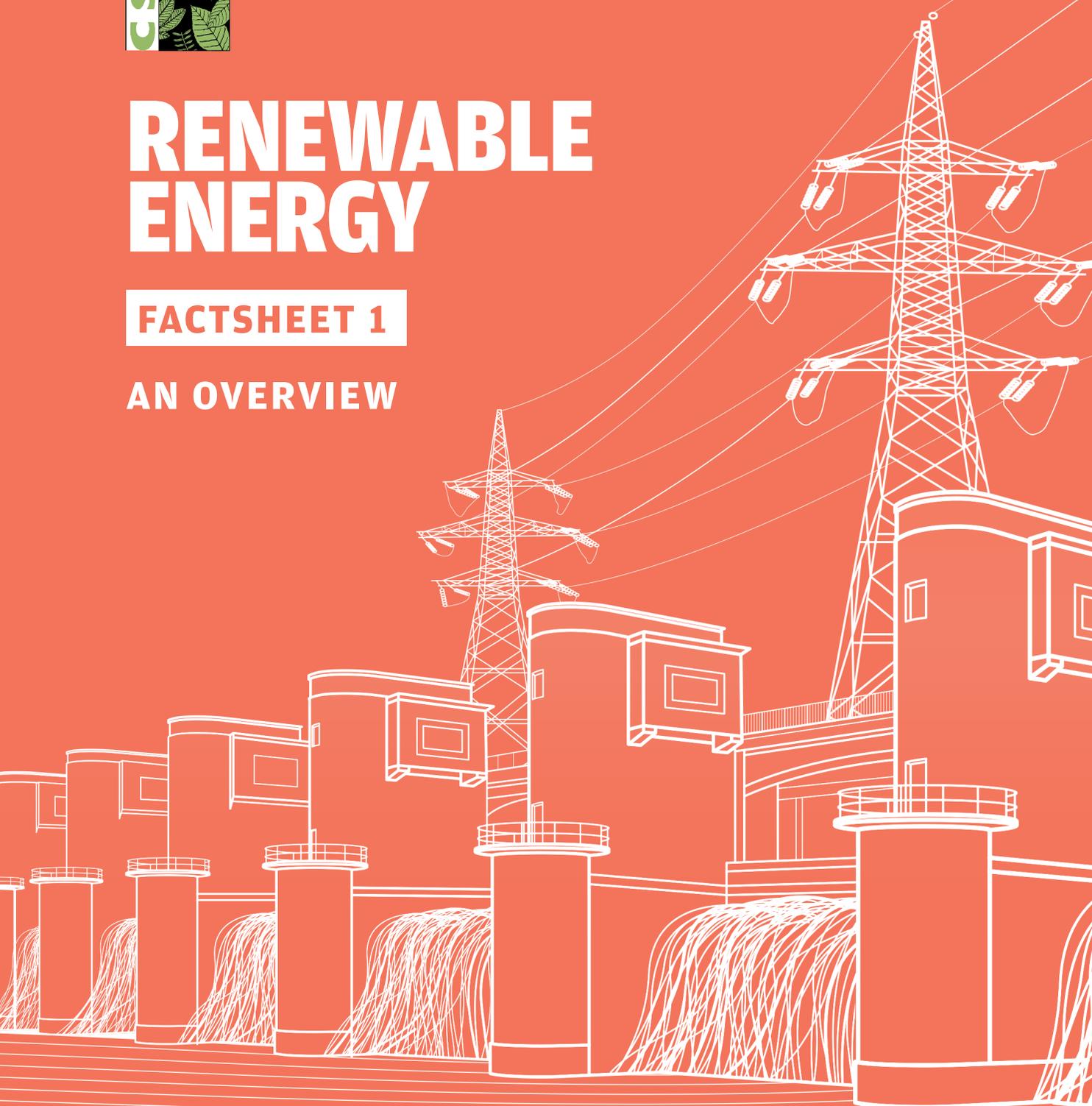




# RENEWABLE ENERGY

## FACTSHEET 1

### AN OVERVIEW





# AN OVERVIEW

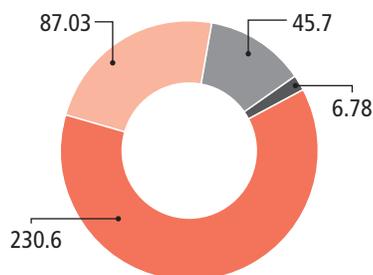
Is India on track to meet its renewable energy target of 175 GW by 2022? If not, why not? What can and must be done to ensure that we can move to cleaner energy, which meets the needs of all?

## A. THE BIG PICTURE: WHERE DO WE STAND TODAY

**A 1** India has set itself a target of 175 gigawatt (GW) of installed renewable energy (RE) capacity by 2022. Currently, this target – adding up solar, wind and other sources of energy – stands at 87 GW till March 2020 (see Graph 1). Its share in power generation in 2019 was less than 10 per cent (see Graph 2).

**Graph 1: Installed capacity of power generation in India in GW (March 2020)**

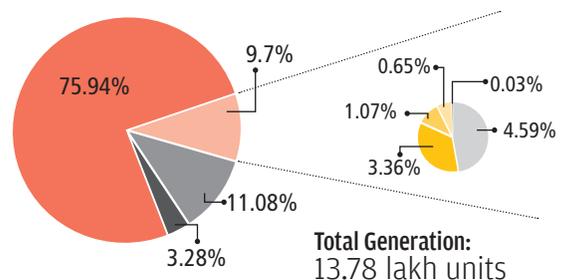
■ Thermal ■ Renewable energy ■ Large Hydro ■ Nuclear



Source: Central Electricity Authority's (CEA) monthly report on installed capacity

**Graph 2: Share of various energy sources in total power generation in 2019**

■ Thermal ■ Large Hydro ■ Nuclear ■ RE total ■ Wind  
■ Solar ■ Biomass and Bagasse ■ Small Hydro ■ Others



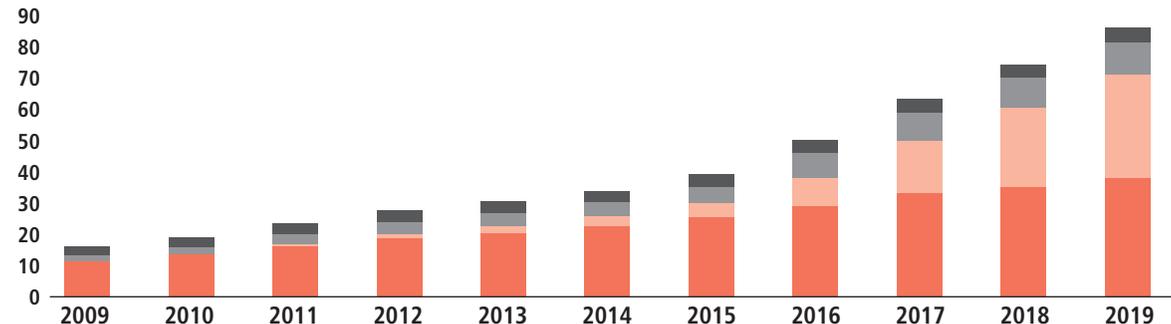
Source: CEA's monthly generation and renewable generation reports, December 2020

**A 2** In the 175-GW target, solar and wind have the highest share – 100 GW of solar; 60 GW of wind.

**A 3** In the last 10 years, the growth in this sector has been remarkable – cumulative aggregated growth rate (CAGR) has been over 18 per cent (see Graph 3).

**Graph 3: Year-on-year capacity addition of renewable energy (GW)**

■ Wind Power ■ Solar Power ■ Biomass power ■ Small hydro Power



Source: Compiled from MNRE and CEA reports

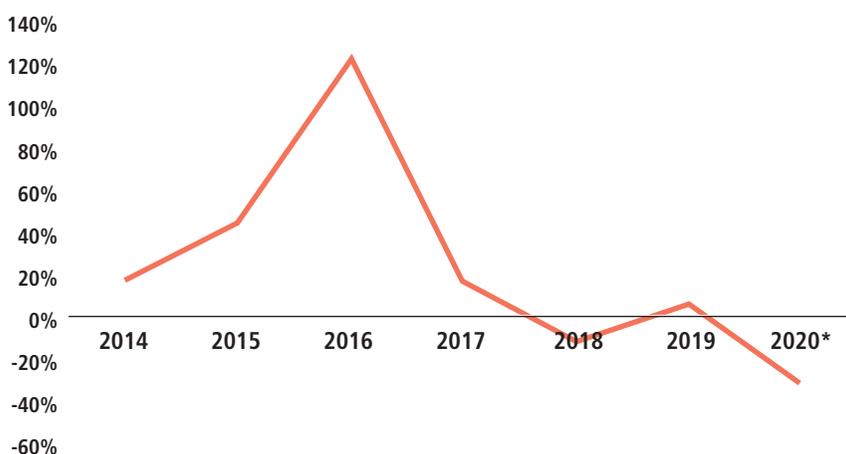
**A 4** In the wake of the COVID-19 pandemic, the year 2020 has been tough – understandably so – for the RE sector. With industrial growth and power demand collapsing because of the nationwide lockdown, only about 1.1 GW of new RE installations had been added between January and March 2020. According to ICRA, a rating agency, project implementation in the first quarter of FY 2021 is going to be adversely affected – capacity addition in the wind and solar segments together is likely to be lower by about 25 per cent at 8 GW against earlier estimates of 11 GW for FY2021.

## B: GROWTH SEEMS TO BE FLAGGING

But it is not just the impact of COVID-19 that is pulling down growth.

In the past year (2019-20), capacity addition has come down (see *Graph 4*); tenders are being canceled and even cleared projects are not going online

**Graph 4: Rate of capacity addition of RE in 2019-20 – sharply decreasing trend compared to the previous year**



\*\*Expected (as per the disruption caused by COVID-19)  
Source: CSE analysis of CEA and MNRE data

### B 1 Tenders are being cancelled.

In 2018-19, 8 GW of tenders for solar energy were cancelled, which is more than the capacity added in that year. Data compiled by CRISIL shows that of the 63.9 GW of tenders launched in 2018-19, only 34 per cent was fully auctioned, 31 per cent was cancelled, 26 per cent was under- or not-subscribed and 10 per cent was delayed. In fact, the proportion of fully-auctioned tenders has declined substantially (to 34 per cent in 2018-19) from 77 per cent in 2015-17 (see *Table 1*). CRISIL assesses that if the situation persists, solar capacity would only reach 59 GW by 2022, and 81 GW by 2024 – far from the 100 GW target. Due to the COVID-19 uncertainty, the implementation of new projects is severely affected, which will further reduce the prospects.

**Table 1: Result of solar and wind energy tenders in recent years**

Category	2015-17	2017-18	2018-19
<b>Total</b>	<b>15.9</b>	<b>27.6</b>	<b>63.9</b>
Auctioned	12.3	10.4	21.4
Delayed	1.5	15.5	19.6
Under/no-subscription	1	1.1	16.6
Cancelled	1.1	0.5	6.2

Source: CRISIL

## B 2 Projects are not being commissioned.

The Central Energy Authority (CEA), while collating information on the commissioning of new RE facilities, has discovered a huge gap between the data provided by the Ministry of New and Renewable Energy (MNRE) for the last three months of 2019 and the projects that have been actually commissioned. Each project developer is required to inform the CEA when the project is commissioned.

Out of the total of 3,319.40 MW of capacity addition as per the MNRE, data has been received for 450 MW, which suggests that there is a shortfall of 2,870 MW – a whopping 86 per cent gap in commissioning of projects or at least delays in informing the CEA of the project going online. These projects include the Bhadla clean solar project in Rajasthan, with an installed capacity of 100 MW and ACME Chittorgarh solar energy project with 230 MW of installed capacity (see Table 2).

**Table 2: Data gap between commissioning of RE generator**

Month	Commissioned projects (as per MNRE)	Commissioned projects (as per data received by CEA)	Gap %
October-2019	790.5	315	60.15
November-2019	1020.4	35	96.57
December-2019	1508.5	100	93.37

Source: CEA (January 2020), Commissioning details of new RE projects

## C. THE BIG CHALLENGES

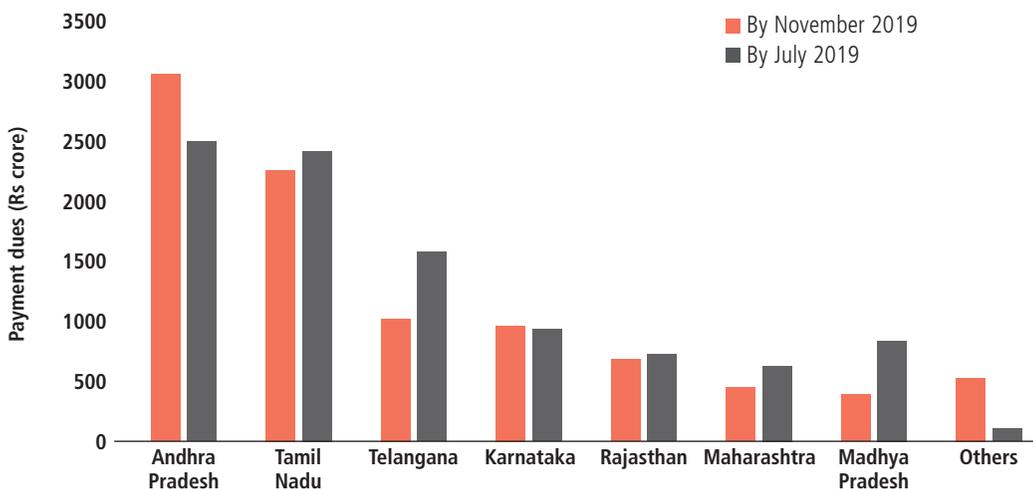
So, what is going wrong with this sunrise sector? Are there headwinds that it can weather and – in fact – work to its advantage? It is important to understand the challenges that are driving down growth.

### C 1 Distribution companies are in deep debt; they cannot pay for power or they delay the payment – putting pressure on developers.

Payments for power to renewable energy generators are frequently delayed – in July 2019, roughly Rs 10,000 crore was owed to renewable energy generators (see Graph 5).

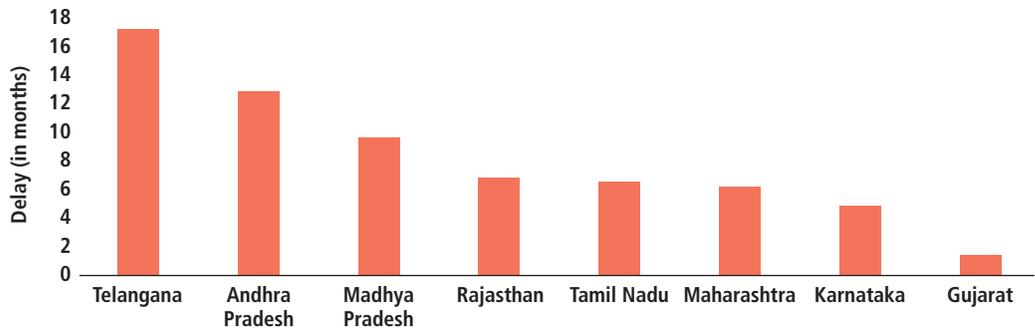
The RE-rich states are those that are delaying the payments. Andhra Pradesh accounts for about one-third of the total due amount, which has increased by 22 per cent just in four months (see Graph 6). The four south Indian states account for more than three-fourths of the total dues to RE generators in the country; they owe money for more than half of the solar and wind installations.

**Graph 5: State-wise payment owed to RE generators**



Source: CEA, Report on payment dues of RE generators

**Graph 6: Average time of delay in making payments**



Source: CSE analysis

In May 2020, the government has announced a liquidity injection of Rs 90,000 crore to write off unpaid bills of financially stressed power distribution companies – this, it is hoped, will ensure that money will flow back to transmission and generation companies and improve their liquidity. But it is still to be seen if this one-time intervention leads to structural changes, particularly at a time when industrial activity is constrained and demand is low.

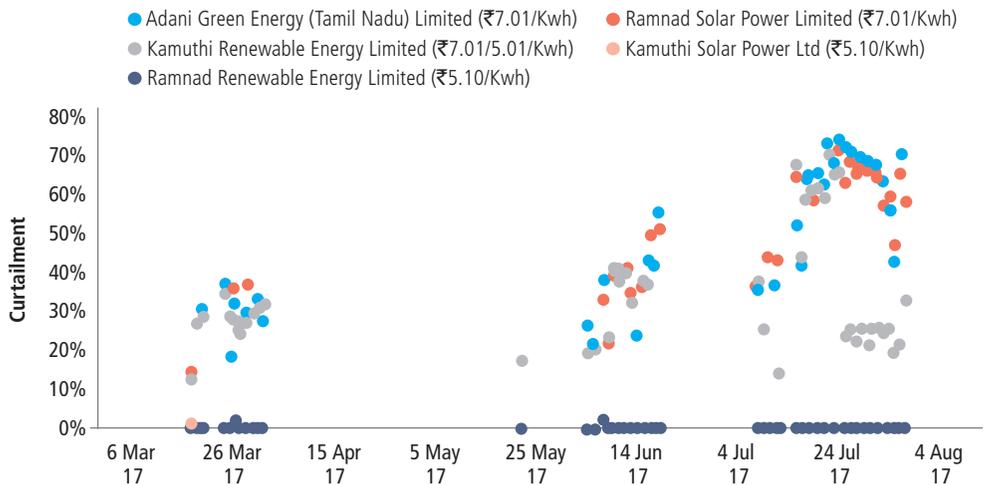
**C 2 If states cannot pay, they simply curtail power – ask for shut-down of this ‘must run’ sector.**

‘Curtailment’ of power generated by wind and solar projects is a persistent problem for renewable energy developers in India despite a ‘must-run’ assurance in regulations. There is no official data on this ‘curtailment’ because of the lack of transparency on the part of state load dispatch centers (SLDCs) and distribution companies.

The industry says curtailment is between 1-5 per cent for solar power; wind, particularly in Tamil Nadu, sees much higher curtailment, pegged at 30-35 per cent. But all these numbers are seen to be under-estimates. This is clear from the fact that capacity utilisation in the wind sector of Tamil Nadu has dropped from 30 per cent in 2016-17 to 25 per cent in 2019-20. This, when the Indian Electricity Grid Code 2010 asks SLDCs to prioritise scheduling of renewable power over other generators/sources to incentivise green energy projects unless there are technical constraints such as congestion in the grid or unavailability of renewable energy.

This illegal curtailment is also pegged with the price of power. Discoms ask older plants, with higher tariffs in the power purchase agreement, to cut back on generation – that is, not to feed to the grid (see Graph 7).

**Graph 7: Comparative curtailment of new and old solar projects in Tamil Nadu – more expensive projects asked to ‘curtail’ for over 50 per cent of the days**



Source: CSE analysis based on TNERC orders

In Andhra Pradesh, after the newly elected state government failed to re-negotiate the ‘expensive’ wind and solar projects, it had started using curtailment as its best option. In October 2019, the National Solar Energy Federation of India (NSEFI) – the association of large solar generators – wrote to the Union Ministry of Power asking for its intervention as solar projects in the state were suffering from continuous curtailment of 60-70 per cent since July 2019.

On December 20, 2019, the CEA took cognisance of this matter and convened a meeting to discuss ‘curtailment of power from renewable energy-based generating stations’. Its notice said that “it has been observed during high RE season of April-October 2019 that growth of energy generation from RE sources was less compared to previous years – this, even after addition of new RE capacity.” One possible reason is curtailment instructions issued by the SLDCs, as brought to the CEA’s notice by the Indian Wind Power Association (IWPA), instances of which have increased in 2019. It estimated average curtailment of wind power in Tamil Nadu in 2019 as 3.52 hours/day as against 1.87 hours/day in 2018. The CEA plans to set up a mechanism to collect curtailment data on a monthly basis<sup>1</sup>. But such data in public domain is believed to dampen investor’s interest in the RE sector, which is causing delays.

### **C 3 State governments are increasingly keen to renegotiate or cancel the power purchase agreements with higher tariffs.**

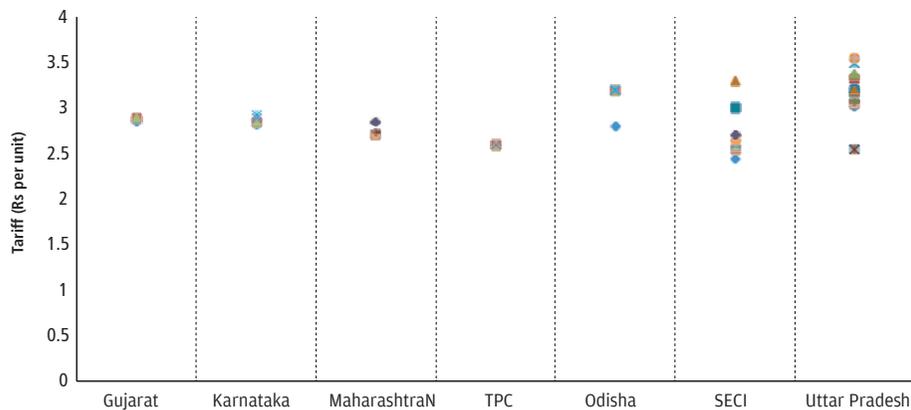
Solar and wind energy developers sign a contract with a power purchaser, mostly distribution companies (discoms), for a prescribed period (usually 25 years) on a particular tariff rate per unit – based on the then prevailing best rate. But then the rate goes down, as prices of renewable energy fall. In such a case, states do not want to pay the higher rate and start pushing for re-negotiation – thereby jeopardising the industry. In Andhra Pradesh, the government wanted to renegotiate energy tariffs with developers for some 140 power plants to revise the tariffs to Rs 2.43 per unit for wind and Rs 2.44 per unit for solar from higher legacy levels. It wanted to do this retrospectively, and threatened to cancel the projects in case this was not done. In this case, the High Court stepped in. But tensions on tariffs continue to simmer.

### **C 4 Low tariffs discovered in tenders in the past few years have ironically become the problem – governments use these to benchmark the cost of power that they will pay, and refuse to accept tenders with higher costs.**

The lowest realised tariffs for solar at Rs 2.44 (May 2017) and for wind at Rs 2.43 (December 2017) have become benchmarks. Risks have increased since then and these tariffs are not viable any more, says the industry. Furthermore, GST has had a cost impact. In some cases, the government had imposed ceilings on tariffs – in the case of solar at Rs 2.5 to Rs 2.6 per unit.

Now, the COVID-19 pandemic is aggravating the situation. A contract of 600 MW at a record low tariff of Rs 2.44 per unit has been cancelled by the developer (ACME solar) by submitting a petition with the CERC, citing problems related to land acquisition, disruption in supply chain and delay in setting up of transmission networks. This was signed with the SECI in December 2018.<sup>2</sup>

Also, tariffs quoted by developers in auctions for renewable energy projects differ based on the rating of the discoms that will be purchasing the power. During FY19 and FY20, most SECI auctions drew a tariff of Rs 2.55 to Rs 2.71 per unit, while most auctions by Uttar Pradesh had tariffs of Rs 3.02 to Rs 3.38 per unit (see *Graph 8*).

**Graph 8: Tariff range for auctions conducted during FY19 and FY20**

Source: CSE compilation

## CONCLUSION

**All this could be attributed to the fact that the RE sector is facing the impacts of the economic slowdown. This is a time when the country has surplus power and low demand. What all this means is we need to re-think present policies so that we can pick up momentum and not miss the target.**

**So, the question is whether this slowdown is temporary, or does it suggest that the RE sector is faced with challenges beyond its control – India is power surplus today; in this situation, will renewable energy lose its sheen? Or are there structural issues that need to be urgently fixed to revive and re-position this sector?**

**This question is critical as the country begins to re-open and re-jig the economy towards growth. What will be the role of clean energy in the growth trajectory, post-COVID-19? Can the clean air benefits that the country saw because of the lockdown become reason enough to push for renewable energy as a driver of economic progress? What, then, is the future of RE? What needs to be done?**

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