MODULE 17 - URBAN PROBLEMS RELATED TO ENERGY

OBJECTIVES

After a study of this e-content module the learners will be able to:

1. Identify the source of energy.

2. Understand different source of energy.

3. Promote all aspects of fossil fuel sub-sector.

4. How energy is generated and used.

5. Encourage energy conservation in residential, commercial, industrial and transportation sector.

6. Promote a sustainable local economy and personal lifestyles that are consistent with future energy realities.

SUMMARY

Urbanization does not necessarily represent the fact that the population density is very thick in that particular area. The different energy sources which exist starting from the beginning of the civilization are mostly traditional fuel energy like wood and charcoal, fossil fuel energy like Natural gas, Oil and Coal. Newer energy sources like Hydroelectric energy, Nuclear energy and then the non-conventional renewable energies like Solar energy, Wind energy, Ocean energy. The major sources of energy that we use today are basically fossil fuels like natural gas, oil and coal. These sources provide almost about 87% of the urban population growth. All these factors should be taken care of in such a way that a right solution for a right place at a right time can emerged.

TRANSCRIPTION

Introduction

The Topic I would like to discus today. It is related to the urban energy the problems that we encounter. In order to discus this issue I would first give you the brief definition of what do you understand by the different energy sources and also urbanization that we experience today among the different energy sources which as existing starting from the beginning of the civilization these are mostly like traditional fuel energy like wood and charcoal. Fossil fuel energy like Natural gas ,Oil and Coal and then development of science, technology and engineering newer and newer energy sources like Hydroelectric energy, Nuclear energy and then the non-conventional renewable energies like Solar energy ,Wind energy, Ocean energy and also energy that

also we derived form Biomass so these are the different energies sources for the one end and the other relevant no to the understood is urbanizations. When we talk of urbanization

Urbanization it does not necessarily represent on to the fact that the population density is very thick in that particular area.

It is also associated with the process of certain changes in the human behavior the important influences of urbanizations is associated with the rapid migration of population from the rural areas around that particular urban areas and these rural populations which normally compromised with the factor such as the changing approaches as the achromatized more and more with the urban life that introduces also some newer dimensions in terms of new information's and new types of infrastructures.

Available Energy

With the above introductions to urbanization and energy sources now i would like to through some like on different kinds of available energy sources in the world and these sources they help one to understand more clearly the concept of urban problem related to energy. Many of us may be aware the today scenario that the major source of energy that we used today basically for fossil fuels and these fossil fuels are like Natural gas, oil and coal. These sources provided all most about 87% of the total energy that we get today on the earth. On to be most specific these 87% cab be divided into the three sectors like Natural gas having 23% contribution then the fossil oil like Petrol, Diesel, Kerosene etc. had that got 38% contribution and the fossil solid fuel Which is coal has a contribution of 26% the remaining 13% of the energy that we used today are derived mostly from Nuclear Power and Hydroelectric Power each one them of contribution to above 6% of the total energy resources then there is another 1% remaining which is very recent concept we used the different kinds of renewable energy resources like solar energy, wind energy, ocean energy then energy form Biomasses but officiously it is expected with the demand of energy very soon may be around 2015-2030.The stage will come then we will find that these sector with 1% may rise to about 10% and the competition with the available other sources would become very much compromising in nature because these available energy sources they would also become costly in the coming years .

Growth of Urban areas in developing countries

Once we have definite idea about define energy today in the world now we look at the newer dimensions known as the growth of urban areas especially in the developing countries. In around 2010 world total population of about 7 billions and with the present rate growth of population it is expected by around 2050.The population about 9.2 billions. These additional numbers that is 2.2 billions will be mostly for the developing countries and more surprising in the fact that this additional populations almost 90% of it would be contributing to the creation of newer or newer urban areas and the expiation of the already exiting urban areas in the most of developing countries. Today if we look at the scenario of the urbanizations then we can find that it is mostly Asia, Africa and Latin

America these three continental their contributing maximum to the problem of urbanization. So for as the developing countries in the west like North America, Europe or even countries like Australia, Japan, Korea. The development come more or less saturation level .The annual growth rate of industrializations and urbanizations can not be more than 2% in these areas but on the other hand in these developing countries specially like China , India, Brazil the annual growth rate is around 8.5-9.5 per annum and most of the other developing and under developing countries this is about 4-5 % .The growth in populations naturally is a mater concern related to the urbanization because I was told earlier that almost 90% of these population would be concentrating in this different urban areas at the three countries at Asia, Africa and Latin America with such rapid growth their will be officiously an ipomeas necessity of additional energy supply and one has to compromise between the energy supply and energy demand in these urban area .The creation of space for accreting these urban growth is closely related with the different infrastructure development of those urban sectors and these officiously mean the important parameters like popularly call electricity, roads and water and these are the problems which one has to solve before smoothly growth of the urban take place.

Energy Crisis & Urbanization

The growth of urban areas I was mention earlier crate the crisis of energy in the world. If we review the adjusting scenario in terms of the world energy resources it is expected that we had got about 1100 billion tones of coal equivalent (TCE). This 1100 billion TCE of energy it compromise of fuel energy comprises of other sources of energies and at the present rate of consumption of energy the world today consumed about 15 billion tons of coal equivalent and if we calculate carefully we find that by the end of these century conventional energy sources would be completely exploited officiously these variants the creation of newer and newer sources of energy or one end and on the other end we must have better planning of the growth of urban areas developing countries.

Efforts to resolve the crisis

To have the world in more comfortable way in front of the human civilizations. We can have different efforts to resolve these energy crisis and we can not demine that their will be urban growth in the developing countries. Some of these process could incase the expansion of the R & D activities and the technologically exploitations of renewable energy sources for healthy economic growth of a country. If we want to look for kinds of solutions then officiously it is the combine responsibility of the different public administration sectors such as local government, State government and Central government in particular country and the point we should be specially at these to by these three different sections of the public administrations are like

- Planning and managing city developments
- Establishing and enforcing effective building codes and plans.

The basic services such as

- Providing roads
- Water supply
- Electricity supply
- Post Management
- Street Light etc.

Are to be managed by the local government in an effective manner and that should also include the procurement of the raw materials. We should have the full responsibilities of the city transportation in the hands of the local government with the contribution coming for states and central government. The local government should set examples before the city developer in the urban areas on the different approaches that could lead to saving energy. These local government their large number of employee and the same time they have got the large number of office buildings in the urban areas.

- Managing Energy
- Planning building
- Creating green house sources

All are these things are responsibilities of the local government hence I can say that smoother and long term growth of the urban areas. The local government should concentrate are the creation of a road map which may be as follows as we call it popularly as the sustainable energy path for urban areas. The different components of the road map should be like

- Reduction of carbon emission
- Reduction of Fossil fuel dependence
- Introduction of different clean fuels
- Increase the use of renewable energy
- Promote diversification of the different existing energy sources
- Support local and decentralized power supply
- Focus on the energy efficiency
- Ensure that the citizens exist to the energy services and information or in the best way of energy saving through the energy supply by the local government.

Road Map Proposed : Sustainable Energy Sources

The road map that I mention so for can be define with some more critical points and these points may be as follows as

- The local government must ensure appropriate space utilization.
- Well Planning for urbanization or the growth of urban areas.
- To develop efficient and excisable public transport system.
- The government should creates a sustainable and low carbon energy
- The critical energy auditing should from an energy important energy consumption for the local government
- The Government also have to examine critically how much energy actually needed and how much energy is actually used and also to audit the carbon emission for popularly known C-emission.
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Essential Information to resolve energy problem

In order to simplifying the energy problem which are their in any urban area in the developing countries some of the information's must be available to the different government at local state or central level these information are the energy demand and energy supply. Specially to elaborate the factor energy demand one request to have a clear-cut information on the energy or power required for the different sectors such as the

- Residential areas
- The Industrial Commerce area
- The Transportation

Regarding the other sectors that is energy supply which is more vital we need to know at length about all the different modes of energy supply in the city or the urban area such as coal, Natural gas like Petrol, Diesel and Kerosene, Then the electricity component which may come from Nuclear sectors or Thermal sectors or Hydroelectricity, Once these two parameters the supply and demand energy is processed and deal with delicately with proper budgeting and auditing that is anticipated that the urban problem related to energy may be minimized .

Conclusion

As in the present talk I given you a road map starting with the concept of energy sources and urbanization. The growth of urban area in the developing countries the huge growth of population in the developing country would be mostly concentrated in the different urban areas and then the different kinds of will thought plans equally contributed by the government at the different levels. I would like to conclude that it is not necessary that one in a developing country has to follows blindly the pat adopted in the world. The geography of the country, the resource potentially of the country, the urban population growth all these factors should be take care of in a such a way that a right solution for a right place at a right time can emerged and this is not possible only by the participation of the government. It is also the society at must see to it that they have responsible roll to play because energy resources are limited. The growth of human civilization is actually dependent of the energy supply and hence may last apparent would be for happy human civilization a responsible participation of the civilized people are equally important.

GLOSSARY

NATURAL GAS - Hydrocarbon gas found in the earth, composed of methane, ethane, butane, propane and other gases.

SOLAR ENERGY - Heat and light radiated from the sun.

COAL - Black or brown rock, formed under pressure from organic fossils in prehistoric times, that is mined and burned to produce heat energy.

FOSSIL FUEL - Oil, coal, natural gas or their by-products. Fuel that was formed in the earth in prehistoric times from remains of living-cell organisms.

FUEL - A substance that can be used to produce heat.

FUEL OIL - Petroleum products that are burned to produce heat or power.

PETROLEUM - Oil as found it its natural state under the ground.

RENEWABLE ENERGY - Resources that constantly renew themselves or that are regarded as practically inexhaustible. These include solar, wind, geothermal, hydro and wood. Although particular geothermal formations can be depleted, the natural heat in the earth is a virtually inexhaustible reserve of potential energy. Renewable resources also include some experimental or less-developed sources such as tidal power, sea currents and ocean thermal gradients.

BIOFUEL - Fuel produced from renewable biomass material, commonly used as an alternative, cleaner fuel source.

BIOMASS - Energy resources derived from organic matter. These include wood, agricultural waste and other living-cell material that can be burned to produce heat energy. They also include algae, sewage and other organic substances that may be used to make energy through chemical processes.

ENERGY - The capacity for doing work. Forms of energy include: thermal, mechanical, electrical and chemical. Energy may be transformed from one form into another.

FAQ's

Q. 1 Isn't the world running out of energy.
Ans. No. Nuclear and solar energy are each adequate for the next billion years. That's right; billion not just million or thousand. Bernard Cohen published the facts about that.
This page assumes the law of conservation of energy. If you don't understand that, look at law of conservation of energy. Here's how you can tell if you don't understand. Several times I have received in email the following idea for powering cars with hydrogen from water. Run the car on hydrogen obtained by splitting water by electrolysis using the car's generator to get the electricity. If you can't quickly explain why that idea can't work, you need to follow the above link.

Q. 2 Are the campaigns to save energy in every possible way a good idea?
Ans. No. There is plenty of energy to be had. In the short run, Europe, Japan and the U.S. can continue buying oil on the world market, and the U.S. can drill

more oil and gas wells. The recent increase in oil prices led to doubling the number of oil drilling rigs. In the medium term (from ten years or five in an emergency) and long term, nuclear energy can supply all the world can want.

Q. 3 What is renewable energy?
Ans. Renewable energy comes from energy resources that are continuously replenished through the cycles of nature. Unlike fossil fuels, their supply will never become exhausted. The main sources of renewable energy are:
•the sun (solar energy)
•the wind
•moving water (hydropower, wave and tidal energy)
•heat below the surface of the earth (geothermal energy)
•biomass (wood, waste, energy crops)

Q. 4 What are the benefits of renewable energy?
Ans. Renewable energy resources are clean sources of energy. They can be harnessed without damaging the environment, unlike using fossil fuels which release carbon dioxide (a greenhouse gas) and other harmful pollutants into the atmosphere.
•Renewable energy resources will never become exhausted. Unlike finite fossil fuels, renewable energy resources are continuously replenished and will not run out.
•Renewable energy resources are indigenous resources. Ireland is heavily reliant on imported fossil fuels.

Q. 5 How does renewable energy contribute to sustainability?
Ans. Renewable energy is a supply-side solution for a sustainable energy economy.
Renewable energy measures promote sustainability by increasing the supply of energy from sustainable sources.

Q.6 What are the disadvantages to using solar and renewable energy?
Ans. The biggest disadvantage and the only truly significant one remains the cost. For example, solar energy technologies require a significant initial outlay. Still, in nearly all cases, this high initial cost is recovered through substantial fuel savings over the life of the product (15-30 years), and solar energy systems can last much longer than this. But in areas where there are no hydro wires, choosing sola How much coal is left worldwide?
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