



Renewable Energy

KNOW THE POWER OF WIND

As works are on to achieve 15 percent share of renewable energy in National Grid by the year 2020 in India, role of wind power needs to be understood

GM PILLAI

The National Action Plan on Climate Change (NAPCC) has recommended that the minimum share of renewable energy in the national grid be set at 15 per-

cent. Sustainable Energy (WISE) recently undertook a research study to critically verify the adequacy of current government planned renewable energy capacity addition targets over the 12th and 13th plan periods (including the planned targets under the Jawaharlal Nehru

are inadequate to achieve the NAPCC target. It was also found that current non-solar RPO targets specified by the 25 State Electricity Regulatory Commissions taken together would also be inadequate to meet the national target. The focus of the study was to



31st March, 2011 and corresponding generation of approximately 58 billion units was factored in.

The share of individual renewable energy technologies is worked out on the basis of available potential and the normative capacity utilisation factors specified by the Central Electricity Regulatory Commission (CERC) like wind, solar PV and CSP, Small Hydro, biomass and co-generation, waste to energy. A progressive growth rate was considered for major renewable energy sources like wind and solar, while share of other renewable energy sources was defined based on their historical growth rates.

After careful consideration of

all relevant facts like current commercial viability, grid parity, technology maturity, indigenous manufacturing base etc., it was found that in the next ten years wind will continue to be the only dominant renewable energy technology which can contribute to achieving the 15 percent target in next 10 years. However, it should be mentioned that after 2020, it would be possible to scale up solar power additions also in a major way. The table attached gives the possible renewable energy capacity additions required in a wind-dominant scenario.

Presently, out of 20,000 MW renewable energy installed capacity (March 2011), wind power contributes above 14,000 MW (70 percent). If the projected renewable energy capacity additions in above wind dominant scenario have to be realised, the total wind power installation during 2011-20 will have to be 59,965 MW. The annual wind power capacity addition has to grow from 2350 MW in 2010-11 to 5000 MW in 2015 and to 7000 MW by 2017. A CAGR of 38 percent for the following years (which is realistic) can help to achieve the projected growth. Under this scenario, during the 12th Five Year Plan, India will need to in-

CAPACITY ADDITION TO ACHIEVE 15 PERCENT RENEWABLE ENERGY BY 2020 (IN MW)					
Renewable energy technology	Renewable energy capacity (31 March 2011)	Capacity Addition (MW)			
		FY11/12 Expected	12th Plan (2012-17)	13th Plan (2017-20 only)	Total 2011-20
Wind Power	14157	3343	28,312	28,310	59,965
Biomass	997	293	2,230	1,565	4,088
Small Hydro	3042	208	1,575	1,040	2,823
Cogeneration	1667	333	1,800	1,200	3,333
Waste to Energy	72	11	63	48	122
Solar power	38	262	3,700	6,000	9,962
Total RE	19973	4450	37,680	38,164	80,294

cent in 2009-10, subsequently to be increased by 1 percent every year to reach 15 percent by 2019-20. This has now become the guiding principle for fixing of Renewable Purchase Obligations (RPO) by electricity regulators; in other words the national RPO is now 15 percent renewable energy by 2020. The World Institute of



National Solar Mission). It was found that the current targets

scientifically derive the renewable energy capacity additions required for meeting the target. The required renewable energy injection in billion units has been derived from the all-India electricity demand projections by the Central Electricity Authority. The installed renewable energy capacity of 19,973 MW as on



Energy

A RESPONSE CONNECT INITIATIVE

still 37,680 MW of grid-connected capacities from renewables, 75 percent of which has to come from wind. The Indian wind industry is capable of meeting the projected demand for wind turbines as the installed manufacturing capacity at present is above 9000 MW per annum and likely to increase to 15,000 MW in next two to three years.

The problem areas are likely to be inadequate power evacuation infrastructure, land availability, tardy project clearances or approvals, effectiveness of electricity regulators in enforcing renewable purchase obligations, availability of trained human resource, and availability of low interest debt. The central and state governments should take adequate measures to solve these problems which are easily surmountable. Two other measures which can help accomplish this target are progressive adop-

tion of the wind power tariff suggested by CERC by the state regulators and measures to stabilise the market for Renewable

Energy Certificates.

*[GM Pillai is Founder-Director
General, World Institute of
Sustainable Energy]*