



## RESEARCH ARTICLE

### DEVELOPMENT AND CHALLENGES OF RURAL ELECTRIFICATION

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#### ABSTRACT

The Government in November 2009 approved the Jawaharal Nehru National Solar Mission, which creates policy conditions for quick renewable energy diffusion across the country. 20,000 MW of Solar energy is to be deployed by 2022 through leveraging domestic and foreign investments, engaging in research and development, manufacturing and development to make this sector competitive internationally. The Global Wind Energy Council (GWEC) estimates conservatively that the wind energy capacity in India could be 24 GW by 2020 and 30.5 GW by 2030.

#### INTRODUCTION

Time was when most villages in India, used primitive means to light up their house and cook their food. These villages were out of the radar of electricity.

Rural electrification is often considered to be the backbone of the rural economy. Rural energy needs include energy for (a) Cooking (b) Basic lighting (c) Irrigation (d) Communication (e) Water heating (f) Cottage industries and so on.

Rural electrification can meet most of these and the impact can be seen on improved farm productivity, improved health and education, improved communication and economic development through creating of employment in rural areas which traditionally depend on agriculture related income generation activities. Let us take a fresh look at rural electrification initiatives in India since independence and recent development, including aspects of integrating renewable in a major way in the rural electrification process.

#### Development of rural electrification

- Setting of rural electricity infrastructure.
- Providing connectivity to households.
- Adequate supply of desired quality of power.
- Supply of electricity at affordable prices.

- Providing clean, environmentally benign and sustainable power in efficient way. India has always had a rural economy and since independence successive governments have tried to improve the rural infrastructure including energy infrastructure.

In spite of launching of ambitious schemes to achieve 100 % rural electrification, India has achieved only 67.3% overall electrification (urban and rural together). More than 75 million households as per the latest data, about 19909 villages are yet to be electrified. However, not all electrified villages are getting quality power and it is estimated that nearly 33% of the population may be facing under-electrification accessing less than 50 kwh of electricity per month/household.

#### Some of the notable initiatives launched by the Government of India are:

- Rural electrification under Minimum Needs Programme launched in 1974.
- Kutir Jyothi Yojana to provide single point light to below poverty level (BPL) families in rural India launched in 1988.
- Pradhana Mantri Gramodaya Yojana to electricity un-electrified villages.
- Remove village electrification programme launched in 2001 by Ministry of New and Renewable Energy (MNRE). This programme focused on electrifying

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remote villages not connected to grid through use of renewable energy sources.

- Accelerated Rural Electrification Programme in 2013.
- Accelerated electrification one lakh villages and one crore households launched in 2004.
- Rajiv Gandhi Vidya Kiran Yojana (RGVKY) launched in 2015, this programme aimed at providing energy access to all by 2009 and at least one unit per day by 2012 as envisaged in NEP 2005.
- In 2009, MOP launched Decentralized Distributed Generation Scheme under RGVKY to electrify un-electrified villages through mini grids. This also included villages which receive less than six hours of electricity per day.
- Rural electrification as per CEA approval dated 1<sup>st</sup> August 2013 for completion of the targets laid down under RGVKY for 12<sup>th</sup> and 13<sup>th</sup> Five Year Plans.

### Challenges in rural electrification

The grid extension based rural electrification promoted through RGGVY and other programmes suffered major hurdles which include:

- High cost of grid extension and low recovery due to highly subscribed tariff, low level of tariff collection resulting in negative return.
- Supply rationing due to non availability of power.

### Rural electrification through renewables

MNRE initiated rural electrification project using renewables such as solar PV, biomass, small hydropower since early 1980s. The initial thrust was on providing street lights and solar lantern. Evolution of renewable energy technologies and products have now opened new frontiers for renewable energy based rural electrification using Pico solar lighting products, DC and AC mini grids, smart micro grids and eventually grid interactive micro and mini grids which can complement the grid extension programme. Renewable energy based decentralized systems offer unique advantages which include:

- Faster implementation which can create local employment and boost local economy by providing access to electricity in reliable way.
- Utilization of locally available resources bringing in energy security and energy independence.
- Pollution free and sustainable.
- Reduce T and D losses.
- Many Private companies like Mera Gram Power, DESI Power, Gram Power, Husk Power and so on have deployed mini grids and micro grids in rural India. However, barring few examples these models are yet to become commercially viable and sustainable. Isolation and commercial viability from the threat of subsidized tariffs is one of the major challenges which need to be addressed, for distributed generation.

Recently, announced enhanced targets for renewable energy programmes by MNRE (175 GW by 2022) are expected to bring in new investments and give impetus for rural electrification through renewable energy.

### REFERENCES

- Rajamani, R.C. 2012. Progress of rural; electrification in India. *Kurukshetra - A Journal on Rural Development.*, Vol. 60, No. 12, pp. 4-7.
- Shirish S. Garced. 2015. *Power Watch India*. 1<sup>st</sup> April 2015, pp. 5-10.
- MORD. 2014. Annual Report. *Ministry of Rural Development*. Government of India, New Delhi.
- India Infrastructure Report. 2007. *Rural Infrastructure Network*, Oxford University press, London.
- Nyoni, Middleton. 2001. Infrastructure delivery, poverty alleviation and related problems in business briefing. *World Infrastructure and Development, World Bank, World Market Research Centre*, London, p. 35.
- World Bank Report. 2004. *Infrastructure Issue*, Oxford University Publications, United Kingdom.

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