ★ = upcoming)

Development and Testing ✓

- Provide a laboratory-based baseline for the performance of field demonstration units.
- Conduct a one-year field demonstration of 10 Freewatt Plus units with backup generator capabilities in the upper Midwest and the Northeast.
- Evaluate the systems, support site selection and unit installation, and collect and monitor performance data.
- Evaluate market and infrastructure issues such as customer cost-benefit analysis, customer satisfaction, and building codes.

Commercialization ✓

- Identify key influencers and early adopters who can help support market introduction.
- Screen, select, and train Freewatt Plus distributors and dealers.
- Train and certify dealers who have the experience required to market, sell, and service Freewatt Plus systems.
- Develop marketing and outreach materials, including sales DVDs, product brochures, and a traveling trade show display, to introduce Freewatt Plus systems to the home heating and generation market and to build market demand.

What's Next?

The Freewatt Plus warm-air and hydronic micro-CHP systems are commercially available.

FOR MORE INFORMATION:

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