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# Hotel energy use contributes to global warming

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Before learning about the consequences of global warming and the efforts hotels are making to reverse the effects, it is important to get a better understanding of what exactly is the phenomenon that scientists call global warming. According to the EPA (2006), the earth's climate has changed several times since the beginning of Earth's existence. For example, the Earth has encountered ice ages as well as long periods of warm temperatures. Some of the things that previously have caused changes in the temperature have been volcanic eruptions, changes in the Earth's orbit and the amount of energy emitted from the sun. However, the Industrial Revolution in the 18<sup>th</sup> century changed the behavior of humans and they started relying on machines and expansion began across the globe. The EPA states that the burning of fossil fuels, such as coal and oil, as well as deforestation, has caused an increase in the amount of greenhouse gases in the Earth's atmosphere. Greenhouse gases are necessary because they keep the Earth warm, however too many greenhouse gases are a dangerous thing. If there are too many greenhouse gases trapped in the atmosphere, they prevent heat from escaping through the atmosphere. They act as a barrier or a shield that bounce the heat rays back to the earth. And now, the earth is hotter than ever. NASA has reported that the earth's average surface temperature has risen from 1.2 degrees to 1.4 degrees Fahrenheit since 1900. They also found that the warmest years have occurred within the last 15 years, with 1998 and 2005 being the hottest years on record (EPA, 2006).

Despite earlier debates, most scientists now agree that human activity is the cause of the increased global warming according to Eilperin (2006). The current debate is what

the exact consequences will be from global warming. Scientists worry that global warming will cause the bleaching of the coral worldwide, rising water levels and the shutdown of the ocean current that controls the temperature in Europe (Eilperin, 2006).

The Intergovernmental Panel on Climate Change reported that water temperatures could rise between 7 and 23 inches by the end of the century, with additional rising if the ice caps at the arctic poles continue to melt. However, some of the scientists thought that that estimate was too small and that water levels will actually rise between 3 and 5 feet (Borenstein, 2007). According to Princeton University geosciences and international affairs professor Michael Oppenheimer, if the both the polar ice caps melt, water levels could rise close to 20 feet. If water levels rise that much, the southern third of Florida and part of Manhattan would be under water (Eilperin, 2006).

Besides rising sea levels, there is also a possibility of stoppage of the water current, also known as the Gulf Stream, which regulates the temperature in Europe, says Kluger (2006). The Gulf Stream is a torrent of warm water that flows up and down throughout the ocean depending on the temperature. However, the water flows operates because of the salt in the current. If the Gulf Stream encounters the fresh water from the meltwater of the Arctic and Greenland, the stream would be disrupted and the temperatures in Europe could change. Part of Europe is on the same latitude as Alaska, however, thanks to the Gulf Stream, it remains much warmer. If the Gulf Stream is disrupted because of the melting ice in the north, Europe could become a completely different climate than what we know today (Kluger, 2006).

Another concern that arises because of global warming is the increase in the number of powerful hurricanes. *What is Global Warming?* (2007) reported that the

number of category 4 (winds between 131 and 155 miles per hour) and category 5 (winds above 155 miles per hour) have nearly doubled in the last 30 years. The Intergovernmental Panel on Climate Change unanimously agreed that global warming is more likely than not (more than 50% likely) the cause of stronger hurricanes (Laughlin, 2007). The panel was influenced by a Massachusetts Institute of Technology professor, Kerry Emanuel, who says that hurricanes and cyclones in North America have gotten more powerful since the 1970s. His evidence is that the storm intensity since 1990 matches the increase in the surface temperature of tropical oceans since warmer water causes stronger hurricanes (Laughlin, 2007).

It is clear from the above evidence how serious of an issue global warming is. It is also clear that humans are responsible for the increase in global temperature. With hotels being such a major part of the global economy and serving so many guests, the hospitality industry leaves a huge footprint on the earth. Bohdanowicz, Churie-Kallhauge, and Martinac (2001) reported that the international hospitality industry is the number one employer, accounting for over 200 million jobs. In 2001, there were over 300,000 hotels world wide, and over 11 million guest rooms. Kasim (2006) reported on some of the consequences of increasing the hospitality industry, such as an increase in demand of water and energy supply, increasing problems with waste management, and pollution to water due to energy use and air pollution.

Bohdanawicz et al. (2001) state that the environmental effects from a hotel come from the excessive consumption of resources, such as water, food, electricity, and it also comes from the emission released from using those resources. Of course, the size, class, number of hotel rooms, types of guests, location, climate zone and amenities provided to

guests by a hotel affect the amount of energy expended. They also found that electricity is the primary source of energy used by a hotel; therefore, many hotels measure their energy use by looking at the electricity bill. However, oftentimes, hotels do not look at the different uses of electricity; they only look at overall use. However, further explorations were done by the authors, and it was discovered that heating, air conditioning, ventilation and cooling systems were often the biggest part of the energy consumption.

In order to get a better idea of how many resources a hotel uses, it is important to look at the actual numbers of energy, water, and trash usage. For this example, Caesars Palace in Las Vegas is being used. Although Caesars Palace is an extremely large hotel and casino with over 3,000 rooms, it still provides an idea of how many resources are used. It also can show how large a footprint a hotel and casino can leave. In December, 2006, Caesars Palace used 11,545,127 kilowatt-hours (which resulted in a bill to pay worth \$837,024.34), used 31,219,000 gallons of water, and produced 55,051 cubic yards of trash (D. Wisniewski, personal communication, March 9, 2007).

Now that it is discovered how much energy hotels produce, it is important to know if hotels realize how important it is to become more environmentally aware of their impact. A study was conducted of European hotels by Bohdanowicz (2005) to discover managers' attitudes about their influence on the environment. She found that hotels realize that it is important to be more environmentally conscious. However, chain-operated hotels, which typically are larger hotels, are more likely to be aware of the environmental issues than are independently run hotels. In independent hotels, the managers' attitudes and knowledge play a large role in how environmentally conscious

the hotel is. In chain-operated hotels, the hotels are more environmentally conscious because of the environmental policies imposed upon them by the corporation, because environmental achievements, along with financial statements, are now becoming an important part of the reporting, and because they are more concerned about the brand image of the corporation.

If it is obvious to most hotels that becoming environmentally conscious, why aren't more hotels incorporating environmental policies? According to Kirk (1995), there are several reasons why hotels are hesitant to implement new, green ideas. For one, often, guests of hotels expect to be pampered with fresh linens, hot showers, luxurious spa centers, lavish pools, transportation. Hotels are concerned that reducing the amount of resources will be noticeable by guests and they will be upset with the savings. Another reason that hotels might be hesitant is because of the difficulty in getting all the employees involved. Implementing company wide policies can be very difficult with employees, especially if there are no incentives. Coming up with an environmentally friendly plan for the entire hotel to be excited about can be very challenging. Finally, hotels are concerned with the costs of implementing a green plan and if the implementation will be cost effective.

Kirk (1995) believes that there are two crucial steps to becoming a green hotel. The first step is to write down a developed environmental policy that involves all parts of the hotel from the top down. If the top management is not involved, then no other person in the hotel will become passionate about the process. The policy must involve clear objectives and targets, along with monitoring. Secondly, Kirk believes that an environmental audit must be conducted for the hotel to clearly understand its impact on

the environment. This will make it much clearer for the hotel to meet and understand the objectives. Chan (2005) states there is one problem with doing an environmental analysis of a hotel's impact on the earth. The difficulty is that it can be challenging to place a monetary value on some of the environmental effects such as "loss of species, biodiversity, the psychic costs of human illness, human life, the value of antiquities, beautiful landscape" (p. 519). Therefore, hotels, according to Chan, should measure an environmental analysis by looking at costs to the hotel from energy used, sewage discharged, solid waste, and perhaps water. Brown (1996) states that implementing an environmental policy needs to be viewed as an important strategy; one that is as important as financial or profitability growth. It must be part of the hotel wide strategy, not just an additional task for the hotel to work on. Grove, Fisk, Pickett and Kangun (1996) state that the actual policy should concentrate on the "three Rs", also known as reduce, reuse and recycle. Reducing might include conserving energy such as water; reusing might include offering refillable containers; and recycling might include separating products from waste.

People have definite ideas about how to implement a green hotel policy, but it is important to look at examples of what hotels currently have in place to make their hotels more environmentally friendly. In May, 2006, the American Hotel & Motel Association, with 12,000 members, launched a "Good Earthkeeping" program which left cards in guest bathrooms informing them that if they hung up their towels, housekeeping would not replace the towels and linens. This program would save money and cut down on water usage (Wilke, 1996). Disney Resorts in Orlando, Florida implemented a similar towel program where the sheets and towels were changed every third day unless

requested otherwise by the guest. By using this program, in one year, Disney has saved 6.5 million gallons of water, 5,000 gallons of cleaning solution, 600,000 kilowatt-hours of electricity and 37.5 million cubic feet of natural gas (Green Hotels, Lodging Hospitality). Other examples were cited by Spatrisano and Wilson (n.d), when the US Green Building Council held its first international conference, The Green Building International Conference and Expo in Austin, Texas, they only stayed in green hotels in order to further promote the idea of environmental responsibility. In order for the hotels to be considered green, they had to change towel and sheets every other day (unless requested by guest); not replace amenities daily unless they were depleted; have the housekeeping shut blinds and shut off air conditioning or heat during the day when the guests were not in the room; and use non-disposable plates, cups and glasses. Wilke also sites The Habitat Suites in Austin, Texas which uses low-flow shower heads, faucet aerators, low-flow lawn sprinklers, compact fluorescent lighting, energy efficient air conditioning units, and bulk soap and shampoo dispensers. The Fontainebleau Hilton Resort and Towers in Miami Beach, Florida has recycling and garbage bins which were converted from laundry detergent and cleaning barrels. L'Hotel in Toronto, Canada no longer uses disposable laundry bags, but instead uses old bed sheets made into laundry bags.

While many hotels are doing small steps to becoming more green and improving the environment, there are some hotels that are making huge steps to becoming a truly green hotel. Enz and Siguaw (1999) documented four hotels that were named environmental best-practice champions in the Cornell University School of Hotel Administration study of best practices in the United States lodging industry. The first

hotel is the Hyatt Regency in Chicago who has an excellent recycling program in place. They have their own recycling department who has to separate all the trash into useable and non-useable. They also reduce waste by dispensing drinks from fountain machines instead of using bottles or cans. Thanks to their initiatives, the hotel saved \$91,330 in 1997 and \$77,080 in 1998. The second hotel, the Hyatt Regency in Scottsdale, Arizona, also has a recycling program in place where they reuse certain recovered items. For example, they use broken china and make mosaic tiles or take old denim uniforms and make pencils. Besides the recycling program, the hotel also installed an underground watering system for the grounds, replacing the old, inefficient above ground sprinkler system. The third hotel, the Colony Hotel in Kennebunkport, Maine has recycling containers all over the hotel, including guest rooms. They also have information in all the guest rooms about the hotel's environmental initiatives and tips for saving water. Finally, the Hotel Bel Air has installed more energy efficient lightbulbs, timers for the electrical and irrigation systems, and placed insulation on the doors. They reported a savings of \$10,000 in the first ten months. All four hotels have involved the entire hotel by hiring a manager who is in charge of the environmental initiatives, by involving a team of employees who are in charge of making sure the hotel is aware of the efforts, or both.

Another example is the Doubletree in Portland, Oregon whose practices were documented by McPhee (2006). They have efforts to reduce waste, become more energy efficient, and conserve water. For reducing waste, they have recycling containers throughout the entire hotel, including public areas for the guests. They separate all waste that comes into the kitchen into waste and compost. They also reduce waste in the

kitchen by preparing smaller amounts of food, using leftovers in the employee dining room and donating excess packaged items to local shelters. The kitchen staff also collects oil and which is used by companies producing biodiesel and other waste-oil products. The hotel switched to buying food in bulk instead of single serving containers. 75% of the packaging for the food must be environmentally safe and none of the packaging can contain Styrofoam. The hotel also has a paper saving program in place for office supplies, and purchases furniture that can be reupholstered. Thanks to the waste management policy, the Doubletree reduced its waste volume by 65% from 1996 to 2006. For energy efficiency, the hotel has invested over \$245,000 in light bulbs, windows, and air conditioners, etc. which reduced energy by 32% and saved \$360,000. The hotel also purchases 35,000 kilowatt-hours of clean wind power. They also no longer use an airport shuttle service, but encourage guests to use the MAX light-rail train system. Employees are encouraged to use the mass transit system thanks to the hotel and their subsidizing of passes. Using the mass-transit system has saved over 7,500 gallons of gasoline and 7,500 pounds of carbon monoxide a year. In order to conserve water, the hotel has installed low-flow shower heads and water conserving toilets, all which has resulted in a reduction of water use by 15%. The hotel also has a linen program in place so towels and sheets are not cleaned every day (McPhee, 2006).

Hotels can also become greener by qualifying for certain certifications that promote green policies. The most recognized certifications are LEED, Green Seal, and Energy Star. LEED, or Leadership in Energy and Environmental Design, part of the U.S. Green Building Council, is a “nationally accepted benchmark for the design, construction, and operation of high performance green buildings” (Leadership in energy and

environmental design). They recognize five areas of sustainability which include sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality. They certify all types of buildings, including hotels. There are several qualities LEED certified buildings possess, but most importantly, they “reduce waste sent to landfills, conserve energy and water, and reduce harmful greenhouse gas emissions” (Leadership in energy and environmental design). Green Seal provides a science-based environmental accreditation for many different types of buildings, including hotels. Once a hotel has become accredited, Green Seal annually checks on the building to make sure they are still abiding by the standards set (Green Seal certification process). Finally, hotels can earn the Energy Star label, which was established by the EPA in 1992. Hotels are rated by the EPA’s energy performance rating system, and those in the top 25% earn the label. The rating system is based on how well the building is operated and maintained, as well as how the systems are integrated (EPA, 2003).

Hotels can also join “Green” Hotels and receive tips and information about saving water and energy and reducing waste that are specifically designed for hotels. Hotels can also search through catalogs that have environmentally friendly products for the lodging industry (What are “green” hotels?).

Besides helping the environment, becoming a green hotel can also improve occupancy for a hotel. Guadalupe-Fajardo (2002) reported that a study found that about 70% of Americans are willing to pay \$150 or more per night in a hotel that is considered a green hotel and environmentally conscious. The study also found that 55% of Americans are more likely to book a room at an environmentally friendly hotel. The

Saunders Hotel Group's president reported that due to the implementation of the green policies, there was an increase of \$2 million in new business at his three hotels in Boston (Glanzrock, 1995). After the Colony Hotel started marketing itself as a green hotel, the occupancy rate has increased 25% (Bruns, 2000).

Obviously, the Earth is facing a possible environmental catastrophe thanks to global warming. While it is important that individual people play a part of reducing greenhouse gas emissions, it is also very important that hotels do the same due to their large impact on the planet. There are several methods for implementing green policies to hotels, as well as several examples that hotels can follow. Beyond that, there are several accreditations that a hotel can achieve that will help them to become more environmentally conscious about their operations. And while greening a hotel is important for the earth, it can also make an impact of the profits for a hotel since more and more people are willing to pay more to stay in a green hotel.

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