

Potential Of Solar Energy In North Eastern States Of India

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Abstract

The renewable energy in the North Eastern States was being initiated in the early eighties but it has been practised only during the nineties. Though the region has a lot of potential in terms of renewable energy but because of various factors such as technical issues, financial and institutional issues, its progress and performance is at a very low level. Therefore, as per the various studies, there is an urgent need to formulate an integrated renewable energy policy which would promote the use of various renewable energy and provide a sustainable growth for the whole north eastern region.

Keywords: North-Eastern India, Renewable Energy, Solar Energy, Power Plant etc

1. Introduction

Northeast India lies in the eastern most part of India. It consists of Sikkim and the seven sister's states of India which are Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland and Tripura.

The renewable energy in the North Eastern States was being initiated in the early eighties but it has been practised only during the nineties. Though the region has a lot of potential in terms of renewable energy but because of various factors such as technical issues, financial and institutional issues, its progress and performance is at a very low level. Therefore, the government of various north eastern states has adopted certain steps to promote the use of renewable energy in terms of solar energy in the north eastern states of India at this particular moment, it has not been developed even though it has a lot of potential.

The renewable energy such as wind energy and solar energy have a small penetration in the north eastern region, even though most of the states in the region have a lot of potential to generate energy through renewable sources.[1-5]

2. Procedures

The procedures for setting up of the renewable power plant such as solar power in the north eastern states is nearly similar with the other states, A brief description of the procedures of setting up of solar power only is discussed below.

One of the states in the north eastern region which is quite adapt in harnessing solar energy is Manipur. In manipur sunlight is received around 250 to 300 days in a year with 7 to 10 hours of sunlight in a day.

Some of the policies, incentives permissible power generation capacity initiated by the government to encourage the use of solar energy are briefed below.

- 1) The average power generated from all the solar systems in an area shall not be more than 35-40% of the capacity of the local distribution transformer.
- 2) The size of the solar system is designed in such a way that it should be in the range of 1.5kwp to 1000kwp.

The power has been regulated based on the size of the solar systems, such as for less than 8kwp, low voltage single phase should be used.

For size less than 75 kwp and above 75kwp, low voltage three phase and high voltage 11/33 kv should be used respectively. [6-7]

Some of the benefits that can be availed by solar users in the region in order to promote the used of solar energy are

- 1) Solar users will get the benefit by being exempted from banking charges and cross subsidy surcharges.
- 2) A 10-year tax holiday can be availed by the customers who undertake solar projects.
- 3) Loans are also provided to the solar user industries for implementing various projects utilising solar energy. [8]

3. Hurdles

Some of the hurdles or difficulties which may be faced in order to implement the use of solar energy in the region are

- Due to financial barriers, as the north eastern states of India are not so much developed as compared to other parts of the country. Many people in the region cannot afford to buy the solar devices as most of these equipments or devices are costly.
- Absence of proper and adequate database, of the resources, weather and various environmental factors has led down in the implementation of wind and solar power plants.
- There is a lack of potential of various local manufacturing bodies, as no attempts have been made by the government for the development of these local manufacturing bodies.
- Lack of awareness about the importance of renewable energy especially in the rural areas as there is a very low level of participation of NGOs and the rural entrepreneurs. [9]

4. Success factors

Although there are a lot of problems or hurdles for the implementation of solar power in the north eastern region, but there are also some positive impacts or success achieved by the coming up of solar power. some of them are

- 1) Solar powers have provided a clean green energy in the region as it has backed the conventional source of drawing electricity in the region.
- 2) Some of the households in the region also have utilised the solar energy by the using of solar panels, photovoltaic cells to draw the energy during the load shedding crisis.
- 3) Manipur which has suffered an acute power shortage as the state power department has supplied only around 50% of the demand, but by the introduction of solar heaters with a capacity of around 100 litres per day has in somewhat cope the power shortage in the region. [10-11]

5. Permitting process

Various policies and permissible power generation capacity has been made accordingly

- 1) Based on residential use
 - a) The average power generated from all the solar systems in an area shall not be more than 35-40% of the capacity of the local distribution transformer.
 - b) The size of the solar system is designed in such a way that it should be in the range of 1.5kwp to 1000kwp.

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For the commercial and industrial used the same policies or the permitting process have been adopted. [12]

6. Technical Potential

Some of the technical capabilities of using renewable energy i.e, solar energy in the north eastern region are

- a) The Centre for Science and Environment (CSE) has stated that the north eastern region has an immense potential of harnessing electricity from solar and other renewable sources.
- b) The CSE organise a conference which aims at enhancing the role of solar and other renewable sources in the electricity mix.
- c) The report of the conference aims to provide at least one unit of electricity drawn from various renewable sources based mini grids to each household.
- d) In 2012, the state of Tripura has provided solar energy to nearly 700 hamlets and 50 villages which has benefitted more than 30,000 families in the area. [13]

7. Conclusion

The north eastern region, even though it has a lot of potential in drawing electricity from various renewable energy sources such as solar and wind, but some hurdles are also encounter by the region in the process of utilisation of the energy. But some of the states in the north east such as Tripura and Manipur have strived forward in drawing the green energy in order to increase its production and to provide a safer, clean and green energy. Therefore, as per the various studies, there is an urgent need to formulate an integrated renewable energy policy which would promote the use of various renewable energy and provide a sustainable growth for the whole north eastern region.

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