Reaching India's Renewable Energy Targets

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India has ambitious goals for renewable energy, including the National Action Plan on Climate Change target of 15% of electricity by renewable energy by 2020, the Jawaharlal Nehru Mission target of 20GW of solar energy by 2022, and a Wind Mission target of 100GW of wind energy by 2022.

India has done well so far, reaching renewable capacity of about 30GW by the end of 2013, with about 2GW of solar and 20GW of wind. However, the targets are ambitious, and a lot still needs to be done. In this blog we examine barriers to reaching these targets as well as potential solutions.

Barriers

According to our analysis, "Meeting India's Renewable Targets – The Financing Challenge," some major **barriers** to scaling up renewable energy in India are related to financing.

First, high cost of capital: This – in particular, due to *expensive, short-term, variable rate domestic debt* – adds 24-32% to the cost of renewable energy in India compared to similar projects in the U.S. This is, to a large extent, due to general macroeconomic conditions, but the absence of a well-developed private and/or corporate bond market makes the situation worse.

Further, (potentially cheaper) *foreign debt is hard to get*, given that foreign lenders are highly skeptical of not only weak off-takers but also volatile and downward trending exchange rates. In particular, foreign exchange hedging typically costs 5-7%, completely negating any potential cost advantage of foreign debt.

Some other key issues, many covered in our reports, "Meeting India's Renewable Targets – The Financing Challenge" and "Falling Short: An Evaluation of the Indian Renewable Energy Certificate Market", related to scaling up renewable are as follows.

Second, the weak financial position of poorly run distribution companies: This means discoms are not in a position to pursue expensive renewable energy; they may not be proactive in removing regulatory barriers – e.g., transmission interconnection, open access, etc. – to renewable energy.

Third, non-compliance of renewable portfolio obligation (RPO) targets: Despite the NAPCC target of 15% renewable energy by 2020, corresponding state RPOs are uncertain, and compliance by distribution companies is weak, leading to ineffective renewable energy certificate (REC) markets.

Fourth, an uncertain policy regime: In 2011, India saw additions of about 3GW of wind, in part due to federal support in the form of accelerated depreciation and a generation based incentive; however, in 2012, this dropped by 20% due to the expiry of both of these; in 2013, the generation based incentive was revived, but its future remains uncertain.

Fifth, challenges to integration of renewable energy into the grid: These should not be overlooked. Tamil Nadu, the state with the highest wind energy capacity, has started to have issues with absorbing wind power, leading to curtailment of wind energy.

Solutions

The potential solutions mirror the issues outlined above, and are as follows.

First, provide/facilitate reduced-cost, extended-tenor debt: A potential solution for addressing the issue of unfavorable debt terms is for the government to consider provision and/or facilitation of reduced-cost, extended-tenor debt. In our report, Solving India's Renewable Financing Challenge: Which Federal Policies can be Most Effective" we show that federal policies providing reduced-cost, extended-tenor debt would not only completely eliminate the viability gap for renewable energy but would also be up to 28-78% cheaper than existing policies.

This calls for the Indian government to either (a) *directly provide reduced-cost, extended-tenor debt via budgetary support*, especially given that it would be a more efficient use of limited government resources; or (b) *facilitate provision of reduced-cost, extended-tenor debt in capital markets*. As mentioned above, this debt is not easily available in either domestic or foreign markets.

In our recent reports, "Finance Mechanisms for Lowering the Cost of Clean Energy in Rapidly Developing Countries" and "Solving India's Renewable Financing Challenge: Instruments to Provide Low-cost Long-term Debt" (to be published on April 21st) we discuss solutions, such as infrastructure debt funds, partial credit guarantees, and foreign exchange risk mitigation, which could reduce the cost of debt by 1.4-4.5 percentage points and increase tenor by 5-10 years. This, in turn, could reduce the cost of renewable energy by up to 10-25%.

Second, establish functioning RPOs and REC Market: Establishment of well-functioning RPOs and REC markets would go a long-way towards providing favorable investment signals. Our report, "Falling Short: An Evaluation of the Indian Renewable Energy Certificate Market" establishes that the first, and necessary, step in this process is the establishment of legal RPOs, with certain compliance. In this process, the discoms may need to be appropriately incentivized. As a second step, the REC market would need to provide clear, long-term price signals via long-term contracts.

In addition, two other measures would help.

Third, establish a transparent, consistent, and long-term policy framework: that is well-coordinated between the central government and the states. Without a consistent, long-term policy framework it is

not easy to attract investors; and, without coordination between central government and states it would be hard to ensure that national-level renewable targets are reached.

Fourth, establish a framework for renewable integration: that addresses the intermittent nature of renewable energy as well as facilitates renewable energy flows between states.

To conclude: India has done well so far in terms of deploying renewable energy, however the targets are ambitious and a lot still needs to be done. In this blog we have examined barriers to reaching these targets and provided solutions for removal of these barriers.