A SAMPLING OF ELECTRIFICATION TECHNOLOGIES

The purpose of this document is to summarize the following representative sample of electrification technologies that can benefit commercial, industrial, and transportation electricity end users:

ELECTRIC FORKLIFTS

In recent years, market acceptance of electric forklifts is increasing in a variety of applications—as a replacement for internal combustion engine-driven forklifts that use propane, diesel or gasoline. Advances in electric forklift motor drive, battery, and charger technology have dramatically improved equipment performance, even in demanding multishift operations. Approximately 64% of the total North American forklift market and more than 70% of the European Union forklift market are now electric. For many applications, electric forklifts offer equal or superior performance and significant cost savings. Use of electric forklifts reduces on-site emissions, such as carbon monoxide, as well as reduces noise pollution from the internal combustion engine.

COMMERCIAL INDUCTION COOKING RANGES AND ELECTRIC FRYERS

Electric induction cooking ranges offer many benefits to their users. Representing the latest, most efficient technology in their class, induction ranges transfer up to 90% of their energy to the cookware. These units heat quickly, offer precise temperature control, and add a safety element by eliminating the need for an open flame. Because of these features, food cooks faster, which improves commercial kitchen productivity.

Commercial electric fryers operate at a lower temperature, which saves energy, reduces oil breakdown, and uses less oil. Electric fryers also have faster pre-heat and recovery times than natural gas units and can operate longer between oil changes—an important factor in the fast food industry. This allows more food to be fried in the same amount of time.

ROOFTOP HEAT PUMPS

Commercial variable-capacity rooftop heat pumps (VCRTUs) are highly efficient heating and cooling systems that are suitable for many commercial building applications. They deliver comfort similar to that provided by fossil fuel forced-air systems, at an even greater efficiency than traditional heat pumps. A rooftop unit (RTU) typically has the indoor and outdoor components of a heat pump packaged together in a single unit, located outdoors. Unlike standard-efficiency heat pumps, which operate at a fixed output, VCRTUs use inverter-compressors to provide continuously variable output to more closely match a building’s heating and cooling demands. Currently available systems can provide heat output at ambient temperatures as low as 0°F. VCRTUs are well-suited for low-rise buildings (up to three stories) with ductwork, including strip malls or standalone retail centers, grocery stores, restaurants, and office buildings.
INFRARED HEATING, DRYING AND CURING

Infrared (IR) heating is a versatile technology that can be used for curing paints, drying textiles, heating plastics for thermoforming, providing space heating for warehouse employees, and melting snow on sidewalks. Whereas convection ovens first heat the air to transmit heat to a product, IR transmits heat through electromagnetic waves. Electric IR emitters can provide fine control of IR wavelength to match specific requirements of an application. Compared to traditional processes, IR curing has demonstrated a tenfold decrease in curing time, with corresponding productivity gains.

COMMERCIAL TRUCK ELECTRIFICATION

While parked, long-haul truck drivers can plug into the grid instead of idling their truck or auxiliary engines to power their truck’s heating, air conditioning, and accessories using truck stop electrification (TSE) sites, which exist in almost every state. With TSE, trucking operations can reduce fuel and maintenance costs, saving 40-70% on operating costs by eliminating fuel use during idling. Plugging in instead of idling engines also reduces local emissions and noise and provides a quiet, vibration-free rest stop for the driver. Moreover, since the truck is not idling, the engine life increases due to reduced wear and tear of engine parts, which leads to more productive truck life. The engine maintenance as well as oil and filter change intervals can be longer, also leading to improved productivity and lower downtime for the trucks.

HOW TO LEARN MORE

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