

## Policy Scan

## Auctioned and sold out

Tariff war could short-circuit India's solar potential

Maryruth Belsey Priebe

THE first projects developed under the Jawaharlal Nehru National Solar Mission (JNNSM) during the 'migration' phase have shown real promise. They were developed with a tariff rate of ₹17.91/kWh, which presumably will prove sustainable for producing quality, energy-efficient solar projects.

But after the migration phase, the JNNSM implemented a batch-1 auction format in two phases, which would reward the lowest-cost bid but without proper screening about the bidders' technical and financial experience.

The Rajasthan Electricity Regulatory Commission (RERC) has done a comprehensive study of solar economics in India based on cost-plus methodologies on existing Indian and international projects and concluded that tariffs of ₹15.32 for 25 years are necessary for quality solar projects.

Nevertheless, phase-1 opened to a bidding war with over 300 companies submitting proposals for over 650 MW of solar power, many for a tariff rate as low as ₹10.95, which is about 30% lower than the government-proposed rates. But capital expenditures have not fallen at a rate that justifies tariffs lower than ₹15.

And competitive bidding is relatively untested. In India, auctions were initiated only for the thermal power market last year, after 40 years of development. Likewise, the wind market is still under a tariff mechanism even after a decade of market development. Yet auctions were conducted for solar

**THIS COMPETITIVE BIDDING BY INEXPERIENCED BIDDERS CREATED UNREALISTIC BENCHMARKS THAT MAY BE NEXT TO IMPOSSIBLE TO MEET**

energy before any JNNSM project was completed.

This competitive bidding by inexperienced bidders created unrealistic benchmarks that may be next to impossible to meet. As a result, many qualified solar developers opted out of the bidding process altogether, adopting a wait-and-watch approach. Majors like Tata Power chose not to take part. In the end, the list of 37 winning bidders included a woolen yarn maker, industrial pipes supplier, and an animation company.

Though the technical expertise of many of the winning bids will surely pose problems for quality control and time lines, what's an even more immediate concern is the funding of these projects.

Concern is also that developers will find themselves unable to execute on quoted rates, resulting in delays or complete project failures. Moreover, as a large number of companies compete for resources, labour, and fabrication costs are likely to increase rather than decrease, further compounding price problems for inexperienced developers. As a result, potential investors could delay investments as they wait and see how things play out.

India aspires to become a global hub for solar development, but if projects fail because of unbankable rates, or they fail because of technical shortcuts that result in unreliable and inefficient power generation, the entire sector may be doomed to failure.

The development of renewables with an auction element may well work, but likely only when the necessary qualifications are put in place.

The writer is a freelance journalist



SOLAR EQUIPMENT

# THINK GLOBAL

Scaling up would help local industry achieve economies of scale and cut costs

Noor Mohammad

THE Indian solar power equipment industry, under threat from cheaper Chinese imports, is seeking protection. The government provides huge subsidy to support capacity addition in solar power generation. The domestic industry's argument is that the government should financially support development of indigenous manufacturing facility as it would help generate local jobs. But developers, on the other spectrum, want cheaper equipment because it helps them to quote competitive tariffs and bag projects.

Significantly, equipment is the main determinant of tariff in solar power plants, unlike in coal and natural gas-based generating stations where fuel accounts for 75-80% of the generation costs. That makes balancing the interests of local equipment manufacturers and developers a tough job for the government.

"Increased private investment and accessible and affordable power for the end-consumer are the twin challenges of our power sector. On the equipment availability front, the government's policy options are limited," said Sanjay Kaul, president, University of Petroleum and Energy Studies, Dehradun.

"The global pricing for solar PV equipment is led by China. Indian pricing has to be competitive to cater for the global market. It is Utopian to assume that the entire output will be absorbed

in India," Shubranshu Patnaik, senior director, energy & resources consulting, Deloitte India, said. "Chinese manufacturers have the advantage of cheaper capital and large-sized operations. The Indian government can look at providing input subsidies to support its solar equipment industry," he said.

The central government has envisaged adding 20,000 MW grid-connected generation capacity in solar by 2022 under the Jawaharlal Nehru National Solar Mission (JNNSM). Besides, states are adding solar generation capacity on their own.

While there is a local content stipulation for components in the JNNSM, which targets capacity addition of 1,000 MW by 2013 under the first phase, states have not stipulated any such conditionality. That leaves little protection to local manufacturers.

China is a global price leader in solar photovoltaic equipment and holds more than 50% share of the market. Chinese manufacturers are supported by the cheaper cost of capital and large size of operations. According to industry sources, Chinese equipment are 25-30% cheaper compared with equipment supplied by Indian manufacturers.

The local thermal power equipment industry also faces similar tough competition from cheaper Chinese imports. The market share of BHEL was impacted when Chinese players entered the Indian market in 2003-04. But the government did not impose any

curbs on Chinese imports.

A positive effect of Chinese competition was that BHEL significantly improved its operational efficiency and cut manufacturing costs. Its equipment are more energy efficient than Chinese. It is expected to catch up soon with the Chinese on price. Solar equipment manufacturers can learn valuable lesson from BHEL's successful response to Chinese competition. There is no reason why solar equipment manufacturers cannot emulate BHEL.

"Protection or preferential measures, conditional subsidies and import restrictions provide only an interim period to the local manufacturers to become competitive and achieve economies of scale," Kaul said.

If Indian manufacturers have to stay in the business, they must learn to compete with Chinese suppliers. Since the size of the capacity addition programme in India is not big enough to scale up or absorb all domestic production of equipment, Indian suppliers should look at tapping the overseas market, which would help them scale up their operations and achieve economies of scale.

"Perhaps the next stage of equilibrium lies in policy measures and reforms directed at a manifold increase in power sector investments and capacities to create enough room for local and international players. Domestic manufacturers also need to become far more competitive and responsive to the private players to consolidate their market position," said Kaul.

## ENERGY EFFICIENCY

# Green telecom

Efficient equipment and infrastructure can almost halve power usage



sites, for instance, have advanced functionalities like automatic shutdown of inactive transceivers. This saves energy when there is no activity on the network.

Enhancing infrastructure efficiency: Most measures the industry can undertake today fall in this category. Some of these include:

**Infrastructure sharing:** Passive sharing involves sharing of towers, shelter cabinets, power supply unit, air-conditioning unit, alarm systems etc. Just this can lead to significant energy savings. Active sharing would involve sharing of network infrastructure such as antennae systems, backhaul transmission systems, and base

station equipment.

**Better cooling solutions:** A large part of energy consumption at a tower comes from the use of air-conditioning to cool down shelters that house equipment. A lot can be done here.

For starters, many of the 'indoor' transceivers (kept in air-conditioned shelters) can be converted to outdoor sites. New generation equipment with better temperature tolerance allows for this. For sheltered sites, green shelters can be deployed. These have better insulation resulting in lower solar gain and therefore lower air-conditioning needs. Similarly, Free Cooling Units, which utilise ambient tempera-

ture to cool down equipment, reduce dependence on air-conditioning. Uninor has conducted a pilot at 7,500 sites that shows up to a 30% reduction in energy consumption with the deployment of Free Cooling Units.

Uninor is also exploring a unique concept of underground heat exchangers. These channelise the lower temperature of soil below the surface to cool down equipment at the top. This reduces power requirement at a site by 25-30Kw per day.

Optimisation on diesel generator operation: It involves deployment of fuel catalyst to improve the efficiency of the combustion process. Together with its partner Viom, Uninor installed fuel catalysts at 4,500 pilot sites and proved energy savings of 8 to 10%.

Substituting conventional diesel generators with DC direct generators sets removes the inefficiencies of converting AC to DC power and hence reduces overall fuel consumption.

The big measure next is to deploy renewable energy – initially to complement conventional diesel, and gradually to become the main power source to run telecom networks.

Solar is one of the most adoptable options. Though it has high investment costs, the energy savings make it a compelling option. From the pilot that Uninor has implemented, it is evident that solar panels reduce fuel costs by almost 30%. For adoption of greener technologies and energy sources, measures such as tax holidays, accelerated depreciation and targeted subsidies will encourage early adoption and scale.

The writer is chief operating officer, Uninor. Views expressed are personal

## NATURAL GAS

# Continental shift in LNG demand

Exporters from Australia, US & Canada rush to tap booming Asian market

fe Bureau

MORE and more LNG is on its way to Asia, reversing a trend of only a few years ago when most LNG was being imported by the West. This is not just happenstance but a gradual shift in the direction of LNG market, stemming from rising demand in Asia and growing gas supplies in the US and Australia.

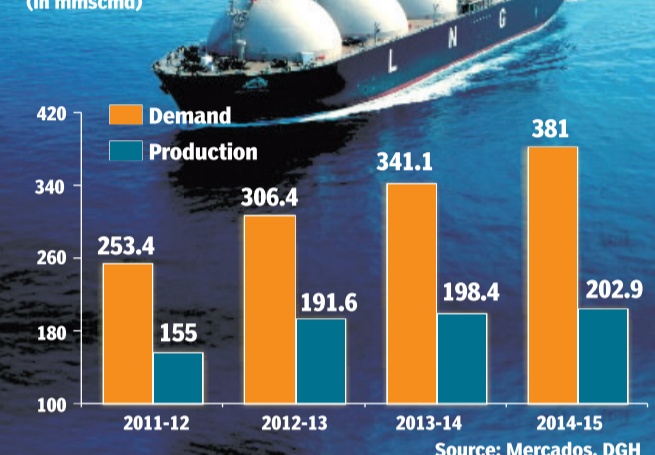
According to some estimates, Asia-Pacific makes up almost two-thirds of the world LNG demand, making it a major site of global LNG trade. Since 1990, world gas usage has increased by 50%, while

could be delivered for less than \$8.50 to Asia—where in late March 2011 gas was being sold for \$11. The spread could potentially be increased as Asian demand creates a tighter LNG market.

Australia has entered an intriguing phase of its evolution as a preferred location for domestic gas and LNG development. With 11 major LNG projects in the west and four in the east, Australia has been thrown into the limelight among major gas producing countries. These projects mean an increased level of supplies of natural gas for geographically close customers.

## WIDENING GAP

India's natural gas demand & production projections (in mmscmd)



in the Asia-Pacific consumption has tripled.

This surge in Asian demand is impacting the natural gas resources base of several countries, including Canada, Australia and the US. Asian buyers are increasingly seeing LNG as a plentiful source of clean energy—and an emerging alternative to nuclear energy.

Given the over-supply of current and future gas development in North America, prices are likely to remain depressed for some time and then go up in Asia. The math appears to bear this out. According to a Deloitte report, in late March 2011, western Canadian gas was being sold at about \$3.65 per million Btu. Some companies were estimating that gas could be piped to the coast for 75 cents, liquefied for \$3 and shipped across the Pacific for \$1.00 or less. Once these costs are added together, gas

Over the last several years, the US has been the largest beneficiary of new supplies of unconventional gas. But with the US demand for LNG expected to remain low, LNG terminals there are using only a small percentage of their total send-out capacity for LNG imports, which increases the opportunity for the US to become an LNG exporter, according to the Deloitte report.

The great LNG continental shift continues to move supplies from West to East. Japan is projected to be the world's largest importer of LNG over the next five years. With excess gas and weak demand in North America and explosive growth in demand in Asia, countries like Canada, Australia and the US are likely to improve their status as gas exporters over the foreseeable future. The LNG market shift shows no signs of slowing down any time soon.

## Updates

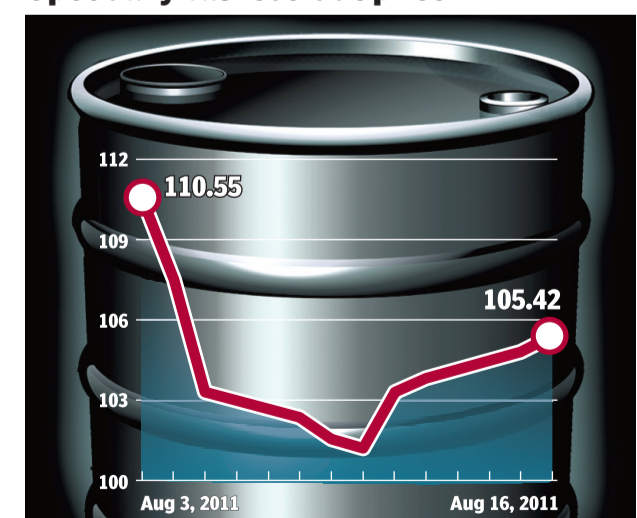
### North Sea can host 135 GW wind capacity

The North Sea could become home to offshore wind farms with a combined generating capacity as high as 135 Giga Watt by 2030, as per a study conducted as part of an international project chaired by the Energy Research Centre of the Netherlands. Belgium, Denmark, The Netherlands, Norway and the UK have coastlines around the North Sea. The study was undertaken by Windspeed, an offshore wind energy consulting firm.

### Longest offshore transmission line

Dutch-German transmission grid operator TenneT will lay the longest offshore high voltage direct current cable network project yet to connect North Sea wind farms to the German mainland grid. The network will transmit wind energy to 1.5 million households.

### Opec daily basket crude price



### International coal prices

| Weekly movement | NEWC Index | RB Index | DES ARA Index |
|-----------------|------------|----------|---------------|
| July 22         | 120.95     | 115.89   | 123.44        |
| July 29         | 120.4      | 117.57   | 125.06        |
| August 5        | 120.26     | 118.83   | 126.14        |
| August 12       | 119.74     | 118.07   | 125.36        |

Source: Industry