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SOLAR POWER DRIVES FINANCIAL INCLUSION IN REMOTE AREAS JHARKHAND

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ABSTRACT

Solar Energy is the best alternative of energy in the world which is cost-effective, ecofriendly, long –lasting, high in return in comparison with the investment, low infrastructural demanding medium of energy. It plays very vital role to fill up the gap of traditional source of energy. Jharkhand the 28th state of India with 2.69 cr. Population and the people, industries are not getting proper power supply, to promote renewable energy and ensure power supply in rural and urban area's the govt. Of Jharkhand incorporated JAREDA in the year 2001, JAREDA in working for implementation of fiscal and financial incentives made available by MNRES and IREDA and provide financial Inclusion in the remote area of Jharkhand.

KEYWORDS: *Solar Energy, Eco-Friendly, Cost-Effective, JAREDA, MNRES, Fiscal and Financial Incentive, Present Position of Solar Energy in Jharkhand Projects done by JAREDA.*

Introduction

Renewable Energy – The India opportunity and Jharkhand

India is ranked 4th in the world in term of Renewable Energy Investment in 2017 at USD 10.9 Bn. However this figure fell by 20% in Comparison to the USD 13.7 Tn Investment in 2016 due to a major decline in investment in the wind sector (Down 41%). This decline in the wind sector was cause by a changing auction regime and only a marginal increase in solar (3% Year of Year) owning to a sharp rise in module cost regularity impassions and an overall slowdown in tender capacities.

Nonetheless, India Still Finds itself among the top 3 Developing Economies (Including Brazil and China) which continue to extend their lead over some developed Economics in term of Volume of Renewable Energy Investments. India Was also recently Rank 4th in term of the Renewable Energy Country Attractiveness Index (RECAI- Renewable Energy Central Investigation Agency) Published by Energy Yearly Report and with the latest MOODY's India Upgrade to Baa2 from Baa3 (Outlook Upgraded from stable to Positive), The Investment Cycle is expected to improve due to The anticipatory Surge in auction capacity for both wind and solar.

Solar power is the conversion of sunlight into electricity, either directly using photovoltaic or indirectly using concentrated solar power. Concentrated solar power systems use lenses or mirrors and tracking systems to focus a large area of sunlight into a small beam. Photovoltaic convert light into electric current using the photoelectric effect. Concentrating Solar Power systems use lenses or mirrors and tracking systems to focus a large area of sunlight into a small beam. The concentrated heat is then used as a heat source for a conventional power plant. A wide range of concentrating technologies exists the most developed are the parabolic trough the concentrating linear Fresnel reflector, the Sterling dish and the solar power tower. Various techniques are used to track the Sun and focus light. In all of these systems a working fluid is heated by the concentrated sunlight, and is then used for power generation or energy storage. Thermal storage efficiently allows up to 24 hour electricity generation.

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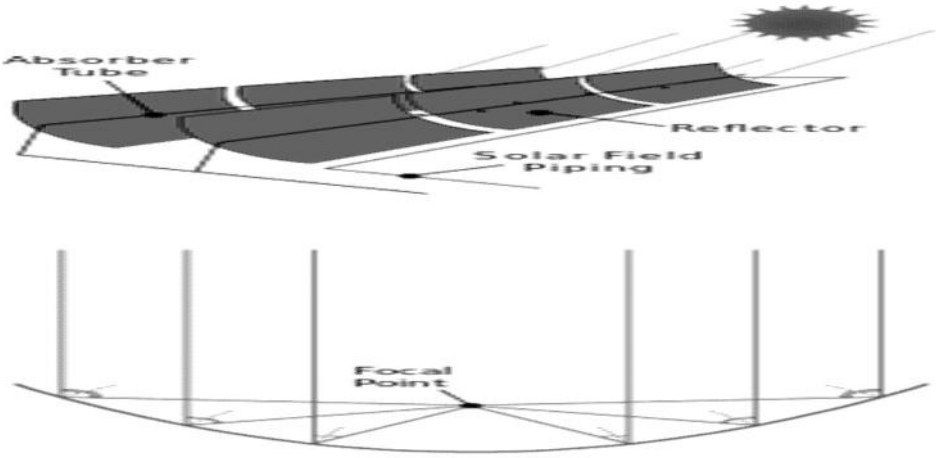

A diagram of a parabolic trough solar farm (top) and an end view of how a parabolic collector focuses sunlight onto its focal point.

Solar Energy Industry in Jharkhand

Jharkhand the 28th state of Indian union best known for its rich mineral resources. In spite a very large part of rural people they are still not getting proper power supply in this area. The total population of Jharkhand is about 2.69crores.Out of total population lives in rural areas. JAREDA has framed many programmes for proper power supply through providing SOLAR Lanterns Solar Power Grid, Solar Water Heater, Solar Charger simontinously for encouraging these products usages Many Banks are Providing Loans for purchase of these products and govt. of India Ministry of Non Renewable Energy and JAREDA is also providing Subsidy on purchase of these products.

Government of Jharkhand would in consultation with the State Regulatory Commission to formulate a comprehensive Demand Side Management policy covering the tariff measures.

Solar Power Drives Financial Inclusion in Remote Areas

Compact solar power systems are supporting the government's financial inclusion programme by powering automated teller machines (ATMs) in remote areas not connected to the national grid.

Under the Pradhan Mantri Jan Dhan Yojna, 280 million new bank accounts were opened as on 22 March 2017, out of which about 170 million are in rural areas, according to data from the finance ministry. As part of the government's drive to promote digital payments, about 220 million of these account holders have been issued debit cards.

Joy Saxena, executive director-finance, Vikram Solar Pvt. Ltd, a leading supplier of solar modules and a project developer, said that setting up solar-powered ATMs is a viable option for promoting financial inclusion in remote areas.

Renewable Energy Industry in India:

- India accounts for approximately 4 per cent of the total global electricity generation and contributes 4.43 per cent to the global renewable generation capacity.
- The International Energy Agency's World Energy Outlook projects a growth of renewable energy supply to 4,550 GW in 2040 on a global basis.

Market Size

As of July 2018, total renewable power generation installed capacity (grid interactive) in the country stood at 116.82 GW, which is 33.81 per cent of the total installed capacity of 345.49 GW.

Investments/ Developments

According to data released by the Department of Industrial Policy and Promotion (DIPP), FDI inflows in the Indian non-conventional energy sector between April 2000 and June 2018 stood at US$ 6.84 billion. More than US$ 42 billion has been invested in India's renewable energy sector since 2014.

Some major investments and developments in the Indian renewable energy sector are as follows:

- Inter-state distribution of wind power was started in August 2018.
- In the first half of 2018, investments in clean energy increased 22 per cent year-on-year.
- In the first half of 2018, India installed 1 MW of solar capacity every hour.
- With 28 deals, clean energy made up 27 per cent of US$ 4.4 billion merger and acquisition (M&A) deals which took place in India's power sector in 2017.
- In March 2018, ReNew Power finalised a deal estimated at US$ 1.55 billion to acquire Ostro Energy and make it the largest renewable energy company in India.
- World's largest solar park named 'Shakti Sthala' was launched in Karnataka in March 2018 with an investment of Rs 16,500 crore (US$ 2.55 billion).
- Solar sector in India received investments of over US$ 10 billion in CY 2017.
- Private Equity (PE) investments in India's wind and solar power have increased by 47 per cent in 2017 (January 1 to September 25) to US$ 920 million, across nine deals, as compared to US$ 630 million coming from 10 deals during the corresponding period in 2016**.

Road Ahead

- The Government of India is committed to increased use of clean energy sources and is already undertaking various large-scale sustainable power projects and promoting green energy heavily. In addition, renewable energy has the potential to create many employment opportunities at all levels, especially in rural areas. The Ministry of New and Renewable Energy (MNRE) has set an ambitious target to set up renewable energy capacities to the tune of 175 GW by 2022 of which about 100 GW is planned for solar, 60 for wind and other for hydro, bio among other. India will need investments of around US$ 125 billion to reach this target. As of June 2018, Government of India is aiming to achieve 225 GW of renewable energy capacity by 2022, much ahead of its target of 175 GW as per the Paris Agreement

It is expected that by the year 2040, around 49 per cent of the total electricity will be generated by the renewable energy, as more efficient batteries will be used to store electricity which will further cut the solar energy cost by 66 per cent as compared to the current cost.* Use of renewables in place of coal will save India Rs 54,000 crore (US$ 8.43 billion) annually5.

Controlling Authority of Solar Energy Industry of Jharkhand-Jharkhand Renewable Energy Development Agency (JAREDA)

The Jharkhand Renewable Energy Development Agency (JREDA) is incorporated as a society act in year 2001 under the administrative control of the Department of Energy, Govt. of Jharkhand for promoting use of renewable energy sources in the state. Being a nodal agency JREDA is working for implementation of fiscal and financial incentives made available by the Ministry of Non and Renewable Energy Sources (MNRES), Govt. of India and Indian Renewable Energy Development Agency (IREDA).

It is at present implementing agency for various central and state government sponsored schemes/ projects in the area of renewable energy in the State.

Functions of Jharkhand Renewable Energy Development Agency (JREDA)

- Planning of the renewable energy in the state.
- Organizing of the Resource required for renewable energy.
- Bidding of the tenders for the development of alternative energy sources.
- Inspection of the products.
- Allotment of subsidy to the beneficiary.
- Allotment of fund for the development of renewable energy.

Achievements of Jharkhand Renewable Energy Development Agency (JREDA)

Rural Electrification through solar energy:

- Remote Village Electrification Programme 2002-2003 (18 Village)

- Remote Village Electrification Programme 2003-2004 (01 Village)
- Remote Village Electrification Programme 2004-2005 (29 Village)
- Remote Village Electrification Programme 2005-2006 (20 Village)
- Remote Village Electrification Programme 2006-2007 (56 Village)
- Remote Village Electrification Programme 2007-2008 (224 Village)
- Remote Village Electrification Programme 2008-2009 (131 Village)
- Remote Village Electrification Programme 2009-2010 (256 Village)
- Remote Village Electrification Programme 2010-2011 (326 Village)
- Remote Village Electrification Programme 2011-2012 (491 Village)

Remote area Rural Energy Project by govt. of Jharkhand

Following Blocks have been selected under Remote area Rural Energy project in which the block will be provided under Public Private Partnership scheme under which block will be provided Minimum Energy, Pure drinking water, Ata Chakki which will be operated by solar energy which are as follows:-

Sr.No	Gram	Block	District	Capacity of Solar power plant which will be installed
1	Gomiadih	Kuchai	Saraikela-Kharsawa	28.75 Kilowatt plant
2	Koniyati	Angarah	Ranchi	23.75 Kilowatt Pant
3	Adhe	Barwadih	latehar	22.5 Kilowatt plant
4	Mohanpur	Satgawa	Koderma	37.5 Kilowatt Plant
5	Hamarpur	Boarizor	Godda	37.5 Kilowatt Plant
	Total			**150 Kilowatt Plant**

Solar Photovoltaic Project

Under the Solar Photovoltaic Project 2011-2012 Scheme 2,12,500 no of solar laltern 8000 solar home light 8200 Solar street light have been distributed to Rural and urban People through DC, SDO, Project Officer's, Forest Department so that energy could be save.

Solar Home Light in Khunti District

Solar street light in Birsa Jaivik Udyan in Ranchi

Solar Water Heater

Under the solar thermal scheme 7,50000 ltr. Solar water heater has been successfully installed in the state by the Jharkhand Local registered companies. It was carrying two types of solar water heater 1flat plate system 2Evacuted tube system.

500 ltr. ETC System in Gumla Dist.

500ltr. Flat plate system in Ranchi Dist.

State Level Solar Park (Siddhu Kanhu Park)

A state level nonrenewable energy park has been established with the TATA BP SOLAR Company.

- Seminar Hall which is operated by solar energy with the capacity of 20Kilowatt solar power plant.
- Solar Train which is operated by solar energy.
- Solar based indoor and outdoor Exhibits.
- Solar Car, Solar Cycle, Energy Slip, Energy Producing drum, Water fall animation , Solar water distillation plant, solar cooker, solar water heater, solar pump set, solar power center.

Police Station Solar Power Plant

Under the scheme 75 Police station of the state have been allotted 2.5 and 5 KWp solar power plant (Total-312.5KWp) by this scheme they are using power.

Solar Power Plant

Ministry of nonrenewable energy India new Delhi have granted 250KWp solar plant in the Jharkhand for the financial year 2012-2013 under which following projects have been completed.

- From Jasidih railway station to Dewghar two solar power plants have been established with the capacity of 50KWp (Total-100Kwp) by which 490 solar street light is working in the area.
- For Baba Basukinath Mandir two solar power plants have been established with the capacity of 50KWp each.
- For Dewghar Mandir two solar Power plants have been established with the capacity of 50KWp each.
- Under the Tiger Project 45.0KWp have been established in Daltongang District.
- Jhargao 20KWp Solar power plant have been established by which 47 Houses are being provided 2CFL lights, Mobile Charge.
- Albert Ekka Village District- Gumla, have been allotted 100KWp Solar power plant and energy will be used in Houses, Police station, Bank, Schools.
- 16MWp Solar Power have been established under Jawahar Nehru Rastiya Solar Mission in Dewghar 14MWp (7*2 MWp) and 2MWp in Rajnagar in Saraikela Kharsawa District (1*2MWp)

Conclusion

Solar energy plays vital role to fill up the gap of traditional sources of energy and it is eco-friendly, the cost of solar energy is very low in comparison with electricity. Jharkhand the 28th state of India with 2.69 cr. Population and the people, Solar Energy Industry leads towards the financial Inclusion in the remote area of Jharkhand and India as it leads in investment tread in Jharkhand and India's Renewable Energy Sector, as India ranked 4th in the world in terms of Renewable Energy investments in

2017 At – USD 10.9 BN. Industries are not getting proper power supply, to promote renewable energy and ensure power supply in rural and urban areas, JAREDA in working for implementation of fiscal and financial incentives made available by MNRES and IREDA in which they have also implemented many projects successfully.

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