International Journal of Research in Engineering and Science (IJRES)
ISSN (Online): 2320-9364, ISSN (Print): 2320-9356
www.ijres.org Volume 10 Issue 2 ǁ 2022 ǁ PP. 12-14

A Review –Future of Solar energy in India

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ABSTRACT
Renewable energy source like Solar have the potential to overcome with the problem related to electricity and many other things. In the review paper we have discuss about the Adoption Parameter, like what care should be taken while adopting solar, Consumer Studies such as review related to solar and Current Status of the Solar energy in India. In this we have discussed the scenario of solar such as in which region the setup of solar is best suitable and what are the advantages and how solar can overcome the problem related to electricity. The review paper contains the total information and status of solar in India.

Date of Submission: 14-02-2022 Date of acceptance: 28-02-2022

I. INTRODUCTION:

Power sector is one of the key sectors contributing significantlyto the growth of country's economy. Power sector needs a moreuseful role to be played in defining, formulating and implementingthe research projects with close involvement of all utilitiessuch that the benefit reaches the ultimate consumer [1]. During the nineties decade, many electric utilities throughout the world haveforced to change their way of operation and business, from vertically integrated mechanism to open market system. The increasein energy consumption, particularly in the past several decades, has raised fears of exhausting the globes reserves of petroleum andother resources in the future. The huge consumption of fossil fuelshas caused visible damage to the environment in various forms.Every year human activity dumps roughly 8 billion metric tonnesof carbon into the atmosphere, 6.5 billion tonnes from fossil fuelsand 1.5 billion from deforestation [2]. India also has followed theglobal change in power sector by establishment of the RegulatoryCommissions in 1998 under the Electricity Regulatory CommissionsAct 1998 (Central Law) to promote competition, efficiencyand economy in the activities of the electricity industry and appliedrestructuring to Orissa state electricity board firstly and after thatto many other states [3].

Solar is one of the most talked-about alternative energy sources in the world today. Enough energy comes from the Sun in an hour that the Globe can provide electricity for a year. Sunlight is a totally renewable resource, unlike oil, coal, etc.

We know that our sun is actually a very large and hot star emitting lots of power in its rays. We can harness that power effectively, so it can help in generating electricity, which is an important part of modern life. The sun rays transmit both heat and light. The heat is used in thermal systems to produce hot water and hot air for commercial and residential heating use, as well as power generation with steam or sterling engines. The light is used in photovoltaic systems to convert light to electricity and this is one of the main areas where our solar industry is concentrating its efforts today. Our aim in this study is to help decision-makers understand solar energy's potential future importance, the obstacles that may prevent solar technologies from realizing that potential, and the elements of sound public policies that could reduce current obstacles.

Future of Renewable Energy

New project development for 100 MW capacity of the grid (below 33 kV) connected solar projects (of 100 kW to 2 MW capacities each) have also been selected. It is expected that 150–200 MW of solar power will be installed in the country by December 2011. By the end, September 2014, the installed grid-connected solar power had increased to 2,766 MW and India expects to install an additional 10,000 MW by 2017, and a total of 20,000 MW by 2022. Shows a state-wise distribution of renewable energy generation, the tentative target set by the ministry of new and renewable energy under the 12th financial plan. The State Government of Andhra Pradesh is developing a solar farm cluster called the solar city on a 10,000 acre land at Kadiri in Anantapur district. Solar city is expected to attract investments worth Rs. 3000 crore in the first phase. Four firms (Sun bore, Lance Solar, AES Solar and Titan Energy) have signed a memorandum of understanding with the State to set up their units there. These companies will be the anchor units in the solar city and have a combined capacity of 2000 MW. Karnataka Power Corporation Ltd. has implemented two projects– each of 3 MW power

capacities and has awarded the third project of same capacity recently. The solar plants, located in Kola and Chickadee districts, have been implemented under the Arunodaya scheme for ensuring assured power supply to rural areas, especially irrigation pump sets . These PV power plants are intended as tail-end support/powering of irrigation pumps Jawaharlal Nehru National Solar Mission (JNNSM) is one of the major global initiatives in promotion of solar energy technologies, announced by the Government of India under National Action Plan on Climate Change. It has set an ambitious target of deploying 20,000 MW of Grid-connected Solar Power & 2000MW of off-grid Solar Power by the year 2022. Ministry of New & Renewable Energy (MNRE) intends to raise its targets under the National Solar Mission from 20 Giga-watts (GW) to 100 GW by 2019. It adopts a 3-Phase approach from 2010 to 2022. Table.III. shows the current installed capacity of the solar power state wise.

ADOPTION PARAMETER

Future solar deployment will depend heavily on uncertain future market conditions and public policies including but not limited to policies aimed at mitigating global climate change. We concentrate on the use of grid-connected solar-powered generators to replace conventional sources of electricity. For the more than one billion people in the developing world who lack access to a reliable electric grid, the cost of small-scale PV generation is often outweighed by the very high value of access to electricity for lighting and charging mobile telephone and radio batteries. In addition, in some developing nations it may be economic to use solar generation to reduce reliance on imported oil, particularly if that oil must be moved by truck to remote generator sites. The main disadvantage of solar energy is its unavailability. The weather conditions are major factor on availability of solar radiation. So, we can't say in a particular time the energy from solar will be available to us or not. The amount of land required for utility-scale solar power plants is currently approximately 1km2 for every 20–60MW generation.

CONSUMER STUDIES

Shopping for a solar power system and choosing a solar installer can be an exciting time for many people, but as with any investment, you will need to be careful who you deal with. A company genuinely committed to solar power is in business to make money, however they will often offer energy efficiency suggestions as to how you can decrease the cost of acquiring a system. In order to make a system appear more powerful, some companies may focus on promoting inverter size. A system with a 4kW rated solar inverter but with only 1.5kW of solar panels is a 1.5kW system. The larger inverter will not boost the amount of electricity generated compared to a smaller, suitably sized inverter. In order to claim rebates, all systems must contain certified components. Many solar panel and related component manufacturers have been established around the world in the last couple of years. While the warranty the new companies may offer can be the same duration as the more recognised brands; the warranty will be of little value if the company disappears. Even with any rebates or incentives, you're still investing a sizeable sum from your own pocket and your house is being modified. You should ensure that the right person is executing the installation, it's critical you choose a suitable solar installer.

CURRENT STATUS OF SOLAR ENERGY IN INDIA

As surveyed, the four largest energy consumers in the world are United States, China, Russia and India. Currently the R&D team of every country is focusing on the renewable energy sources. The energy consumption is very high as the sources are in limit. As surveyed in 2014, India has an predictable solar power potential of about 1,00,000 MW out of which the total installed capacity as of 31st March 2014 was 2,647 MW. The top installers of 2016 were China, the United States, and India. There are more than 24 countries around the world with a cumulative PV capacity of more than one gigawatt. Austria, Chile, and South Africa, all crossed the one gigawatt in 2016. India's installed PV capacity by the end of 2016 is 9000(MW). The development and strategy is monitored by India's Ministry of New Renewable Energy (MNRE), Energy development agencies in various states and Indian Renewable Energy Agency Limited (IREDA).

The R&D team of India is continuously working on the development of the renewable energy. People are also adopting Solar energy as the uses are very progressive.

II. CONCLUSION

In India the consumption rate is very high and for that consumption rate, there is a necessity of renewable energy sources and its development. The problem people are facing regarding shortage of electricity, it should be solved and the use of Solar energy should be done as it can be used in many ways. The problem of electricity can be solved, if right step by the people and people's government is taken.

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