



TITAN
GREENTECH

JAPAN RENEWABLE ENERGY OUTLOOK

Market Report

2023

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Japan's renewables boom kicked off out of necessity following the Fukushima incident in 2011 out of necessity. Switching off 46GW of nuclear power overnight led to a very attractive Feed In Tariff for renewable projects, attracting wave after wave of investors and developers into the renewable generation space.

Fast forward to 2023, and renewables now makes up close to 20% of Japan's energy mix, with over 70GW of clean energy in operation.

2021 and 2022 had seen some slowdown in renewable deployment. FiT auctions for PV solar were under-subscribed, land scarcity and rising costs made development challenging and the market mechanisms to allow a clear switch into FiP and Corporate PPAs had been moving slowly. Controversy and widespread dissatisfaction with the offshore wind auction results from round 1 and a complex auction criteria led to a delay in further auctions.

Russia's invasion of Ukraine and the ensuing energy crisis has pushed Japan to accelerate solutions to these issues. Among the G7, Japan is the most vulnerable to energy market spikes, with only 11% of Japan's primary energy being domestically produced.

Current targets are for renewables to make up 36~38% of the energy mix by 2030, which translates into another 50~60GW of PV solar and 10GW of offshore wind by that time. We are also seeing a strong Government led push for grid improvement, floating offshore wind and energy storage projects, which is attracting a new wave of investment into the sector.

Demand Driven Growth

Japan has more RE100 listed companies than any other country outside the US. 79 of the 399 current members are Japanese. Demand from industry for green electrons is outstripping new capacity 5x year on year according to the Renewable Energy Institute.

Corporate PPAs are the name of the game now, with offtakers keen to secure as much clean energy as possible, and developers seeking stable returns for their projects. Titan GreenTech are seeing strong increase in demand for talent experienced in sourcing and structuring PPAs from offtakers, operators and advisories.

Corporate PPAs are no longer limited to global tech giants such as Amazon and Apple, Japanese players such as AEON, SoftBank, Sony and more are all lining up and competition for clean energy makes this a clear sellers market.

With a huge coastline, powerful shipbuilding industry and the world's 6th largest EEZ, the expectations for offshore wind in Japan are high. In response to pushback from the industry, auction criteria for round 2 fixed bottom auctions have been revised to increase competition, select early stage development work will shift to a centralised model, and the Government is making clear steps forward to unlock Japan's expansive EEZ for development of large scale floating wind.

The Global Wind Energy Council and Japan Wind Power Association estimate a total potential of 440GW of offshore wind potential with this open. Currently, METI has allocated 8 promotion zones, 5 promising zones, 11 preparation zones for offshore wind projects.

The Government, as well as major Japanese industry are aligned in pushing Japan to be a technical leader in floating wind, in order to revitalise the domestic shipbuilding industry and develop a new technology for Japan to export.

It is not all rosy though, compared to competing markets in APAC and further abroad, the auction system is still opaque, project sizes are <1GW and auction volumes are relatively low. As is often the case in Japan, offshore wind is shaping up to favour those who can play the long game. On the talent side, we are seeing experience professionals in offshore wind clearly analysing potential employers long-term prospects in the market when considering their next move.

Changing of the guard in PV solar

Despite a number of solar developers exiting the market over the past couple of years, we see this sector as alive and well. Those that are leaving are relatively small developers, without deep domestic partnerships, access to low-cost finance to remain competitive with thinning margins or the ability to navigate market based systems.

On the other side of this, successful existing players and sophisticated large integrated renewable developers alike have been expanding their portfolios, moving into areas such as agri-solar, aggregating large volume, small scale projects into PPAs or developing hybrid plants with integrated battery storage.

This is leading to an increase in movement of skilled professionals and senior leaders within the onshore renewables space - and a high increase in market value of those who can source profitable projects, and secure PPA off take.

Battery Storage

With Japan looking to double the renewable capacity on the grid in the next few years, as well as the Government's desire to become a regional leader in grid management and balancing, investment in battery storage is booming. To date, 11 companies have won subsidy projects to develop stand-alone grid scale ESS systems, including 2 foreign capital firms.

Many leading PV developers familiar with the market are switching or expanding their focus to develop ESS projects, and there is a clear talent shift from solar into this sub-sector of the power market.

On the technology side, Tesla took the early lead in the space, however both Chinese and domestic players are gaining interest from developers with new chemistries, flow batteries and lower costs.

Interconnections

Continuing with the theme of Japan's ambition to be a lead technology and expertise exporter throughout Asia, we are seeing investment and opportunity in HVDC connections. The (MW) connection from Hokkaido to Honshu is expected to be complete in (XX).

If Japan is successful in establishing their expertise in this area, significant opportunity exists with the ASEAN power grid, looking to connect various markets throughout SE Asia to increase clean energy deployment and improve energy security.

Thailand, Laos & Myanmar already have begun to connect their grids. Indonesia and Malaysia also have projects underway, however the scale of opportunity of the ASEAN Super Grid is something that Japan clearly wishes to take advantage of.

Manufacturers

As a world leader in nuclear technology, this was Japan Inc's favoured form of clean energy until 2011 and the Fukushima incident. In the 90s and 2000s Japan pushed photovoltaics and battery power, as major Japanese firms led the world in this technology.

These days, renewable technologies are produced much more cheaply, and at scale in China, and European competitors won the battle of the wind turbine years ago, with the major Japanese players exiting the market over the past decade.

We do see some hope in this area, with Toshiba manufacturing 134 nacelles for GE turbines which will be supplied to Mitsubishi for the 1.7GW of round 1 offshore projects. Japan also has a strong push into next-generation solar technology such as perovskites, and battery technologies such as solid-state and flow batteries.

Market demands from industry and a renewed urgency to improve energy security are pushing the growth of renewables in Japan.

Despite supply chain bottlenecks and inflation, investment into Japan's renewables market is strong, and positive policy changes are being pushed forward, albeit not at the pace that industry would desire.

For an in depth consultation about the Japan market, current trends, and finding the critical talent to lead and build your team, get in touch with us at (email)

In summary

About The Author



Andrew Statter is the Partner leading Titan GreenTech's Japan consulting business.

He and the team focus on advising multinational firms in the renewable energy and cleantech sectors for Japan market entry, growth, partnership and executive search.

Titan GreenTech's annual market outlook report on the industry comes from our own research, thousands of conversations with energy sector leaders in both private and public sectors as well as market research partnership with Japan's leading market news publication, Japan NRG.

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Titan GreenTech, a division of the award-winning Titan Consulting Group, comprises three core business units that specialize in executive advisory and recruitment services within Japan.

