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Current Status of Solar Energy Potential and Future Energy of India: An Overview

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Abstract: *India was ranked fifth in wind power, fifth in solar power and fourth in renewable power installed capacity, as of 2019.As India looks to meet its energy demand on its own, which is expected to reach 15,820 TWh by 2040, renewable energy is set to play an important role. The government is aiming to achieve 227 GW of renewable energy capacity (including 114 GW of solar capacity addition and 67 GW of wind power capacity) by 2022.*

Keywords: Solar Energy, Solar policy and Renewable policy in India, policy; management.

I. INTRODUCTION

Indian renewable energy sector is the fourth most attractive renewable energy market in the world. India was ranked fifth in wind power, fifth in solar power and fourth in renewable power installed capacity, as of 2019. Installed renewable power generation capacity has gained pace over the past few years, posting a CAGR of 17.33% between FY16-20. With the increased support of Government and improved economics, the sector has become attractive from investors perspective. As India looks to meet its energy demand on its own, which is expected to reach 15,820 TWh by 2040, renewable energy is set to play an important role. The government is aiming to achieve 227 GW of renewable energy capacity (including 114 GW of solar capacity addition and 67 GW of wind power capacity) by 2022, more than its 175 GW target as per the Paris Agreement. The government plans to establish renewable energy capacity of 500 GW by 2030.

The sources of electricity production such as coal, oil, and natural gas have contributed to one-third of global greenhouse gas emissions. It is essential to raise the standard of living by providing cleaner and more reliable electricity. India has an increasing energy demand to fulfil the economic development plans that are being implemented. The provision of increasing quanta of energy is a vital pre-requisite for the economic growth of a country. The National Electricity Plan [NEP]framed by the Ministry of Power (MoP) has developed a 10-year detailed action plan with the objective to provide electricity across the country, and has prepared a further plan to ensure that power is supplied to the citizens efficiently and at a reasonable cost. According to the World Resource Institute Report 2017, India is responsible for nearly 6.65% of total global carbon emissions, ranked fourth next to China (26.83%), the USA (14.36%), and the EU (9.66%). Climate change might also change the ecological balance in the world. Intended Nationally Determined Contributions (INDCs) have been submitted to the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement. The latter has hoped to achieve the goal of limiting the rise in global temperature to well below 2 °C. According to a World Energy Council prediction, global electricity demand will peak in 2030. India is one of the largest coal consumers in the world and imports costly fossil fuel. Close to 74% of the energy demand is supplied by coal and oil. According to a report from the Center for monitoring Indian economy, the country imported 171 million tons of coal in 2013–2014, 215 million tons in 2014–2015, 207 million tons in 2015–2016, 195 million tons in 2016–2017, and 213 million tons in 2017–2018. Therefore, there is an urgent need to find alternate sources for generating electricity.

In this way, the country will have a rapid and global transition to renewable energy technologies to achieve sustainable growth and avoid catastrophic climate change. Renewable energy sources play a vital role in securing sustainable energy with lower emissions. It is already accepted that renewable energy technologies might significantly cover the electricity demand and reduce emissions. In recent years, the country has developed a sustainable path for its

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energy supply. Awareness of saving energy has been promoted among citizens to increase the use of solar, wind, biomass, waste, and hydropower energies. It is evident that clean energy is less harmful and often cheaper. India is aiming to attain 175 GW of renewable energy which would consist of 100 GW from solar energy, 10 GW from bio-power, 60 GW from wind power, and 5 GW from small hydropower plants by the year 2022. Investors have promised to achieve more than 270 GW, which is significantly above the ambitious targets. The promises are as follows: 58 GW by foreign companies, 191 GW by private companies, 18 GW by private sectors, and 5 GW by the Indian Railways .Recent estimates show that in 2047, solar potential will be more than 750 GW and wind potential will be 410 GW .To reach the ambitious targets of generating 175 GW of renewable energy by 2022, it is essential that the government creates 330,000 new jobs and livelihood opportunities.

A mixture of push policies and pull mechanisms, accompanied by particular strategies should promote the development of renewable energy technologies. Advancement in technology, proper regulatory policies, tax deduction, and attempts in efficiency enhancement due to research and development (R&D) are some of the pathways to conservation of energy and environment that should guarantee that renewable resource bases are used in a cost-effective and quick manner. Hence, strategies to promote investment opportunities in the renewable energy sector along with jobs for the unskilled workers, technicians, and contractors are discussed. This article also manifests technological and financial initiatives ,policy and regulatory framework, as well as training and educational initiatives launched by the government for the growth and development of renewable energy sources. The development of renewable technology has encountered explicit obstacles, and thus, there is a need to discuss these barriers. Additionally, it is also vital to discover possible solutions to overcome these barriers, and hence, proper recommendations have been suggested for the steady growth of renewable power. Given the enormous potential of renewables in the country, coherent policy measures and an investor-friendly administration might be the key drivers for India to become a global leader in clean and green energy.

II. Solar Potential Of India

The Sun has been worshiped as a life-giver to our planet since ancient times. The industrial ages gave us the understanding of sunlight as an energy source. India is endowed with vast solar energy potential. About 5,000 trillion kWh per year energy is incident over India's land area with most parts receiving 4-7 kWh per sq. m per day. Solar photovoltaics power can effectively be harnessed providing huge scalability in India. Solar also provides the ability to generate power on a distributed basis and enables rapid capacity addition with short lead times. Off-grid decentralized and low-temperature applications will be advantageous from a rural electrification perspective and meeting other energy needs for power and heating and cooling in both rural and urban areas. From an energy security perspective, solar is the most secure of all sources, since it is abundantly available. Theoretically, a small fraction of the total incident solar energy (if captured effectively) can meet the entire country's power requirements.

There has been a visible impact of solar energy in the Indian energy scenario during the last few years. Solar energy based decentralized and distributed applications have benefited millions of people in Indian villages by meeting their cooking, lighting and other energy needs in an environment friendly manner. The social and economic benefits include reduction in drudgery among rural women and girls engaged in the collection of fuel wood from long distances and cooking in smoky kitchens, minimization of the risks of contracting lung and eye ailments, employment generation at village level, and ultimately, the improvement in the standard of living and creation of opportunity for economic activities at village level. Further, solar energy sector in India has emerged as a significant player in the grid connected power generation capacity over the years. It supports the government agenda of sustainable growth, while, emerging as an integral part of the solution to meet the nation’s energy needs and an essential player for energy security.

National Institute of Solar Energy has assessed the Country’s solar potential of about 748 GW assuming 3% of the waste land area to be covered by Solar PV modules. Solar energy has taken a central place in India's National Action Plan on Climate Change with National Solar Mission as one of the key Missions. National Solar Mission (NSM) was launched on 11th January, 2010. NSM is a major initiative of the Government of India with active participation from States to promote ecological sustainable growth while addressing India’s energy security challenges. It will also

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constitute a major contribution by India to the global effort to meet the challenges of climate change. The Mission's objective is to establish India as a global leader in solar energy by creating the policy conditions for solar technology diffusion across the country as quickly as possible. The Mission targets installing 100 GW grid-connected solar power plants by the year 2022. This is line with India's Intended Nationally Determined Contributions(INDCs) target to achieve about 40 percent cumulative electric power installed capacity from non-fossil fuel based energy resources and to reduce the emission intensity of its GDP by 33 to 35 percent from 2005 level by 2030.

In order to achieve the above target, Government of India have launched various schemes to encourage generation of solar power in the country like Solar Park Scheme, VGF Schemes, CPSU Scheme, Defence Scheme, Canal bank & Canal top Scheme, Bundling Scheme, Grid Connected Solar Rooftop Scheme etc.

Various policy measures undertaken included declaration of trajectory for Renewable Purchase Obligation (RPO) including Solar, Waiver of Inter State Transmission System (ISTS) charges and losses for inter-state sale of solar and wind power for projects to be commissioned up to March 2022, Must run status, Guidelines for procurement of solar power though tariff based competitive bidding process, Standards for deployment of Solar Photovoltaic systems and devices, Provision of roof top solar and Guidelines for development of smart cities, Amendments in building bye-laws for mandatory provision of roof top solar for new construction or higher Floor Area Ratio, Infrastructure status for solar projects, Raising tax free solar bonds, Providing long tenor loans from multi-lateral agencies, etc.

Recently, India achieved 5th global position in solar power deployment by surpassing Italy. Solar power capacity has increased by more than 11 times in the last five years from 2.6 GW in March,2014 to 30 GW in July, 2019. Presently, solar tariff in India is very competitive and has achieved grid parity.

III. Future Of Renewable Energy In India

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.

Post-Independence, India's first Prime Minister, Shri Jawahar Lal Nehru while inaugurating the Bhakra Nangal Dam (having a potential to generate 1500 MW of Power) described it as the 'New Temple of Resurgent India'. However, except hydro power, the other two abundant energy resources - wind and solar remained untapped in the last 70 years mainly due to lack of political will and unviability of relevant technologies.

This fact is not hidden from anyone that India is the world's fourth-largest carbon emitter with its population of 1.3 billion people with power sector contributing majorly to the same. But in the recent years, India has made significant strides in the renewable energy space. The Climate Change concern across the Globe has further propelled the Government and Decision Makers to develop a detailed blue print for clean and sustainable power for all.

As part of the initial commitments to the Paris Climate Accord, India 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. This would lead to a significant shift from coal-based power generation to renewable energy sources. To achieve these challenging statistics, it has to produce 100 gigawatt from solar, 60 gigawatt from wind, 10 gigawatt from biomass and 5 gigawatt from small hydropower by 2022.

And this seems quite an uphill task as the renewable energy development in India is still in its nascent stage. As per the Ministry of Power, Govt. of India, India's energy mix is evolving slowly with fossil fuels meeting 82% of demand; Coal remaining the dominant fuel with a 57.9% share of total production in 2018. However, there is also a silver lining behind the dark cloud, with the share of coal in the energy mix projected to fall to 50% by 2040, while the share of renewables rises significantly. Renewables will overtake gas and then oil by 2020 as the second largest source of energy production.

As per the International Energy Agency's (IEA) Renewables Report, Solar and Wind represent 90% of the country's capacity growth, which is the result of auctions for contracts to develop power-generation capacity that have yielded some of the world's lowest prices for both technologies. The country, which presently has low conventional energy resources in comparison to the energy needs of the huge population and the swiftly growing economy, can foster the

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enormous potential of solar energy. Under the leadership of Prime Minister Narendra Modi India is committed towards the development of renewable energy infrastructure. The 175 GW target for 2022 and the formation of ISA led by India and France is another example of the same. Apart from solar, the country is also exploring hydro power potential in the north-eastern states which are an abode to the hydro power opportunities.

Besides the above, change in the energy mix will also ride upon innovative technologies, growing energy demand, strong wind and solar resources, policy support, and growing investments et al and will ensure smart, reliable, clean and affordable energy to over a billion people with an energy consumption growth of 4.2% p.a., faster than all major economies in the world, overtaking China as the largest growth market for renewable energy by the late 2020s.

Another research by University of Technology (LUT) in Finland expounds that India has a huge potential to move into a fully renewable electricity system by 2050, owing to an abundance of renewable resources. If only we can optimally leverage sophisticated technologies to harness proactive collaboration with the industry, academia and energy innovation ecosystem, the region can move straight to affordable renewable systems. Such renewable energy systems can works mainly on clean energy, solar energy, wind energy and other new age storage solutions. Solar photovoltaics is the most economical electricity source and batteries satisfy the night-time electricity demand. In addition to covering India's electricity demand for power, such system simulation can also cover for seawater desalination and synthetic natural gas beyond other measures.

With the right investments in such green technologies, India is well positioned to achieve all this. This is significant given India's burgeoning electricity demand and the persistent supply demand gap along with the summer shortages and outages, the pursuit towards cleaner energy sources will have a crucial role in enabling the country's transition to a fully sustainable energy system. Ensuring those projects secure the necessary financing to enable that development, however, remains a challenge, with a large proportion of Southeast Asian projects considered unbankable. The bankability of renewable energy projects has always been an issue owing to off takers' inability to absorb power and pay for it.

Amongst the various developments that have taken place in the solar and wind power segments this year, the ones that would have a long-term impact on the power sector include bidding in the wind segment, which would mean that utilities would not scout for wind sites and choose wind turbine suppliers through competitive measures. Another vital strand is the government would tender 20,000 MW of solar capacity, which would perhaps be the largest block of capacity to be auctioned in a single tranche for the first time globally. The government's strong resolve to heightened quality standards for imported solar photovoltaic (PV) modules, enforced through inspections will further help procurers get over 25 years of module life. This reflects a national commitment to green energy and shows how the country is fast transitioning towards a renewable-focused economy expediting renewable capacity build-up and removing the difficulties being encountered by developers and manufacturers.

The future looks bright as nearly 293 global and domestic companies have committed to generate 266 GW of solar, wind, mini hydel and biomass-based power in India over the next decade. The initiative would entail an investment of $310 billion-$350 billion. For instance, the International Finance Corporation, the investment arm of the World Bank Group, is planning to invest about $6 billion by 2022 in several sustainable and renewable energy programmes in India. The Indian power sector has an investment potential of Rs 15 trillion over the next four to five years, which indicates immense opportunities in power generation, distribution, transmission and equipment. While there is plenty of capital chasing the opportunities in the renewable sector, there are several risks that need to be kept in view, including counterparty risks both in terms of developers and procurers.

The good news is renewable energy storage system market in India is expected to witness robust growth, over the next decade, once the cost of storage declines, which is likely to happen because of the sheer volume growth through the electric vehicle route. However, the success will only be possible when the FAME 2 will meet its desired objectives.

To draw a parallel with other countries, in December TESLA's 100MW Hornsdale Power Reserve battery system in South Australia delivered 100 MW into the national electricity grid in 140 milliseconds, instantly powering 1,70,000 homes when the Loy Yang coal power plant suddenly went offline. This testifies, why energy storage has become a complementary solution for renewable energy, which is seasonal and intermittent for ensuring 24×7, robust supply of

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energy. The thrust on solar and wind projects has increased the challenges in maintaining system stability, which is encouraging developers to support power grid networks with battery storage to help manage the variations in power supply. Renewable energy projects backed with battery technology could transform the energy scenario in India. However, the challenge is to develop a technology that is suitable for large renewable energy projects. As per industry reports, the deployment of energy storage is anticipated to grow over 40 per cent annually in the next 10 years, with around 80 GW of additional storage capacity. We have undertaken proof-of-concept in battery energy storage systems, wherein large lithium-ion battery banks are being deployed in Delhi.

As India's leading renewable energy players with a gross generation capacity of 3,210 MW through clean non-fossil sources, we are committed to transform the sector in sync with the government's vision of promoting renewable energy building a total capacity of 20,000 MW by 2025, of which 30-40 per cent would be based on non-fossil fuel. The need of the hour is addressing the bankability of renewable energy projects which has always been an issue in India, owing to off-takers' inability to absorb power and pay for it.

The power purchase agreement structure needs to be strengthened further to make renewable energy projects more bankable. There are states which, owing to their fiscal challenges, are not encouraging the must-run status of renewables and are forcing such capacities to back down when wind velocities are unfavourable. The government, therefore, should enforce must-run status as an obligation for all consumers to buy a good proportion of clean and green power. We also need to address some challenges faced by power producers which include high fuel supply risk, time overruns at plants, and the limited paying capacity of the financially weak distribution utilities due to pre-defined RPOs in their PPAs.

Last but not the least, in order to remain energy positive and to make the most of renewable energy sources, we will have to parallelly focus on aggressive promotion of energy efficiency practices as India's Energy demand will witness an exponential spurge owning to the lighting and cooling requirements due to the varied climatic conditions, the developments in the Electric Mobility, growth of the Industries as well as rural electrification. The World Bank in its report titled 'Utility scale DSM opportunities and business models in India' has pegged India's energy efficiency market at Rs 1.6 lakh /- crore by considering the end use energy efficiency opportunities which is four times the Rs 44,000/- crore in 2010, against the backdrop of the success of the Government of India's UJALA scheme to distribute LED bulbs (Bachhat Lamp Yojana). Till now, over 28 Crore LEDs have been sold across the country which has resulted in energy savings to the tune of 36,545 MUs and avoided peak demand of 7317 MW. In monetary terms, savings of around Rs. 14,618/- crores have been achieved. This will also provide a very good market for companies manufacturing energy efficient lighting and appliances as well as companies providing DSM solutions.

In such a scenario, a bright and sustainable future beckons us. Are we ready to unleash our limitless energy in order to make renewable energy more affordable and light up the energy revolution?

IV. Solar Park In India

4.1 Bhadla Solar Park, Rajasthan

Location: Jodhpur district of Rajasthan
Power Generation: 2055 MW
Area of Park: 14000 acres

It is the world's biggest solar park in terms of power generation and second largest in terms of area. The average temperatures in Bhadla range between 46 and 48 degrees centigrades. The geography is quite against the solar plant as hot winds and sand storms cover the place frequently. Bhadla is a sandy, dry and arid region spread in about 45 square kilometres. The average money spent in the plant is around 10,000 crore.

This Solar plant is under development by multiple stakeholders. Development Company Limited (a subsidiary of Rajasthan Renewable Energy Corporation Limited), Saurya Urja Company (joint venture company of the government of Rajasthan and IL&FS Energy Development Company), and Adani Renewable Energy Park Rajasthan are responsible for its construction and maintenance.

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4.2 Pavagada Solar Park

Location: Palavalli, Karnataka
Power Generation: 2000MW
Area of Park: 13000 acres

This solar park is located in Karnataka which is estimated to be hosting many solar plants due to its highly supportive geography. It has become operational since last year and is the second biggest solar power parks in the world in terms of energy. Shakti Sthala Pavagada Solar Park in Karnataka is one of the world's biggest solar parks in the country.
This solar park is developed by the Karnataka Solar Park Development Corporation Limited (KSPDCL) which is a joint venture between the Solar Energy Corporation of India (SECI) and the Karnataka Renewable Energy (KREDL), with help from the National Thermal Power Corporation (NTPC)

4.3 Kurnool Ultra Mega Solar Park, Andhra Pradesh

Location: Kurnool, Andhra Pradesh
Power Generation: 1000 MW
Area of Park: 5932 acres

Kurnool Ultra Mega Solar Park is spread over 5,932.32 acres of area in Kurnool district of Andhra Pradesh and is one of the world's largest solar park at the time. This plant was set up within two years by Andhra Pradesh Solar Power Corporation jointly with Solar Energy Corporation, Andhra Pradesh Generation Corporation and New and Renewable Energy Development Corporation using INR 7,143 crore.

A 1,500MW solar park is also set to become operational in the nearby district of Kadapa, which is accompanied by two more large-scale solar power plants. It would be helpful in raising the state's solar energy capacity by an additional 2,750MW.

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4.4 NP Kunta Ultra Mega Solar Park

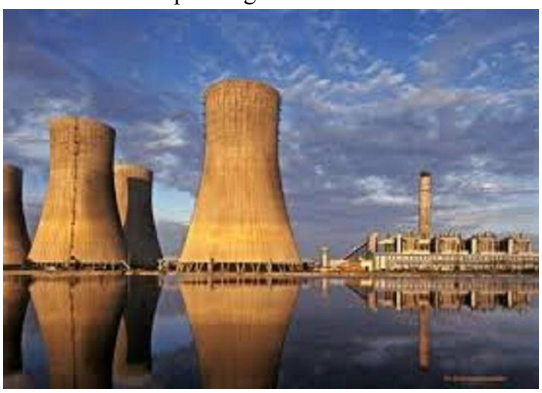
Location: Anathapuram, Andhra Pradesh

Power Generation: 1500 MW

Area of Park: 7924 acres

This solar park is also known as Ananthapuram Ultra Mega Solar Park is spread over a total area of 7,924.76 acres in Nambulapulakunta Mandal in the Ananthapur district of the Indian state of Andhra Pradesh. Commissioned in May 2016, this park is owned by Andhra Pradesh Solar Power Corporation Private Limited, APSPCL.

This park is divided into two parts Anathapuram 1 and Anathpuram 2. The former would be generating 1500 MW while the latter would be responsible for 500 MW power generation.



4.5 Rewa Ultra Mega Solar

Location: Rewa, Madhya Pradesh

Power Generation: 750 MW

Area of Park: 1590 acres

Rewa Ultra Mega Solar Limited (RUMSL), is the agency responsible for the implementation of the project. It is a joint venture between the Madhya Pradesh Urja Vikash Nigam Limited (MPUVNL) and the Solar Energy Corporation of India (SECI).

This is India's first and only solar project till date that has been funded from the Clean Technology Fund, CTF. It is also India's only solar power plant to have obtained a concessional loan from the World Bank's International Finance Corporation. With an investment of Rs. 2,800 crore, the commissioning of this plant reportedly saved Delhi Metro Rs 1,400 crore over its project life.

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The solar parks listed above were the most important five solar parks of India on the basis of their power generation capacity. Listed below are the parks that are already commissioned or would be commissioned in the coming years.

4.6 Other Solar Plants in India

Listed below are the Solar Power Plants in India along with the location, capacity and developer details

State	Solar Park	Capacity (MW)	Solar Power Parks Developer (SPPD)
Andhra Pradesh	Ananthapuramu-I Solar Park	1500	AP Solar Power Corporation Pvt. Ltd. (APSPCL), JVC of SECI, APGENCO and NREDCAP
	Kurnool Solar Park	1000	
	Kadapa Solar Park	1000	
	Ananthapuramu-II Solar Park	500	
	Hybrid Solar Wind Park	160	
Arunachal Pradesh	Lohit Solar Park	20	Arunachal Pradesh Energy Development Agency (APEDA)
Gujarat	Radhnesada Solar Park	700	Gujarat Power Corporation Limited (GPCL)
	Harsad Solar Park	350	
	Dholera Solar Park Ph-I	1000	
	Dholera Solar Park Ph-II	4000	Solar Energy Corporation of India (SECI)
Himachal Pradesh	Kaza Solar Park	1000	JVC of SJVN & Govt of HP
Jharkhand	Floating Solar Park	150	Solar Energy Corporation of India (SECI)

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Karnataka	Pavagada Solar Park	2000	Karnataka Solar Power Development Corporation Pvt. Ltd. (KSPDCL), JVC of KREDL & SECI
Kerala	Kasargod Solar Park	105	Renewable Power Corporation of Kerala Limited (RPCKL), JVC of SECI
Madhya Pradesh	Rewa Solar Park	750	Rewa Ultra Mega Solar Limited (RUMSL), JVC of MPNRED & SECI
	Mandsaur Solar Park	250	
	Neemuch	500	Rewa Ultra Mega Solar Limited (RUMSL), JVC of MPNRED & SECI
	Agar	550	Rewa Ultra Mega Solar Limited (RUMSL), JVC of MPNRED & SECI
	Shajapur	450	Rewa Ultra Mega Solar Limited (RUMSL), JVC of MPNRED & SECI
	Omkareswar Floating Solar Park	600	Rewa Ultra Mega Solar Limited (RUMSL), JVC of MPNRED & SECI
	Chhattarpur Solar Park	950	Rewa Ultra Mega Solar Limited (RUMSL), JVC of MPNRED & SECI
	Barethi Solar Park	550	NTPC
Maharashtra	Sai Guru Solar Park (Pragat)	500	M/s Sai Guru Mega Solar Park Pvt. Ltd. (formerly M/s Pragat Akshay Urja Ltd.)
	Patoda Solar Park (Paramount)	150	M/s Paramount Solar Power Pvt. Ltd. (formerly M/s K. P. Power Pvt. Ltd.)
	Dondaicha Solar Park	250	Maharashtra State Electricity Generating Company Ltd. (MAHAGENCO)
Manipur	Bukpi Solar Park	20	Manipur Tribal Development Corpn. Ltd. (MTDCL)
Meghalaya	Solar park in Meghalaya	20	Meghalaya Power Generation Corporation Ltd (MePGCL)
Mizoram	Vankal Solar Park	20	Power & Electricity Department
Odisha	Solar Park by NHPC	40	NHPC Limited
	Solar Park by NHPC	100	NHPC Limited
Rajasthan	Bhadla-II Solar Park	680	Rajasthan Solar Park Development Company Ltd. (RSDCL)
	Bhadla-III Solar Park	1000	M/s Surya Urja Company of Rajasthan Ltd (SUCRL) JVC of State Govt

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	Bhadla-IV Solar Park	500	M/s Adani Renewable Energy Park Rajasthan Limited (AREPRL) JVC of State Govt
	Phalodi-Pokaran Solar Park	750	M/s Essel Surya Urja Company of Rajasthan Limited (ESUCRL) JVC of State Govt
	Fatehgarh Phase-1B Solar Park	421	M/s Adani Renewable Energy Park Rajasthan Limited (AREPRL) JVC of State Govt
	Nokh Solar Park	925	Rajasthan Solar Park Development Company Ltd. (RSDCL)
Uttar Pradesh	Solar Park in UP	440	Lucknow Solar Power Development Corporation Ltd. (LSPDCL) JVC of UPNEDA & SECI
	Jalaun Solar Park	1200	BSUL

The solar power plants listed above are responsible for more than 25000 MW power generation across India. Prime Minister Narendra Modi would also be inaugurating the world's largest renewable solar and wind energy park in Gujarat's Kutch and another desalination plant, on December 15, 2020.

PM Modi participated in the 15th G20 Summit convened by Saudi Arabia in a virtual format. In his address, the Prime Minister stressed that India would meet its goal of 175 GW of renewable energy capacity target well before the target 2022 and that India is now more focused on reaching its next target of 450 GW capacity by 2030.

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