

Renewable electricity in Japan's 7th Strategic Energy Plan

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Progress on The Sixth Strategic Energy Plan

Japan's Sixth Strategic Energy Plan was agreed in 2021, and formed a plan for 2030. It includes a large planned scale-up of solar, an increase in onshore wind, and a new offshore wind industry.

On 29th May 2024, METI published a renewable energy [progress](#) document of the Sixth Plan. Here we summarise our key take-aways:

Solar

Solar installations must increase from about 5 GW/year now to 7.5 GW/year to 2030. Its growth is being hampered by limited available sites, and more attention is needed to free up suitable land. Good growth in rooftop solar is helping, and its potential is immense and needs to be harnessed.

Onshore wind

The building of onshore wind has collapsed as projects are on pause due to planning issues. Of the 12 GW that needs to be built by 2030, there are reassuringly over 10 GW of projects approved, but they have yet to be commissioned. There is a clear need to overhaul planning and administrative procedures, or else the target will not be met.

Offshore wind

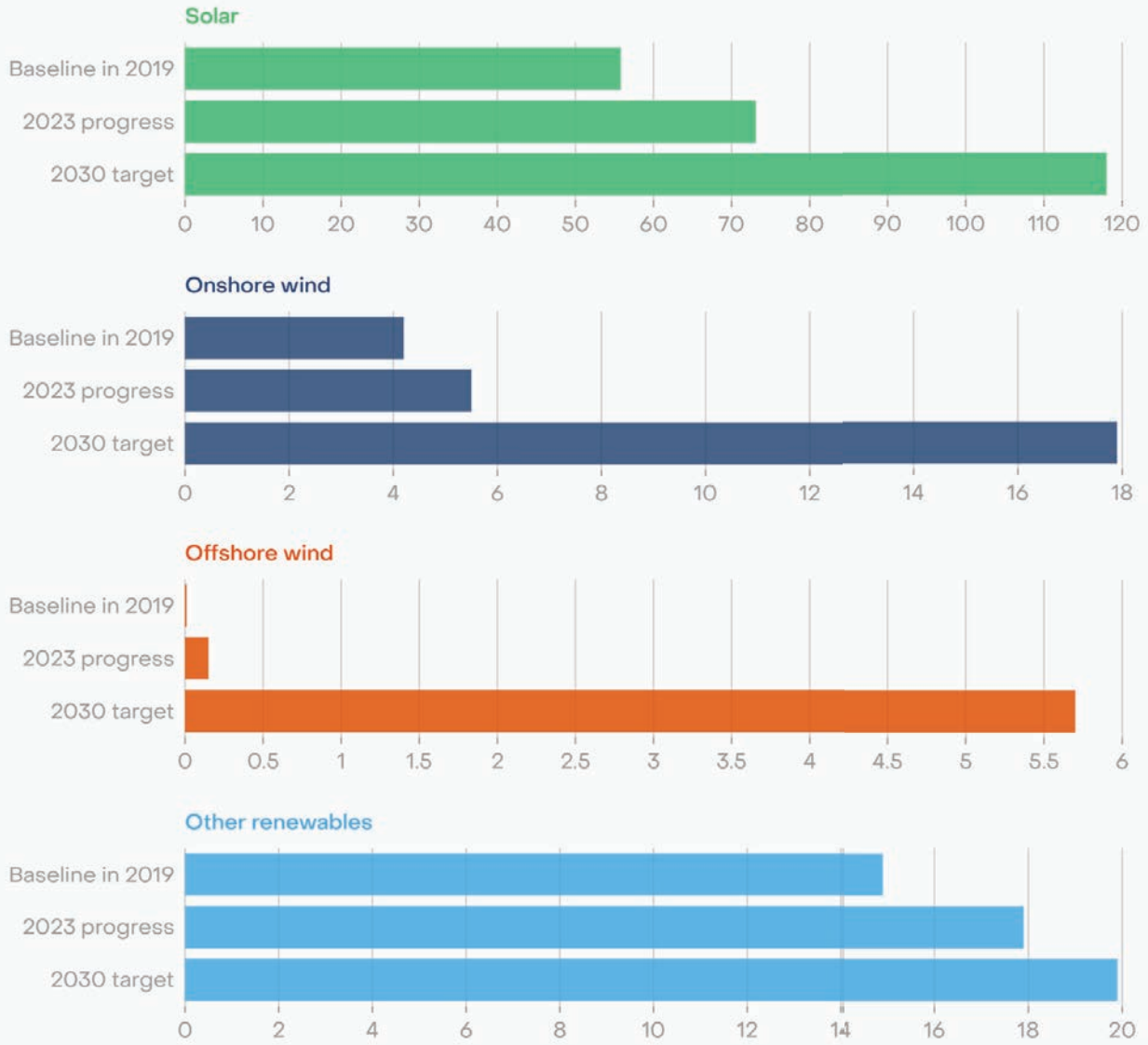
There is 5.1 GW auctioned to almost meet the 5.7 GW target. However, only 0.15 GW has actually been built so far. More coordination and focus is needed to transform it into a priority industry for Japan. This includes the incubation of the floating offshore wind industry, which will be needed at scale in the next decade.

Other renewables

Expectations for growth in other renewables were not as big. Bioenergy is mostly on track, hydro less-so, and geothermal is off track.

Progress to 6th Strategic Energy Plan targets

Gigawatts of installed capacity



Source: METI update from 29 May 2024 · Excludes rooftop solar and large hydro

International context

“A predominately decarbonised power system by 2035”

G7 members, including Japan, committed to “a predominately decarbonised power system by 2035”. However, five members of the G7 already have targets for a 2035 net zero power sector. It is only Japan and Italy that do not.

Summary of G7 members' commitments towards a net-zero power sector by 2035

Country	High-level commitment	Implementation progress
United Kingdom	Yes - Conservative government aimed for 95% clean power by 2030, and fully decarbonise the power system by 2035..	The new Labour government is targeting even more ambition by 2030, further stepping up on wind and solar, putting progress towards 100% clean power by 2035 well ahead of schedule.
Germany	Yes - their climate law commits to 100% renewables by 2035	The 2022 Easter Package is a detailed implementation plan, covering all areas including land use, planning and grids to work towards 100% renewable power by 2035.
United States	Yes - presidential executive order for carbon pollution-free electricity sector by 2035.	The Inflation Reduction Act has led to an explosion of activity in clean electricity, making the 2035 target possible.
Canada	Yes - a federal commitment to 100% net-zero emitting electricity by 2035.	Provinces are currently working on implementation plans. Currently provincial plans do not match the federal target.
France	Yes - France was part of a 2023 joint announcement alongside the Netherlands, Austria, Germany, Luxembourg and Belgium.	The government increased solar, wind and hydro targets in 2023 for 2035 to reach the target.
Italy	None	-
Japan	None	-

Source: Ember's 2030 Global Renewable Target Tracker



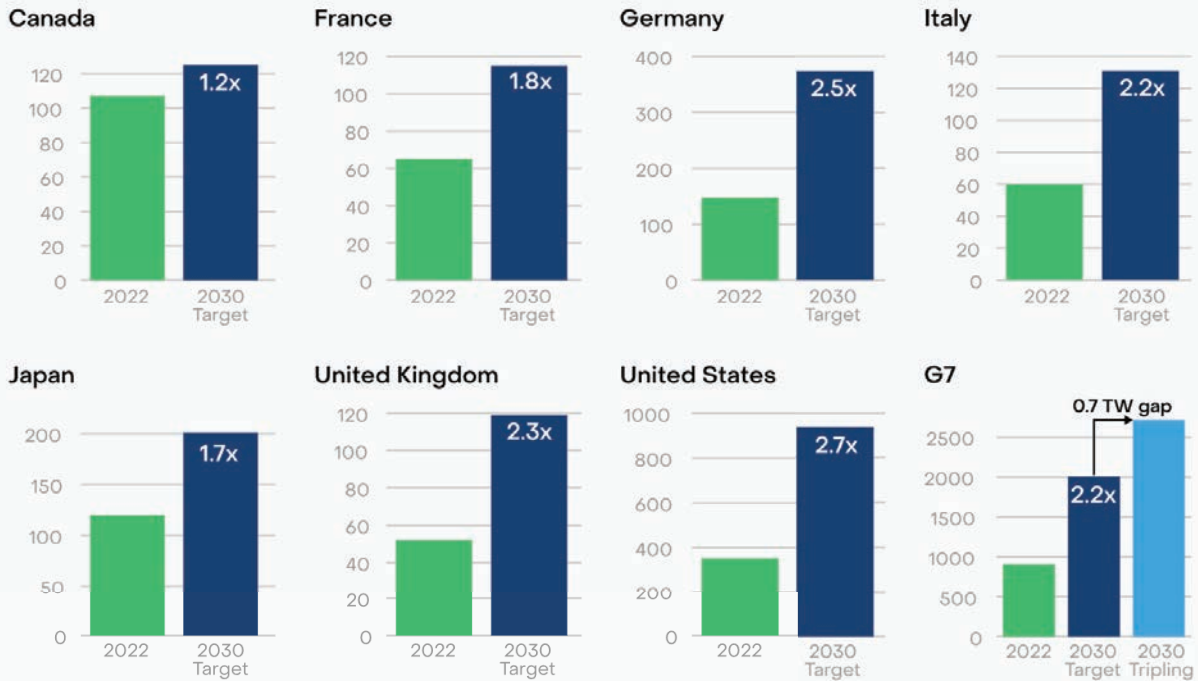
Tripling global renewable capacity

At COP28 in 2023, Japan – alongside every other country in the world – made a commitment to triple global renewable electricity capacity, from 2022 to 2030.

However, Japan – apart from Canada – has the smallest scale-up of renewables capacity planned to 2030. Japan’s targets in its Sixth Strategic Energy Plan add up to 201 GW, just 1.7 times higher than the capacity in 2022. Japan has supported a global tripling of renewables capacity. This would mean 2030 renewables capacity would need to rise to over 300 GW.

Scale of ambition in renewable targets varies across G7

Renewables capacity (GW)



Source: Ember

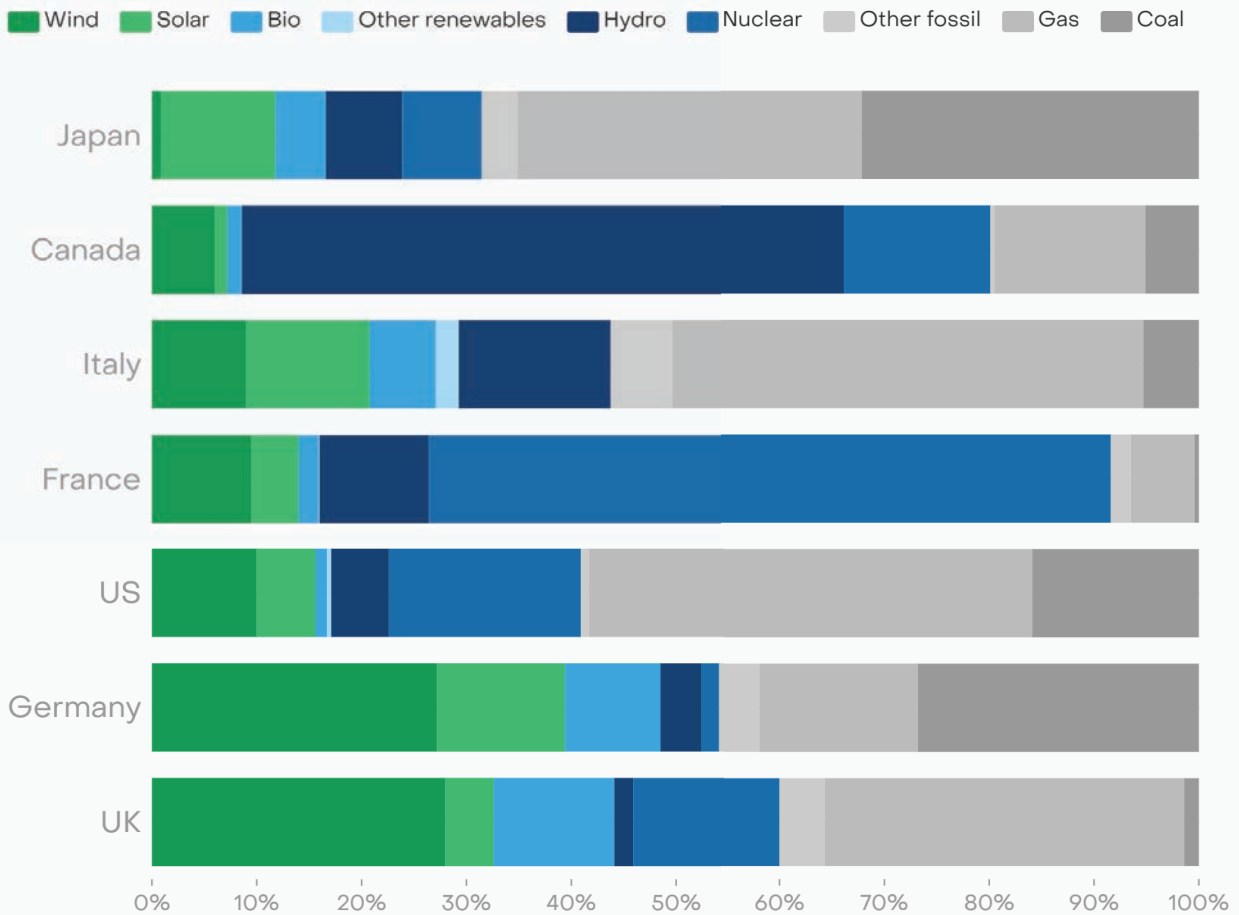


Other countries are showing more ambition on wind

Only 1% of Japan's electricity last year came from wind. That was by far the lowest of any G7 country. Low wind generation is partly why Japan has only a third of its electricity from clean sources. A further third came from coal and a third from gas, meaning Japan has the dirtiest electricity of any G7 country.

Japan has the lowest share of wind among G7 – and highest share of fossil

National electricity mix in 2023



Source: Annual electricity data, Ember

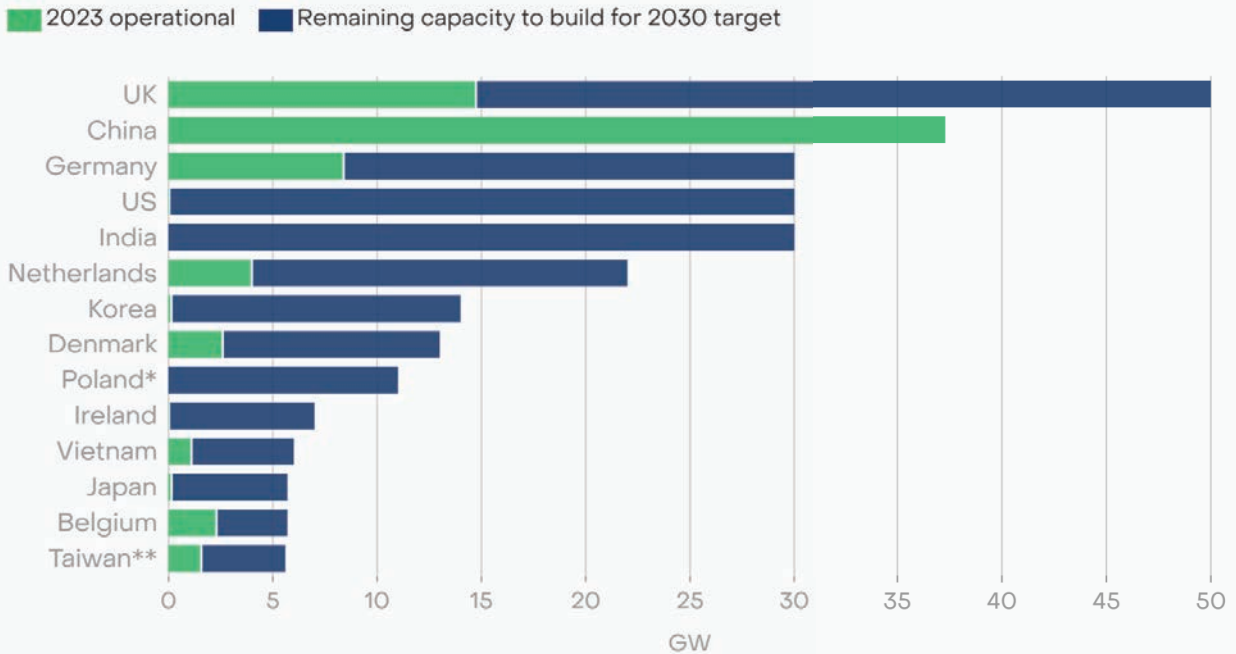
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A 2030 target of 5.7 GW of offshore wind capacity was proposed in the Sixth Strategic Energy Plan. There are 11 countries that have offshore wind targets greater than or equal to the 5.7 GW of Japan's. Taiwan is targeting 5.6 GW, but for 2025; Vietnam's 2030 target is 6 GW. Belgium, with a tenth of the population, is also targeting 5.7 GW. Korea is targeting 14.2 GW by 2030. At the top is the United Kingdom, almost nine times Japan's 2030 target.

Furthermore, Japan has yet to commission almost any offshore wind – as at the end of 2023, China had 250 times more operational offshore wind capacity than Japan.

Japan's offshore wind target lags behind its peers

Offshore wind capacity in gigawatts



Source: 2023 data from IRENA, 2030 targets from GWEC's 2023 Global Offshore Wind Report · * 2027 built or in development, ** 2025 target



Japan's current Sixth Strategic Energy Plan envisions wind rising to only 5% of Japan's electricity by 2030. Wind and solar combined would hit only 20%, where the tripling of global renewable capacity by 2030 means wind and solar would make up 40% of global generation.

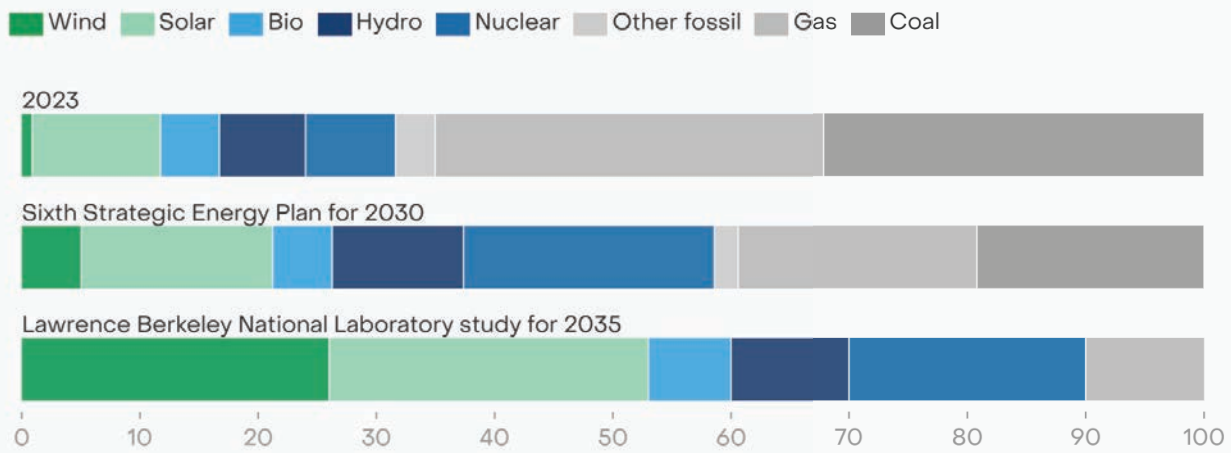
How much renewables in the Seventh Strategic Energy Plan?

The Seventh Strategic Energy Plan runs to 2040. However, for many reasons, the targets for 2035 may be more important than for 2040. First, 2035 targets would likely form the basis of Japan's UN National Determined Contribution (NDC) submission next year. Second, 2035 relates to pledges for Japan's power sector to be "fully or partially decarbonised by 2035". And third, of course, 2035 is more actionable now than 2040.

One highly regarded study shows a possible way forward. The Lawrence Berkeley [study](#) from February 2023 found that by 2035, 43 GW (24 GW of fixed and 19 GW of floating wind) was possible. This would mean wind rises to a quarter of Japan's electricity mix, and enable fossil fuel generation to fall to just 10%.

Higher wind ambition would push Japan closer towards decarbonised power sector by 2035

Share of electricity generation (%)



Source: 2023 data from Ember's Global Electricity Review

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Recommendations

- **Set a 2035 net zero power sector target.** This would align Japan with much of the developed world. This would help inform the ambition needed in the Seventh Strategic Energy Plan, so that renewables targets could be set with confidence. It would also allow an ambitious 1.5 degree-aligned NDC submission to the UNFCCC, as promised by Japan.
- **Set a 300 GW tripling renewable target for 2030.** Wind and solar are in a position to scale-up more rapidly than the government is currently planning for, and setting a higher target would unlock the policy action needed to achieve this.
- **Create a floating wind industry.** Set premium tariffs for floating wind to begin deployment this decade, so it is able to rapidly scale next decade.
- **Lay out a plan to unblock wind projects.** Onshore projects are hanging in limbo, for a variety of reasons, meaning 2030 targets may be difficult to achieve.
- **Encourage rooftop solar.** Make it easier for consumers to install solar on their roofs.
- **Improve planning rules for solar farms.** There is still more suitable land available for solar farms, but planning rules hold this back.

About Ember

Ember is an independent, not-for-profit climate and energy think tank that produces cutting-edge research and high impact, politically viable policies that aim to accelerate the global transition to clean electricity.

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About Climate Integrate

Climate integrate is an independent climate policy think tank in Japan with an aim to realize a just, sustainable, and peaceful society through accelerate climate actions toward decarbonisation by civil society, business and public sector.

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