

Encouraging the use
of economic
fluorescent bulbs
environmental
sciences essay



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Unfortunately there are no noticeable signs that the price of most materials used for making electricity such as oil, petrol and coal will decrease. The alternative therefore prospected by many countries is green electricity. Green electricity is electricity coming from renewable systems that will not produce byproducts affecting the environment such as smoke, fumes and dangerous gases. The cleanest energy sources are those that utilize the natural energy from the earth. The most popular are;

Wind Power

This process use wind power to turn turbines for producing electricity. Wind power energy is being developed successfully in many countries across the world. Wind power offers many advantages as it is plentiful, renewable, clean and uses little land but above all creating no greenhouse effects. Progress in wind power technology during the recent years has made this type of production more efficient. Around one hundred countries nowadays are using wind energy commercially on a large scale. In the region wind power technology has been introduced in Rodrigues since a long time and it is being seriously envisaged to introduce it in Mauritius as well

Solar Power

Solar power implies the conversion of sunlight into electricity. This is done either directly using photovoltaic or indirectly using concentrated solar power. Lenses or mirrors are used to track sunlight on a large area into a small ray. In Mauritius this type of energy is used more and more in the form of solar water heaters and more recently for lighting and power to run machines and equipment.

Hydro Power

Hydro power or water power has been used in ancient times. It is process by which power is obtained falling water. In Mauritius water turbines have been installed near many waterfalls using the force of falling water to turn them for the production of electricity.

Tidal Power

This is a form of hydropower that converts energy of tides or waves mainly into electricity. It is regarded as a potential source of power for the future as waves are more predictable than wind or sunlight. However its limitations are relatively expensive and partial availability of sites.

Biomass

By this process agricultural wastes or especially grown plants are used to produce electricity. Biomass is converted into energy in three ways namely thermal conversion, chemical conversion and biochemical conversion.

Biomass energy is regarded as very beneficial to the environment as it reduces carbondioxide emissions rendering the atmosphere more healthy and clean. The United States of America despite being a very rich country is striving hard to reduce its budget of power production by investing in research in renewable energy. Solar energy, geothermal, biomass, hydroelectricity, landfill gas, wind power are some examples of renewable resources which not only less costly but has negligible affects on environmental pollution. So at the same time two objectives are obtained namely a reduction in the cost of power production and secondly a cleaner and healthier atmosphere. Apart from the above numerous energy saving

devices are being extensively used which are more efficient used helping to save energy, money and contributing to protect the environment. There are many ways that can be used to reduce the electricity bills in the households as well as in industrial and commercial places.

Residentially

Some simple methods to reduce electricity consumption in households Use electricity for household works for example washing machine during off peak hours when the cost of electricity per unit is lower. Do not buy electrical devices that are bigger than necessary for example a small pressure cooker rather than a big one. Putting off or disconnecting electrical devices when not in use. Putting cooling devices in places which are cooler in the house. Checking cooling devices often to ensure that they are functioning well and defrosting the fridge if there is a layer of ice. Switch off light when not in use Painting the house in bright colors which emit light instead of absorbing them. For example using white paints instead of dark ones. Replacing bulbs by fluorescent tubes. For cooking stove and oven should be efficiently used such as using the oven several times when already hot instead of letting it cool down after each cooking and heating again afterwards. Avoid heating the room with electricity when nobody is at home. An excellent method to reduce electricity is to use programmable thermostats. Set computers in the sleep mode instead of keeping it on when not in use. Make maximum use of sunlight by opening the house during the day to heat the house and close it at night to reduce the amount of heat lost through openings such as windows and doors.

Commercially and Industrially

Here are some examples of how to reduce the use of electricity.

Street lighting

The cost of electricity consumed by street lighting is enormous and it is the local authority or district council which pays the electricity. So, the central electricity board is taking the initiative to place photovoltaic cells on the top of the bulb in order to capture the energy from the sun in some areas. It would have been a good action if they could provide this technology all over the country thus decreasing drastically the cost of electricity. At present, there are already some places where photovoltaic cells are used for advertising purposes.

Sensing devices

Sensing devices can be used to detect the presence of human beings in any room. There exists a great possibility that when someone is leaving his office, he forgets to switch off the light. This can be applied in offices and all buildings.

Air Conditioning

An automatic card should be provided to everybody so that when he enters a room or an office using his card, the air conditioning system starts to work, and the door is closed automatically. Then when the individual decides to leave the place, he swaps the card into the machine, at the same time the air conditioning system switches off.

Paint

Similarly as residential, there should be sensitization campaigns cheering people and owners of company to paint their buildings in colors which reflects light instead of absorbing it. In the same logic, maximum use of sunlight should be used instead of artificial ones. Wherever possible , brick walls should be removed and replace by large , thick window panes. Since independence a constant increase in the demand for electricity has been noted. This has necessitated considerable investment in this sector and is still ongoing. The Central Electricity Board (CEB) has been entrusted with the duties of providing electrical power in the country. With a view of providing an effective service it conducts regular surveys on the demand for electricity. Its latest report for the period 2013-2022 confirms a continuous upward trend in the demand for electrical power. The CEB has put in much effort and devised a number of plans to curtail excessive investment in the electrical sector. Among others the following are worth mentioning; Subsidizing solar water heater by the state. Encouraging the use of fluorescent bulbs. Summertime as in European Countries.

Subsidizing solar water heater by the State

During the recent years, government has come up with a plan encouraging families purchasing solar water heater for household use. The subsidy varied between Rs 5000 and Rs 10000. The development Bank of Mauritius is currently in charge of this project. It is noted however that many people are not satisfied with the service because many purchasers have not obtained their subsidy promised. Another important issue is that there have been too many applications for this grant and the money voted in the budget was not

adequate to satisfy everyone. A system of first come first serve has been adopted and many families are still waiting.

Encouraging the use of economic fluorescent bulbs

To promote a more rational use of electricity the central electricity board has come up with the promotion of economic fluorescent bulbs. Many programs were organized to sensitize the population to exchange their normal bulbs with the fluorescent one. At the beginning people were very interested with the project but they felt discouraged when they noticed that these bulbs did not prove their efficacy and their durability as CEB stated and afterwards with the internal problem concerning the purchase of these bulbs.

Adoption of summertime as in European Countries

The summertime in Mauritius is pushing the time by one hour in order to benefit from the natural sunlight. This was done twice in Mauritius, The first time in the 1980s and the second time in the early 2000. When the Central electricity Board computed its electricity consumption during these two periods, it was found that the change proved to be negligible. Moreover because of resistance from the population this policy has not been renewed since. The central electricity board in its electricity generation policy is well aware of the negative impact of using fossil fuels on the environment. It is therefore sparing no effort wherever possible to produce clean energy. The old thermal power station's will soon be replaced by new engines emitting less noxious gases and at the same time reducing noise levels. At present the nine hydro power stations produce only around 4 % of the total demand of electricity . As the hydro electric power stations are environment friendly and produce clean energy. It is intended that some mini and micro hydro

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plants will be installed. The CEB is conducting a feasibility study and some potential sites as at Midlands's dam have been provisionally identified. The production of electricity from wind energy is also being envisaged by the CEB which although needs big capital investments will not only help to reduce the electricity consumption but will also reduce our carbondioxide emissions by approximately 7 % from alternative sources. Electricity is already produced in Rodrigues from two small sized wind farms. In Mauritius it is expected that 29. 4 MW and 90 MW of electricity will be produced at Plaine Sophie and Plaine des Roches respectively. Coal is more and more used for electricity production and the CEB is very concerned on its carbondioxide emissions affecting the environment adversely. The aim here is to use better technology to reduce the level of carbondioxide . At the same time studies have been started to investigate whether Liquid Natural Gas could be used in future specially the risks associated such as it transportation and storage. The CEB is in fact putting maximum efforts to ensure that it complies with international environmental standards such as the ISO 14000. Moreover the environment protection act (EPA) 2002 provides the guidelines for the protection and the preservation of the environment as well as environmental standards for air, noise, effluent discharge, hazardous waters and other emissions. Before obtaining an environment impact assessment license a report should be submitted to the ministry of environment and sustainable development of any project specifying its potential impact on environment. The CEB being responsible for power generation has the obligation to comply with the EPA along with all the regulations. It has to submit regularly data on such issues as air quality and noise levels. IT reports on the overall environmental performance of its power stations. In the future, the

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government will come up with new regulations to enforce its power plants emissions. Apart from monitoring the level of carbonmonoxide , sulphur dioxide it is also working on the sulphur content in HFO, diesel and coal. Standard will come in force this year with all necessary guidelines such as measurements and frequency. The CEB will build an environmental management system because power generation has a profound effect on the environment. It has the responsibility to take all measures possible to control and diminish environmental pollution. It is felt that by preparing an EMS a frame work will be available to arouse employee awareness to meet the environmental goals and objectives.

What is coming in the next few years?

Renewable Energy

Wind Farm

In 2014, the first wind farm in Curepipe will start to operate and will provide 29. 4MW. The latest project is to place wind farm at Plaine des Roches is also coming in 2014.

Solar Farm

Strategies are being made by the state to put in place 10MW and 15MW respectively shortly.

Mini- Hydro

The construction of mini -hydro system at bagatelle.