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## Heat Wave

Having just survived some of the hottest days in close to 10 years, it seems like the perfect time to remind everyone of some ways to keep cool when it's blistering hot outside.



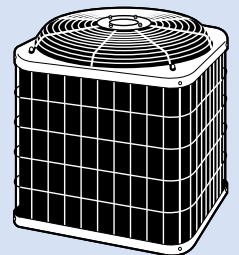
- \* Prevent dehydration by drinking before you're thirsty. Your body is already dehydrated if you feel thirsty.
- \* Avoid caffeine and alcohol. These drinks only dehydrate you more. Choose water or sports drinks to replace electrolytes that your body loses through sweat. You can eat salted pretzels too.
- \* Try not to exercise during the heat of the day. It's best to do outside work in the early morning or evening.
- \* Wear light colored cotton clothing.
- \* If you must be out, use sunscreen to protect your skin and scalp from the damaging sun rays.
- \* Have your air conditioner serviced to keep it operating at its best. Clean filters and coils help assure optimum efficiency.

## History Of The Air Conditioner

The first attempt at air conditioning was in the 1830's in Florida by Dr. John Gorrie. He blew air over a bucket of ice to cool hospital rooms of patients who had malaria and yellow fever. In 1902, Willis Haviland Carrier invented the "Apparatus for Treating Air" for a printing company in Brooklyn, NY. It utilized chilled coils to cool the air and lower humidity to 55%.

Room air conditioner sales exceeded 1 million in 1953. Heat Pumps were developed in 1977 allowing for heat and cooling from the same machine. In 1998, unitary air conditioners and heat pumps set a sale record of more than 6 million units. It's rare to find a home these days without window units at the very least!

We've certainly come a long way! Now with just the push of a button, we have instant cooling. Can you imagine having to get up in the middle of the night to add ice to the bucket in front of the fan to keep cool? NOT ME!!



**CORNER** Gary's Rant

By Gary Derr

GARY'S



## How's That Hopey, Changey Thing Going For Everyone?

### Commercial Energy Efficiency Incentives

We are frequently asked about tax rebates and incentives for the commercial field, as opposed to the residential field. Although there aren't as many different incentives as there are in the residential field, there are some substantial savings available. We have compiled a list below of the incentives available, and the links to the websites. As is usually the case, the commercial incentives involve more paperwork, and in some cases you must download software that must be completed and sent in for qualifying.

Business owners are eligible for a variety of federal tax incentives for improving building energy efficiency, implementing combined heat and power (CHP) systems, purchasing hybrid gasoline-electric vehicles, and installing onsite renewable generation, fuel cells, and microturbines.

#### Commercial Buildings

[www.energytaxincentives.org/business/commercial\\_buildings.php](http://www.energytaxincentives.org/business/commercial_buildings.php)

Businesses can take a tax deduction for new or renovated buildings by reducing the energy costs associated with three components—lighting system; building envelope; and heating, cooling and water heating equipment. Buildings must meet the ASHRAE 90.1-2001 standard and be placed in service between January 1, 2006 and December 31, 2013 in order to be eligible. The deduction is available in two levels:

- Buildings that save 50% or more of projected annual energy costs across all three system components are eligible for a tax deduction of \$1.80 per square foot.
- Buildings that save a percentage of projected annual energy costs for one of the three components—building envelope (10% energy savings), lighting (20%), and heating & cooling (20%)—are eligible for a partial deduction of \$0.60 per square foot.

The organization that makes the expenditures is generally the recipient of the deduction, which can be taken in

the year the building is placed in service. In the case of a public building, the designer may take the deduction. The building must be certified by a qualified individual (a licensed engineer or contractor) as meeting the energy cost savings goal.

#### Combined Heat and Power (CHP)

[www.energytaxincentives.org/business/chp.php](http://www.energytaxincentives.org/business/chp.php)

Owners of CHP systems smaller than 50 MW may take advantage of a 10% investment tax credit for CHP property, applicable to only the first 15 MW of CHP property. Systems must be placed into service between October 3, 2008 and December 31, 2016. Only the original constructor or user of the CHP property may take the tax credit, in the year that the system becomes operational. To qualify, a CHP system must be 60% efficient (on a lower heating value basis), and produce at least 20% of its useful energy as electricity and at least another 20% as useful thermal energy. The efficiency requirement does not apply to CHP systems that use biomass for at least 90% of the system's energy source, but the credit will be reduced for less-efficient systems. The economic stimulus legislation also provides the option for businesses to take a grant from the U.S. Treasury Department during 2009 and 2010 in lieu of the investment tax credit. For more information on combined heat and power, see [www.aceee.org/chp](http://www.aceee.org/chp).

#### Commercial Vehicles

[www.energytaxincentives.org/business/commercial\\_vehicles.php](http://www.energytaxincentives.org/business/commercial_vehicles.php)

Buyers of heavy-duty hybrid vehicles can receive tax credits based on the weight class of the vehicle, its fuel economy relative to a comparable conventional vehicle, and the incremental cost. The vehicle must also meet a threshold value of "maximum available power," a measure of the percentage of total vehicle power available from the rechargeable energy storage system of the vehicle. Credits are available for heavy-duty

vehicles placed in service from January 1, 2006 through December 31, 2009. The maximum credit available is: \$3,000 for a vehicle weighing 8,501 to 14,000 pounds; \$6,000 for a vehicle from 14,001 to 26,000 pounds; and \$12,000 for a vehicle over 26,000 pounds. See [www.aceee.org/transportation/hdhybtaxcred.htm](http://www.aceee.org/transportation/hdhybtaxcred.htm) for details. As of March 2009, nine manufacturers had certified tax credits for at least one truck or bus model; credits thus far range from \$3,000 to \$12,000. Businesses are also eligible for passenger vehicle incentives. See [www.energytaxincentives.org/consumers/vehicles.php](http://www.energytaxincentives.org/consumers/vehicles.php) for details.

## Onsite Renewables

[www.energytaxincentives.org/business/renewables.php](http://www.energytaxincentives.org/business/renewables.php)

Business owners can take advantage of several onsite renewable generation incentives. The incentives apply to solar and wind systems placed in service from January 1, 2006 until December 31, 2016 and to geothermal heat pump systems placed in service from October 3, 2008 until December 31, 2016. The incentives are worth 30% of the installed cost of the system. The economic stimulus legislation also provides the option for businesses to take a grant from the U.S. Treasury Department during 2009 and 2010 in lieu of the investment tax credit.

### Solar Systems

Qualifying equipment will use solar energy to (1) generate electricity, or heat/cool or provide hot water to a structure, or (2) illuminate the inside of a building by means of fiber-optic distributed sunlight (tube systems and passive solar are not eligible). For more information visit [www.seia.org](http://www.seia.org).

- **Solar Water Heating:** Systems must be certified for performance by the Solar Rating Certification Corporation (SRCC) or a comparable entity endorsed by the state government in which the system is located. At least half of the energy used by the system to heat the water must be solar energy. Expenses for heating swimming pools or hot tubs are not eligible.

- **Photovoltaic (PV) Systems:** Systems must provide electricity for the residence, and must meet applicable fire and electrical code requirements.

### Small Wind Systems

Businesses that install wind turbines with not more than 100 kilowatts of nameplate capacity are eligible for the 30% investment tax credit. For more information see [www.awea.org](http://www.awea.org).

### Geothermal Systems

Qualified geothermal systems are ground source heat pumps with related equipment used to produce, distribute, or use energy derived from a geothermal source. Commercial customers can either get an investment tax credit of 10% of the installed cost, available through 2016. The ARRA legislation also provides the option of taking a grant in lieu of the credit, worth 10% of the installed costs for equipment placed in service during 2009 and 2010. For systems where electricity is produced by geothermal power, equipment qualifies for an incentive only up to, but not including, the electric transmission stage.

### Fuel Cells and Microturbines

[www.energytaxincentives.org/business/fuel\\_cells.php](http://www.energytaxincentives.org/business/fuel_cells.php)

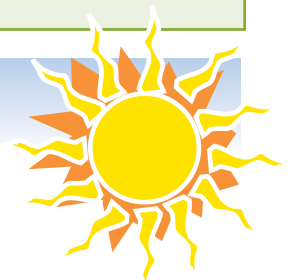
The investment tax credits for these two systems are available for systems "placed in service" through December 31, 2016. Fuel cells generate electricity through a chemical process. They are somewhat similar to batteries, except they must be continuously fed with fuel. Microturbines are small power generation systems using a gas turbine engine.

- **Fuel Cells:** Credits are for 30% of the cost, up to \$3,000 per kW of power that can be produced. To qualify, systems must have an efficiency of at least 30% and must have a capacity of at least 0.5 kW.
- **Microturbines:** Credits are for 10% of the cost, up to \$200 per kW of power that can be produced. To qualify, systems must have an efficiency of at least 26% and must have a capacity of 2,000 kW or less.

**MATT'S**  
By Matt Harman



## Is It Hot Enough For You?



"Is it hot enough for you?" That's a question we all find ourselves asking and answering this time of the year. It is a great way to start a conversation and some may even call it a cheesy pick-up line! I think some of us use it and don't even think about it. It's not hard to do when the temperature and humidity are high.

As for myself, I would rather be hot than shoveling snow, like we all were doing just a few months ago! Try to stay cool and drink lots of water and remember, if there's anything I can ever do be of assistance with, please do not hesitate to call.

# DIVERSIFIED REFRIGERATION INCORPORATED



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## Clean Coils Make Dollars & Sense

Both condenser and evaporator coils are engineered to provide optimum heat transfer required by the area being cooled. And that optimum heat transfer and system efficiency depends on clean coil surfaces. In most cases the air moving across these coils contains a mixture of dust, pollen, grease, and moisture. These airborne contaminants also can settle on the coil surfaces, impacting its ability to transfer heat. Pollen, bacteria, and mold spores on the evaporator coil add to the problem; not only will they reduce heat transfer but they also affect the air quality inside the home and or building.

Dirty condensers also increase power costs. When coils become dirty they cannot provide adequate or designed heat transfer, which in turn cause higher discharge pressure. The higher discharge pressure increases the compressor's amp draw and

run time while concurrently reducing its capacity. Equipment with moderately dirty coils may use up to 30% to 40% more energy than with clean coils.

That is why at Diversified Refrigeration we always include condenser coil cleanings and evaporator coil disinfection in our preventative maintenance agreements. Beside the benefit of reducing your emergency service calls, your equipment is running efficiently as the manufacturer had designed thus saving you money where it counts, your electric bill.

