

UNIT 19

ENVIRONMENT AND ENERGY

“Thousands have lived without Love ,
not one without air, so lets keep it clean”

19.1 Background

Relentless and unplanned economic growth using fossil fuel is causing irreversible change of Ecology. This is the most serious environmental threat which has the potential to unalterably change the way human species live. It is predicted that the average increase in temperature around the world will be between 1 and 5 degree Celsius by year 2100 .this is expected to cause rising of sea water level and flooding of low laying areas .

The primary cause of temperature rise is the green house gases like CO₂ , N₂O , CH₄ , Hydro floro Carbons. Therefore it is essential that appropriate Energy management strategies must be evolved for protection of environment and sustainable development .

The Electricity Act has provided a wide leverage for Promotion of Renewable Energy through-

1. Proper fiscal Planning
2. Long term New Energy Policy
3. Fiscal and Financial Planning.
4. Continuous monitoring of renewable energy plans.

19.2 Clean Development Mechanisms(CDM) And Carbon Trading

The United Nations Framework Convention on climate change in 1997 adopted “The Kyoto protocol “. According to Kyoto Protocol the developed countries have to contain and limit there green house gas emissions and reduce them to an average of 5% from the 1990 emission levels.

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One of the mechanisms to control Green House Gases (GHG) emission is clean Development Mechanism (CDM) which provides for co-operation between developed and Developing countries. Under this mechanism the developed countries and their corporations could invest in projects in developing countries which are carbon efficient. The benefit of carbon reduction will accrue to the industrialized country in its balance sheet of carbon accounting. The developing countries would be selling certified emission reduction units.

It may be pointed out that in order to transfer environment friendly technologies from the developed countries to developing countries to check the emission of green house gases. The benefit to the developing countries would be better technology and more investment in the sectors like power.

There is vast potential in India to satisfy the demand for carbon trading or hot air trading for example -MEDA Maharashtra Energy Development Agency is the nodal agency in Maharashtra to promote co- gen power plants .According to a recent study undertaken by the Federation of cooperative sugar factories in Maharashtra as many as Rs 2000 crore could be availed under the carbon Credit from IFC and GEF(Global Environment Facility).Nearly \$10 per ton can be possible under this facility .The State Government and The Federation would rope in cogen India for taking the benefit of Carbon Credit.

19.3 Tariff and Environment Consideration

MERC has raised the issue of Weather environmental consideration should be a factor in deciding the tariff. Who should share the high cost of environmentally benign power till the technology has matured . The commission has suggested that in addition to the Government ,Consumers should also pay higher energy charges ,taking into account the importance of switching to renewable energy sources .

19.4 Green Cess under section 86(1E) of Electricity Act 2003

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Maharashtra energy Development Agency has suggested a green cess to be collected by charging industrial consumers at the rate of 5 paisa per unit. Agency has also suggested imposing "Renewable portfolio Standards" This would mean that all companies would have to ensure that at-least 10% of generation comes from renewable energy sources by the year 2012.

19.5 Hydro Projects and environment

It is not that only thermal Plants have adverse impact on the environment, a wrongly implemented hydropower plant may also cause severe damage to the local ecosystem. Therefore it would be in the larger interest that measures should be adopted for protection of ecosystem. The National Hydro Power Corporation has an Environment Management Plans which includes –

1. Environment Impact Assessment Studies(EIA)
2. Catchment Area Treatment (CAT)
3. Compensatory A forestation
4. Green belt development and reservoir rim treatment.
5. Landscaping
6. Solid Waste management
7. Wild Life Conservation
8. Conservation and Management of Fishes
9. Resettlement and rehabilitation of Project Affected People (POP)
10. Water Quality testing
11. Disaster Management

19.6 Experience in Environment protection

At an initial level to move forward in the purpose for environment protection and sustainable development we can learn from experience of other people and institution and replicate the same for our advantage. Some of the experiences are mentioned below-

19.6.1 One-Gujarat Experience

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The Country 's first dual flue gas conditioning unit¹ , which helps stem particulate emission at the thermal power stations , has been commissioned at Gujarat Electricity Board 's Ukai thermal power station .This has brought down the particulate emission level at the Ukai station to below 150 mg/m³ after the flue gas conditioning unit was installed .As per the rough estimate , the number of thermal power stations requiring particulate emission control systems is around 38. The present cost of a conditioning unit was Rs 1 lakh per MW for ammonia conditioning and Rs1.5 lakh per MW for sulphur trioxide conditioning.

19.6.2 Two-Biomass (California Experience)

Interestingly Herper Dry Lake Energy Park² in California produces almost 50 MW of Electricity from cow dung. The Plant uses the technology that heats cow manure, releasing methane in sufficient quantities to fuel a gas turbine and create electricity .The solid waste is used as fertilizer, and the waste water is used recirculated with some used to grow alfa alfa around the plant .

19.6.3 Three-Andhra Experience

Non conventional energy Development Corporation of Andhra Pradesh(NEDCAP) Ltd has set up bio mass as fuel for generation of Electricity . Cotton stock, red gram hull , chili straw is being used as fuel.

19.6.4 Four-Energy Conservation (Karla experience)

Kalamassery municipality is installing 'Smart Street Lights' which will allow the municipality to operate street light through SMS message from mobile handsets. A special ETRACS(Energy tracking and control

¹ The technology for the Dual flue gas conditioning system envisaging dosing of the flue gases with Sulfur trioxide and ammonia was developed by the Heavy Water Board , a part of the Department of Atomic Energy .

² Developed by Inland Energy Inc. based at New Port Beach

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system) has been developed by Bangalore based Versite Softwear Limited.

19.6.5 Conclusion

Recently the government has constituted "National Hydrogen Energy Board" for promotion of development of fuel cell and other high technology. Alternative sources of energy will increasingly play a greater role and we can learn from the abovementioned example and replicate the same for the benefit of all concerned.