



## SUSTAINABLE MANAGEMENT OF CONVENTIONAL SOURCES OF ENERGY

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*The human wellbeing and development is totally dependent on the state of the natural environment. Sustainable management of natural resources deals with natural landscape and people interact. As Dennis J. Hall stated that “we don’t inherit the earth from our ancestors, we borrow it from our children”.*

*In the present scenario, due to increase in population, the needs are increasing which is resulting in the depletion of resources. Even though the resources are decreasing day by day, the craving for these resources, are increasing. As said by Mahatma Gandhi, people are using resources for their greed rather than for their need. As the resources are depleting they must be used judiciously and efficiently. Such resource management must be regulated through stringent laws such as Renewable Energy Act.*

*This thesis defines sustainable management and conventional sources of energy. This paper also elucidates on the history of sustainable management and origin of conventional sources of energy. This research throws light on efficient and innovative usages of conventional sources of energy under the purview of sustainable management. This study throws light on*

*conventional sources of energy in India. The paper analyses and compares the judicial and optimal usage of conventional sources in India with that of other countries. The research also discusses and compares energy laws of India with that of the world. The study explains laws related to sustainable management of conventional sources of energy in India. Lastly, the researcher(s) prescribe probable trends in future of conventional energy law in India.*

**(Key words:** Sustainable management, conventional sources of energy, energy laws.)

### 1. INTRODUCTION

Energy is the building block of life. The two most important issues the world is facing are the energy security and the environmental concerns regarding exploitation of energy sources. In today’s world, our existence depends on addressing these two issues. Hence, there is a need for sustainable development and sustainable management of energy.

Energy related issues have become paramount since industrial revolution. Industrial evolution has heralded an era of economic development which is haphazard and iniquitous. This economic development based itself on indiscriminate exploitation of natural resources, mostly conventional in nature. This gave rise to imbalance between environment and development.

The sources of energy are broadly classified as:

- Non-conventional sources
- Conventional sources



## **II. NON-CONVENTIONAL ENERGY AND CONVENTIONAL ENERGY:**

### **a) Non-conventional sources:**

Energy generated by using natural sources like, wind, tides, solar, geothermal heat, and biomass including farm and animal waste as well as human excreta is known as non-conventional energy. This source of energy is also known as renewable source of energy as it can be recycled. Non-conventional energy is considered the energy of the future. Considering the benefits of non-conventional energy generation, many countries have started producing this energy in large scale.

### **b) Conventional sources:**

The sources of energy which are limited and cannot be recycled. e.g., Fossil fuels like coal, oil and natural gas are conventional sources of energy. Reserves of these fossil fuels are limited and are depleting in nature. At the present rate of their consumption it is estimated that oil reserves would last for another 30-40 years and coal for another 210 years. These fossil fuels cause contamination when utilized, as they emanate smoke and fiery remains. They are exceptionally costly to be kept up, put away and transmitted as they are helped over long separation through transmission matrix and lines.

Apart from fossil fuels, hydro power is also a conventional source of energy. Hydro power is an exception to the properties of conventional sources of energy.

In the present scenario, due to use of coal, petroleum products and natural gas in excessive quantities, resulted depleting. This act of excessive use of conventional sources of energy led to an idea of sustainable

management. This idea prompted people to search for alternative sources of energy to maintain equilibrium in the environment.

## **III. CONCEPT OF SUSTAINABLE MANAGEMENT**

To know about sustainable management, one must initially know about sustainable development because management happens only when once it is developed. Hence, the concept of sustainable development and sustainable management are interlinked.

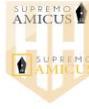
Sustainable development means to develop the country or an economy by maintaining equilibrium between the development and environment with an eye to preserve conventional energy for future generations.

Sustainable management is an asset management strategy that looks to make any collecting or utilization of regular assets as sustainable as could be allowed. The principle objective is to recharge any assets as quick as they are drained.

Keeping in mind the end goal to fulfil its objective, sustainable management regularly takes a gander at two distinct elements: the rate of utilization and the rate of recharging. As a rule, the objective is to keep these two factors in balance.

### **➤ History:**

As mentioned above, sustainable development and sustainable management are interdependent. Initially, sustainable development was declared as the solution to the problems of environmental degradation discussed by the Brundtland Commission in the 1987 report. Then later, the concept got firm base in United Nations Conference on



Environment and Development held in Rio de Janeiro in 1992<sup>1</sup>.

The term was popularised 15 years later in “Our Common Future”, the report of the World Commission on Environment and Development, which included what is deemed the 'classic' definition of sustainable development: "development which meets the needs of the present without compromising the ability of future generations to meet their own needs"<sup>1</sup>.

With the evolution of the concept of sustainable development, the idea of sustainable management evolved. The idea of sustainable management evolved because, development alone is not enough to conserve conventional sources of energy. The development must be managed because without management, development will go in vain.

To take measures to manage conventional sources of energy sustainably, one should know the types and quantity of such energy with special reference to India.

#### IV. CONVENTIONAL SOURCES OF ENERGY IN INDIA

- Coal (56%)
- Petroleum & other liquids (33%)
- Natural gas (8%)
- Hydroelectric (3%)
- Nuclear (1%)

- **Coal** - This is the most abundantly available fossil fuel. It provides a substantial part of the nation's energy needs. It is used for supply energy to industry and for domestic needs. Coal is formed due to the compression of plant material over millions of years. Coal is

mainly found in North-Eastern states, Meghalaya, Assam, Arunachal Pradesh and Nagaland, Jharkhand and West Bengal<sup>1</sup>

Types of coal found in India

- I. Lignite
- II. Bituminous
- III. Anthracite

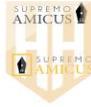
- **Petroleum** - It helps in providing fuel for heating and lighting lubricants for machinery and raw materials of manufacturing industries. Petroleum is found in traps between porous and non-porous rocks. 63 % India's petroleum production is from Mumbai high, 18% from Gujarat and 16% from Assam<sup>1</sup>.

- **Natural Gas** - It is an important clean energy resources found in association with petroleum. It is used as a source of energy as well as an industrial raw material in the petrochemical industry. Large reserves of natural gas are discovered in the Krishna – Godavari basin<sup>1</sup>.

- **Hydroelectricity**- It is generated by fast flowing water, which is renewable resource. India has a number of multi-purpose projects like the Bhakra Nangal, Damodar Valley Corporation, the kopili Hydel project, Teri Dam etc. these are some projects by the government for producing hydroelectricity power<sup>1</sup>.

- **Thermal electricity**- It is generated by using coal, petroleum and natural gas. The thermal power stations use non- renewable fossil fuels for generating electricity. There are over 310 thermal power plants in India<sup>1</sup>.

- **Nuclear energy** - It is still an ongoing debate that whether nuclear power is a source of conventional source of energy or non-conventional source of energy. It is



obtained by altering the structure of atoms. When such an alteration is made, much energy is released in the form of heat and this is used to generate electric power. Uranium and Thorium are used for generating nuclear energy, which are available in Jharkhand and the Aravalli ranges of Rajasthan, are used for generating nuclear power<sup>1</sup>.

**IV. WHY SHOULD CONVENTIONAL SOURCES OF INDIA MUST BE SUSTAINABLY MANAGED?**

The reason for sustainable management of conventional sources of energy lies in the consumption pattern of the energy and demand and supply statistics of the energy.

**a) Levels of consumption of conventional sources of energy by India’s population:**

At present India is a large consumer of fossil fuel such as coal, crude oil etc. Over a past few decades, energy is needed for everything. Below are the statistics of sector wise energy consumption pattern in India<sup>1</sup>:

- Transport 30% of energy consumption
- Industry 29% of energy consumption
- Domestic 27% of energy consumption
- Commercial 9% of energy consumption
- Others 5% of energy consumption

The energy requirement is increasing at an alarming rate due to rise in population & industrial growth. This rapid increase in use of energy has created problems of demand & supply. This results in the

future of conventional energy becoming uncertain.

The below subsection rates consumption level based on economic demand and supply of each resources.

**b) Demand and supply of energy resources in India:**

The major commercial (non-renewable) sources of energy are coal, oil, natural gas and nuclear power. The share of commercial and non-commercial sources of energy in our country is 4: 1 from 2000<sup>1</sup>.

**COAL:**

India has about 5% of world's coal production. Coal accounts for 75% of country's commercial requirements. 25% coal consumption for other purposes. Coal supply in India which was just 35 million tons in 1951 went to over 180 million tons in 1988-89. Per capita demand of coal has increased from 135 kg to nearly 225 kg in the instant situation<sup>1</sup>.

**• OIL AND NATURAL GAS:**

The oil reserves are unevenly distributed across India. In 1951, our total petroleum supply was 269,000 tons while in 1990 it was 40 million tons. The total demand of crude oil in India rose from 146.55 MMT in 2006-07 to 232.87 MMT in 2015-16 with a CAGR of 4.74%.

Natural gas reserves are generally found in association with oil fields. Natural gas supply was 2,500 million, m<sup>3</sup> in 1980-81 which rose to 9,810 million m<sup>3</sup> in 1987 and 15,000 million m<sup>3</sup> in 2000. Total gas reserves of India are estimated to be 5,



41,000 million m<sup>3</sup>. The consumption of natural gas is accounted for 38% of petroleum products<sup>1</sup>.

- **HYDRO ELECTRICITY:**

India is endowed with economically exploitable and viable hydro potential assessed to be about 84,000 MW at 60% load factor. In addition, 6740 MW in terms of installed capacity from Small, Mini, and Micro Hydro schemes have been assessed. The hydropower electricity is not yet fully harnessed. At present we are using only 25% of the total hydropower potential of our country. The present installed capacity is approximately 40,661.41 MW which is 16.36% of total electricity generation in India<sup>1</sup>.

- **THERMAL ELECTRICITY:**

India's electricity sector consumes about 75% of the coal produced in the country. The quality of Indian coal is poor in terms of heat capacity. This poor heat capacity is converted into electricity and gas and even oil. That is the reason why many of thermal power stations are located on the coal fields to produce electric power to feed regional grid<sup>1</sup>.

- **NUCLEAR POWER:**

As of 2016, India has 22 nuclear reactors in operation in 8 nuclear power plants, having an installed capacity of 6780 MW and producing a total of 30,292.91GWh of electricity while 6 more reactors are under construction and are expected to generate additional 4,300 MW. This power sector is yet to take off<sup>1</sup>.

The above demand and supply statistics indicate that the country is facing negative Energy Balance for decades. As per 16th electric power survey, the anticipated demands require an additional 1, 00,000MW supply. The task is overwhelming but not unachievable, because India has significant potential for generation of power from renewable energy sources.

The conventional sources of energy are depleting not only due to high rise of demand but also due to one's greed. As said by Mahatma Gandhi, people are using resources for their greed rather than for their need. Resources are life-saving agents, one must not be greedy for the economic benefit of the resources.

Apart from preservation of the conventional sources and condoning excessive use of their energy, these sources of energy must be used sustainably developed and managed as they are limited in nature. Apart from being limited, these conventional sources energy pollute the environment and some of them are vital in nature. Burning of coal results in gaseous emissions including oxides of sulphur and nitrogen resulting in pollution. Oil spills causes Marine pollution and harm to marine biology. Mining of these fossil fuels also result in large scale degradation of land and ecology. Hence, to maintain equilibrium between the development and environment, the conventional sources of energy must be sustainably managed.

To maintain control over the use of conventional sources of energy, there a few laws laid down in India related to conventional sources of energy.



## VI. LAWS RELATING TO CONVENTIONAL SOURCES OF ENERGY IN INDIA:

- i. **Environment conservation Act, 2001**  
This Act's main objective is to provide necessary legal framework for promoting energy conservation measures in the country. It establishes systems and procedures to verify measure and monitor energy efficiency improvements<sup>1</sup>.
- ii. **Electricity Act, 2003**  
The Electricity Act 2003 is to consolidate the laws relating to generation, transmission, distribution, trading and use of electricity. This Act helps in taking measures conducive to development of electricity industry, promoting competition therein, and protecting interest of consumers and supply of electricity to all areas, rationalization of electricity tariff. It also ensures transparent policies regarding subsidies, promotion of efficient and environmental friendly policies<sup>1</sup>.
- iii. **The Atomic Energy Act, 1962**  
This Act was provided for the development, control and use of atomic energy for the welfare of the people of India and for other peaceful purposes<sup>1</sup>.
- iv. **The Coal Mines (Conservation and Development) Act 1974**  
This Act was provides for the conservation of coal and development of coal mines and for matters connected therewith or incidental thereto<sup>1</sup>.  
The further section discusses the above mentioned laws of sustainable management of conventional sources of India in the form of hypothesis.

## VII. HYPOTHESIS

### ✚ **SUSTAINABLE MANAGEMENT OF CONVENTIONAL SOURCES OF ENERGY WITH RESPECT TO ENERGY LAWS AND INDIAN ECONOMY:**

#### ❖ **SUSTAINABLE MANAGEMENT OF CONVENTIONAL SOURCES OF ENERGY THROUGH INDIAN ENERGY LAWS:**

The laws related conventional sources of energy are: a) Energy Conservation Act, 2001 b) Electricity Act, 2003. c) The Coal Mines (Conservation and Development) Act, 1974.

#### • **Energy Conservation Act, 2001:**

Under this Act, under Section 14, it has discussed about the Power of Central Government to enforce efficient use of energy and its conservation<sup>1</sup>. Clause (a) of this section specifies the norms for processes and energy consumption standards for any equipment, appliance which consumes, generates, transmits or supplies energy<sup>1</sup>. Clause (t) of this section states all measures necessary to create awareness and disseminate information for efficient use of energy and its conservation<sup>1</sup>. Clause (u) of this section arranges and organise training of personnel and specialists in the techniques for efficient use of energy and its conservation<sup>1</sup>. Clause (v) of this section takes steps to encourage preferential treatment for use of energy efficient equipment or appliances<sup>1</sup>.

#### • **Electricity Act, 2003:**

The Act 2003 has several enabling provisions, with a view to promote accelerated development of nonconventional energy based power generation.



According to this Act, under Section 3 (1), Government of India (GoI) shall, from time to time, prepare the National Electricity Policy and Tariff Policy, in consultation with the State Governments for developing the power system based on optimal utilization of resources such as coal, natural gas, nuclear, hydro, and renewable sources of energy<sup>1</sup>.

Section 4, GoI shall, after consultation with the State Governments, prepare a national policy, permitting stand-alone systems (including those based on renewable sources of energy) for rural areas<sup>1</sup>.

Section 86(1) (e), projects Section 3 of this Act in a nutshell by stating that “The State Commission shall promote co-generation and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution license”<sup>1</sup>.

- **The Coal Mines (Conservation and Development) Act, 1974:**

Chapter 2 Section 4(1), of this Act states that, The Central Government for the purpose of conservation of coal, exercise powers and take necessary measures when required<sup>1</sup>. In same chapter, under Section 5 (2)(1)(c), the Government guides the coal mine owner to undertake research in relation to conservation of coal<sup>1</sup>.

Therefore, there are only three legal provisions to talk about sustainable management of conventional sources of energy. Two Acts clearly states sustainable management of conventional

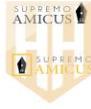
sources of energy. The other Act talks about conservation conventional energy but not its sustainable management. Hence, the Central Government must draft more Act related to conventional sources of energy in order to conserve sustainable development and management.

Apart from legal provisions of sustainable management of energy, the paper also discusses sustainable management of conventional sources of energy in the perspective of Indian economy.

### **DOES INDIAN ECONOMY FOLLOW SUSTAINABLE MANAGEMENT WHILE TRADING CONVENTIONAL SOURCES OF ENERGY?**

India's energy and economic development has a cause and effect relationship. With India being a developing economy, there is external resistance for sacrificing economic growth for the sake of protecting environment in the future. But India needs to keep up the pace of economic growth to ensure the good of its citizens. The initial five year plans focused on the urban development which resulted in inequitable distribution of wealth across the urban and rural<sup>1</sup>.

To ensure the desired rate of growth of the economy it needs adequate energy either indigenously or by means of import. This entails that in order to maintain the required economic growth India would have to exploit the natural resources in the form of coal, hydro, gas nuclear, and wind. But the challenge is how it can harness the



energy resources so as to ensure its energy needs and at the same time make it sustainable for its future generations.

India faces hindrances in meeting its energy needs and in providing adequate energy of desired quality in various forms in a sustainable manner at competitive prices. India needs to sustain an 8% to 10% economic growth rate, over next 25 years, if it is to eradicate poverty and meet its human development goals<sup>1</sup>.

India needs to establish energy markets so as to optimally utilize indigenous resources and externally trade energy sources to meet the demand at affordable prices with environmental responsibility. The restructuring of the energy sector is urgent in the near future. The restructuring process needs to be strengthened with theoretical knowledge and rich international experience, so as to develop globally competitive, efficient and environmentally compatible operations.

Using energy laws and the present scenario of Indian economy, let's know how the Indian government acted.

#### **VIII. EXISTING APPROACHES TO SUSTAINABLY MANAGE CONVENTIONAL SOURCES OF ENERGY:**

Presently, to conserve energy, the government is developing and promoting renewable sources of energy which help in sustainably managing conventional sources of energy. The government also established a ministry on the development of renewable sources of energy.

A few important steps opted by Ministry of renewable sources of energy are:

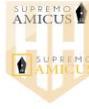
- The Ministry has programs of resource assessment, R&D, technology development and demonstration in the areas of solar energy, wind energy, biomass, bio gas and tidal energy. Several renewable energy systems and products are made economically viable in comparison to fossil fuels, particularly when the environmental costs of fossil fuels are taken into account<sup>1</sup>.

The Ministry has pioneered in the world in many administrative actions of renewable energy promotion such as. - 1) Electricity regulatory commission within liberalized market- 1991 2) Mandatory environmental audits for power projects -1992 3) Energy conservation bill -2000 4) Renewable Energy promotion bill-2005<sup>1</sup>.

- The Ministry is encouraging the setting up of grid-interactive power projects based on renewable energy through private investment route<sup>1</sup>.

All these steps are drafted in the form of legislation or order but not implemented properly by executives to achieve the sustainable management of conventional sources of energy.

To improve the present energy laws, legislations and Indian economy with respect to sustainable management of conventional energy, it must be compared with other countries and to be rated accordingly.



### **IX. COMPARITIVE ANALYSIS OF ENERGY LAWS OF USA, INDIA AND SRILANKA:**

- **USA:** Energy Policy Act, 2005- Section 406, of the Act authorizes innovative technologies that avoid greenhouse gases, which might include advanced development of renewable sources of energy<sup>1</sup>. The Act also seeks to increase coal as an energy source while also reducing air pollution, through authorizing \$200 million annually for clean coal initiatives<sup>1</sup>. It adds ocean energy sources, including wave and tidal power under renewable technologies<sup>1</sup>. It includes provisions aimed at making geothermal energy more competitive with fossil fuels in generating electricity<sup>1</sup>. It requires the Department of Energy to study and report on existing natural energy resources including wind, solar, waves and tides<sup>1</sup>.
- **INDIA:** The Energy Conservation Act, 2001- The Act provides the much-needed legal framework and institutional arrangement for embarking on an energy efficiency drive. One of the key features of the Act is Standards and Labelling (S & L) has been identified as a key activity for energy efficiency improvement<sup>1</sup>. The main provision of EC acts on Standards and Labelling is evolving minimum energy consumption and

performance standards for notified equipment and appliances<sup>1</sup>.

- **SRILANKA:** National Energy Policy and Strategies of Sri Lanka- Chapter 2 Point 3, discusses about Promoting Energy Efficiency and Conservation<sup>1</sup>. This point explains energy supply systems will be efficiently managed and operated while ensuring efficient utilisation and conservation of energy<sup>1</sup>. Efficient management and operation of the energy sector utilities are vital to ensure minimum cost of supply to consumers.

Chapter 2 Point 9, discusses Protection from Adverse Environmental Impacts of Energy Facilities<sup>1</sup>. This point elucidates on the necessary steps that will be taken to minimum adverse environmental and social impacts caused by electricity and petroleum sub-sector development and operational activities<sup>1</sup>. Adverse impacts on society and the environment arising out of the electricity and petroleum sub-sector activities have not been receiving adequate attention. The state recognises that it is the prime duty of the state to protect the public and employees in this respect<sup>1</sup>. All developments and operations of energy sector facilities shall follow the relevant environmental regulations and standards of Sri Lanka<sup>1</sup>.

The laws related to sustainability in the above countries are similar with minor differences. All the countries talk about conservation of conventional energy but their approaches to treat the problem differs. USA has advanced mechanism to



conserve conventional sources of energy. It aims at using 100% renewable sources of energy. Even if it prefers to use conventional source, it makes sure that the energy is used to its full potential. While coming to India, it has a good mechanism to conserve such energy but not executed properly. It strives between the development of the country and energy conservation. Lastly, SriLanka, it has mostly concentrates on the development of the country. It takes fewer measures to conserve conventional energy. Therefore in order to conserve energy, the countries must be interdependent. Like, USA must share its energy conservation policies with India and SriLanka. India must set up a specific set of executives for proper implementation of existing and borrowed energy conservation legislations. SriLanka should develop more legislation to conserve the energy apart from borrowing the legislations from other countries.

#### **X. WAY FORWARD:**

Before proceeding for conclusion, one must consider the case study of Haryana state's policies on conservation of conventional energy.

#### **❖ HARYANA STATE'S ENERGY CONSERVATIVE INITIATIVES:**

Haryana Renewable Energy Development Agency (HAREDA) has been designated by the Govt. of Haryana to co-ordinate, regulate and enforce the provision of the said EC Act, 2001 in the State of Haryana<sup>1</sup>.

The Government of Haryana has issued a comprehensive notification for adoption of various energy conservation measures namely, mandatory use of solar water heating systems, compact fluorescent lamp (CFL) and energy efficient tube lights in all buildings, use of ISI marked motor pump sets and accessories and promotion of energy efficient building design in government aided Sector<sup>1</sup>.

Haryana is one of the first States in the country to adopt comprehensive energy conservation measures to conserve electricity in all sectors of the economy.

The rest of the states must get inspired from Haryana and take innovative steps to conserve conventional sources.

#### **❖ CONCLUSION:**

India today happens to be amongst the largest producers and consumers of energy in the world. In the present scenario, the use of conventional energy is raising at an alarming rate. Use of coal and petroleum products must be reduced as they are limited in nature and cannot be recycled. Hydro power is an exception to this characteristic. In the case of nuclear power, it is still a debating topic whether it is conventional or non-conventional source of energy. If nuclear power is declared as conventional energy, then even it will have an exception as that of hydropower. The only drawback of hydro power is that it raises many environmental concerns and the problems of resettlement and rehabilitation of the people due to hydro power projects. One such example is, Sardar Sarovar dam on Narmada River led to a huge protest by the people which was supported by Medha Patkar. The drawback of nuclear power plant is that, if



there is any damage in the plant, it may affect the people around the plant with its high radiation properties. This radiation may affect people along with their future generations with genetic disorders. Chernobyl accident happened in Ukraine stands as a best example for nuclear plant disaster. Considering the drawbacks of hydro power plant and nuclear power plant, the government must take additional precautions before setting up such power projects.

Today, India has significant potential for generation of power from renewable energy sources. But, the country doesn't have enough technology to use its energy to the complete potential. The major drawback lies in the hands of the government because Indian energy sector is structurally handled by five separate ministries (Coal, Petroleum and Natural Gas, Atomic Energy, Power and Non-Conventional Energy Sources) which work in silos and make independent policy and decisions which are neither optimal nor in the best interests of the country.

#### ❖ SUGGESTIONS:

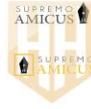
Following are the suggestions which might be useful for the government to increase the efficiency of the energy.

- The five separate ministries should be integrated into one Energy Ministry so as to frame holistic policies for the best interests of the nation.
- Adequate technologies and allocation of funds for energy related R&D needs to be promoted for developing indigenous solutions which are typical to India.

- Adopt energy efficiency measures, go for Demand Side Management in the entire value chain and reduce import dependence by domestic fuels.
- Novel technologies to extract coal efficiently which is economically viable and sustainable.
- Villages must be electrified through LEDs and CFLs.
- Government should encourage Private Public Partnership in developing infrastructure.
- Government must provide incentives for the private companies which are developing energy conserving technology.
- Levy high taxes on conventional sources' consumers.
- Use measures opted by Haryana state throughout the country.

Government alone cannot strive for sustainable management of conventional energy, as a citizen of this country, under Article 51A clause (g), every citizen must contribute for the safeguard of the environment. And as part of this duty, sustainable management of conventional energy also comes in the ambit of this Article. Following are a few such ways that can be followed:

- Use public transport instead of private vehicle.
- Carpooling.
- Switch off electricity when not in use.
- Use cycles and battery vehicles to reduce the consumption of crude oil.
- Use power saving devices.



- Organise rallies, exhibitions to promote renewable sources of energy.
- Write articles promoting renewable sources of energy and efficient use of conventional sources of energy.

India's high rise in energy consumption and unprecedented economic growth has to be sustainable in the sense of catering to both present and future needs of people acknowledging the fact of limited potential of Mother Earth to regenerate. One should also remember that "we not only inherit Mother Earth from our ancestors but should act as custodians for our future generations".

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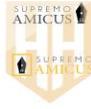
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