

# Environment issues and energy saving methods



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“ Hotels and resorts use intense amounts of natural resources (e. g., water, electricity) in providing luxurious accommodations for guests. These practices pose risks to the natural environment, on which the tourism industry relies”.

“ Energy management has been an important part in the environmental protection and welfare of human being. Due to the unprecedented rise in prices of some sources of energy use and their non-renewable characteristic (UK uses 95% of the energy source come from non renewable energy), therefore there is a need to preserve, reduce and to find alternative source of energy” (Energy Efficient Office, 1994; Chan & Lam, 2002; CHOSE, 2001; Verlag, 2003; Verginis & Wood, 2001). There are many factors such as size, occupancy, age of facility and geographical location; can contribute to the energy consumption of a hotel and thus with a proper energy management can help to reduce the cost and magnitude of savings.

For a hotelier to successfully develop an environmental friendly hotel, he first need to create an environmental policy-“ is an agreed documented statement of a company’s stance towards the environment in which it operates” (www. environmentalpolicy. org. com) which include its intent to reduce waste, encourage recycling and carbon footprint and uses of natural resources on a daily basis and this will in turn be passed onto the staff. The company can then use this environmental policy to apply for ISO 14001, -“ is a guide to environmental management principles, systems and supporting techniques. ISO 14001 is the internationally recognised specification for an environmental system within the organisation. This gives a company the <https://assignbuster.com/environment-issues-and-energy-saving-methods/>

accreditation that it is in accordance with the legislation and is environment friendly" (www. environmentalpolicy. org. com)

How the accommodation manager at operational level can reduce energy consumption?

There are mainly four areas of a hotel that the accommodation manager can save energy namely:

1. Lighting
2. Heating, ventilation and air conditioning
3. ) Laundry and kitchen
4. General operations (such as, pumps, steam boilers swimming pools

Lights -" represent approximately 15-20% of hotel electricity consumption

" Halogen lights sources generally last 2-3 times longer than incandescent lights and are 10-50% more efficient. Long product life reduces the amount of solid waste generated and maintenance costs associated with changing bulbs. Periodic cleaning may be necessary to keep them of peak rated efficiency"(my ton. 1996. greening your property). Lights can be switched off in areas not in use and if occupancy is low, the some floors can be closed to access and do not need lighting or few and heating. Other ways to save on electricity could also be to install switches, timers, dimmers and motion detector. By regularly cleaning light fixtures, replacing light shades with translucent types and using brighter colours on walls will also improve efficiency of lighting.

**Bedroom – the most important part of a hotel**

Natural carpeting can be use instead of those made from wool, sisal or coir, which uses lots of energy for its manufacturing and also uses non-renewable products as raw material. Instead of changing bed linen daily, it can be kept for a longer period of time unless objected by the guest and thus the hotel will save on water and might as well wash linen at a temperature of 40°C instead of 60°C resulting in a third less energy being used.)

The heating ventilation and air conditioning system uses “ between 25-40% of total energy of a hotel. A proper energy management will involve regular maintenance, sensors and other “ smart” controllers, load reduction measure and fan motor and chillers replacement or upgrades or better indoor air quality” (my ton. 1996. greening your property).

**Kitchen and laundry**

Hotel laundry and kitchens can consume lots of energy and water as well as detergents and other chemicals. By maintaining the equipment as well as their proper use, energy can be save and also improve their efficiency for example keeping the oven away from the refrigerator.

**General operations**

“ During periods of low occupancy, group guests in relation to mechanical and electrical system this will result in energy savings in unused areas” “(my ton. 1996. greening your property)

Laundry can be done at night times when the energy rates are at lower prices examples British gas rates are cheaper after 9am (off-peak).

Equipment that are energy efficient can be brought for examples those who have the “ sleep” feature when not in use

### **Bathroom**

Using towels for more than one day, vanity packs that contain shower case, cotton wool and sewing kits can be given only on request of the guest wastage, shower gels might as well be given in refillable dispensers instead of small pack thus preventing and saving natural resources.

Product use in cleaning contain toxic chemicals instead hotel can use those that are non bio-degradable and are dispensed in sprays instead of aerosol cans thus contributing to the environmental protection and safety of staff

### **Examples of hotel in UK**

1)” The Wyndham worldwide brand for example, Travelodge in the UK, work globally and locally with environmental best practise and product along with the help of employees and abide to the legislation, they focus on

- Educating and influence all internal and external stakeholders
- Reducing energy consumption and track performance
- Reduce water usage and recycle
- Improve air quality
- Minimise waste and reusing material
- Implement sustainable procurement practises

Some action they undertaking to educate the customer are

- To encourage them in giving some advice on how to save energy
- To encourage them to use the same sheet and thus save energy and water usage

- Turn off lights, air conditioner or heater and turn off water when brushing teeth and have quick shower
- Bring own toiletries”

(Source from uk green hotels, eco-friendly. [www. wyndham. com](http://www.wyndham.com))

2) “ Number 43 a small boutique hotel in UK intends to save energy by these following procedures:

- Replacement of light bulbs with energy saving ones
- Encourage staff and guests to switch off unwanted appliances or equipment
- Make sure that staff are aware and the importance to turn radiator down/off thermostat when room are unoccupied
- Closing curtains where appropriate
- Make sure staff are aware not to overfill kettle
- Heaters or air conditioners are off on floors are not in use
- Installation of double glazing where possible
- Ensuring all new appliances are energy efficient
- Using Dryer Balls in laundry operation (Saves 25% on running time)
- Check the levels of thermal insulation on all cooking appliances to avoid unnecessary heat loss.
- Avoid opening oven doors by using the viewing windows to inspect food.

(Source from environmental policy of number 43 boutique hotel [www. no43. org. uk](http://www.no43.org.uk))

Details of how the structure and design can help with environmental issues?  
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“ Hotels consume more energy (£/m<sup>2</sup>) than industrial buildings, naturally ventilated offices and secondary schools, according to the Energy Efficiency Office”).

Structure of an eco friendly hotel..

The structure of a hotel can be altered in such a way so that energy can be save and thus reducing the cost. As mentioned before practises such as changing bulbs to compact fluorescent bulbs, or sensitive motion lights, key cards that monitor the switching of electrical appliances and so on, a hotel can do a lot more about its structure, for example

- “ Use of furniture made up from recycle product for e. g. in bedroom, bathroom and all around the hotels
- Use of low emission paint for interior decoration and artist paintwork so that it ensure low carbon emission, does not contain solvent or release harmful gases or compound that can cause environmental effect.
- Carpets mattress can be made from natural fibre such as horsehair, flooring if of carpet can be use with new technology that is under floor heating and act as an insulator, green carpets can be made from recycle product as well.”(www. greenfloors. co. uk)
- “ The Pavafloor Thermal System is a thermal insulation system for solid floors where a solid wood or dry fix tile system is specified. Wood fibre boards have particularly good health and environmental benefits, helping to control internal moisture levels, being entirely non toxic, and also locking up carbon in their use”.(www. greensteps. co. uk)

The wall- “ different product can be use for insulation for inside and outside of a hotel, it can be made of wood fibre and be placed on masonry wall to cover and protect it”.(www. greensteps. co. uk)

The key card system that can activate room services such as lights, TV and other electrical equipment can reduce the CO2 emission.

By using a programmable thermostat, hotels can save a lot on energy for heating and air conditioning since they can preset the temperature as per the time of day or season and temperature of the day. “ Setting a thermostat two degrees cooler in winter and 2 degree warmer in summer saves 2, 000 lbs (909kg) of CO2 a year.” (www. IHG. co. uk)

A displacement air conditioning system “ uses less energy than a window unit one and also makes less noise. Other practises such as using recycle product such as furniture help to save energy and resources.” (www. IHG. co. uk)

Water efficient showerhead contains vacuum flow valves which pumps air into water stream, it is as refreshing and powerful as normal ones except that it uses less water thus less energy, this can also be done to the tap used in bathroom as well

High efficiency toilet “ uses up to 6 litres and new one with dual flush uses as little as 3 litres. The Interflush enables the WC, which would usually release the entire contents of the cistern when flushed, is converted to one, which only releases water whilst the flush handle is depressed. Therefore, only the exact amount of water required to flush the pan is released. Once the pan is



clear, simply release the handle to stop the flow of water”. (www.greensteps.co.uk)

Roofs planted “ with low-maintenance plants such as sedums improve the thermal performance of buildings, helping to keep them cool in warm weather and insulating them in winter.-The plants and the thin layer of soil also work like a sound barrier, especially when its wet, thus helping to reduce noise pollution. Other environmental benefits include improvements to air quality, biodiversity and storm water runoff.”(www.ihg.co.uk)

Recovery of exhaust heat “ from air conditioner or heater can be used to warm or cool adjacent rooms by using a method that do not mix the incoming and outgoing of air and transferring and thus save energy”(www.uswitch.co.uk)

Natural lava stone signage at the entrance and on the lawns replaces traditional plastic and metal signs use in gardens and pools can use water that move in cycle and there is no wastage, encouraging plant growth and green vegetation may help in soil erosion and noise pollution and save as well on

### **The design of a building**

“ Climate-responsive design is based on the way a building form and structure moderates the climate for human good and well-being”(www.facilitiesmanagement/greenbuilding)

### **Construction**

The building as a core

The roof can be made up of different kind of material that can help to insulate, look trendy, waterproof and is also resistant and lasting, such an example will be the pavaproof pitched roof system for flat or any other type of roof. “ Pavaproof system uses rigid, waterproof and breathable insulation boards. The boards are tongue and grooved on all edges, allowing for rapid and simple installation.”([http://www.natural-building.co.uk/pavaproof\\_roof\\_systems.htm](http://www.natural-building.co.uk/pavaproof_roof_systems.htm))

The wall can be made up of wallpaper that is eco friendly, made from recycle materials or low emission paint examples of these paints will be oikos or NBT paint and finishes. “ NBT systems naturally regulate moisture to protect the building fabric while offering excellent levels of thermal and acoustic performance”(<http://www.natural-building.co.uk/ecopaint.html>)

Windows and doors- the use of double glazing and triple glazing are the most common ones use for good insulation,” triple glazed gives extra thermal and acoustic performance” and need not be more expensive than the double glazing one. . ([www.greensteps.co.uk](http://www.greensteps.co.uk))

The doors can be made of material such as timber withy all joints sealed and prevent heat loss; manufacturer that provides a rot and fungal decay warranty can be use.

Energy efficient lift can help to save energy particularly in big hotels

Volume shape and layout of the building envelope

“ Smaller volumes give better energy economy. Smaller surface areas reduce heat loss . Open planned buildings require additional heating,

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orientation of windows affect solar gain” (accommodation management- Christine Jones- Val Paul new edition 1996)

### **Sitting of a building**

“ Exposed sites with high wingspreads gives reduced U values and increased ventilation rates. Elevated sites are cooler, polluted sites, e. g. noises or air, will require ventilation” (accommodation management- Christine Jones- Val Paul new edition 1996). However temperature cannot be control by natural ventilation and wind effect, thus other factors such as the opening size of windows, when to open it, location, size, and indoor temperature need to be taken into consideration. Therefore cooling/heating systems need to be in place.

It is important to carefully select the type of heating system use, if it is an HVAC system (a computerised control system for climate control in building) being use, care should be taken so as the appropriate temperature is being use and thus save energy, that is a set temperature and set points, Limitation of the thermal output and ventilation rates. Use of timers, motion sensitive and thermostat can be an advantage

New innovative heating system such as the Underfloor heating system seems to be a good investment, “ it uses a ground source heat pump to supply hot water and heating, enhancing the building’s energy efficiency and reducing its impact on the environment.”(www. uswitch. co. uk)

Solar system can be use to generate the energy required for a hotel and this source of energy is readily available and renewable. It can be install on roof of building where there will be a big areas for the panels.

Water plant can be installed in a garden underneath and it help to collect rain water, this can be use for irrigation, toilets and other purposes thus saving energy. Other example can be the use of biogas, geo-thermal , bio-mass boiler and insulation and wind power but all these will depend on the location of the building and the capital available to invest in these and might be use for future source of energy

### **The legislation**

“ Eco design for energy-using products regulation 2007 SI 2037- sets out requirements for energy-using product manufacturers to reduce the negative environmental impacts of their products, and to ensure free trade of these products throughout the EU.”(www. netregs. co. uk)

It came in force in august 2007 and implement that an authorised person need to inspect that the product being bought and carry out test and ensure it is in comformity with the product requirement that is being eco friendly.

“ Buildings Regulations 2000, SI 2531-Introduces requirements for builders to calculate and display energy ratings on new or altered buildings” (www. netregs. co. uk)

It implement that the building for example a hotel need to be of the specific height, floor area and so on, be in accordance to the UK law

“ Energy information (household air conditioners)(no2)regulations 2005 SI 1726-Requires household air conditioner suppliers to provide labels showing

energy consumption, and dealers to display this information to potential buyers” (www. netregs. co. uk)

“ Energy information (lamps) regulations 1999 SI 1517-Requires regulated lamp supplier to include a label showing the energy efficient, luminous flux, wattage and average rated life on the lamp or its packaging. Dealers must ensure lamps are labeled with this information” (www. netregs. co. uk)

“ Energy performance of buildings (certificates and inspection) (England and wales) regulations 2007 SI 991- Expands energy efficiency ratings for certain appliances and requires household refrigerator and freezer suppliers to provide energy consumption information to potential buyers.” (www. netregs. co. uk)

“ EU regulation on a revised community eco-label award scheme 1980/2000- Expands energy efficiency ratings for certain appliances and requires household refrigerator and freezer suppliers to provide energy consumption information to potential buyers” (www. netregs. co. uk)

“ Environmental Permitting (England and Wales) Regulations 2007 SI 3538- Introduces a new system for environmental permits for industrial activities and waste operations in England and Wales, including landfill and waste incineration, and sets out the powers, functions and duties of the regulator.” (www. netregs. co. uk)

“ Clean Neighborhoods’ and Environment Act 2005-

Introduces additional noise, litter and waste controls including site waste management plans, and classifies artificial lighting and insects as statutory nuisances.” (www. netregs. co. uk)

“ Control of Pollution (Amendment) Act 1989 c. 14-

Requires carriers of controlled waste to register with the Environment Agency or SEPA and outlines the penalties (including seizure and disposal) for vehicles shown to have been used for illegal waste disposal.”(www. netregs. co. uk)

“ Controlled Waste Regulations 1992 SI 588-

Defines household, industrial and commercial waste for waste management licensing purposes” (www. netregs. co. uk)

“ Environmental Protection (Duty of Care) Regulations 1991 SI 2839-

Imposes a duty of care on any person who imports, produces, carries, keeps, treats or disposes of controlled waste to ensure there is no unauthorised or harmful depositing, treatment or disposal of the waste.” (www. netregs. co. uk)

### **Conclusion:**

The importance for saving energy cannot be stretched enough, by saving energy we ensure a better future for the forthcoming generation as well as the current one in terms of our environment we living in.

This report have given a general idea how energy is being saved and can also be saved in future but it also point out how difficult it can be if planning

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for a long term plan to save energy, to switch to renewable energy, we need to invest in solar, wind turbines and so other alternative sources, but this require investment, expertise and it also depend on the location and generating power. For short term plan, we can see that hotel are successful in adopting the new ways since it is cost effective for them and switching price is not that high and by working closely with the staff and guest of a hotels, it is easily achievable.

Many hotels and customer are being environment conscious and it have become important to show their concern and also participate in the protection, thus we can see nowadays that hotel are now after the designation of being called “ green” and that will contribute to enhance their marketing strategy and gives them an advantage to competitors as well as promote a good image of the hotel.