

HORIZONS

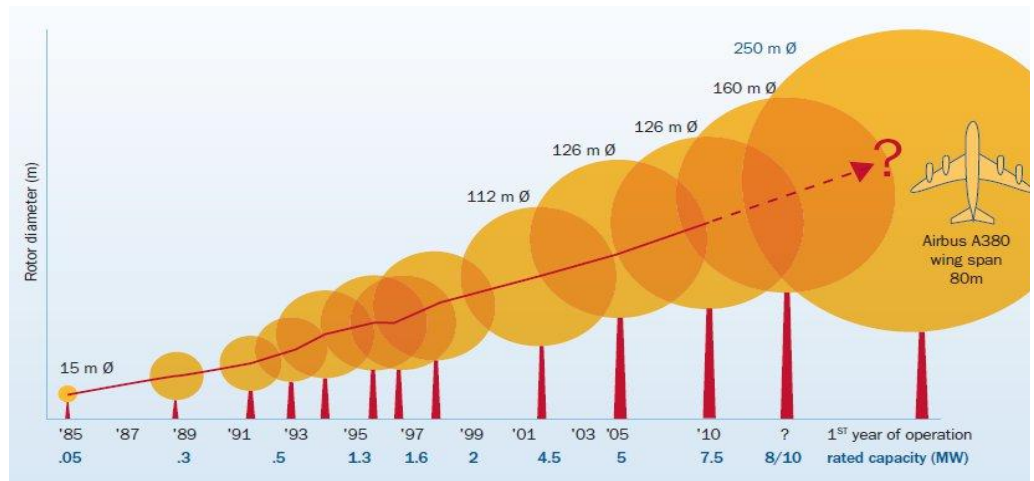
30 May, 2012



Wind energy, unlike solar energy, has seen more than two decades of growth in India. However, the complexity of generating MW scale, grid compatible energy through wind is yet to be fully appreciated by all stakeholders in the industry. Apart from the inherent technological challenges, there are many variables that go into making wind energy a viable long term proposition. Getting these variables right is important, especially for an energy starved country like India.

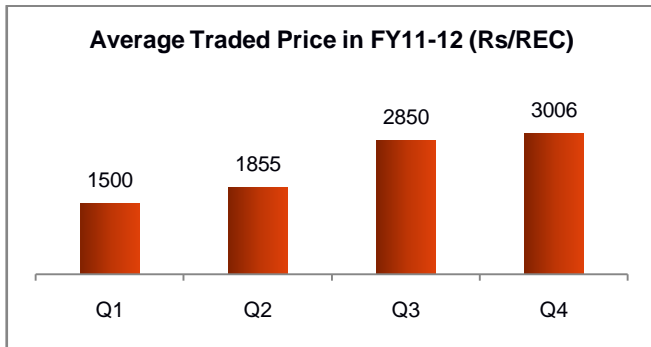
Technology

Wind energy technology has travelled far from the early days of Dutch windmills. Continuous improvements have resulted in wind becoming a major source of energy world-wide. These improvements have happened in various aspects, notable of which are -



Source: European Wind Energy Association

- **Size** – Larger rotor diameters and hub heights, helping in tapping wind potential in regions like India that have comparatively lower wind resource (wind speeds)
- **Design** – Better materials for blades, more efficient drive-trains (rotor-hub-generator), design for fatigue and extreme working conditions (especially high temperature regions like India)
- **Computational Power** – Ability to process large amounts of data faster is helping closer control of operating parameters like pitch, torque and acceleration. Along with more data on weather conditions, it is also helping in forecasting and scheduling generation more effectively.

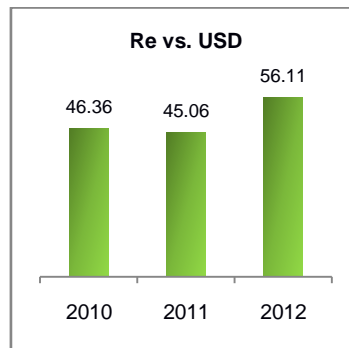


Financing

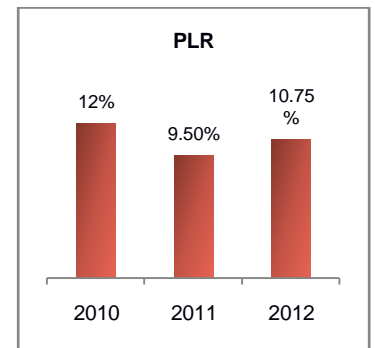
Difficult market conditions in the last few years have affected the entire economy and wind energy is no exception. Tight market conditions are reflected in higher interest rates and a falling Rupee. Poor financial health of Utilities also has impacted power generators. Thermal power is taking the brunt of the impact with availability of coal and gas already a major impediment. Lenders are more cautious and upcoming wind projects are subject to detailed scrutiny. Project viability needs to be proved more thoroughly especially with the decline of CDM and ineffectiveness of the GBI mechanism.

Commercialization

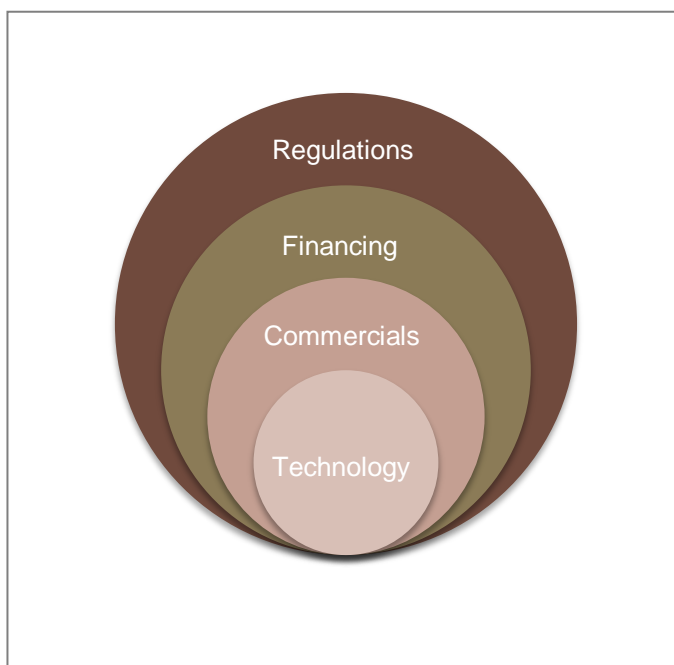
Till a few years ago, wind energy in India was solely dependent on long term preferential tariffs. With State Electricity Boards under financial stress and demand for power on a steady increase, wind energy developers are seeking new avenues for commercialization. Sale to third parties on long term basis is picking up as a viable option. Introduction of REC mechanism by the Government has provided another channel for providing better income to wind energy projects to stay viable.



Source: x-rates.com



Source: MoF, Monthly Economic Update, April 2012



Regulations

The job of Regulatory Bodies in the electricity sector has always been complex and fraught with administrative compulsions. ERCs need to formulate regulations keeping in mind all above factors as well as the need to balance interests of different stakeholders – consumers, Utilities, investors. While improvement in technology has enabled tapping low wind resources, progress on other fronts has been slow. State Governments need to enable wind energy to benefit from market forces instead of punishing it for problems originating elsewhere. Provision of evacuation infrastructure, banking of power and implementation of REC mechanism are crucial to the industry. Lenders and investors need clear long term visibility on the policy and regulatory front. Only the Government and the Regulators together can provide this clarity. With support from them, the wind energy industry can successfully make the transition from being incentive driven to result driven as well as overcome the challenges of a difficult economy.

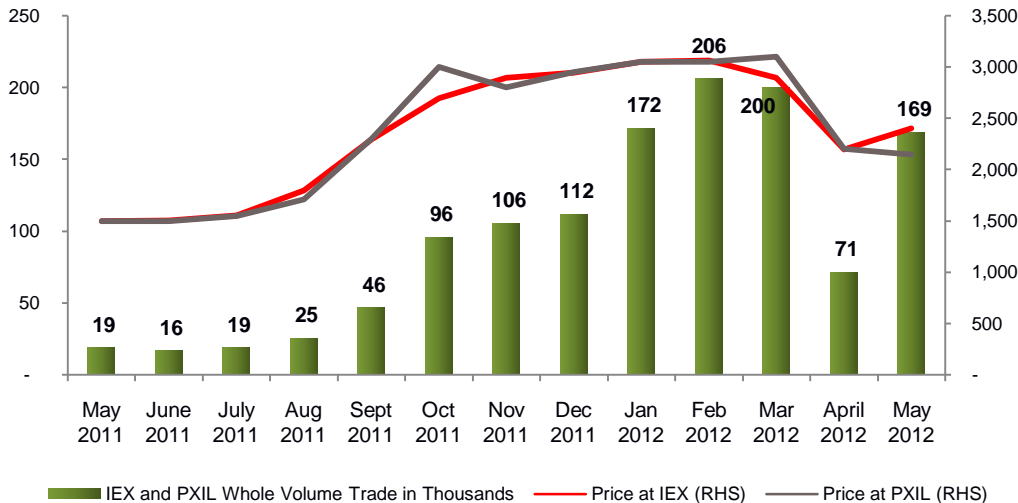
REC Market in May 2012



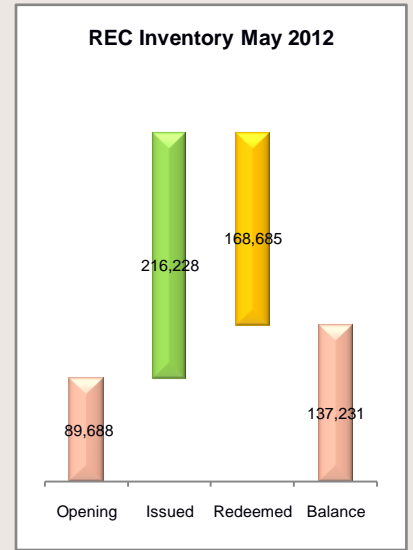
REC Trade May 2012		Buy Bids	Sell Bids	Volume Traded	Clearing Price ₹ per REC
Non-Solar	IEX	339,882	246,501	153,125	2,402
	PXIL	25,449	28,728	15,550	2,150
Solar	IEX	1,637	149	5	13,000
	PXIL	5	100	5	13,000

Rise in Traded Volume as Wind Season Starts

With the start of the windy season, REC trading saw a surge in traded volume this month, growing to more than double the volumes in April. At ₹2.4 per unit, prices have already reached the mid-point between floor (₹1.5) and forbearance (₹3.3). This is a significant improvement over May last year when prices were still at floor level.



REC Inventory



Source: REC Registry

Solar REC Sees First Trade

The REC market witnessed its first solar REC trade in this trading session. There was a total of 1,642 buy bids at both the exchanges and a total of 249 sell bids. However, only 10 RECs were traded finally at ₹13,000 per REC. This can be attributed to unwillingness of buyers to pay high prices for solar RECs so early in the year. This however is expected to change as the market matures.

Total value of RECs traded at the two exchanges was ₹40 crores in May 2012. This was three times higher than the trade value in April 2012. Overall, the market seems to have settled at higher levels compared to last year despite forbearance price level being reduced from ₹3900 per REC to ₹3300 per REC this year.

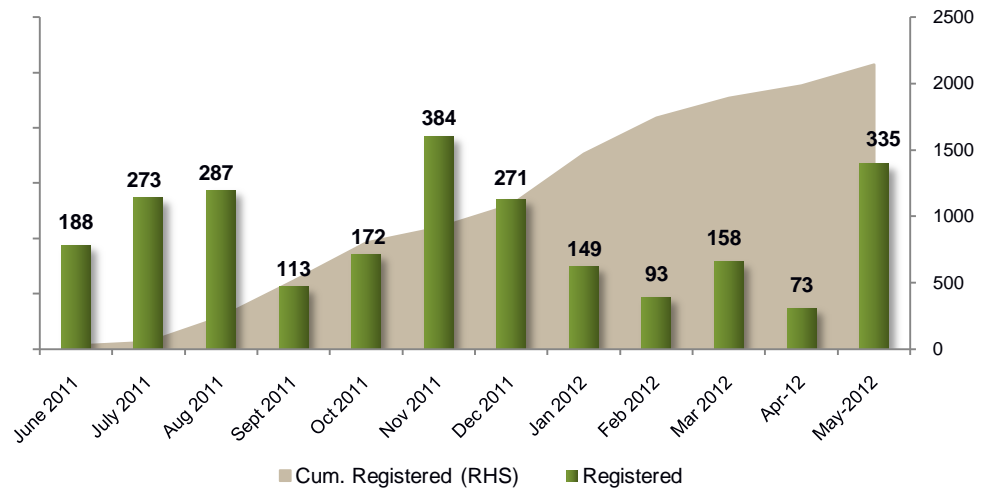
State-wise Registered Capacity, YTD

State	MW
Tamil Nadu	156
Maharashtra	127
Gujarat	73
Madhya Pradesh	18
Uttar Pradesh	13
Chhattisgarh	12
Rajasthan	6
Himachal Pradesh	3
Punjab	0
Uttarakhand	0
Kerala	0
J&K	0
Haryana	0
Total	408

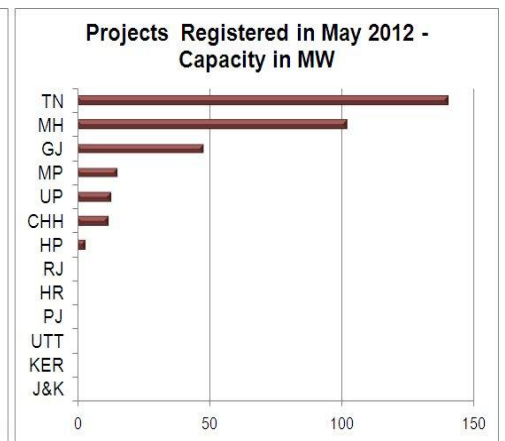
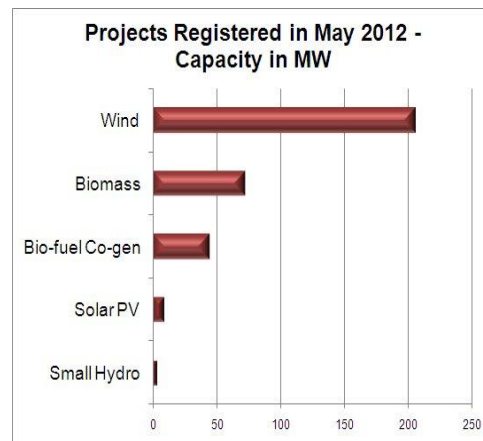
Source-wise Registered Capacity, YTD

Source	MW
Wind	268
Biomass	75
Bio-fuel cogen	44
Solar PV	17
Small Hydro	4
Total	408

Capacity Registered, MW



In total, 335 MW of capacity was registered in May. With this addition, the capacity registered in this financial year has touched 408 MW.



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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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