



Sustained Occupancy

A Year after the Ice Storm

BY JAMES KENNEDY

FOLLOWING the massive ice storm that pummelled the GTA in December 2013, sustained occupancy remains a critical issue for condominiums.

For some, the full restoration of power following the ice storm took more than 30 days. A million people were affected during a period of extreme cold. Residents in condominiums faced a particularly stressful holiday season, as thousands were left without light, heat and water, forcing many to eventually vacate their homes. The 2013 ice storm precipitated an urgent re-think for condominium managers. Many had already recognized what the ice storm drove home: that a new solution for long-term, secure power is needed to address long-term power outages. Here's how one condominium is embracing a new approach (using proven technology) to secure energy and sustained occupancy.

Sustained Occupancy Rises to Top of Mind

The City of Toronto (and others) define the issue as sustained occupancy – how to keep people in their buildings during a long-term outage. The City's Director of Environment & Energy Division, Jim Baxter, gave an Energy Crunch in the City presentation prior to the ice storm, highlighting the potential risks. Referencing the City's strained and out-dated electricity grid, the world's highest level of construction growth and ever-increasing extreme weather events, he emphasized the particularly serious implications for people in multi-level residential communities.

Toronto Hydro's Independent Review Panel (IRP) appears to agree. In its report entitled *The Response of Toronto Hydro-Electric System Limited to the December 2013 Ice Storm*, it concludes: "The IRP recommends that the Provincial government consider a requirement

VS Natural Gas Diesel Fuel

Natural gas benefits from an unlimited supply

Diesel fuel can run out during a longer-term utility outage

Natural gas CHeP system runs continuously under load and is monitored hourly

Diesel generators can be poorly maintained and are rarely tested under load

A natural gas based CHeP system is sized for additional loads to keep residents in the building

Diesel generators are sized to get residents out of the building during a fire

Natural gas is clean

Diesel fuel can deteriorate over time if not used

Natural gas is established and safe

Diesel may pose a higher risk due to diesel fuel storage and handling

for all new and existing buildings to provide a means for back-up power for a longer period of time. This will allow for the safe evacuation of and access to vulnerable populations that live in highrise buildings.”

And exactly one year after the storm, Toronto Community Housing Corp. took action, announcing plans

not operate during a power outage. Consequently additional back-up power is required to sustain basic living necessities during an extended outage. In other words, existing diesel generators are designed to get people out of the building, not to keep residents in the building or to ensure sustained occupancy in the

...stories abound of diesel generators failing during a power outage due to inadequate testing, deteriorating fuel and frozen air-intake louvers....

to replace aging emergency generators in hundreds of buildings across the city with new natural gas generators to ensure tenants have increased heat and light during such extreme events.

Diesel Generators Focus on Evacuation – Not Occupation

By law, emergency generators are required to supply back-up power to elevators, fire pumps, and lights to safely evacuate a building in the event of fire. This puts the focus solely on evacuation – not occupation – and means that water pumps for sanitary needs, heating systems and other life sustaining systems do

event of a long-term outage.

Prohibitive costs are another problem, as maintaining diesel generators to meet TSSA fuel-handling regulations can cost in excess of \$100,000. Equipment failure is yet another concern: stories abound of diesel generators failing during a power outage due to inadequate testing, deteriorating fuel and frozen air-intake louvers that lock out the engine’s start command, among other inadequacies.

Weighing the Options

After considering the upfront capital cost of \$750,000+ to supply, install and commission a tradi-



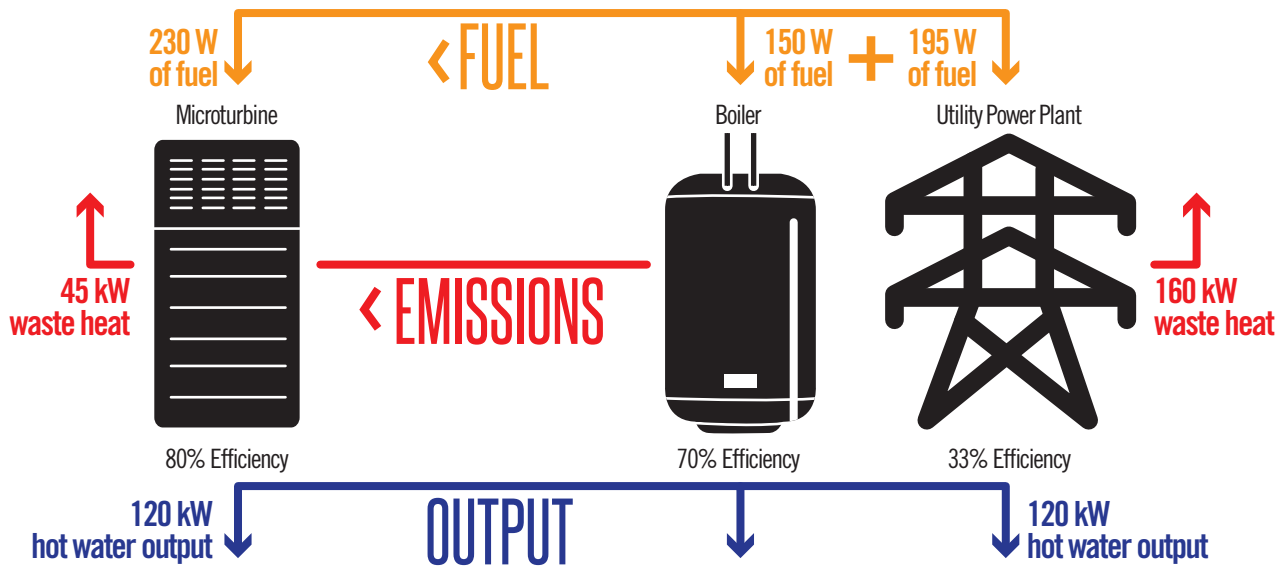
SPARKLE

For the finest in window cleaning

WINDOW CLEANING LTD.

• EAVES • SIDING	COMMERCIAL • RESIDENTIAL HIGH RISE	BONDED
FREE ESTIMATES	416.246.9374	SATISFACTION GUARANTEED
SINCE 1960	www.sparklewindowcleaning.ca	5 MILL LIAB. P. D.

How the CHeP System Works



tional back-up generator, a GTA condominium was presented with a new way to address its back-up power needs. (While the solution is a new approach, it is built entirely on proven technology that's already in wide use across the continent.) Under the agreement, Magnolia Generation, the provider, will supply, install, own and operate a Combined Heat & emergency Power (CHeP) System in the condominium at no upfront capital cost in return for a long-term energy contract at the prevailing market rates – allowing the condo to ensure sustained occupancy at no capital cost while maintaining their existing utility costs.

Proven Technology

While CHeP has been around for as long as fuel-based power generation (that's 80+ years) it's historically been undertaken on a much larger scale – for example manufacturers and hospitals. But now – due to advances in technology, de-regulation, higher electricity transmission costs, coupled with more extreme weather events – it's become far more accessible and practical for multi-level residential buildings to embrace the concept.

Natural gas-fed microturbines are

a rugged, proven technology that's already in extensive use in North America in hospitals, hotels, data centres, universities and more – the only difference is that these buildings tend to own the asset. Placing this technology in condominiums is a perfect fit, especially when you remove the upfront costs, which could otherwise be prohibitive and require a long payback period. This arrangement also frees the condominium from monitoring and maintenance.

How the CHeP System Works

A natural gas-fed microturbine – capable of delivering an unlimited supply of power in emergency situations – is placed within the building.

The microturbine is owned and fully maintained by a third party.

It runs continuously (not just in emergency situations) to provide day-to-day heat and power.

On a day-to-day basis, buildings use the heat from the microturbine's electrical generation for space heating, domestic hot water, de-humidification and cooling.

In power outages, the system is sized to keep residents in the building (as opposed to simply providing the bare minimum of services to get residents

out). Like a boiler, it generates electricity and doubles as a back-up generator.

The streamlined equipment fits easily into buildings, close to electrical and mechanical systems.

Microturbines are vibration-free, meet clean emissions guidelines and run for long durations without requiring maintenance.

With CHeP, multi-level residential buildings finally have a proven solution to resolve their back-up power needs at no capital cost, and at no extra costs than they are paying for energy today. ♦



James Kennedy is principal of Toronto-based Magnolia Generation, which specializes in the multi-level residential CHeP market. Magnolia Generation's team has 15 years of hands-on experience deploying microturbines into CHeP applications. For more information please visit www.magnoliagenerationinc.ca or email jkennedy@magnoliaenergy.ca

DON'T MISS ANY NEWS!



Get regular updates from ACMO on your cell phone.