

Perspective

Development, climate and renewable energy

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India is on the threshold of achieving sustained economic growth and on the way to becoming the third or fourth largest economy by 2030. To mitigate poverty and uplift its huge population, economic development at a fast pace (between six and nine per cent) is needed.

Prime Minister Narendra Modi is right that we have to follow an unwavering path i.e. achieve higher economic growth and also reduce India's carbon footprint and greenhouse gas emissions. To achieve these contrasting goals, India has set for itself an ambitious target of renewable energy usage, both in the case of wind energy and solar energy.

Currently India depends on coal to supply 70 per cent of its energy requirement and has set a target of 1.5 billion metric tons of coal production by 2020.

India is hugely energy deficient. Its vast expanse of villages require energy for their basic needs. As the demand continues to increase, dependence on fossil fuels will continue to affect the environment. At the same time, India intends to reduce the emissions intensity of its GDP by 33 per cent by 2030, secure 40 per cent of its energy requirements through renewables by 2030, and also create an additional carbon sink of 2.5 billion tonnes of CO2 equivalent through reforestation.

These are very ambitious targets which seem almost impossible to achieve. At present our renewable energy production is 37 GW which is 8 per cent of the total energy consumption. Another 185 GW is required to supplement this. It requires huge amounts of investment. Power Minister Piyush Goyal estimates that some



gards environmental concerns. At the COP 21 Paris summit, most nations agreed to keep global temperatures capped at 2 degrees Celsius above the pre-industrial levels, and even try to achieve the cap of 1.5 deg Celsius. India needs to play a key role in this ambitious target.

Maybe we can convert this crisis into an opportunity and achieve the twin aims of economic development and environment preservation. If the initial trends in the solar energy cost and the installed capacity are maintained, the signs are very encouraging.

As the energy demand rises we have seen the quoted price of per unit solar cost drop drastically bringing the same at par with conventional energy prices. As more and more solar parks are planned

vice to itself and also to the world in heralding this change. It would also create huge job opportunities.

Energy is conserved in the new use of LED lighting. In 2013-14 India accounted for merely 0.1 per cent of global demand for LED lighting. By 2015-16, India accounts for 12 per cent. To continue this trend, the central government must increase its promotion of LED, coordinate amongst states, ensure that State Electricity Boards (SEBs) are freed from political interference from small business and ensure their financial health. This is a huge challenge, but one worth accepting and executing. SEBs buy power from power generating companies like National Thermal Power Corporation Limited (NTPC) and they distribute it to the consumers.

improve to the desired level.

The challenge to solar energy and its wider use is expected from the implementation of the GST law. The goods and services tax (GST) proposes to replace and subsume all types of taxes presently being levied by the central and state governments. Various taxes like excise, Value Added Tax (VAT), service tax, Central Sales Tax (CST), entry tax etc, will get replaced by one single tax i.e. GST, applicable for both goods and services.

This will make India a single market place and allow free movement of goods and services. This will bring transparency in the tax system and plug loopholes and tax evasion. This will be collected by the central government and then distributed amongst the states as

revoke most of the exemptions. The ministry of new and renewable energy (MNRE) is in dialogue with the department of revenue to ensure continuation of exemptions from the GST. It is expected that costs could go up by 12 to 20 per cent if exemptions are withdrawn. As there is a strong focus of the government on this sector and also to achieve the policy of energy access, energy security and climate change mitigation, these exemptions should continue. Also the sector is relatively small and exemptions would not lead to significant loss of revenue in the short term.

Another challenge to the cost of solar energy is that storage infrastructure is also required to be created for uninterrupted and stable power supply. This will add to the cost quoted for various tenders and dampen the interest of vendors. Warehousing power is considered crucial components for India's green targets.

This year the ministry of new and renewable energy will receive Rs 5,036 crore up from Rs 262 crore in 2015-2016. The clean energy cess on coal etc, has been raised from Rs 200 per tonne to Rs 400 per tonne and thus more funds will be available for renewable energy. The government aims to achieve the target of 175 GW of clean energy by 2022. Of this 100 GW is solar and 60 GW is to be wind power. In Budget 2016 the government has capped the accelerated depreciation tax benefit at the maximum of 40 per cent from April 2017. The sector had enjoyed accelerated depreciation of 80 per cent till now. The sector is likely to get affected by this but as the proposal is effective from April 2017, the industry will have time to adjust and hopefully a decision on GST would also come by then. Of the 25.18 GW wind energy in the country, 70 per cent is built on accelerated depreciation. India is the fifth largest producer of the wind power in the world.

India's goal is to have 40 per cent of the energy mix coming from the renewable sector. This is against 20 per cent target set by China for itself. In percentage terms the goal is larger than China but in absolute figures, this will be lower as our total consumption is less. As on date renewable

of solar has been at the rate of 20 per cent year on year compounded annually. As per one of the reports the installed capacity is likely to go up to 147 GW by 2020. During the current year India is likely to install 12 GW of solar which is four times the current capacity. So looking at these figures by themselves, growth in India has been impressive and the targets are also quite impressive. In percentage terms we are doing well.

But if we compare it with China, in terms of absolute numbers, the Chinese are much bigger, because of the size of their economy, their installed capacity, their demand and the total electricity consumption, all of which are much higher than India's.

We have started our thrust in this area quite late, but now the government is focused and the targets are likely to be achieved and hopefully will get surpassed. Thus the hope that we will be able to achieve the targets set in COP and keep the global temperature increase well below 2 deg C.

If we consider the comparative development of renewable energy between India and China, the contrast is too great. China has been developing the renewable energy sector at a very fast pace. China's current solar power generation is 43GW and it plans to increase this capacity more than three times to 143 GW by 2020. The country will add 15 GW solar power annually in the next five years. It achieved more than 25 per cent of global solar power addition in 2015. China is helped by increased domestic demand which is helping it to develop solar energy. The installed capacity of solar energy has increased almost 13 times since 2011 to 43 GW. And solar energy accounted for 3 per cent of the total energy mix last year.

Coming to wind power, China plans to commission approximately 31 GW of wind power this year and it added 33 GW last year. Wind energy installation in China has doubled since 2012 to 139 GW. Because of these initiatives, coal consumption in China came down by 3.7 per cent in 2015. So it appears it has reached peak global coal demand. China has been setting up new global records and the increase in the solar and wind

90 billion dollars are needed.

The demand for energy is increasing at an unprecedented pace. The land mass vis-à-vis our population is small. As more land is required for urbanization, it is difficult to see how we are going to increase the forest cover to achieve the targeted carbon sink.

But at the same time we do not have the luxury now of intensive economic development that disre-

and implemented, this will bring further economies of scale and bring down the cost. The solar alliance of 121 nations between the Tropic of Cancer and Tropic of Capricorn will give a boost to the solar energy sector. In the near future, one can hope that the renewable energy basket led by solar energy will form a great part of the broader energy spectrum. India would have done a great ser-

Because of the subsidised power being given to various sectors and sections, the SEBs have been incurring huge losses and these are mounting year on year.

The solution lies in enhancing tariffs to recover costs, become more efficient and cut distribution losses. Unless the SEBs are reformed and unshackled from the political process, the power sector and the power situation will not

per a decided formula. This is one piece of legislation which will greatly benefit the economy.

Though GST is long awaited legislation and will benefit the economy and growth in a very positive manner, its impact on the solar energy cost is going to be negative. The renewable sector is currently beneficiary of several indirect tax exemptions.

The GST bill proposes to

energy installed in India is 37 GW which is eight per cent of the total energy consumption, in comparison to three per cent in China. The aim is to have 175 GW by 2022 of which 100 GW will be from solar, 60 GW from wind and the rest from other sources.

While the installed solar capacity is 3 GW, it has been increasing in the last few years. From 2002-14 the capacity addition

energy capacity last year was to the tune of the 74 and 34 per cent respectively. China's goal is to develop alternate sources for 20 per cent of total energy consumption by 2030 from the current level of 11 per cent.

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