

CONVENTIONAL & NON CONVENTIONAL ENERGY RESOURCES OF INDIA – PRESENT & FUTURE

Mr.Ashwini Kumar¹ Mr.Ranjeet Kumar² Sahil³

¹Assistant Dean, School of Engg. & IT, ARKA JAIN UNIVERSITY, Jharkhand, India

^{2&3} Department of Mechanical Engg , ARKA JAIN University, Jharkhand, India

ranjeet.kumar@arkajainuniversity.ac.in

ABSTRACT

Energy is the backbone of human growth and its make life better. Firstly, it is the gift of God in nature to us. So we can live comfortable life. As the population of the world is increasing day by day .Because of ever growing population the standard of living of the human being growth of the country, consumption of energy etc. All the being affected. The human race faced an energy crisis or our critical situation during the 1970s.Since that time the problem where being welcoming. But due to potty political and technical problem windows didn't disappear.

Nature is known as non-conventional energy or renewable sources of energy. The standard sources contain the fossil fuels, i.e., coal, oil and gas, whereas the non-conventional sources like daylight, wind, rain, tides and energy heat. That is renewable several countries thought out the globe have encountered themselves in looking or developing non-conventional energy sources. That may be supported for the life cycle of a person. The primary sources of energy are fossil fuel. Now ever the fitness of fossil fuel reserves and large scale environmental degradation caused by their widespread use. Particularly acid rain, global warming suggests that harnessing of non-conventional, renewable and environmentally friendly energy resources is vital for steering the global energy supply towards sustainable path.

Keywords:*Non-conventional energy, renewable energy & Biomass.*

Introduction:

The vitality which is obtain from the natural resources that can be reconstruction and do not exhaust supply over the time is known as inexhaustible vitality. It is a fresh vitality which would not harm the factor of life. Fossils fuels also are hypothetically sustainable however on an exceptionally long time scale and whenever kept on being misused at present rate these assets may exhaust sooner rather than later. Therefore, in fact of existence, inexhaustible vitality is vitality from a source that is supplanted quickly by a characteristics procedure and is not exposed to exhaustion in a human fire scale. Data on store of inexhaustible vitality like coal, lignite, oil petroleum gas and potential for age of sustainable power sources is a pre-essential for evaluating the nation's potential for meeting its future vitality needs. The innovative work going into the discovery of new holds and the pace of their exploration. They likewise encourage in contriving compelling preservation and the executive's procedure for ideal usage of these asset as reported by energy statistics 2017-18.

Coal deposit mainly confined to eastern and south central parts of the country. The states of Jharkhand Odisha, Chhattisgarh, West Bengal, Madhya Pradesh, Telangana and Maharashtra account for 98.26% of the total coal reserves in all country. The states of Jharkhand has the maximum share (26.06%) is the overall reserves as coal in the country as on 31st March 2018 followed by the state of odisha (29.86%). There is high potential for generation of inexhaustible energy from various sources-winds, so far, Biomass, small hydro and cogeneration bagasse. The

total potential for inexhaustible power generation in our country as on 31.3 % is estimated at 1096081MW. This includes solar power potential of 748990 MW (68.83), wind power potential of 302231MW (27.58%) at 100m hub height, SHP (Small-hydro power) potential of 19749MW (1.80%) Biomass power of 17,536 MW (1.60%), 5000 MW (0.46%) from bagasse-based cogeneration in sugar mills and 2555 MW (0.23%) from waste to energy. Luckily India is honoured with assortment of sustainable power sources, the primary ones being, sun, biomass, biogas, wind, geothermal and little hydropower. Future financial development urgently relies upon the long term accessibility of vitality from sources that are reasonable, open and condition well disposed. There is a huge supply of inexhaustible power source assets in India. In reality, it is the main nation in the world to have selective service for sustainable vitality improvement, the ministry of non-ordinary energy sources (MNES). Since its development, the ministry has propelled one of the world's biggest and generally yearly programs on sustainable power source.

Energy Scenario in India

Coal and Oil are the most generally utilized non-renewable power sources asset for vitality age right now. At present Coal records for about 70% of India's power supply yet is not nature friendly. The uncontrolled discharge of Co₂ is harmful for environment. The progress world network is ramble with shortage of energy. The majority of the energy is gotten from non-in exhausting regular vitality assets which are decreasing day by day. In this manner to renewable power sources assets must be used. With high financial development rates and over 17% of the total populace, India is a huge customer of vitality assets (0.04%) of worldwide vitality utilization. Population of India is projected close to 1.37 billion or 1,369 million in 2019 is the second most populated country of the world after China. India position is fifth in the world in complete vitality utilization. Commercially vitality request with develop at 4.5% per annum till economy develops at 7% to 8% every year over this period. Simultaneously the ratio is confronting an intense vitality shortage which is hampering its mechanical development and financial progress. India is attempting to handle the vitality emergency through a sensible usages of renewable power sources assets for example:- Biomass vitality, sun oriented vitality, wind vitality and geothermal vitality. India devours its most extreme vitality in presidential, business, and agriculture ambition in compression to China, Japan, Russia and U.S.A Ministry of power has authorized 576 plans in which 546 plans are to energize 1,10,321 small town to give free power connections to 2.30 crore BPL rural families. PRADHAN MANTRI SAHAJ BIJLI HAR GHAR YOJANA (SAUBHAGYA) in September to provide electricity connection to around 4 crore families in rural and urban areas by March 2019. There is checked difference between the vitality utilization design in urban and provincial fragment which power a move of vitality situation towards sustainable power source frame works.

Conventional Energy Resources

When we cannot reuse a source of energy after using it once we call them "conventional sources of energy". There are most important conventional sources of energy: - coal, petroleum, lignite.

Coal and lignite

India has a decent hold of coal and lignite. As indicate by energy statics 2017-2018 (Ministry of statics and programme implementation, GOI) as on march 2019, the assessed holds of coal was around 277 billion ton coal stores are for the most parts restricted to eastern and south focal pieces of the nation. Coal creation in the nation during the year 2002-2019 was 607 million ton (MTS). Coal production of coal India limited from 2002-2019. Coal India limited a state – controlled mining company was the largest cola producing company in the world. The assessed hold of lignite as on 31.03.2017 was 40 billion tons, of which 80% was in the southern state of Tamil Nadu. The expression in the evaluated hold of lignite during the year 2009-2017 was 2.1%.

State Wise Resources as on 01, April 2018 (Million Tonne)

S. No	State	Proved	Indicated	Inferred	Total
1	Tamil Nadu	3735.23	22900.05	7712.43	34347.71
2	Rajasthan	1167.02	2671.93	1850.57	5689.52
3	Gujarat	1278.65	283.70	1159.70	2722.05
4	Pondicherry	0.00	405.61	11.00	416.61
5	J&K	0.00	20.25	7.30	27.55
6	Kerala	0.00	0.00	9.65	9.65
7	West Bengal	0.00	1.12	1.64	2.77
	Total	6180.90	26282.67	10752.29	43215.86

The lignite creation during the period 2008-17 expanded by 5%. The creation of vitality in peta joule by essential sources shows that coal and lignite were the major sources of energy representing about 62% of the total production during 2009-18. The accessibility of lignite during 2009-18 expanded by 6.6%. Utilization of lignite is most elevated in power generation part, representing about 80% of the complete lignite utilization.

Non-Conventional Energy Resources

There is a huge potential for sustainable power sources in India, an expected total of more than 150,000 MW. As against the evaluated 84776 MW sustainable power sources based network associated power generation potential in the nation, So far as it more about 20566.06 MW introduced limit has been accomplished. The sustainable power source excluding large hydropower based power generation capacity presently establish 12.30% of the aggregate introduced limit in the nation for power generation from all sources the nation is expecting to accomplish up to 10% extra introduced ability to be setup till 2019 to come from sustainable power sources.

Achievement in grid connected renewable power (MW)

<i>Sector</i>	<i>Achievement (01.01.2018 – 31.03.2019)</i>	<i>Cumulative Achievement (on 31.03.2019)</i>
Wind Power	2777.51	35625.97
Solar Power - Ground Mounted	10314.23	26384.30
Solar Power – Roof Top	814.06	1796.36
Small Hydro Power	175.00	4593.15
Bio Power (Biomass & Gasification and Waste to power)	1364.51	9778.31
Waste To Power	0.00	138.30
Total	15445.31	78316.39

Wind Energy:

The cause of fluid wind vitality is sun. When the sun beams fall on the earth, its surface get warmed up and as an outcome winds are formed kinetic energy in the wind can be used to run wind turbines the yield relies on the wind speed. Turbines for the most part require a breeze in the b/w 5.5 and 25m/s. The evaluation of wind power in India started during 1990s. Although a generally newcomer to the wind business contrasted and china (145362 MW), USA (74471MW), Germany (145362 MW). India in the 3rd week of December 2106 was ranked 4th in the global wind power installed

capacity index. The cumulative installed wind power generation capacity of India is 255088 MW. Significant state with higher limit and wind power potential are Tamil Nadu, Andhra Pradesh, Karnataka, Kerala, Madhya Pradesh and Maharashtra.

<i>Country</i>	<i>Wind Power Capacity (MW)</i>	<i>Rank</i>
China	145362	1
USA	14471	2
Germany	44947	3
India	25088	4

Table 2: Top Four Wind Power Countries

Solar Energy:

In view of its area between the Tropic of Malignant growth and the equator, India has a normal yearly temperature ranges from 25° Celsius to 27.5° Celsius this implies India has huge sunlight potential. The sunniest parts are arranged in the South/East coast from Calcutta to Madras. In sun orients vitality area, some enormous venture have been proposed and a 351,000 km² zone of the Thar Desert has been saved for solar power projects, sufficient to create 700 to 2,100 gigawatts. India is endowed with rich sun energy asset. The normal power of the sun radiation got on India is 200MW/Square. As indicated by EAI as of march, India is at present positioned number one alongside the United State as far as introduced solar power generation capacity.

Biomass Energy:

Biomass has been a key player in vitality generation even previously. Biomass, characterized as all land and water waste vegetation also as organic wastes, satisfied practically all of man kinds vitality need preceding the industrial revolution. In the current scenario by and by its usages for generation of vitality has picked momentum because constrained accessibility of the conventional energy resources as well as environment concern due to (Green House Gas) GHG outflows. As indicated by FAI, India has Biomass creation of 546 million tons for every year from the agricultural sources to produce electricity at the limit of 17,981 MW. According to MNRE India is exceptionally wealthy is biomass vitality and has a capability of 16,881 MW (agro-build ups and plantations) 500MW (bag asses cogeneration) also 2700MW (vitality recuperation from squander) out of which just 286.09MW is introduced in different structure.

Conclusion:

There is deadly exigency for petroleum based energy system to one based on renewable resources to decrease reliance on draining resources of fossil fuels. Renewable energy has power to create much employment in urban as well as rural areas. This will also help in to build industry in rural area. It will also help for further development of any country. Developing renewable energy will help India to increase its energy security. In report says that India is that the third most favoured destination globally for investment with the renewable energy sector. The reports continuously say that the country is going to be a great supply and recent beginning into the world. Once the North American country and china. Solar and wind energy can be the key areas to witness overseas investment to near future. It's we already know that renewable energy nature is duty of energy

human being. So we all must support this energy so that upcoming future can also live their life happily or comfortably.

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