Coal is still the secret of our energy

With India embarking on an ambitious journey to achieve renewable energy capacity of 175 gigawatt (GW) by 2022, questions have been raised on the relevance of coal in the present context. Does coal, the principal source of energy for now, face a dark future?

“No, it can’t be. If the future of coal is dark, then the future of the country will be dark,” said Partha Bhattacharya, former chairman of Coal India Ltd.

“You can’t live without coal. Coal is at the centre of everything. With all this hype [about] renewables, today in power generation, 81% is out of coal,” he pointed out. “Going forward, the share will definitely come down. But the growth in renewable does not mean the generation from coal will come down. It will never come down, at least in next few decades,” he said emphatically.

According to analysts, renewable energy sources and coal will coexist, as the availability of coal is abundant in India and it can provide affordable power to propel India’s growth and light every household.

Despite the rapid growth in renewable energy, legacy coal plants will continue to generate thermal energy. However, most additional capacity in the country will come from renewable sources.

‘Auctions as barometer’

“If coal had a bleak future in India, then the coal block auctions could not have happened or succeeded,” Sushil Kumar Jiwarajka, chairman, Renewable Energy Mini Grid Committee, FICCI, said.

This is evident from the fact that captive power plants purchased 80% of the coal offered on a five-year contract at an auction at an average premium of 25% over the notified price. At a similar auction held last year, Coal India had managed to receive a premium of 19% over the notified price.

“In India we cannot do without coal. Despite the ramping up of renewable capacity, both solar and wind energy cannot go beyond 40% of the energy mix. So, coal has no problem for the next 20 years in India unless some new source of energy is invented overnight,” Mr. Jiwarajka added. The abundance of coal in India makes it the most important fuel. In power generation today, the share of coal in total capacity is about 62% but the share in generation is about 80%.

With reliable supply of energy becoming critical to provide round-the-clock electricity across the country and to achieve 100% electrification by December 2018, super thermal power plants and other modern thermal plants are being nudged by the Centre to produce more energy from the same capacity.

The NITI Aayog, which had sought suggestions from experts for meeting the electricity demand under the current circumstances, was advised to allow thermal plants to enhance output without adding any capacity.

‘Only variable cost’

“Demand for coal will go on increasing. For existing plants, coal-based generation is the cheapest mode and most affordable [source of] power in the country. One is only [incurring] variable cost. The capacity is already there,” said Mr. Bhattacharya, who had advised the NITI Aayog.

Though the latest prices of solar and wind energy do throw a question mark on whether further thermal power capacity would come up, analysts said coal would continue to dominate in the absence of cost-effective storage of renewable energy that has been generated.

Today, the plant load factor (PLF) for India's thermal power capacity has dropped to 52% from 79% in 2007-8 but the country's thermal plants are equipped to operate at about 85 to 90% PLF. Assuming the PLF is scaled up from 55% to 85%, one can see a 50% increase in output from the same capacity. The only cost involved here is the variable cost of coal.

This variable cost is far lower than that for solar power. It is expected to be about Rs. 1.50 per unit and the price difference is expected to be in the range of Rs. 0.70 to Rs. 1 per unit with solar or wind energy, according to industry players.

"It makes eminent sense for the country to increase the output from existing plants. The additional generation will be close to 500 billion units. With an average cost saving of Rs. 0.80 is Rs. 40,000 crore. This benefit will go to discoms and consumers if the country adopts this kind of a strategy," Mr. Bhattacharya said indicating that this had been suggested to the think tank.

To produce 500 billion units, 350 million tonnes of coal would be required — this is the additional demand. Even at a requirement of 300 million tonnes of coal, coal demand will increase by 7% a year from now.

India uses about 800 million tonnes of coal. The current coal production in the country is 650 million tonnes, while the balance is imported. The additional demand for coal to fire up power plants would contribute a substantial Rs. 12,000 crore annually to the Clean Environment Fund at the rate of Rs. 400 per tonne.

Conflict with the West?

Will the developed world tie our hands given their own interests? No, they cannot, said industry analysts. India's share in pollution is far less than its share of the global population. Developed countries did want to club India with China and said that what applied to China, applied to India too. Fortunately, India has not succumbed to that. "They cannot put on us that kind of pressure," said an analyst at an Indian brokerage, citing developed countries.

Using more coal to meet the energy demand from the same thermal capacity for the next 20 years will not put India at disadvantage given its commitment to meet the Climate Change COP 21 obligations.

As per the obligations, India's renewable capacity should be 40% of the total capacity by 2030. Including hydro-based power, that capacity is currently at 28%. Once India implements the 175 GW renewable programme, the 40% criteria will be achieved. Besides, India is well within the COP 21 obligation till it uses 1,500 million tonnes of coal a year as compared with 800 million tonnes now to generate energy. Analysts also said India could continue with a coal-based growth plan, which is cost effective. This is what China has done to place its economy on a solid footing, said an analyst with a foreign brokerage firm.

The Chinese share in global emissions is now close to 30%, whereas its share in global population is just about 17%. India' share in global population is 16%, while its share in emissions is only 6%-7%, said an analyst, highlighting the contrast.

"That is in COP 21, our obligation is not as stringent as China's. China is obliged to provide for green alternatives to counter pollution from the burning of 4 billion tonnes of coal. We are in a

different situation altogether," said Mr. Bhattacharya. Even though the NITI Aayog energy policy mentions 330 GW of thermal capacity as target by 2040, it is unlikely to be achieved because of the sharp correction in solar power prices, said an analyst. The International Energy Agency (IEA) in a recent report titled India Energy Outlook has said, "The rapid change anticipated for the Indian energy system in the New Policies Scenario does not translate into a dramatic shift in the energy mix. Coal retains a central position in the mix, increasing its overall share in primary energy from 44% in 2013 to 49% in 2040."

It said coal-fired power contributes substantially more to output than to overall costs, helping to keep electricity tariffs affordable for consumers in a period when India is adding more costly sources of power.

In India, coal has always been thought of as the raw material for power. Because the demand from the power sector was much more than the availability of coal in the last 10 years, no serious thought has gone into any other use for coal.

Once the power sector begins to use increasing amounts of power from solar and other renewable sources, then coal can be put to use elsewhere: eg, coal can be deployed in the manufacture of ammonia and for conversion of ammonia to fertilizer.

With the government's plans to usher in a second green revolution, the demand for domestically-made fertilizer will be high. Thoughts are being channelised now to come up with methods to produce chemicals such as methanol and others of its ilk from coal.

India's total coal reserve is estimated at a little more than 300 billion tonnes. If 50% of that is extractable, a 1-billion-tonne annual consumption will translate into availability for 150 years.

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