India's Approach towards the Renewable Energy Sector

- Shraddha Chaurasia*

The past decades have seen an alarming spike in the population of India, as a consequence of which, India's usage of electricity has also risen. Presently, non-renewable resources like coal, wood and other fuels are used to compensate for this demand but this has resulted in the depletion of said resources and a rise in pollution, which is promoting global warming around the world. India happens to be one of the largest consumers of fossil fuels in the world, which makes investments in the renewable energy sector a matter of prime concern.

Renewable Energy (RE) has been a matter of concern for years now. Renewable technologies are considered as "clean" sources of energy, as usage of these resources would lower harsh environmental impacts and reduce air pollution. The depletion of fossil fuels, increase in pollution, and a rise in energy demand has made energy production from RE resources to be the leading solution. India is already experiencing many of the worst impacts of climate change, because of its vast size and ecological diversity. Natural disasters like droughts and floods have become more frequent and severe, which has caused major damage to nature, local economies and the welfare of the citizens. India's recent floods have wrecked the lives of millions of people.

As a result of improvement in the economy and increasing support from the Government, the renewable energy sector has become attractive from an investor's perspective. Major investors

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*Student of Economics (Honours), Semester-VI, The Heritage College)

in the RE sector in India are Tata Power, ReNew Power and Asian Development Bank, to name a few. India was the first country in the world to set up a ministry of non-conventional energy resources in the early 1980s, with its public sector undertaking- the Solar Energy Corporation of India being responsible for the development of the solar energy industry in India. India is working hard to de-carbonize the nation by adopting newer and smarter technologies through supporting the Research, Development and Demonstration (RD&D) for resource assessments and development of advanced mechanics. The government aims to set up an RE capacity of 227 GW by 2022 and 523 GW by 2030.

The Paris Agreement of 2015, a legally binding international treaty, asked the countries to cut global greenhouse gas emissions in an attempt to limit the rise in global temperatures. India signed the treaty on April 22, 2016, and pledged to be 2 degrees compliant, meaning; it will limit its global emissions to a level of 2 degrees per year, and reduce the carbon intensity of its economy by 33-35 percent by 2030, as compared to 2005 levels. Recent trends show that India is on the path to not only meet but also over-achieve its pledge.

According to an analytics firm, British Business Energy, India ranked 3rd in terms of its RE sector investments and plans in 2020. Investments in the RE sector in the country reached $11.1 billion in 2018 and are expected to attract more than $80 billion in the next four years. This has enabled the power generation from RE sources to reach 127 billion units in 2020. India's hydroelectric power production currently ranks 7th in the world and solar power deployment ranks 5th globally.

The Government had initially targeted installing 20GW of solar power by the year 2022 but it was achieved in January 2018; four years ahead of its scheduled deadline.

India then initiated a new goal of establishing 100 GW of solar power, 60 GW of wind power, 10 GW of biomass and 5 GW of small hydropower by the year 2022. The Northern parts of India have the potential of creating energy power of 363 GW- making it a top

contender in becoming the hub for renewable energy in India.

Despite such achievements, India continues to face many challenges in the development of the RE sector. One of the major difficulties faced by companies is constant setbacks in land acquisitions. This factor has slowed and delayed many RE projects in India. Mercom: a power-developer company faced this problem when they were expanding their solar initiatives. In addition to this, there is a lack of skilled manpower in the RE sector, due to which completion of projects takes longer than initially predicted, which in turn raises the cost of the project.

Establishing RE plants also comes with a lot of inconsistencies. Wind speeds cannot be forecasted reliably and there is uncertainty in predicting the electrical-energy output from solar panels as output can drop anytime, without warning, due to the presence of clouds. This unreliability deters the people from accepting it on a larger scale. Also, Biogas obtained from animal manure is seen to be highly unacceptable in urban society, as people see it as 'dirty fuel'. Because of such reasons, the installation of RE technologies remains low, despite heavy subsidies being provided by the government.

The Central Electricity Authority (CEA) estimates that by 2029-30, the share of renewable energy generation would increase from 18% to 44%. It is expected that by 2040, around 49% of the total electricity in India will be generated by RE, as more efficient batteries will be used to store electricity, which will further cut the solar energy cost by 66% as compared to the current cost.

The government aims to develop a 'Green City' in every state which would be powered through solar rooftop systems, solar parks and electric-mobility enabled public transport system. India's Jawaharlal Nehru National Solar Mission - which aims to establish India as a global leader in solar energy, is the largest and the most ambitious programme of its kind in the world. Also, the RE sector possesses the potential of creating a good deal of employment opportunities in the country, which makes investments in the sector even more

attractive. To conclude, India, even though it stands among the top five countries, has a long way to go to overcome the challenges that it faces to make India globally competitive in terms of renewable energy.