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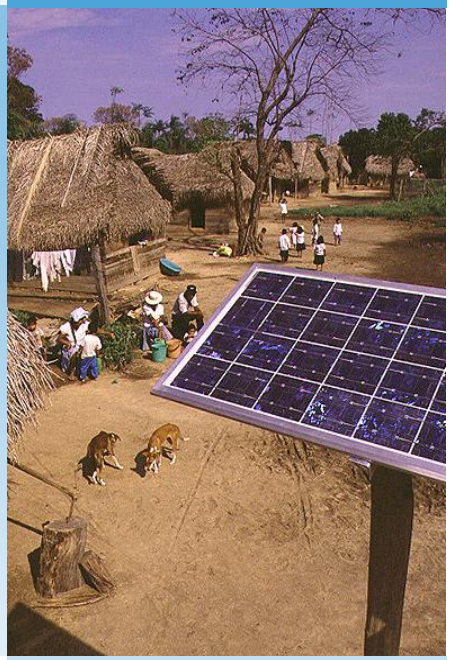
Volume 2 Issue 5



HORIZONS

29 August, 2012

Off-grid Power

Off-grid renewable power projects using wind energy, biomass energy, hydro power and hybrid systems are being established in the country to meet the energy requirements of remote locations which are not likely to be electrified in the near future.

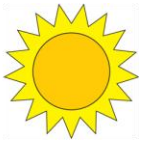
The need for off-grid Power

According to the International Energy Agency, about one third of India's population lacks access to electricity. High cost associated with grid extension is the primary reason for lower electrification rates in rural India. Most of rural India is dependent on biomass for fulfilling its energy needs. However, burning biomass comes with several hazards to personal health and the environment.

In July this year, three of India's regional power grids, the Northern, Eastern and North-eastern grids, collapsed due to overdrawal by States. This has brought additional attention to the need for reducing dependence on conventional sources of energy. Off-grid renewable energy applications present a viable alternative for mitigating the country's energy risk in the face of fuel scarcity.

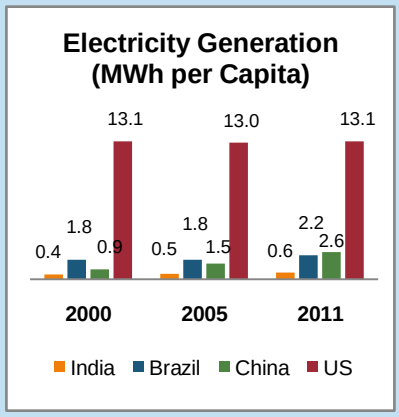
Biomass

Small Hydro



Solar

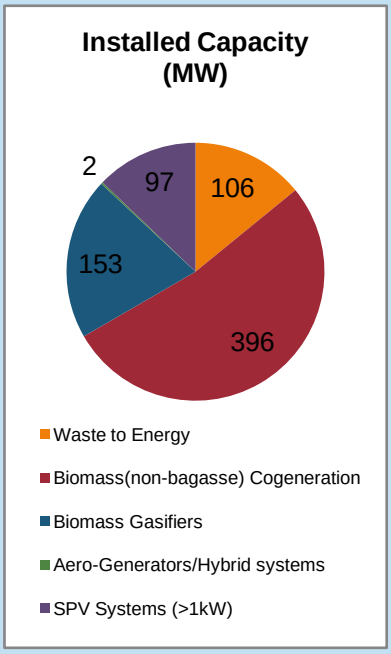
Micro Wind



Source: CIA World Factbook

Per capita electricity generation in India has been low compared to other countries and has also grown at a slower rate in the past decade. With the economy expected to grow faster than the developed countries, this disparity needs to be bridged using a suitable mix of conventional and renewable technologies.

Off-grid RE capacity



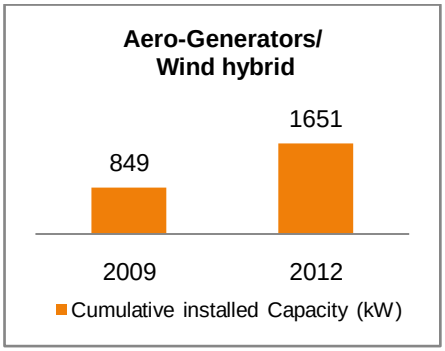
Source: MNRE, July 2012

Around 87% of the off-grid installed capacity in the country comes from biomass (including Waste to Energy). Solar PV installations have increased rapidly from just 4 MW by 31st January last year to 97 MW as of July 2012. Installations of Aero-generators and Hybrid systems have also doubled since. Falling prices of photovoltaic cells in the last two years have increased the viability of solar energy projects.

Renewable technologies for off-grid solutions

In rural India, energy is mainly required for cooking, lighting and agricultural activities. Biomass is the main source of energy due to easy availability. To reduce negative impacts of biomass and to increase the production of renewable energy, the Government has implemented several programmes. For example, the National Programme on Improved Chullahs where more than 3 crores high efficiency Chullahs have been distributed to replace conventional ones. Biomass gasifier technology is being used for electricity generation.

With the advent of solar hybrid systems, urban India too is catching up. In these systems, solar PV modules charge the battery during day time while during monsoon WEGs charge the battery. Although current installed capacity of these systems is very low, it is expected that these systems will grow in areas with good wind potential.



Source: MNRE

Renewable Energy Certificates for off-grid projects

Falling cost of solar energy has stimulated many entrepreneurs who are trying to develop scalable and replicable models for deploying solar energy in various applications. Mera Gao Power is one such example. It operates micro grids by installing solar PV panels and then transmits energy to houses who pay about Rs. 40 to connect, with costs thereafter about Rs. 25 per week.

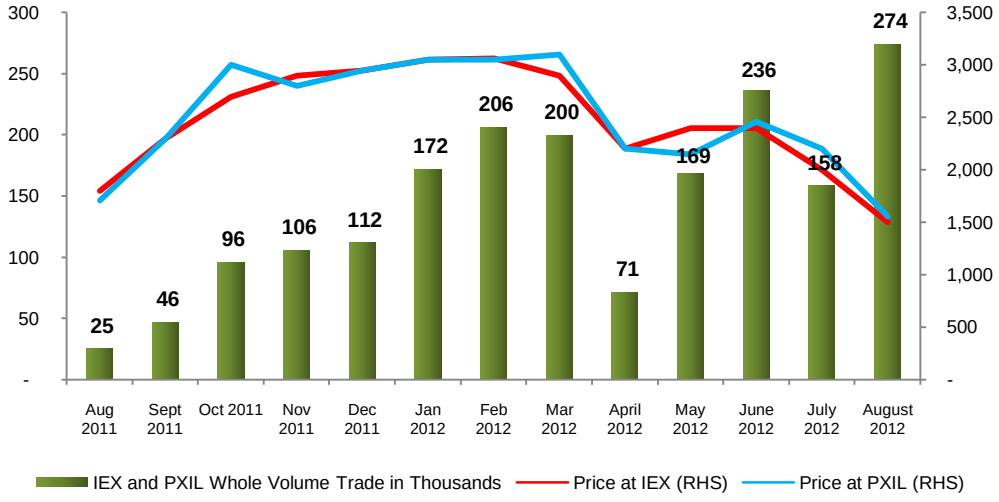
In a recent meeting of the Forum of Regulators, a new model for incorporating RECs to encourage off-grid energy generation was endorsed. It has been suggested to the CERC to modify existing regulations to incorporate off-grid installations. This can give a big impetus to off-grid installations in the country – we can expect many entrepreneurs taking interest in setting up off-grid projects. If this happens, we can hope to see the Gandhian model of self-reliance become a reality in the energy sector.

REC Market in August 2012

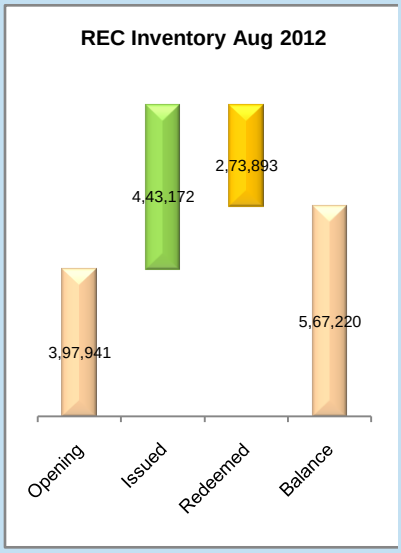
REC Trade August 2012		Buy Bids	Sell Bids	Volume Traded	Clearing Price Rs. per REC
Non-Solar	**IEX**	248,168	568,097	248,168	**1,500**
	PXIL	35,150	59,213	25,725	**1,555**
Solar	**IEX**	1,728	310	129	**12,850**
	PXIL	603	250	250	**12,850**

Traded Volume touches new High

The REC trade in August 2012 recorded the highest volume ever transacted in the REC Markets to date. At 273,893 certificates, the volume of Non-solar RECs traded was 14% higher than the previous high in June this year. Prices however dropped to Rs.1500/- with supply far outstripping demand.



REC Inventory



Source: REC Registry

REC inventory reaches record high

With highest ever RECs issued in the month, REC closing inventory reached a new high in August 2012.

Whereas, sell bids in this month were almost half of the sell bids in the entire last year, buy bids were only about one tenth of the total buy bids last year.

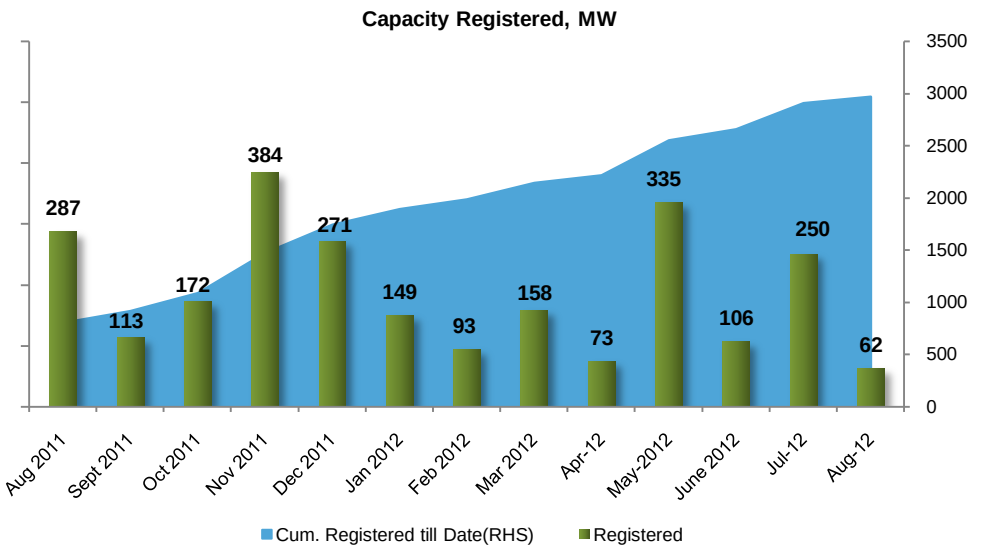
While the Government has successfully incentivized sellers of RECs, further effort needs to be made to enforce compliance of RPO.

State-wise Registered Capacity, April 2012 to date

State	MW
Tamil Nadu	310
Maharashtra	206
Gujarat	135
Karnataka	102
Madhya Pradesh	21
Uttar Pradesh	20
Rajasthan	17
Chhattisgarh	12
Himachal Pradesh	3
Punjab	0
Uttarakhand	0
Kerala	0
J&K	0
Haryana	0
Total	826

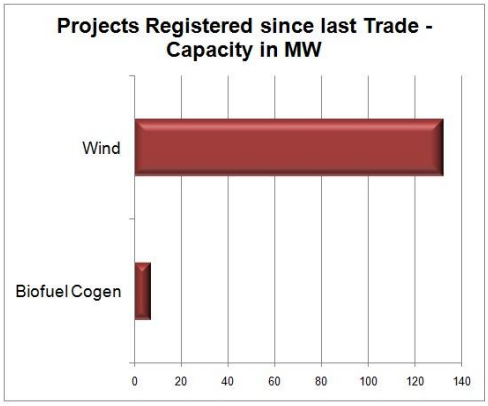
Source-wise Registered Capacity, April 2012 to date

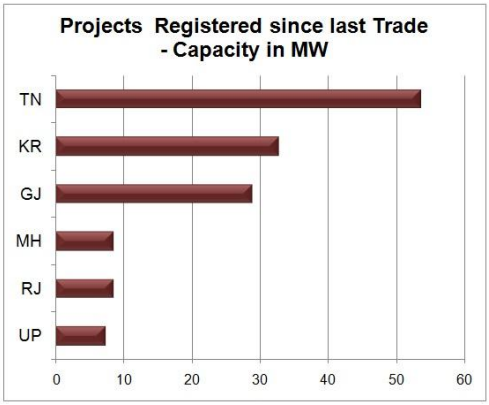
Source	MW
Wind	664
Biomass	82
Bio-fuel cogen	58
Solar PV	18
Small Hydro	4
Total	826



Source: REC Registry

Trade value touched Rs. 41 Crore in August 2012. In total, 61.85 MW of capacity was registered in August, taking the cumulative capacity registered in FY2012-13 to 826 MW.





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Agneya is promoted by alumni of IIM Ahmedabad and IIM Bangalore. We provide services in the following areas –

Renewable Energy – advising clients on the best possible portfolio of renewable energy (wind, solar, bio) across tariff regimes, technology options, electricity sales structuring and availing incentives like REC and GBI.

Renewable Energy Regulations – advising clients on regulatory aspects of electricity market, options for realizing the maximum value from their energy assets and minimizing costs related to regulatory compliance including addressing RPO.

Carbon & Energy – measuring carbon footprint, current/future energy profiling, and setting up energy management systems to assess risks and opportunities related to energy security and climate change.

Sustainability – building robust long term foundations for business i.e. managing economic, environmental and social aspects of business. These include establishing sustainability management framework and reporting as per GRI guidelines.

For further information on Renewable Energy Certificates or other services, please contact us at –
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