Stay

The outlook on natural gas air conditioning

By Eric Burgis

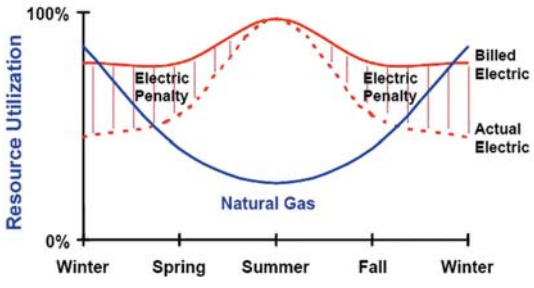
The future of natural gas cooling and natural gas-fired humidity control technologies is pretty bright. It is projected that we have more than 100 years of natural gas supply based on current consumption levels, thanks in part to new shale gas reserves. This glut of domestic natural gas has helped reduce and stabilize natural gas prices. At the same time, the natural gas industry is working aggressively to educate the public about how the direct use of natural gas at the site reduces the carbon footprint.

Gas cooling reduces peak demand, which helps stabilize the electric grid and save consumers money. The chart below shows peak energy usage for natural gas and electric, along with typical electric penalty charges for commercial and industrial customers.

If saving money with gas cooling, stabilizing the electric grid and helping the environment isn't enough, there are a myriad of other benefits associated with gas cooling and humidity control. Gas cooling helps reduce electric demand at peak hours on an already congested and constrained power grid. Reducing demand helps improve grid reliability and national security and helps save millions of dollars in electric transmission and distribution infrastructure upgrades.

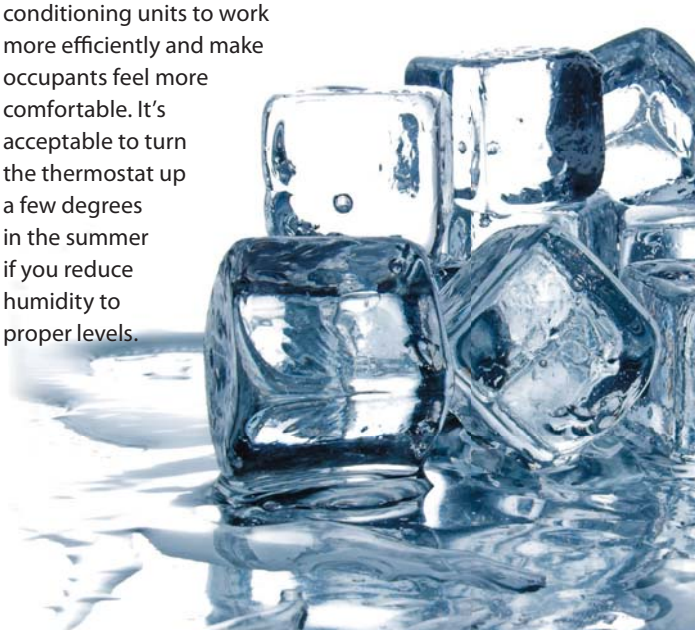
The humidity factor

There are considerable health aspects of proper humidity control. Proper humidity levels of 40 percent to 50 percent can save facility operators from having to replace furnishings, wall coverings and flooring. Proper humidity isn't an option for libraries, museums and certain government applications where high tech military equipment is stored.



It is well documented that too much humidity increases the growth of mold and fungus that leads to respiratory ailments. Conversely, too little humidity allows virus, such as H1N1 and influenza, to thrive. Studies suggest that virus strains may live as long as 16 hours out of the body in low-humidity applications, but rarely live more than four hours in properly humidified buildings. Proper humidity control reduces absenteeism while making employees more comfortable, creating a more positive and productive work environment.

Humidity control also brings opportunities to save energy. Reducing excess moisture in warmer months allows air conditioning units to work more efficiently and make occupants feel more comfortable. It's acceptable to turn the thermostat up a few degrees in the summer if you reduce humidity to proper levels.



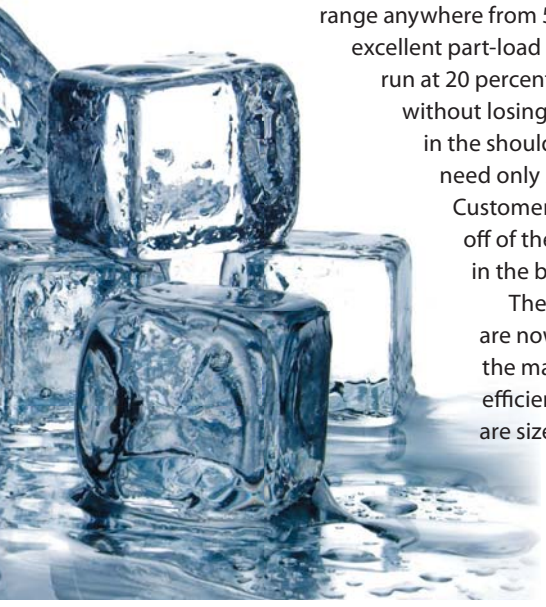
cool

Dry desiccant wheel technologies have been on the market for some time, but typically were sized for commercial and industrial applications. New residential-sized desiccant units are affordable and not out of reach for someone with respiratory ailments. With the recent emphasis on humidification for health benefits, several manufacturers have improved their commercial and industrial humidification solutions to more effectively address problems associated with minerals and hardness from the water used for humidification.

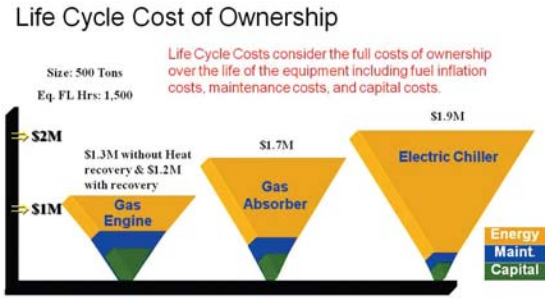
Space cooling

Many reliable and proven products are on the market for space cooling. Absorption technologies have a long history of effectiveness and come in residential- and industrial-sized units. Absorbers can run off natural gas, oil, hot water or waste heat from another process. Some absorbers use more than one fuel for flexibility, and some can provide simultaneous heating and cooling in a single unit. Absorption units often are used for space cooling, process cooling, or turbine air inlet cooling and are often found integrated into cogeneration or CHP systems.

For greater efficiency, there are natural engine-driven chillers. These electric chillers have a natural gas engine replacing the electric motor. Engine chillers, which range anywhere from 50 to 400 tons, have excellent part-load performance and generally run at 20 percent of their rated capacity without losing efficiency. This is nice in the shoulder months when you need only small amounts of cooling. Customers can recover waste heat off of the engine for use elsewhere in the building.



The new gas-fired heat pumps are now making their way to the market with even higher efficiencies. These new units are sized from about five to 16 tons and boast a coefficient of performance as high as 1.4 for cooling and 1.6 for heating. This effectively means you can produce more heat than the amount of energy being consumed by the machine. Sounds like magic, but it's not—it's the basic principal of moving heat rather than creating or destroying energy.



The gas industry has some great products that can improve lifestyle while being environmentally friendly, so why don't more consumers take advantage of gas cooling and humidity control? The higher cost of these technologies is the age-old stumbling block. A typical large commercial-sized chiller will cost about twice as much as its electric counterpart and might have paybacks in the 3.5- to 4.5-year range. Building owners, operators and engineers need to consider the life cycle cost of gas cooling, not evaluate a project based on the simple payback alone.

Now is the time to create awareness for gas cooling and humidity control with your customers, regulators, architects, engineers and contractors. For more information on gas air conditioning and available products, please visit www.gasairconditioning.org.

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