

Wind at parity with new coal in India, solar to join by 2018: HSBC

By Sophie Vorrath

Wind energy is now cost competitive with new-build coal capacity in India, and solar is likely to follow suit sometime between 2016-18, according to a report by HSBC.

The report on India Renewables, *Good bye winter, hello spring*, published on April 30, says the growing cost-competitiveness of renewable energy with new-build coal – and the arrival of wind parity, despite the upper wind FiT range being around 15 per cent lower than the upper tariff range for new coal capacity (see chart 3 below) – is helping to drive strong renewables growth on the sub-continent.

India's share of renewable generation in the total electricity mix increased to around 6 per cent in the 2012/13 financial year – an amount the government is hoping to grow to 20 per cent by the end of 2020, to help meet the nation's a peak power deficit of 12GW, or around 9 per cent of its demand.

“With electricity demand expected to grow and conventional power capacity facing its own challenges, we expect developers and investors to favour renewable capacity addition,” says the report, pointing to increasing constraints on new-build coal, gas and nuclear, as well as increasing levels of water stress.

“Coal stress has been a key driver of renewables in India,” says the report.

“We now see water stress as also supporting renewables growth. For the third consecutive year in a row, some coal-based capacity has been closed down during the pre-monsoon period driven by water shortages. We note that thermal power generation is the largest water consumer within the industry segment in India.”

For wind, favourable policy support mechanisms, such as increased state tariffs (although most remain well below coal tariffs, as mentioned – chart 3) and the expected 2014 reintroduction of the government's Generation Based Incentive for wind energy projects, are expected to help deliver what some say could be a potential capacity of more than 100GW to a few hundred GW – well above the 50GW the Indian government has long been forecasting.

“Over the past 12 months, across key wind states, except Karnataka, the wind tariff has been raised,” says the report. “Six key states – Andhra Pradesh, Gujarat, Madhya Pradesh, Maharashtra, Rajasthan and Tamil Nadu – have increased tariffs in the range of 2-36 per cent,” it says, while Karnataka's wind tariff is due to be reviewed next year, and a few other states, like Kerala, have also increased tariffs.

Table 4: Key factors supporting renewable growth (other than the policy framework)

Factors	Remarks
Coal constraints	Supply constraints likely to persist
Gas constraints	Poor reserves and supply constraints
Large hydro issues	Limited resource, rehabilitation issues dominate
Nuclear constraints	Public concern, Nuclear liability bill issues
Cost competitiveness	Wind is now cost competitive with coal ; Solar costs have declined by c70% over the past four years and we expect that by 2016-18, solar will be competitive with new coal
Water Stress	India is now a water stressed country; situation is likely to worsen further with economic growth and increasing population

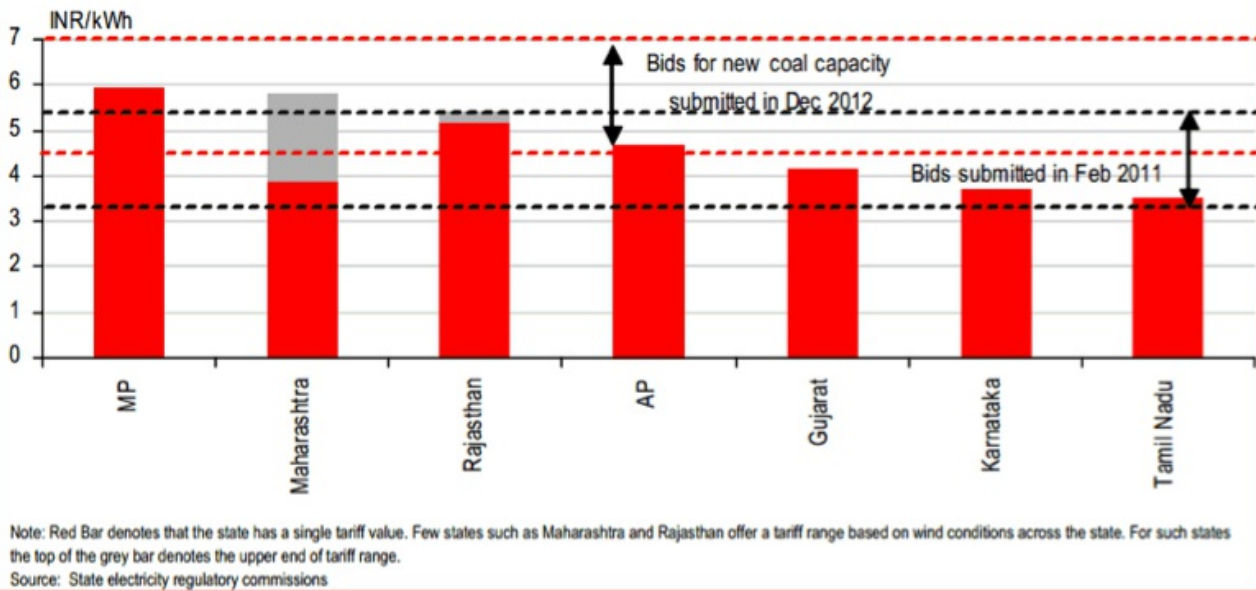
Source: HSBC

Table 5: Wind installation forecasts (MW)

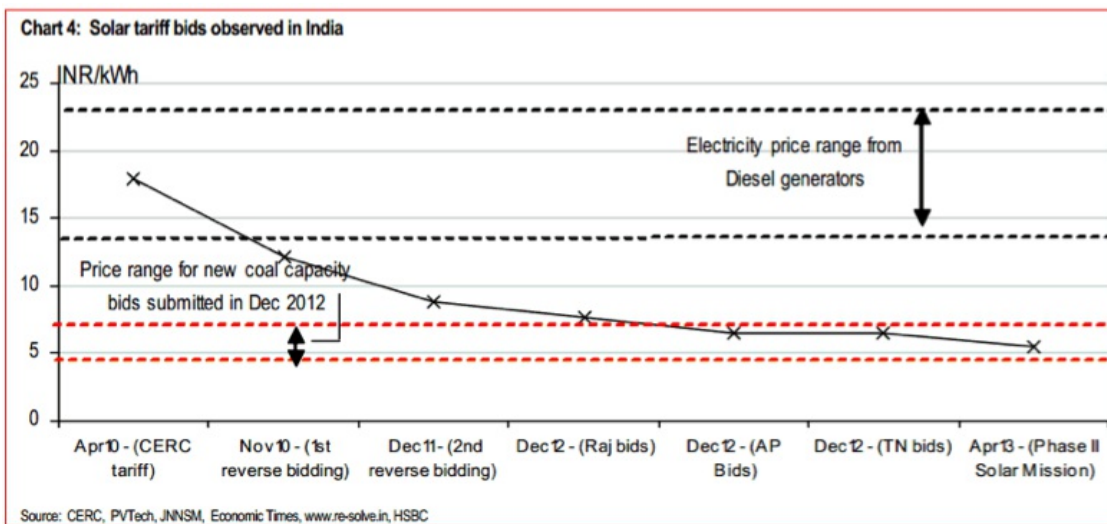
	2013e	2014e	2015e
Capacity installation	2600	3200	3400

Source: HSBC estimates

Chart 3: Current Wind FITs across seven key states in India are lower than the bid price range of new coal capacity in the state of UP conducted in December 2012



For solar, HSBC says it is now forecasting grid parity for between 2016-18, two years earlier than its previous prediction of 2018-20. The report notes that the cost of solar systems has declined 70 per cent over 2008-12 – a decrease that is reflected in the solar tariff decline observed in India for solar projects over the past three years (see Chart 4).



The government is aiming to install around 10GW of solar from 2013-2016, including 3.6GW capacity under the Central Government (GoI) Program and another 5.4GW from the state programs. According to HSBC, India currently has 1.2GW of installed solar capacity and over 4GW of capacity is at various stages of tariff bidding.

To drive this growth, the government recently announced project developers would be likely to be paid \$US11/kWh, and could also bid for capital support if needed, through mechanisms such as Viability Gap Funding, which – as stipulated in the draft of India's National Solar Mission, Phase II – could cover up to 30 per cent of the cost of a project.

Table 1: Renewable capacity addition target under XI and XII five-year plans (GW)

	XI Plan (April 2007- March 12)	XII Plan (April 2013- March 2017)
Wind	10.3	15.0
Solar	0.9	10.0
Small hydro	1.4	2.1
Biomass	2.0	2.9
Total	14.7	30

Source: XI and XII Five-Year Plan India

Table 3: State wind and solar installation targets

State	State Target
Wind	
Gujarat	2.1GW installations during XII FYP
Maharashtra	1.8 GW installations during XII FYP
Tamil Nadu	5 GW installations during XII FYP
Solar	
Andhra	1.35GW of solar bids submitted against a target of
Pradesh	1.16GW allocations in 2013
Gujarat	0.8GW installed by Dec 2012 against a target of 0.5GW by 2014
Karnataka	0.125GW up to March 2014 and 0.2GW up to March 2016
Kerala	0.5 GW by 2017 and 1.5GW by 2030 (Draft policy)
Madhya Pradesh	0.3GW by 2014 (Draft plan)
Maharashtra	0.2GW projects are announced and plan is to add another 0.2GW by 2015
Rajasthan	12GW by 2022
Tamil Nadu	3GW by 2015
Uttar Pradesh	1GW by 2017
Orissa	0.05GW for 2012-13, 5GW by 2020

Source: State Electricity Commissions, MNRE

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