

## Solar energy: A Need of Time

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**Abstract :** *Generally, the fundamental needs of the human beings, the society or the country's Economic development. Whether it is human capital. Along with these three fundamental factors-Land, Manpower, Capital- Energy is calculated in the basic need. Energy is the fourth element. It is impossible only to take one step in our daily life without Energy. And that is why Energy is said to be the core of human life from the Indus Civilization, the development of today's advanced human life evolved on changing energy resources.*

*Energy sources are of the two types. A Traditional & Non Traditional. Traditional means renewable energy resources. In the traditional energy resources were created millions of years underground covered in plant and animal residues from fossil fuels. Coal and Oil is the fossil fuel, and says that the source of traditional energy. Non-renewable energy sources Natural oil and gas and coal reserves have contributed to alternative energy, which they call non-renewable energy sources. It is solar energy, wind energy etc. Solar Energy, Especially it is pollution-free. No type of toxic substance goes out of it like mineral fuels. Or no country can impose any restrictions on how great power it is! Because of the global political competition. Most importantly, it is a permanent free energy source for all mankind bellow the sky.*

*The sole object of the Article is to make the mankind aware about the utilities, power, & usefulness of The 'SUN'. 'SUN' is the soul of Universe. Sun is the soul of all living lives covered by the panchmahabutas i.e. the Earth, the Water, the Agni-Sun itself, Air & the Sky. Sun the immortal essence of all things in the Universe. Thats why The Rugveda described in Saurusukta , 'The Sun is the soul of Universe.*

**Key Words:** *Renewable Energy, Renewable energy source, Smart Grid, Non renewable.*

### INTRODUCTION

Energy is the life of the Earth on the surface of life, without the energy of the world, there is no source of energy. With the help of these three fundamental factors, the basic energy needs of this fourth thing is computed. In today's age, all types of natural fuels are decreasing due to the energy consumption and the use of alternative energy. It has become necessary to make conventional energy Along with the device, the extraordinary importance of non-renewable energy resources has been achieved.

Electric energy being manufactured using mineral oil and stainless steel is the main energy today, but ground oil and coal reserves are of limited form. Consumption of human consumption has undermined the ecological balance, hence it is working to maintain fossil fuel. Increasing population increases communication and expansion of contact plans. Increasing use as well as medical field is very important Food consumption ratio is extremely low electricity sectors TWAYA of the present building.

According to experts, seeing the growing population and the industrial growth of India, the demand for electricity will continue to grow. While the demand for electricity is increasing in the same way, the misuse of electricity due to unnecessary and excessive use of electricity is increasing, while theft of electricity declared as the thirteenth month of the famine has increased significantly.

On the other hand, the mineral oil has become darker due to the inadequate stock of coal and water, as a result of which electricity burden has to be faced in rural and urban areas. It is necessary to conserve energy and to further enlighten the situation. Today, the thermal power generated by mineral oil and coal As a sole power, citizens and entrepreneurs were centered around the government If energy consolidation takes place and energy awakens, then there is a need to think seriously about the availability of unconventional energy sources, such as solar energy, for the consumption of conventional energy sources as well as for the use of non-conventional energy sources.

### **HYPOTHESIS**

- The energy of citizens will be awakened. The use of non-conventional energy sources along with traditional energy sources will increase the number of citizens or entrepreneurs. \*Energy saving is the principle that electricity generation will be enforced. \*Electricity generation will be achieved, energy conservation and energy awakening will be achieved.
- To provide improved environment

### **OBJECTIVES:**

- To check the energy literacy among the citizens, the entrepreneurs and the farmers.
- To see how the trend of use of pollution-free and non-poisonous renewable energy sources like solar energy.
- To overcome the energy crises like electricity.

### **DATA ANALYSIS:**

Solar energy: Solar energy is generated from the sun's radiation.

The sun's energy from heat and light is called solar energy. Solar energy causes change in air from Earth. The Earth receives 174 petawat energy from the Sun. Reflecting around 30% of these results is absorbed in the remaining environment. Because of this energy environment and landowning. The warmth of the ocean due to the atmosphere prevailing and the water cycle evaporates and the atmosphere continues. Sunlight is the main source of light on earth. Since solar energy is not used in daily transactions, it is called non-conventional energy. However, solar energy is a valuable source of renewable energy. Photovoltaic systems, centralized solar energy and solar water heaters are used for solar power generation.

### **SCOPE AND LIMITATION:**

According to the Handbook on Solar Radiation over India, solar radiation of 4-7 kilowatt hours per square meter per day, in addition to 250-300 sunlight in a year, is received in most part of India. The solar radiation received in Rajasthan and Gujarat is much higher than the radiation obtained in Orissa.

In spite of having an open area of 30-50 MW / per square kilometer without an open area, tapping of solar energy in the country is quite small compared to the available capacity (which According to the status of 31-5-2014 2647 MW). After becoming the Prime Minister in 2014, Narendra Modi made a lot of effort to increase the capacity of solar power, Hwarup 2016 Capricorn went crossed the magic figure of Sankranti / Pongal to an installed capacity of 5,000 MW of solar energy in India.

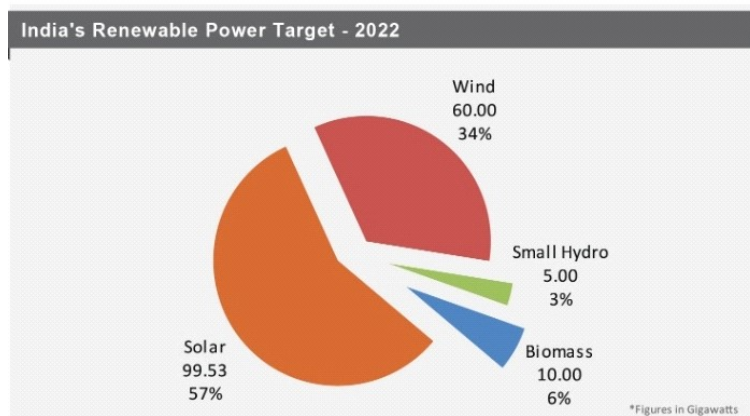
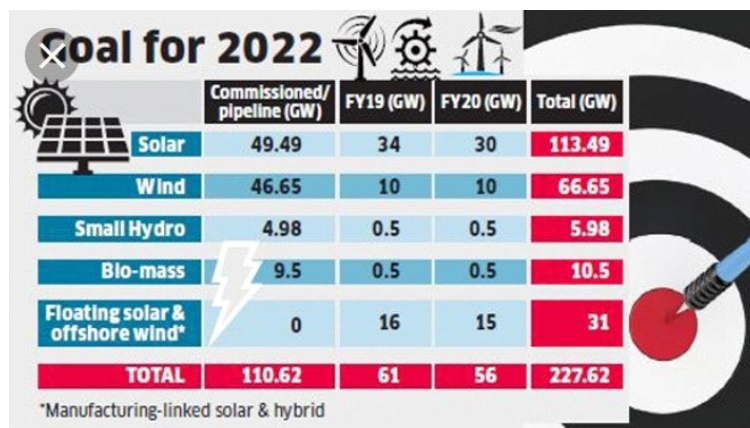
At the Paris Climate Conference in 2015, Narendra Modi also announced the International Agency for Solar Technologies and Applications of Organization of more than 100 "Solar Company" countries under the leadership of India.

Renewable Energy is done by the Ministry. India's densely populated and high solar insulation creates solar energy as an ideal energy source for India. But solar energy is constantly costly and requires huge investment. The nature of solar energy is unstable, so it is difficult to adjust it in the grid. The lack of awareness of the people, the high production cost and the limitations of abandonment of the current energy and transmission network has been considered as the main obstacle in the direction of exploitation of solar power potential across the country.

### SUCCESSFUL SOLAR AGITATION IN INDIA:

Since our country is coming in tropical areas, India gets sunlight for almost 300 days a year, so we have a great potential for solar power from Europe and America. Our country has taken a bigger leap in solar generation. Today, we are building 29.41 giga-watts of solar energy and in our country's periphery Another interesting fact is that solar power generation in our country Energy is the cheapest in the world. Government has been keeping a watch on making Gigas by 2022, but completed in 2018

Therefore, the Indian government has increased the capacity from 2015 to 100 gigawatt. Another thing to do is to generate electricity from solar energy, 18% cheaper than the electricity generated by the thermal power station. Sakri Solar Power Project in Maharashtra produces 125 MW power. Scientists express the opinion that the district is very good for solar energy The solar power project has been set up to become a power plant for ten MW of power at present. Besides, in the neighboring state of Karnataka, about 5,000 MW of electricity is generated from all the projects in the state. Apart from this, more than fourteen megawatt of solar power project will be seen in the initial phase and after completion of the project, Thousands of MW power will be available.



Source: Press Information Bureau, GoI, Ministry of New and Renewable Energy dt: 10-1218

India now at 5th global position for overall installed renewable energy capacity. A total of 101.83 billion units of power were generated in the country during the year 2017-18 from renewable energy. The Government has declared the trajectory of bidding 60 GW capacity of solar energy by March 2020, leaving two years' time for execution of projects.

### **INTERNATIONAL SOLAR ALLIANCE (ISA):**

The International Solar Alliance (ISA) became first international intergovernmental organization headquartered in India on 6th December, 2017. ISA is part of India's vision to provide clean and affordable energy to all. So far 71 countries have signed the Framework Agreement of the ISA. Out of these, 48 countries have ratified the same.

The First Assembly of the ISA was held on 3 October, 2018 in India. 37 ISA member Countries, including India and France, attended the Assembly. In addition, 25 countries that have signed the Framework Agreement of ISA but yet to ratify; 13 Prospective Member countries that are yet sign the Framework Agreement of the ISA; and 3 Partner countries that are beyond inter-tropical zone attended the Assembly as Observers. In the First Assembly inter-alia India's resolution for amending the Framework Agreement of the ISA for opening up the ISA membership to all countries that are members of United Nations was adopted. India has recognized ISA's judicial personality by entering into Headquarter agreement with ISA.

### **SOLAR ENERGY**

The Government has revised the target of Grid Connected Solar Power Projects from 20,000 MW by the year 2021-22 to 100,000 MW by the year 2021-22 under the National Solar Mission. The country currently has the fifth highest solar installed capacity in the world with total installed capacity of 24.33 GW as on October, 2018 against a target of 100 GW by 2022. Further, 22.8 GW capacity is under implementation or have been tendered out.

The Ministry plans to bid out remaining solar power capacity in 2018-19 and 2019-20, so that bidding gets completed for entire 100 GW capacity additions by March 2020, leaving two years' time for execution of projects. The tariff for grid-connected solar power projects is determined through competitive bidding process involving reverse e-auction. This has helped in bringing down the tariff significantly. The lowest solar tariff discovered as on date is Rs. 2.44/kWh in July 2018 in ISTS based bidding of solar projects in India. The solar tariff has come down from around Rs 18/kWh in 2010 to Rs. 2.44/kWh in 2018 due to various factors like economies of scale, assured availability of land and power evacuation systems etc.

Solar Parks are being set up in the country. 47 solar parks of aggregate capacity 26,694 MW has been approved in 21 States up to November, 2018. Over 1,00,000 lakh acres of land identified for various solar parks out of which over 75,000 acres have been acquired. Solar projects of aggregate capacity 4195 MW have been commissioned inside various solar parks.

The Ministry is also taking up projects for new emerging technologies such as floating solar power.

installed capacity in the country as on 31.10.2018 is given below:

Source	Installed Capacity (GW)	Percentage
Thermal	221.76 GW	(63.84%)
Nuclear	6.78 GW	(1.95%)
Hydro	45.48 GW	(13.09%)
Renewable	73.35 GW	(21.12%)
<b>Total</b>	<b>347.37 GW</b>	<b>(100%)</b>

Progress of Renewables in India during the last four and Half years (2014-15 to 2018-19 as on 31.10.2018)							
Sector	Cumulative Ach. in MW (as on 31.03.2014)	Capacity Addition in MW					Cumulative Achievement in MW (as on 31.10.2018)
		2014-15	2015-16	2016-17	2017-18	2018-19	
Wind Power	21042.57	2311.78	3423.05	5502.37	1865.23	841.35	<b>34986.35</b>
Small Hydro Power	3803.74	251.61	218.60	105.9	105.95	21.15	<b>4506.95</b>
Bio Power	8041.63	355.72	364.09	187.65	552.82	44.00	<b>9545.91</b>
Solar Power	2631.90	1112.08	3018.9	5526	9362.64	2661.12	<b>24312.58</b>
<b>Total</b>	<b>35519.84</b>	<b>4031.19</b>	<b>7024.64</b>	<b>11321.92</b>	<b>11886.64</b>	<b>3567.62</b>	<b>73351.79</b>

### MAJOR FINDINGS:

Today, India is the fifth largest in terms of solar power generation. But the picture of India in front of us is that the roof of each house is covered with a solar panel. Every farmer will have some amount of solar farming. Each producer will also run his product unit through solar energy. Then the little creature will breathe the pollution free and poisonous. Environment will not be deteriorated. Today we are launching Swachh Bharat Abhiyan, tomorrow's India will be the aim of Clean and Beautiful Vasundhara Mission. For this, the Government will have to give priority to solar energy as a source of unskilled power for the administration and the citizens. If the governance and governance system is a welfare, then there is a need to think of how the schemes that encourage solar energy will become leaders to the common man. Today, it is not possible for the economically weaker and middle class

farmers and entrepreneurs to put solar energy units in homes, industries and farms. To make it impossible to increase the provision of financial adaptations and to ensure that the publicity system is well equipped, renewable energy will be required.

### **CONCLUSION:**

The sources of traditional energy are limited in nature. These sources have become obsolete today in the proportion of the growing population. Everyone needs to know that the need for timely creation of renewable energy is better than digging a well when we are thirsty. Citizens, entrepreneurs and farmers should take a few steps to absorb the solar energy today. In addition, with the help of the Governance and the Administration of Transportation, it should be changed from time to time to achieve the goal of solar energy.

### **SUGGESTIONS:**

\* Citizens, farmers and entrepreneurs should be solar-literate. \* Provide financial provisions that can be easily adapted to solar energy. At the government level, the movement of solar energy should be implemented more effectively. \*

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