

Solar energy for businesses republic of china

Solar power. Solar energy stood out as the largest contributor to China's clean-energy growth in 2023, with its total value increasing by 63 percent year-on-year, from RMB 1.5 trillion (US\$207.01 billion) in 2022 to RMB 2.5 trillion (US\$345.03) in 2023.

Globally, China's unprecedented clean-energy manufacturing boom has pushed down prices, with the cost of solar panels falling 42% year-on-year - a dramatic drop even compared to the historical average of around 17% per year, while battery prices fell by an even steeper 50%.

In 2022, China installed roughly as much solar photovoltaic capacity as the rest of the world combined, then went on in 2023 to double new solar installations, increase new wind capacity by 66 percent, and almost quadruple additions of energy storage.

With the vast majority (80-85%) of solar manufacturing plants located in China, supporting deployment of "spare" solar capacity in the developing world presents a significant opportunity for China to deliver national gains, in addition to helping deliver global goals on development and climate change.

The solar panel manufacturing industry could supply an estimated 7,310 gigawatts (GW) of solar panels between 2024 and 2030. Deployment over the period is forecast to be 3,473 GW. This leaves a "spare" solar capacity of 3,837 GW - more than half of the total that could be manufactured, installed and used.

Neither national targets nor projected renewable energy deployment rates are high enough to triple global capacity by 2030, the collective target governments set at the 2023 UN climate summit (COP28). National targets would deliver 7,241 GW by 2030, and projected deployment 9,513 GW, while the tripling target calls for 11,000 GW. Deploying all the "spare" solar in addition would reach the target a year ahead of schedule and deliver 13,345 GW in 2030, exceeding the target by 21%.

Accelerating solar energy rollout across the Global South would reduce the proportion of electricity that countries generate using fossil fuels - constraining greenhouse gas emissions, reducing import dependence and providing a buffer against supply shocks. It would bring jobs and investment. It would improve access to electricity, potentially for hundreds of millions of people. Just one-seventh of the "spare" capacity could in principle meet electricity demand growth and extend basic electricity access to the entire populations of 88 Global South countries considered in this report.

Supporting use of "spare" solar capacity would also benefit communities where the panels are made, safeguarding manufacturing jobs and investment. With 80-85% of the solar manufacturing industry based in China, this is the country that stands to lose the most if factories close or have to run at low capacity - and

already, Chinese companies are feeling the pinch, with workers being laid off and investment withheld. Further contraction is inevitable unless demand is supported in the next few years.

Fifteen years ago the Chinese government prevented its nascent solar manufacturing industry from contracting, in the face of similarly difficult circumstances, by supporting deployment within China. Now, the most obvious opportunity for supporting deployment lies overseas, in countries with low levels of per-capita GDP and energy access, and most immediately at risk from climate change impacts. These countries are the ones with the most to gain from a fast solar rollout, but are largely missing out due to the high cost of capital for financing renewable energy build.

The existence of such abundant and cheap quantities of "spare" solar capacity is also an opportunity for developed nations, which have an acknowledged responsibility to support the Global South in delivering both the Sustainable Development Goals and global climate change targets, to make up for lost time. Solar panels are going to remain cheap for the foreseeable future even if deployment ramps up, creating a unique and immediate opportunity.

Stimulated by the exponential growth of solar power in the previous decade, manufacturing companies ramped up investment in new production lines in the early 2020s. The manufacturing capacity of factories worldwide tripled from 2021 to 2023, and is set to reach 1,100 GW per year by the end of 2024. About 80-85% of manufacturing capacity is based in China, which is also the clear market leader in upstream parts of the supply chain.

However, forecasts for deployment this decade suggest that more than half of this manufacturing capacity will lie unused, with neither government targets nor project pipelines running at a commensurate scale. Solar panel prices are accordingly at a historic low of about US\$ 0.10 per watt, having virtually halved during 2023.

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