Solar Power to reach Grid Parity by FY17….

India has focused primarily on coal as fuel due to its abundance and being the cheapest option for power generation. However, entry of private IPPs into thermal power capacity addition coupled with severe slowdown in coal production over the last 3-4 years it has resulted into acute coal shortage. Similar is the case with gas due to KG basin gas depletion. Thus, India hardly has a choice but to focus on renewables for energy security. Commercially, wind power generation is the cheapest source of power generation. However, with aggressive capital cost reduction in the last few years and high solar reception levels i.e. 300-320 days in a year makes solar energy a favored choice for renewable capacity addition.

Indian Renewable Energy Industry, particularly wind sector is expected to slowdown primarily due to removal Accelerated Depreciation (AD) benefit removal from April 1, 2012. This is expected to lower the wind capacity addition from 3.2GW for FY12 to 2.2-2.4GW p.a. for the 12th Plan.

However, the solar capacity addition is expected to remain a bright spot even in this scenario. The Jawaharlal Nehru National Solar Mission (JNNSM), a central scheme envisages addition of 20GW of grid-connected solar power capacity by 2022 (i.e. 13th Plan–end). This is to be achieved in the following three phases –

JNNSM Mission targets			
Phase	I	II	III
Duration	2010-13	2013-17	2017-22
Grid based capacity addition (MW)	1100	4000	20000
Off-grid capacity addition (MW)	200	1000	2000
Target	Promote Off grid applications + moderate grid capacity addition	Aggressive grid addition through RPO backed with FiT	Aggressive capacity addition with reducing cost
Solar collectors	7 million sq. feet	15 million sq. feet	20 million sq. feet
Source: MNRE; CARE Research			

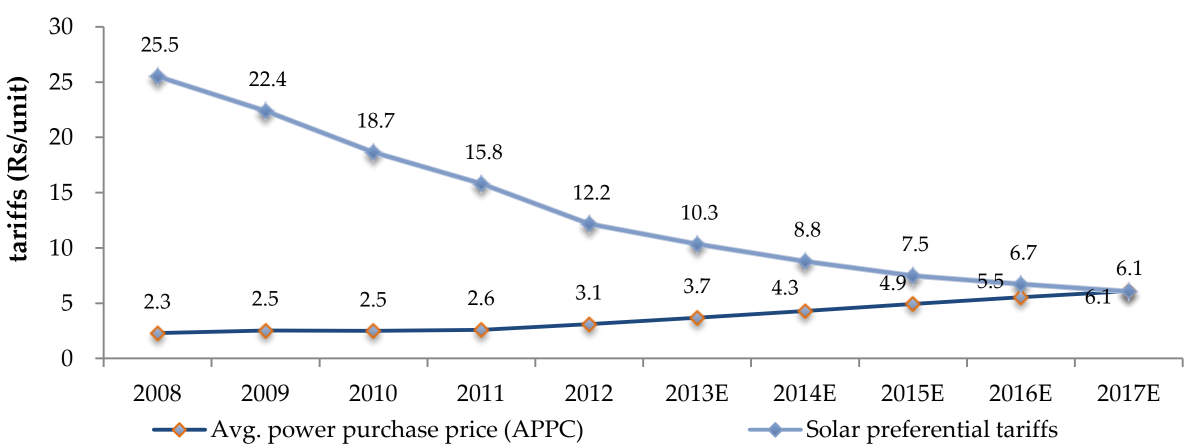
According to **Revati Kasture, Head**, **CARE Research-"**In last few years, the solar capital costs have primarily reduced on account of 1) cost reduction on account of capacity glut (global demand of 25GW v/s capacity of 50GW) and 2) entry of Chinese players into solar cell manufacturing has reduced solar capital costs. Resultantly, the solar capital costs have more than halved from Rs 17cr/Mw in 2008 to Rs 8-9cr/MW now".

However, going forward, CARE Research doesn't expect the cost reduction to maintain current pace as the Balance of Systems (BoS), which accounts for 40% of the system costs is increasing. Further, rising labour and land costs are also expected to cap the cost reduction going forward. Consequently, CARE Research expects the cost reductions to occur at 10-11% yoy till FY17E (v/s 35-40% yoy in the last few years).

CARE Research believes that solar power is expected to reach grid parity by 2017 (i.e. cost equivalent to average grid cost for conventional energy sources) primarily on account of 1) capital cost reduction of solar projects 2) increasing economies of scale and 3) improvement in rapidly maturing solar PV technology.

On the contrary, the conventional energy prices are expected to rise steeply owing to 1) increase in consumer tariffs by state distribution companies to align it with their average power purchase costs. 2) Domestic coal shortage leading to higher imports, in turn implying rising power purchase costs for distribution companies and 3) Less possibility of substantial AT&C losses reduction to curb tariff hikes.

Solar grid parity by FY17E



Source: CARE Research estimates

D. R. Dogra, MD and CEO - CARE Ltd. says- "Solar PV projects capital costs have rapidly declined over the last few years; however, taking a cue, the central and state regulators too have aggressively reduced the preferential tariffs. In JNNSM Batch-II projects bidding, the power developers have bid aggressively for solar projects factoring falling capital costs. Resultantly, most of the banks/Financial institutions (FI) are shying away from funding these projects as 1) there is no enough operating performance precedence for solar projects i.e. solar irradiation data is unreliable in India and 2) aggressive bidding implying lower RoEs for the project developers". The banks/FI are preferring state based solar tariff-based projects as these projects offer comparatively higher preferential tariffs v/s JNNSM implying higher RoEs.

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