

COP26 & Japan's Carbon Neutrality Challenge

By Jun Arima



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Highlighting 1.5°C & 2050 Carbon Neutrality

On Nov. 13, COP26 concluded “successfully” with the adoption of the Glasgow Climate Pact. I enclosed the word “successfully” in quotation marks because there have been a variety of assessments as to what the convention actually achieved. For example, environmental activist Greta Thunberg denounced the summit: “It is not a secret that COP26 is a failure... Two weeks of business as usual, blah, blah, blah!” Prior to COP26, Prime Minister Boris Johnson of Britain, the host country, enumerated what he aimed at achieving at COP26: (1) securing global net zero by mid-century and keep warming to 1.5°C within reach; (2) adapting to protect communities and natural habitats; (3) mobilizing finance; and (4) completing negotiations on the Paris Agreement’s rule book. Although incomplete, it may at least be said that these results have been achieved. It is with mixed feelings that I believe COP26 was a success, surpassing previous expectations.

Of the above expected outcomes, Britain placed the greatest emphasis on its aim of holding the global average temperature to an increase of 1.5°C. The Paris Agreement states: “This Agreement... aims to strengthen the global response to the threat of climate change... including by: Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels” and “In order to achieve the long-term temperature goal... Parties aim to reach global peaking of greenhouse gas (GHG) emissions as soon as possible... and to undertake rapid reduction thereafter... so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century.” Consolidating the most demanding target of 1.5°C from the range of temperature targets provides a basis for aiming to achieve global net zero by 2050, a 45% reduction in global emissions by 2030, phasing out coal power, ending the sale of internal combustion automobiles, and other goals.

That is why, at the G7 Cornwall Summit which Britain hosted, it first incorporated into the Summit Communiqué the 1.5°C target, net zero by 2050, transitioning away from unabated coal capacity, halting public financing for coal power abroad, and other initiatives. Britain’s next strategy was to align with Italy, the G20 host, to have similar messages reflected in the G20 Leaders’ Declaration, but China, India, Saudi Arabia, Russia, and other countries strongly opposed such a

move. They argued that attaching particular emphasis on the 1.5°C and 2050 net zero goals was almost equal to the renegotiation of the Paris Agreement. China and India, both of which are highly dependent upon coal, pushed back strongly against eliminating coal from their domestic energy mixes, and Saudi Arabia and Russia also followed suit over concerns that elimination of coal might be extended to all fossil fuels including oil and natural gas. The result was that the G20 summit only reconfirmed the temperature targets instituted under the Paris Agreement. Phasing out of domestic coal capacity was not included as a G20 commitment. That is why President Joe Biden and Prime Minister Johnson were disappointed with the G20 outcome on climate.

Based on this series of events, I forecasted that COP26 would probably not reach an agreement beyond what was agreed to at the G20 summit. However, the Glasgow Climate Pact adopted at COP26 includes, among other commitments, (1) a resolution to pursue efforts to limit the temperature increase to 1.5°C; (2) recognition that limiting the rise in temperature to 1.5°C requires reducing global emissions by 45% by 2030 relative to the 2010 level and to net zero around mid-century; (3) consequently, the 2020 decade is regarded as the “critical decade” and calls on COP27 to adopt a work plan to scale up the level of ambitions during this period of time; and (4) a request for the parties to revisit and strengthen their Nationally Determined Contributions (NDCs) as necessary to align with the Paris Agreement temperature goal by the end of 2022. This clearly surpasses what was achieved at the G20 Summit.

Predictably, China, India, Saudi Arabia, and other nations reacted negatively to broaching the 1.5°C target. G20 is a forum where clashes arise between G7 nations and emerging countries. However, COP offers a strong voice not only to major economies but also to vulnerable, less-developed nations and small island nations that are susceptible to the damage wreaked by climate change, as well as the influence of environmental NGOs inside and outside of the chambers. China, India, and other emerging nations are concerned about the effect that the 1.5°C target will have on their economic growth. Resource-rich nations are worried about the effect on their fossil fuel exports. On the other hand, small island nations and less-developed nations anticipate that raising the temperature target hurdle will increase the need for assistance for climate change adaptation as well as loss and damage due to its effects. During the informal stocktaking plenary by the COP26 president, massive pressure to conform emerged. The plenary erupted into great

applause whenever strong support for the 1.5°C goal was expressed. Britain succeeded in leveraging that conference sentiment to push the 1.5°C goal to the forefront.

In addition, the agreement includes the wording “...to accelerate the... phasedown of unabated coal power and phase-out of inefficient fossil fuel subsidies.” At the United Nations General Assembly in September, President Xi Jinping announced that China would not build any new coal-fired power projects abroad. That is why the G20 included in its message, just as the G7 had, a halt to public financing for new coal capacity abroad. Despite that, the COP26 agreement extends to domestic coal capacity. The original proposal was worded “phase-out coal”, which was much broader in scope than the electricity sector alone. Encountering strong opposition from China, India, Saudi Arabia, South Africa, and other nations, just as with the 1.5°C target, the wording was modified to “phase-out of unabated coal power”. However, even at the final stage of the convention, India, China, South Africa, and other nations were still not satisfied. India argued that “inexpensive and stable electric power for poor people is the top priority for countries.” Considerations were added that revised “phase-out” to “phasedown” and included the wording “while providing targeted support to the poorest and most vulnerable in line with national circumstances and recognizing the need for support towards a just transition”. Even though the European Union, small island nations, and other countries rallied in unison against this, they accepted it reluctantly from the standpoint of passing a package that would achieve an overall consensus. Nevertheless, it deserves attention that wording targeting specific energy sources was included for the first time in the Paris Agreement and related decisions.

In this way, the 1.5°C target was strongly highlighted and the formulation of a very ambitious work plan in line with that was incorporated. Together with the coal phasedown, while toned down from the original proposal, the Glasgow Climate Pact is lauded by environmentalists as a historic agreement.

Heavy Consequences of COP26

While Britain’s diplomatic skill in working out an agreement beyond the line agreed at the G20 deserves accolades, I cannot simply be jubilant. It is because Britain’s strong push of the 1.5°C target and net zero in 2050 has significantly altered the nature of the Paris Agreement, which was established while striking a delicate balance between the top-down approach of setting temperature targets for the entire world and the bottom-up approach where each country sets targets according to its specific national circumstances. Aiming for global net zero by 2050 will likely create a fierce battle

between developed and developing nations over limited carbon budgets through the year 2050.

Already India has argued that if developed nations strongly push global net zero by 2050, they should achieve net zero much earlier than 2050, go into negative emissions thereafter and give carbon space to developing nations. It has also contended that if developed nations are demanding that developing nations raise their NDCs in order to ultimately achieve net zero emissions, they should substantially increase financial flows to developing countries to \$1 trillion annually. While the world is significantly off track from the 2°C pathway, Europe and the United States pushed through a further ambitious target related to 1.5°C. This will likely come back to haunt developed nations over the coming decade in the form of incessant pressure from developing nations calling on them to achieve carbon neutrality much more rapidly and to significantly increase assistance to developing countries.

The agreement calls for NDCs to be strengthened in line with the Paris Agreement temperature goal and be submitted by the end of 2022, but it is very unlikely that China and India will revise their targets. Both nations, which have embraced the 2060 and 2070 net zero targets, will no doubt argue they are respecting the Paris Agreement provision of “net zero in the second half of this century”. Rather, as the host country of the 2022 G7 Summit, Germany, which has the Green Party in the coalition government, could propose that G7 nations move forward the 2050 net zero target and further raise 2030 NDCs with a view to urging China and India to follow suit.

The argument over coal phaseout is likely to resurface with certain target years. This could further extend to the phaseout of all fossil fuels. Such a discussion is completely divorced from the reality of the energy landscape. A major cause of the energy crisis, which is overwhelming Europe and spreading to Japan, is that supply has not kept up with the increase in energy demand generated by the economic recovery. A significant cause of that imbalance is the stagnation in upstream investment in petroleum and gas. Meanwhile, in the COP world, the US and EU nations have put their names on the joint declaration to end public financing for the fossil fuel sector. This could further stagnate upstream investment, resulting in tightening of energy supply in the future as well. The environmental fundamentalism originating in Europe has been demonizing coal and resulted in the global rise in gas demand. While the Biden administration is prohibiting domestic oil production in federal lands, it has called on OPEC and Russia to ramp up production. While Britain is at the forefront of coal bashing, power shortfalls due to very weak wind and skyrocketing gas prices obliged it to mobilize old coal power plants in order to maintain power supply. These are contrary to the climate narrative, which is calling for the phaseout of

fossil fuels.

This shows that when secure and affordable energy supply, as the most fundamental policy requirement, is at risk, the climate agenda could easily be set aside. The Paris Agreement has substantially changed global awareness of climate change, and in fact many people – perhaps even most – would say they are concerned to some degree about climate change. However, the crucial test is how much they are willing to pay to tackle the issue. A survey conducted by Chicago University and AP in 2018 found that seven out of 10 Americans thought climate change is happening, and that some 60% said climate change is mostly or entirely caused by humans. On the other hand, while 57% would support a proposal that would add \$10 to their annual electricity bills to combat climate change, a striking 67% would oppose policies that increased their own yearly costs by \$120 or more. Obviously, there are limits to willingness to pay, and these limits are very much lower than would be required to meet the relevant climate targets. The International Energy Agency's recent report *Net Zero Emissions by 2050* assumes a carbon price of \$75/tCO₂ in 2025 and \$130/tCO₂ in 2030. This implies that citizens of the US, where *per capita* emissions are about 16 tCO₂ per annum, would have to shoulder an additional cost burden of more than \$1,000 per year in 2025. This does not seem likely to be politically viable. It seems clear, then, that there is a wide gap between the public's expressions of general concern about climate change and their actual willingness to pay. Furthermore, that willingness to pay is far lower than the required level of carbon pricing consistent with meeting the 1.5°C target. This gap will, naturally, be still greater in developing countries.

Eco-Fundamentalism as Grist for China's Mill

We should also recognize that China is acting craftily amid the surge of eco-fundamentalism in global climate politics. By setting a carbon neutrality target for 2060, 10 years later than that of other developed countries, China has secured room for maneuver, and as soon as the failure of the carbon neutrality targets in developed countries becomes evident, China will criticize them and procrastinate over its decarbonization target. Chinese companies are the principal beneficiaries of the green agenda, holding 70% of the global solar market, and representing seven out of the 10 largest wind turbine manufacturers. The trend towards electric vehicles (EVs) is a particularly advantageous development for China, sweeping away the decades of accumulated technological advantage in internal combustion engines of its major international competitors, and providing a short-cut to automobile power status. Dependence on Middle Eastern oil has long been the Achilles' heel of global

energy security, but a shift towards renewables, battery storage and EVs could cause a different risk, namely growing dependence on China for fundamental strategic minerals and the high-value components manufactured from them. Phasing down of fossil fuels use in developed countries will result in lower procurement cost of fossil fuels to China, while at the same time increasing energy costs in developed countries themselves, delivering competitive advantage to China. China's plans for a regional and then a world electrical power grid raises security concerns around cyber-attacks and politically motivated disconnections.

Whether the world can succeed in meeting the 1.5°C target or not is critically dependent on Beijing's course of action. Some believe that developed countries can prevent Chinese free-riding by taking coordinated actions, such as the Carbon Border Adjustment Measures (CBAMs). In practice this will be very difficult to achieve. Creating an explicit carbon price in the form either of emissions trading permits or a carbon tax will be almost impossible in the US given the current Congressional situation, and China, India and Russia will be united in opposition and will threaten retaliation. Germany, which is extremely dependent on exports to China, is already referring to the idea of a "carbon club", comprising the EU, the US, Japan and China, which would be exempt from the CBAMs, thus defeating the object of preventing Chinese free-riding. The problem appears to be insoluble.

The divided and acrimonious world that is being created by a battle over limited carbon space will permit China to further enhance its global economic presence and influence while the developed, democratic world becomes economically, politically, and militarily weaker. This is a particular concern for Japan, which is feeling an increasing security threat from China.

Japan's Carbon Neutrality Challenges

Japan faces great challenges in its pursuit of carbon neutrality. Since the world entered the implementation phase of the Paris Agreement in 2020, countries have been increasingly under pressure to announce their 2050 carbon neutrality goals and update their NDCs for 2030. Last October, former Prime Minister Yoshihide Suga announced that Japan would aim to achieve carbon neutrality by 2050.

In July 2020, three months before Suga's announcement, Japan entered a process of formulating the Sixth Strategic Energy Plan, which seeks to introduce a new energy mix that will underpin its new NDCs. Japan's previous NDCs formulated in 2015 pledged a 26% reduction of GHG emissions from 2013 levels by 2030. Under this target, Japan's total power generation was made up of a 44% share

of non-fossil fuels (22–24% from renewables, 20–22% from nuclear). This energy mix fulfilled three requirements: restoring energy self-sufficiency to around 25% (surpassing pre-2011 Fukushima disaster levels), lowering electricity costs and setting a GHG reduction goal that was comparable with other developed countries. This NDC was designed to reduce fossil fuel imports and accelerate the adoption of renewable energy through Japan's Feed-In Tariff (FIT) policy.

The 2030 target was formulated based on a bottom-up approach. The 2030 GHG emissions target was to be pursued with certainty, as it was calculated against existing policies and technologies. On the other hand, the 2050 goal committed Japan to an 80% reduction in GHG emissions and was regarded as a “vision” or “aspirational direction” amid multiple uncertainties based on a top-down approach. The differentiated use of the words “target” and “goal” further reflect the nature of these approaches.

Despite this, raising the 2050 goal from an 80% reduction to carbon neutrality has almost eliminated these differences. At the 2021 Leaders' Climate Summit hosted by the US in April, Suga announced that Japan would aim for a 46% reduction from 2013 levels by 2030 and continue strenuous efforts to meet a 50% reduction. This target is not based on a bottom-up approach.

At the time of this pledge, discussions of a new energy mix were still underway. The Japanese Ministry of Economy, Trade and Industry (METI) allegedly advised Suga that the new target should be lower than a 40% reduction, judging from progress towards Japan's previous target. Still, Suga and Environment Minister Shinjiro Koizumi insisted on a figure close to 50% for the sake of “consistency” with Japan's 2050 carbon neutrality goal. They must have felt pressure from the US and Britain as the COP26 host. In other words, Japan's bottom-up approach was replaced by a top-down approach. This implies that the 2030 target – set simply by linear back-casting from the 2050 goal – has come to be characterized by its aspirational, visionary nature. The non-binding nature of the NDCs may have pushed Japan's back.

In July 2021, METI proposed a draft of the Sixth Strategic Energy Plan with a new energy mix in 2030 where non-fossil fuels will account for 56–60% of Japan's total power generation (36–38% from renewables, 22–20% from nuclear). Compared with the previously proposed energy mix, the share of renewable energy was substantially raised, while the share of nuclear was maintained. In addition, projected total power generation in 2030 was lowered from 980 GWh to 870 GWh.

These figures have been criticised as “playing a mathematical game” and their feasibility is highly questionable. A higher share of renewables will increase the cost of FIT subsidies from 4 trillion yen

(\$35 billion) to 6 trillion yen (\$53 billion), not including the additional costs of integrating intermittent renewable energy sources into the power system. The majority of flat areas suitable for solar power plants have already been exploited. Despite high expectations for offshore wind power, wind conditions in the seas surrounding Japan are not as favorable as those in the North Sea. Restarting nuclear power plants has been slower than expected. Unlike European countries, Japan does not have grid connection with neighboring countries, which makes it more challenging to swallow large amounts of intermittent renewable power generation.

Japan's energy costs are the biggest concern. Japan's marginal abatement cost for reducing GHG emissions is much higher than other developed countries. Japan's industrial electricity tariff is already the highest among major countries, being two to three times that of nations such as the US, China and South Korea. While METI assumes lower fossil fuel costs, partly compensating for higher costs for subsidizing renewable energy, ongoing fossil fuel price hikes make this assumption questionable. The Japanese government needs to regularly review the cost of implementing this energy mix and compare it with its major trading partners. Otherwise, the international competitiveness of Japanese manufacturing industries may be at risk.

If Japan is serious about reaching carbon neutrality by 2050, the construction of new and more advanced nuclear power plants is essential. Nuclear energy has its own challenges, namely widespread “nuclearphobia” and soaring initial investment costs. For addressing the latter problem, regulated asset-based policies deserve consideration. The ruling Liberal Democratic Party has vowed to introduce Small Modular Reactors, which could make nuclear installation much more affordable.

“Nuclearphobia” is the most challenging part. However, while geopolitical and geoeconomic risks soar – and while Japan is likely to deepen its dependence on solar and wind energy, and inflows of Chinese panels, windmills and batteries – Japan does not have the luxury to rule out the nuclear option. Making energy policy a slave to opinion polls is irresponsible. It is time to mobilize political mettle.

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