

# DISENTANGLING THE 2030 GLOBAL RENEWABLE ENERGY TARGET

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September 15, 2023 12:16 am | Updated 01:45 am IST

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'Electricity demand across countries is highly differentiated' | Photo Credit: AP

The presidency of the 28th Conference of Parties (COP28) of the United Nations Framework Convention on Climate Change (UNFCCC), to be held in Dubai (November 30-December 12), has called for agreement on a global target of tripling renewable energy capacity from current levels by 2030. This figure appears in the G-20 declaration too, though only as an aspirational goal to be encouraged.

There is an undoubted win-win appeal to the proposal of this easily understandable global target. However, any serious deconstruction of this target should significantly dampen such enthusiasm.

In 2021, the global installed capacity of renewable energy sources (RES) for electricity generation was 3026 Giga Watts (GW), or 39% of the total capacity from all sources. In total electricity generation however, the contribution by RES was only 28%. More than half the RE generation was from hydropower, while solar (13%) and wind (23%) accounted for about 36% of RE generation, that is 10% of generation from all sources.

Tripling RE capacity by 2030 implies a target of about 9000 GW, which is more than the total installed capacity from all sources in 2021, adding about 6000 GW of RE capacity between 2022 and 2030.

Most of this capacity is expected to come from solar and wind, as the time for construction and operationalisation of any hydro plants, will typically exceed the timeline of 2030 being considered. Assuming a capacity utilisation factor of 25% for solar and wind combined — more than is current — this implies the generation of about 13,000 TWh of electricity from RES alone. If growth in global electricity demand is at the pre-COVID-19 decade average of 2.6%, then the target of tripling RE capacity implies 38% of total global electricity production from RES.

However, there is no such thing as "global" electricity demand, but only a global aggregate across countries. Electricity demand across countries is highly differentiated, and the rates of growth vary for countries at different stages of development.

Electricity demand is growing far more rapidly in developing countries currently. Electricity

consumption between 2010 and 2019 in China and India grew annually at 6.6% and 6.3%, respectively, compared to a 0.3% decline in the European Union (EU) and a minimal 0.12% growth in the United States. It is evident that any substantial RE addition in the EU and the U.S. must come from an accelerated phaseout of their fossil fuel use by 2030. Currently, only 21% of the electricity in the U.S., and 37% in the EU comes from RES (including hydro and biomass).

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If the U.S. does not phase out its existing fossil fuel capacity, it will need only about 26 GW of new RE capacity to meet additional demand, and its share of the tripling target of an additional 6000 GW by 2030, would be only a measly 0.4%. At the same time, since India would need about 717 GW of RE capacity to meet additional demand, its share of the tripling target would be 12%. On the other hand, if all the fossil fuel-based electricity production of the U.S. and the EU is phased out, they would need to add about 1565 GW and 538 GW of additional RE capacity, respectively (again assuming current rates of electricity demand growth and a capacity utilisation factor (CUF) of 25% for wind and solar combined).

In the second scenario, with a full phase-out of fossil fuel-based capacity, the U.S. and the EU would account for more than a third of the new capacity, closer to their fair share of the burden. This would also allow developing countries a less onerous transition in the energy sector, without the North appropriating even the meagre remaining carbon budget with their still considerable fossil fuel capacity.

Unfortunately, the COP28 call for the RE global target comes with a severe lack of transparency as to its origin. What we do know is that the inspiration flows from a report of the International Renewable Energy Agency (IRENA) that calls for “total renewable power capacity to more than triple by 2030, compared to 2022 levels, to over 11 TW globally”.

Information available on the IRENA website shows that IRENA’s scenario, underlying the proposed COP28 target, is very close to the first, highly inequitable scenario that has been sketched here.

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In the IRENA analysis, most of the non-RE capacity to be added by 2030 is in developing regions. By 2030, 80% of power generation capacity in Sub-Saharan Africa is to be from RE sources, as compared to only 70% for the EU. The EU and Sub-Saharan Africa are projected to add about the same amount of RE capacity by 2050, though the non-RE capacity in the EU continues to be more than four times that of Sub-Saharan Africa. China and India are to do much more, with India needing to exceed even the very ambitious 500 GW mark by 2030.

Lack of equity apart, such absolute projections of installed capacity suffer from the fundamental problem of divorcing capacity addition from growth in energy demand. IRENA itself recognises that relative targets are inherently less risky as they are less dependent on demand growth matching expectations. Further, if the entire burden is on developing countries, this enormous increase in RE capacity is not possible without matching non-RE capacity for stability of supply, and the availability of viable storage options that are as yet nowhere near the scale envisaged by such ambitious targets. Finding the resources to build national grids adequate for their development needs at such dizzying levels of scaling up of RE capacity will pose additional challenges, given the inability to reach even the minimal annual target of \$100 billion of climate finance covering all sectors.

Last but not least, the most vocal proponents of this global target do not have any such a target

domestically. When Prime Minister Narendra Modi announced at COP26 that India would increase its ambition to 500GW from non-fossil fuel sources by 2030, U.S. President Joe Biden made no such promise or declare any renewable energy target. Nor has the U.S. shown any intent to declare one, apart from a general announcement (not committed under the Paris Agreement) to decarbonise the energy sector by 2035. The EU too has only a relative target, though an ambitious sounding goal of 40% of final energy consumption from renewable sources by 2030, but certainly not absolute. For both the U.S. and the EU, these targets are essentially market signals, which the governments will promote, but are not guaranteed by government intervention as in the developing countries.

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Developing countries at COP28, especially India, should consider the tripling global RE capacity target only if the North commits to absolute targets domestically, that are equitable and commensurate with their responsibility, in an update of their Nationally Determined Contributions under the Paris Agreement.

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