

# Energy Efficiencies

*by Chris McBeath*

“Of one thing we can be sure: energy will be more challenging and more important in the future. Will you, and your business, be ready?”

*~Peter Schwartz, Chairman, Global Business Network.*

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Energy management is taking the green ethos to new levels. Fueled by an increasing energy demand, diminishing resources, and global climate change, technology is reshaping the economies of energy use.

“Based on a year-round operation and 70% occupancy, an average 150-room hotel contributes three tonnes of greenhouse gases into the atmosphere,” reports Christina deVries, Director of Marketing of an Ontario-based company whose specialty is sourcing green power and carbon offset opportunities. “That’s the equivalent of driving 200 cars, heating and lighting 100 homes, or taking 5,000 airplane flights.” Add to this the fact that most buildings waste almost 30% of their energy, and you have a good case for considering an energy-audit.

### Electrifying Results

Accounting for approximately \$1.5 billion in energy expenditures, hospitality ranks as one of the most energy intensive commercial sectors in Canada. However, because energy utilities are also one of the most controllable costs in a hotel operation, any changes to upgrade light fixtures, heat modalities, and electrical appliances can deliver significant results.

At The Fairmont Chateau Whistler, a lighting retrofit meant \$42,000 in annual savings. Working with BC Hydro’s Power Smart Program, the combined savings for Fairmont’s five established properties (excluding the recently opened Fairmont Pacific Rim) was a whopping \$700,000. “At the time, our energy savings were equal to the revenue of more than 3,500 occupied hotel rooms, on average,” notes Mark Andrew, Regional Vice President and General Manager, The Fairmont Hotel Vancouver. “Sustainable best practices is one of Fairmont’s core values,” he continues. “Case in point, we were among the first hotels in Western Canada to incorporate a centrally-controlled guestroom energy management system, which uses occupancy sensors and door switches to determine if a room is occupied and then adjusts lighting and heating levels accordingly.”

Kimpton’s Pacific Palisades also took advantage of BC Hydro’s Product Incentive Program. Not only did the hotel receive over \$12,000 in

## Simple Initiatives for Immediate Savings

- Faucet aerators
  - 13% reduction in water use per sink
- Ionic laundry systems
  - 50% reduction in laundry operational costs
- Low flush toilets
  - Up to 40% reduction in overall water use
- CSA Approved LED Emergency EXIT signs
  - 90% reduction per sign in electricity
- Dimmer/motion light controls
  - 20% reduction per light in electricity
- Compact Fluorescent Light bulbs
  - 75% reduction per bulb in electricity
- LED light bulbs
  - 80% reduction per bulb in electricity
- Energy Star appliances & ice machines
  - 20% savings in electrical consumption in refrigerators, 41% dishwashers
- Use of ceiling fans & Energy Star ceiling fans
  - 40% reduction in A/C electricity
- Energy Star TVs
  - 30% reduction per unit in electricity
- Programmable thermostats
  - 20% reduction in heating/cooling costs
- Low flow shower heads
  - 70% reduction in water use per shower
- Motion sensor taps, toilets
  - 50% reduction in water use per sink

Source: Planet Energy, [www.planetenergy.ca](http://www.planetenergy.ca); tel 289-360-3027

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## Ideas at Work

>>>The Conrad Indianapolis hotel is revamping its steam distribution area: the radiant heat that formally vented out into the street now vents to heat emergency stairwells in the winter months.

>>>The Conrad Indianapolis also plans to recover hot water condensate that would normally be thrown down the drain to pre-heat its domestic hot water. Initial cost savings are anticipated at \$5,000-\$7,000 per year.

>>>Guests at The Nature Inn at Bald Eagle in Pennsylvania, can use an in-room monitor to track how much energy was consumed during their stay at the inn

>>>Hilton's LightStay Program monitors energy used in all utility areas, including electricity, water, and garbage. It keeps a running tab on energy consumption, and provides recommendations/requirements in order to maintain LightStay sustainability level.

>>>Paris' Hotel Fouquet's Barrière has replaced detergents with water electrolysis, and recycles waste as fertilizer, which it converts into heat and electricity. The hotel also offers guests hybrid limousine service and electric E-Solix bicycles.

financial incentives for its upgrades, but those improvements saved more than 521,000 kilowatt hours of electricity each year - a value of over \$26,000 - as well as a reduction of nearly \$10,000 on maintenance costs.

### Lighting up Savings, Watt by Watt

The challenge is to save energy at an affordable cost. For Chateau Victoria, it's been a three-year, careful program of incremental change, shaving money off its power bills, one step at a time.

"We started with our exit signs, changing them over to LED [light-emitting diode] lights," says Mark Pennington, Maintenance Manager of the 177-suite property. "Last fall, we installed new light strips over the wet bars in all the suites, replacing the big round 'Fat Albert' incandescent bulbs for CFLs [compact fluorescent lamps], and changed the 60 watt ceiling incandescent bulbs with 13 watt CFLs." A lighting re-work in the entry canopy reduced wattage from 4,100 watts to about 1,150. The hotel saved some \$700 per year in that area alone.

"This fall, the hotel started to upgrade hallway ballasts and lights," reports Mr. Pennington, who goes on to share a few guidelines when considering a switch to new lighting. "Keep a watch on new technologies, and use a Power Smart Alliance member company to help keep on top of options. For instance, the earliest CFLs were too large for some hotel fixtures and didn't produce a warm, inviting

light. By holding off, there is now a choice of shapes, sizes, and colour temperatures." He also advises keeping an eye on the amount of heat that some LED floodlights generate as well as the durability of the new, dimmable, high-efficiency lamps.

### Harnessing Natural Heat

With its remote island location, where energy has traditionally involved propane and generators, the Pacific Sands Beach Resort has turned to geexchange technology. Geexchange heating and cooling is highly efficient - requiring up to 75% less energy than conventional systems. Here, special systems take advantage of the sun's energy stored in the ground, where the earth's temperature remains at about 12°C throughout the year. In the winter, pumps are used to extract heat from the ground or ground water and transfer it into buildings for space and hot water heating. In the summer, the pumps reverse the process, removing heat from the building and returning it back to the ground, thus cooling the building.

Biomass gasification is another innovative energy system, which creates low-cost heat through a thermo-chemical process known as "starved air combustion". This ultra-clean technology transforms locally sourced wood waste - municipal tree trimmings, mill scraps, pine-beetle damaged lumber - into energy. Terasen Gas is studying the feasibility of a biomass system that would use waste heat and

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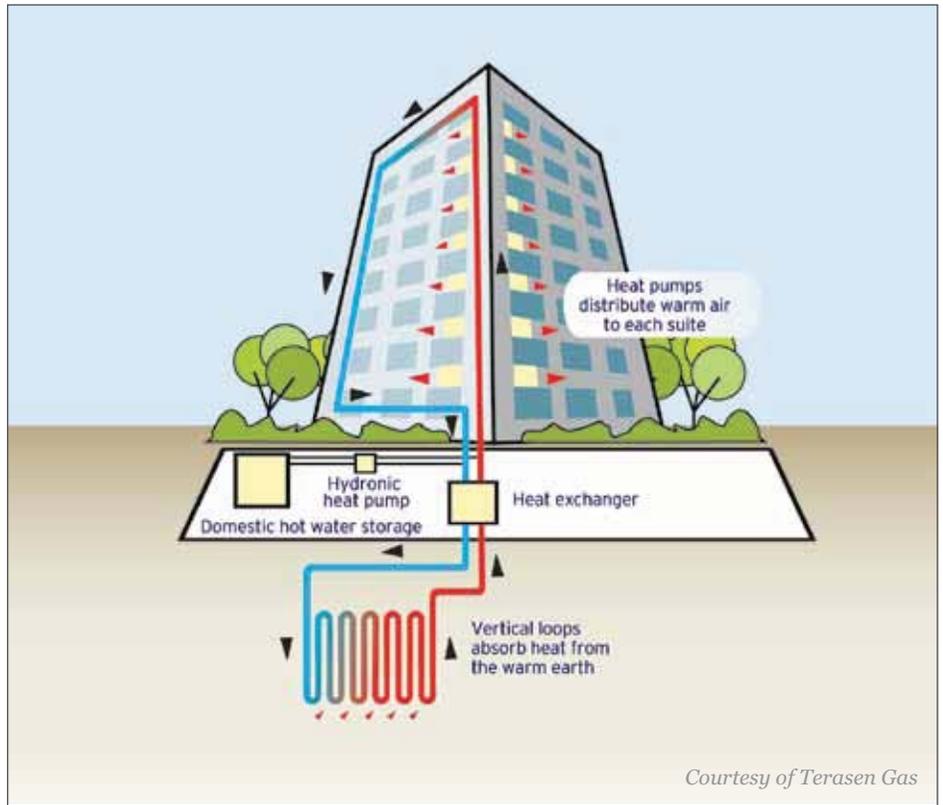
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residue from a sawmill in the city of Quesnel. This unique renewable energy system would utilize otherwise wasted energy sources.

### Resourcing the Resources

In most cases, a successful energy program will require a property to make basic changes in the way it uses technology, none of which need be drastic or costly. Natural Resources Canada, has a hoard of tips and year-round checklists to help staff embody energy efficiencies into their modus operandi. (Go to [www.nrcan-rncan.gc.ca/com](http://www.nrcan-rncan.gc.ca/com).) Combined with reduction programs offered by companies such as BC Hydro, Terasan Gas, Planet Energy, and HAC's Green Key rating scheme, savings can be significant. Check out [www.energystar.gov](http://www.energystar.gov), too. Although it's geared to the US market, it's an informative site that will add fuel to your grist.

With Expedia and Travelocity both singling out green hotels, and programs such as Hilton's Light-Stay Program (see sidebar), energy management is no longer a behind-the-scenes operational issue, it is an in-your-face consumer preference. And that's something to get energized about! 🌱



## Power Hungry

According to the US Dept of Environment's *Annual Energy Outlook Report (2007)*, world demand for all energy sources over the next two decades is expected to grow by 57%, largely because of Asia's economic and manufacturing thirst. During this time US demand, and similarly Canada's, is forecasted to increase by 31%. In terms of electricity, North American needs are anticipated to grow by at least 40% which, with the demise of fossil fuels (currently coal fuels half of all electrical generation), will necessitate a new power infrastructure equal to nearly 300 power plants.



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