

Renewable energy : Scope for Sustainable and Vibrant Entrepreneurship
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We live in a day and age where large scale energy production using solar radiation, wind, waste and water is not just a figment of an excellently crafted science fiction or wishful thinking by scientific minds limited to laboratory based models, it is today a reality. Unlike what idealism would have had us believe, this major global push for renewable energy adoption doesn't simply stem from its efficacy, but from prescription and necessity to mitigate catastrophic impact of global warming and climate change. Global warming and climate change is no longer a hypothesis but a major continuous disaster that has been impacting millions of lives on our planet, thus making sustainable development the norm that governments and corporations aspire to work towards.

India has been one of the most proactive nations to respond with remarkable alacrity, from supporting a global effort from Rio conference which led to UNFCCC, UNCCD and CBD to setting some of the most daring and ambitious intended nationally determined contributions targets in the world at the Paris conference. This push provides a unique opportunity to budding and established entrepreneurs to contribute to a sustainable and a prosperous future for themselves and the world. A keen to filling up a medical prescription not only to cure an illness but to emerge out of it stronger than ever before.

India and Renewable Energy:

Physical and geographical features of India ;

- Approximately 300 days of sunlight, ensuring a potential of 5000 trillion KWH of energy[1].
- 7516 kms of coastline, a huge potential for onshore and offshore wind power
- Topography consisting of Deccan plateaus and Himalayan expanse making it conducive for large and small hydropower generation blessing it with a high renewable energy generation potential.

Over the years with advances made in wind turbine technology and Solar Photovoltaic (PV) cell technology, the capital cost has progressively reduced. This coupled with conducive policy incentives to the developers, investors and consumers by the government, wind power and solar power generation have been the biggest gainers. India currently ranks 4th in the world with the installed capacity of 38.7 GW of wind power while its solar power portfolio currently has an impressive 40 GW of installed capacity (roof + ground mounted) well above its intended target of 20GW by 2022[2]. Considering the monsoon climate of the subcontinent, hybrid renewable power generation set up has found a lot appeal and has been widely encouraged, where solar and wind power installations complement each other; as solar power production hits a lukewarm phase during the cloudy monsoon, the wind power generation makes up for it and generates more power benefiting from the south west monsoon winds(which is the annual peak of wind power generation). Of late solar power in India has been one of the fastest growing renewable

energy segments in the world. The impressive industry size and government policy bent towards solar power combined with relatively lower capital cost makes it one of the most lucrative areas for investors and entrepreneurs. States like Andhra Pradesh, Karnataka and Gujarat have been pioneering the efforts in seeking to incentivise the private sector in solar and hybrid (wind+solar) power generation segments.

The Gujarat Experience:

Gujarat has been a power surplus state in the country for a long time, known for its robust power infrastructure and renewable power push since early days. The geographical boon of having the Tropic of Cancer passing through the state has been an added bonus for solar power generators. The Charanka solar power plant was one of the earliest and biggest projects of its time in Asia with installed capacity of over 600 MW[3]. The plant was a major push that began the solar power rush amongst private investors in the state. Charanka plant alone has attracted investment in excess of Rs.5000 Crores[4]. With the new Kutch hybrid plant with wind and solar power installations complementing each other, will have 30GW of installed capacity, making it one of the largest renewable power establishments of the world.

Gujarat has reiterated its firm commitment towards green energy. The state has had forward looking solar power policies since 2009 with the game changer being, the 2019 solar power policy addendum to the broader 2015 policy[5]. The 2019 solar power policy addendum focused on encouraging distributed grid connected power plants upto 4MW opening entry for micro small and medium entrepreneurs. This coupled with the provision of allowing 3rd party sales proved to be a very lucrative opportunity shifting the focus of the industry formerly dominated by large business houses to smaller businesses[6]. The customers of these power plants have not only gone greener but benefitted tangibly by lowering their power tariffs saving lakhs of rupees annually by claiming off sets on their electricity bills by entering into power purchase agreements. These agreements have particularly benefited the electricity intensive industries such as textiles, paper and packaging material industry to name a few. The policy further incentivised the industries to develop solar power plants for captive usage with easy financing and subsidies and revised metering rules. This has piqued the interests of private and institutional investors and entrepreneurs across the board. More importantly paving way for decentralising the energy production, which by all means is the future of the renewable energy industry. It has the potential to provide diverse areas with varied energy needs to develop energy generation capacity customised to their needs,thus, truly democratising the market.

Challenges:

For all its allure, venturing in this market is not without its set of challenges highlighted below, many of them being systemic in nature:

- Land Acquisition: One of the major challenges faced is that of land acquisition. Like anywhere in India, land acquisition process in Gujarat too remains cumbersome, riddled with unnecessary delays and cost overruns.
- Regulatory Issues: Though there is a major push towards improving ease of doing business in general and in solar power policy in particular, it is still riddled with multiple departments regulating the process with varying interpretations of the policy provisions. Oftentimes this results in a tiresome labyrinth of regulatory delays. However, with time and normalisation of processes these are expected to ease off but nevertheless a single point clearance process is definitely the need of the hour.
- Lack of easily available skilled workforce: From the time one starts constructing the power plant to reach its operations, dearth of professional skilled workforce is evident which over time with the industry maturing might smooth over. Skill development programs focussed on various technical aspects of the industry, providing vocational training would go a long way.
- Over reliance on bank loans for funds: For the industry to realise its full potential, a vibrant debt and equity market are a vital aspect. Currently, the developers have to rely heavily on bank loans to finance their projects, which is not sustainable in the long run.
- Current trends in the market heavily focus on just increasing the installed capacity, there needs to be a foresight to incentivise storage, improved efficiency and striving for innovation in the field.

Way Forward:

As impressive as incentivising the current policy is, the future iterations need to be moved away from focusing on merely increasing the installed capacity to encouraging innovation and future trends to make the industry future proof and sustainable. Several ideas and areas need to be addressed by the policy makers and the decision makers. Following are some of the many areas to focus for driving the industry forward:

- With the Power storage technology evolving to be more efficient and cost effective, the future trend is definitely towards decentralised self sufficient clusters rather than the central grid connected power plants. The need for incentivising deployment of efficient storage capacities for more efficient and stable power generation needs to be considered.
- Data analytics to work out the power requirements and on demand delivery systems with pinpointed accuracy is a major field to look out for.
- Encouraging investments from the masses with innovative derivatives, debt and equity schemes for green energy finance augmentation is an interesting area that is foreseen as a game changer in the future.
- On demand need based metering and billing models using blockchain can also potentially be a major thrust area in the future.

Thus, it is quite clear that the renewable energy segment is an interesting and exciting field for ambitious entrepreneurs who operate not only for profits but with a vision of making impactful business for national and social development.

This article is written based on our personal experience of developing a new business in the field of renewable energy in Gujarat, India. The journey so far has remained exhilarating, exciting and satisfying to say the least. It is my hope that this area will appeal to a wider and newer generation of entrepreneurs who will craft their futures and chisel out the industry's new and robust form in the process.

References:

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