Cloud Over Solar Sector

(This editorial is based on the article 'Cloud Over Solar Sector' which appeared in 'The Times of India' on 19th March, 2019. The article talks about the challenges faced by solar sector and the potential ways to overcome them.)

With 300 clear sunny days, over a dozen perennial rivers and a coastline of more than 7,500 KMs, India since the age of Puranas, had realised the importance of the sun and other sources of renewable energy and the power they possess for the benefit of its inhabitants.

Growing Indian energy requirement and the need to adopt greener and cleaner modes of energy has reinforced India's attempt at making a transitional change from traditional modes of energy to renewable sources of energy.

However capacity additions have slowed in the recent past, which means the 175 GW renewable generation – including 100 GW solar – target set for 2022 could become difficult to achieve.

Answer to Climatic Woes

Human-induced climate change is considered one of the most prominent challenges of our time, with a warming planet being a present-day reality, rather than a potential future threat.

The Climate Change concern across the Globe has propelled the Government and Decision Makers to develop a detailed blueprint for clean and sustainable power for all.

Shifting to renewable energy offers an opportunity to save the environment as renewable energy resources produce little to no global warming emissions. **Renewable energy can aid in the reduction of emissions in the electricity sector by 81 percent.**

Pollution produced by coal and natural gas plants also leads to several health problems such as cancer, neurological damage, heart attacks and other serious problems. The shift to renewable and cleaner sources will drastically result in improving the health of the general

public.

As part of the initial commitments to the Paris Climate Accord, India too plans to reduce its carbon emission intensity - emission per unit of GDP - by 33-35% from 2005 levels over 15 years. It is working towards producing 40% of its installed electricity capacity by 2030 from non-fossil fuels.

India is the third largest energy consumer of the world and any change in the energy matrix of India is bound to reflect in the world's attempt to curb the menace of global warming.

Indian Potential

- **India's energy mix is dominated by coal with a 49.6% share followed by oil- 28%, biomass- 11.6%, gas - 7.3%, renewable and clean energy 2.2% and nuclear energy 1.2%.**
- The potential for solar energy capacity in India is enormous. The majority of the country's tropical landmass is located optimally for peak solar radiation. **According to World Bank India has the best conditions in the world to capture and use solar energy.**
- According to Ministry of New and Renewable Energy, the country's total solar power potential is pegged at nearly 750GW, with 142GW of solar resource available in the state of Rajasthan alone.
- India is one of the most attractive markets in the world because of its sheer size: 10-12GW annually. This is even more relevant when one considers that the largest market, China, is virtually closed to foreign investors.

Bottlenecks in the sector

- Solar sector suffers from infrastructural problems such as development of access roads, land acquisition for parks, and demarcation of land areas within solar park remains incomplete, even after bids for projects are completed, which affects project costs and profitability.
- Lenders and equity investors find it risky to invest in renewable energy because of uncertainty regarding the potential buyers of the electricity.
- **Further, electricity distribution companies (i.e. DISCOMS) do not always pay for electricity on time, with payment delays being common in Tamil Nadu, Rajasthan, Madhya Pradesh and Maharashtra.**
- Power from sources such as wind and solar is intermittent, and forecasting of energy levels is weak which makes it an unattractive venture for power distribution companies to connect to renewable sources.
- **India faces the challenge of moving 21% of its population out of poverty. No country has been able to achieve a Human Development Index of 0.9 – which**

suggests high life expectancy, income and education –without an annual energy availability of four tonnes of oil equivalent per capita.

- Solar energy is a capital-intensive industry and if the initial cost of setting up the plant is high, the cost of solar energy is pushed up. Overall cost of imported solar modules has gone up as the government has raised the duty for solar imports.
- A majority of India's solar module imports are from China and Malaysia, steep duty has resulted in cranking up the overall cost for solar project developers.
- Higher proportion of renewable in a grid leads to greater grid instability and makes controlling electricity flows a challenge making discoms chary of increasing their renewable including solar energy sourcing.
- The grid should also have the capacity to carry power from regions where power is generated to the regions where power is needed.

Way Forward

- The government need to speed up the execution of Green Energy Corridor and encourage massive investments in up gradation and creation of new transmission and grid infrastructure.
- One way out would be to store energy when excess is produced, but storage equipment for solar energy is expensive.
- **The primary problem of the solar sector can be resolved only if the government adopts an integrated approach, such as by bundling renewable with conventional energy.**
- Also, the tariffs discovered during competitive bidding should be considered and adopted rather than artificially capping them.

The solar energy sector has a clear social impact and the potential to grow at a fast pace. All it needs is policy and infrastructure support from the government and a pragmatic approach from industry players.