



The good news and bad news of India's race to 175 GW renewables

Solar in India is becoming mainstream, but progress differs widely by state.

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Lead author: Aditya Lolla

Contributors: Dave Jones, Rini Sucahyo, Nicolas Fulghum, Uni Lee, Chelsea Bruce-Lockhart

About

This report is based on data from Ember's [Indian State RES Target and Progress Tracker](#) that is also launched today. It tracks the monthly progress of Indian states and union territories on their 2022 RE targets. It uses the state-wise installed renewable energy (RE) capacity data, published monthly by the Ministry of New and Renewable Energy (MNRE). MNRE publishes this data only for the latest month, so internet archive machines were used to dig out and piece together month-by-month RE capacity additions since March 2019. [The data](#) is also available to download separately.

Highlights

+17%

Increase in RES installed capacity in India in the first eight months of 2022, compared to the same period in 2021.

4

States already meeting their December RES target - Gujarat, Telangana, Rajasthan and Karnataka.

2.5x

Increase needed in current monthly build-rate to meet 2030 RES target.

Good news and bad news

Gujarat is now the fourth state to meet RE targets for 2022, but four key states need to ramp up

Solar is driving India's renewables growth

From Ember's [Indian State RES Target and Progress Tracker](#), we were able to analyse the trends so far in India's renewables transition.

Strong growth in solar in 2022; peaking in March

India has 116 GW renewables installed as of August 2022. This means it has so far achieved 66% of the 2022 target of 175 GW RES, up from 60% at the start of the year.

India installed 17% more renewable capacity than last year in the first 8 months of the year. 11.1 GW of renewables capacity was installed from January to August, compared to 9.5 GW in the same period in 2021.

New solar installations rose by 22%; solar was 89% of all renewables growth. 9.8 GW of solar was installed between January to August 2022, up 22% year-on-year. Solar's share of all new renewable capacity rose to 89% this year, from 85% in the same period in 2021.

New wind installations rose by only 7%; wind was just 10% of all renewables growth. 1.1 GW was installed between January to August 2022, up 7% year-on-year. Wind's share of all new renewable capacity fell to just 10% this year from 12% in the same period last year.

Small hydro and bioenergy contributed just 1% of all renewable growth in January to August 2022.

Renewables growth hit a record high in March; but July saw the lowest growth since June 2020. Renewables installations set a new record of 3.5 GW in March, ahead of the change to customs duty. By July, this collapsed to just 0.3 GW, although August recovered to 1.6 GW.

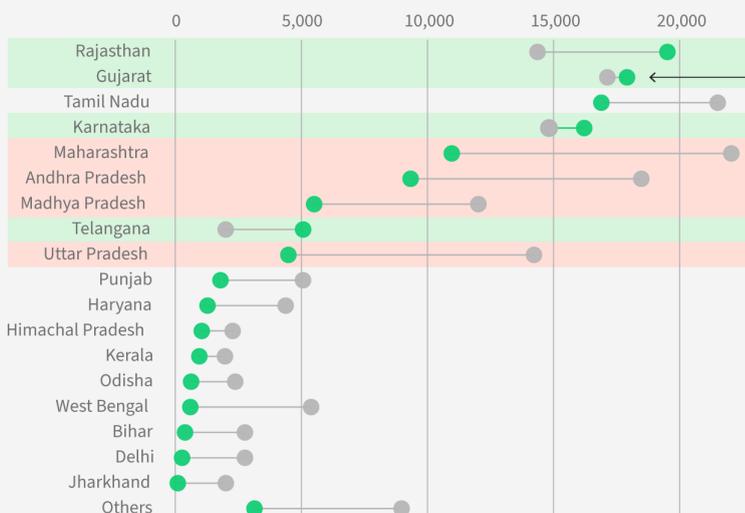
India would need to install renewables 2.5 times faster to meet its 2030 target. To meet the current national RES target of 450 GW by 2030, 334 GW needs to be built in the next 91 months, which would need an addition of 3.7 GW per month. That’s 2.5 times the average installation rate of 1.4 GW from January to August 2022. Monthly installation rates would need to consistently hit the all-time high set in March to reach the 2030 target.

Four states have now met their 2022 RES target

How close is each Indian state to its RES target?

Capacity intalled against Dec 2022 targets (megawatts)

● Installed as of Aug 2022 ● Target



Gujarat has become the fourth state to have **surpassed year end RES targets**, joining Rajasthan, Karnataka and Telangana.

Just four states account for **61% of the current shortfall** to India's December 2022 RES targets.

Source: Ember analysis of MNRE data
RES = renewable energy sources: wind, solar, small hydro and bioenergy

Gujarat is the latest state to meet its 2022 RE target. It surpassed its target in May 2022 - joining Telangana, Rajasthan and Karnataka. Gujarat's success has been in a consistent build-rate in the last few years. Also, it isn't just relying on solar; it's one of the few states that is still building wind, installing 63% of India's new wind capacity this year.

Rajasthan overtakes Gujarat. Rajasthan overtook Gujarat in March 2022 with the most installed renewable electricity. Almost half of the renewables built in India this year was in Rajasthan (5 GW out of 11.1 GW). That's even after Rajasthan had already met its renewable target last December.

Rajasthan and Gujarat are powering India's transition. In the first eight months of this year 49% of India's new solar capacity was built in Rajasthan and 63% of India's wind was built in Gujarat.

Much of the shortfall in the 175 GW target is in just four states

61% of India's current target shortfall is in just four states. India is 58 GW away from meeting its 175 GW target for December 2022. 61% of this is in 4 big states - Maharashtra (11.1 GW), Uttar Pradesh (9.7 GW), Andhra Pradesh (9.2 GW), and Madhya Pradesh (6.5 GW).

There was very little new RES installed in these states in 2022 so far. If Maharashtra continued building at the average rate from January to August this year, it would take the state 20 years until they meet their December 2022 target. For Uttar Pradesh, it would take 80 years; Andhra Pradesh would take 44 years and Madhya Pradesh would take 55 years.

State	2022 target (GW)	Installed capacity, as of August 2022 (GW)	% of target achieved	% RES capacity growth in 2022 to date
Maharashtra	22	11	50%	+3%
Uttar Pradesh	14.2	4.5	32%	+2%
Andhra Pradesh	18.5	9.3	51%	+1%
Madhya Pradesh	12	5.5	46%	+1%

“India’s solar rush earlier this year shows how quickly change can come. It has even led to a record RE capacity addition of 3.5 GW in March this year. In order for India to achieve its ambitious 2030 RE and non-fossil capacity targets, the country needs to consistently hit such record numbers.”

Aditya Lolla

Senior Policy Electricity Analyst, Ember, Asia



Conclusion

Making 2020s the renewables decade

It is unlikely for India to reach its 2022 target, but its 2030 targets of 450 GW renewables and 500 GW non-fossil capacity are well within reach.

India has shown good progress in the first half of the year, with renewables installations up by 17%. Over 99% of new RES capacity built was solar and wind: it's clear solar and wind are set to become the backbone of India's future backbone of electricity.

The question is how to raise these levels by 2.5 times as much, in order to hit the monthly build-rates needed to reach the 2030 targets.

First, India needs to unleash the power of solar. A substantial increase in the basic customs duty in March led to a collapse in imported solar panels this summer, before domestic solar production is able to fill this gap. While this may encourage domestic manufacturing in the long run, it has already significantly [increased the cost pressure](#) on under-implementation solar power projects adding up to 4.4 GW. What's needed now is a plan or a roadmap to augment domestic capabilities while the domestic solar manufacturing sector becomes more competitive.

Second, wind capacity additions have fallen to very low levels for a few years. Although the biggest future growth is likely to be solar, wind still has a vital role to play.

Third, all states should be seizing this opportunity. The key states of Maharashtra, Uttar Pradesh, Andhra Pradesh and Madhya Pradesh built just 3%, 1%, 1% and 1% of India's renewables that were installed in the first eight months of this year.

India's renewables future is exciting, but it needs more national and local government focus to make it happen.

Supporting Materials

Acknowledgements

Header image

A solar engineer in the solar powered village of Tinginapu, in the Eastern Ghats of Orissa in India

Credit: Abbie Trayler-Smith / Panos Pictures / Department for International Development

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