

Going 'Green' During the COVID-19 Crisis

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COVID-19, as both a supply shock and a demand shock, has the potential to severely disrupt global economic activities, including energy systems. According to IEA (2020), global energy demand is expected to decline in 2020 with widespread travel restrictions and economic lockdowns as COVID-19 spreads around the world. Japan reported its first case of COVID-19 in January 2020; however, did not impose any major lockdown (except Hokkaido prefecture for few weeks). This is good enough to assume that the energy demand in the country has not been strongly affected due to COVID-19. Experts are increasingly acknowledging that the global solar PV value chain is particularly affected because manufacturing capacity is concentrated in few countries, including the People's Republic of China (Zhai, 2020). Given these facts and high dependence of Japan on the People's Republic of China for its solar PV supply, it would be interesting to look at the trend in energy imports to the country.

Due to limited data to evaluate the impact of COVID-19 on energy trade in Japan, we use imports of solar PV provided by the Trade Statistics of Japan Ministry Japan. Although solar power was only 7% of total power generation, solar power was one-third of power from renewable sources in Japan in 2018. Given this high share of solar power in renewable energy sources, disruption in the availability of solar PV may have adverse consequences on the sustainability of the renewable energy power generation. It is interesting to note that the fossil fuels are still a

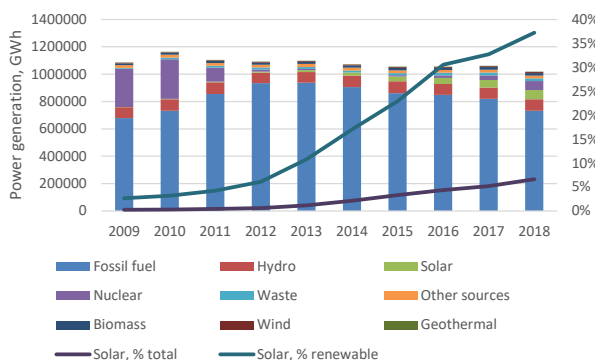


Figure 1 Power generation mix in Japan

Source: Own elaboration using data from IEA/OECD World Energy Balances/Extended World Energy Balances

dominant source of electricity in Japan's power mix, solar power generation started to grow faster in 2012 when the government launched the feed-in-tariff scheme (JEPIC 2019).

Import of Solar PV in Japan

Using monthly imports of Solar panels in Japan for the period January 2019 to February 2020 (the latest

available data as of 17 April 2020), we analyze the trend in energy trade. Our preliminary findings suggest the import of a solar PV was stagnant over the last few months; however, it significantly decreased during the COVID-19 outbreak (Figure 2). The People's Republic of China and Taiwan are two major exporters of solar PV to Japan which accounted for 87% of its total imports in 2019.

The People's Republic of China was severely affected by COVID-19 starting from January 2020, which could have affected local production and exports of solar PV. This raised concerns how supply of solar PV will be affected.

The share of imports of solar PV from the People's Republic of China to Japan reduced by more than half in February 2020 compared to the previous month. Fortunately, another major exporter of solar PV to Japan, Taiwan, was not severely affected by COVID-19. Part of the reduced supply of solar PV from the People's Republic of China was replaced by Taiwan. The share of imports of solar PV from Taiwan to Japan increased in February 2020. Compared to the imports during the same months last year, the share of the People's Republic of China to Japan shows a decline (figure 3). This also confirms that this decline during the recent months is not just seasonal. These evidences suggest that this early decline in imports in the wake of COVID-19 is mostly likely to be supply-driven. Only

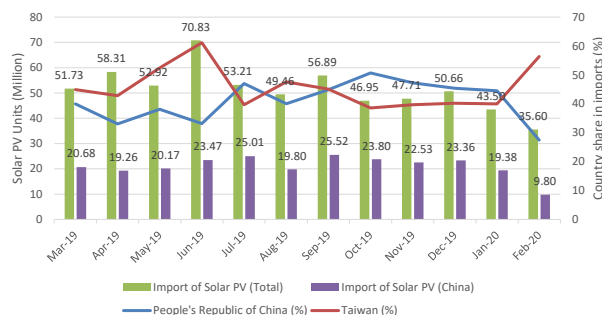


Figure 2 Import of Solar PV

Source: Own elaboration using data from Trade Statistics of Japan Ministry of Finance

one month of lower imports of solar PV to Japan does not challenge energy supply in Japan significantly due to the accumulated capacity stock of solar PV in Japan and low share of solar PV power in total electricity generation (only 7% in 2018). Nevertheless, it raises a concern for further development of solar PV capacity stock and transition towards sustainable energy

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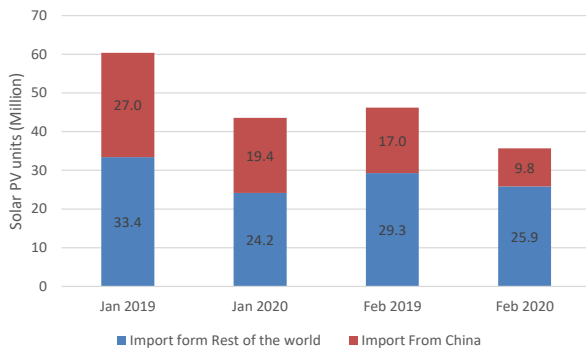


Figure 3 Change in Imports of Solar PV during the same period last year

Source: Own elaboration using data from Trade Statistics of Japan Ministry of

systems if import of solar PV continues to be disrupted due to the COVID-19 outbreak.

Policy Recommendations

In line with Bhandari and Roy (2020), we recommend that tackling sustainable energy issues along with the COVID-19 pandemic crisis together can strengthen resilience through its environmental impact. This requires a coherent policy formulation minimizing the effects of the pandemic in the short-run and supporting energy sustainability in the long-run.

Before been overtaken by Chinese rival, Japan was leading the Japanese solar panel industries until the latter half of the 2000s (Ohira 2017). The Japanese customers are still dependent on the domestic manufacturers for housing needs of solar PV. As every crisis also brings with its new opportunities, the current crisis shall also be considered as an opportunity to consider making the domestic manufacturing cost-competitive to reduce the dependency on one production source. This kind of diversification would be helpful in reducing the risks and making the sustainable energy supply chain more resilient to shocks.

In a similar vein, the current fiscal stimulus package offered by the Japanese government to mitigate the disruptions in the supply chains also includes USD 2.2 billion to the manufacturers to shift the production out of China to other Southeast Asian countries (Reynolds and Urabe 2020). As there is too much dependence on a single largest supplier for renewable energy, a more specific plan is needed for the diversification, especially focusing on this sector.

As the diversification of the renewable energy supply chain would be gradual and a long-term process, the cost competitiveness would require making use of the comparative advantage due to low labor cost. Transfer of technology and technical know-how to the developing countries would be helpful in expediting the whole process.

Conclusions

Through this article, we attempt to capture the early impact of COVID-19 on energy and energy technology trade, that provides lessons for energy-importing countries, including Japan and its implication on the nature of trade network in the sector. Japan majorly imports solar PVs from China and Taiwan. The months following the outbreak of COVID-19 in the People's Republic of China has witnessed a remarkable change in the market share of solar PVs in Japan going in favor of Taiwan away from the People's Republic of China. We argued that limited number to import partners for energy and energy technology trade can have important implications for energy security following a crisis. Specifically, we suggest that apart from promoting domestic production of low-cost solar PV, the increased diversity in energy and energy technology trade partners through formation of regional trade cooperation and extending technical and financial support and to the global south can be mutually beneficial for both importing as well as exporting countries.

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