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Comments on the Draft Basic Energy Plan

Japan Should Join the Global Trend for Renewables Toward Decarbonization

Persisting to Coal and Nuclear Will Put Japan's Future at Risk

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Japan's Basic Energy Plan needs to clearly define renewables--whose costs are falling globally--as providing the most important and secure avenue to decarbonization.

The draft Plan that the Government has recently released, however, falls short of addressing this need. In the name of "adopting an ambitious multi-track scenario," the draft expresses the intention of continuing to use coal and nuclear power over the long term. While committing to making renewables "as a major power source," the draft fails to revise upward the previous target of increasing their share in the energy mix to 22-24% by 2030. This target represents only about half the global standard level.

By keeping the target of renewables deployment low and clinging to coal and nuclear, the Government will send the wrong message to private companies and mislead their investment strategies. If Japan continues to lag in renewable energy expansion behind many countries and regions that benefit from affordable solar PV and wind power, Japanese businesses will inevitably see their competitiveness dwindle in the global market.

Renewables provides a secure power source toward decarbonization

The Government's draft of the revised Basic Energy Plan states that renewables are "an unreliable source of power because of their weather-driven intermittency." However, experiences in countries and regions that have been committed to deploying renewables have proved otherwise. Although solar PV and wind power generation fluctuates depending on the weather, such fluctuations are found to be predictable.

Major European countries such as Germany, the UK, Italy, and Spain now see that renewables account for more than 30% of their annual power consumption. The percentage is as high as 46% for Denmark. Renewables represent 50% of total generation in the US state of California. These countries and regions already meet nearly 100% of their total power demand with renewables in certain time zones. In short, they manage to maintain stable power supply even with massive renewable deployment.

A power system with zero dependence on fossil fuel is no longer a pipe dream. Demand adjustments, wide area synchronous grids, pumped-storage hydropower, and storage batteries can make such a system feasible. Of course, thermal power plants may be needed at least for now to maintain a balance with fluctuating demand.

The draft Plan maintains that international power grids that absorb such fluctuations have allowed Germany to deploy renewables on a large scale. Without presenting any evidence, the draft concludes that "the strategy of expanding renewable energy with the help of interconnections poses various feasibility issues for Japan." In Europe, however, not only most continental European countries but also the UK, an island country like Japan, have already achieved power interconnection using submarine transmission lines. In addition, many High voltage DC projects are now underway. The latest report by the Asia International Grid Connection Study Group, recently released by Renewable Energy Institute, shows that the laying of international submarine transmission lines between Japan and South Korea and between Japan and Russia are completely feasible both technically and economically.

Ample evidence already demonstrates, and more recent evidence shows more clearly, that renewables offer the most technically feasible solution to decarbonization. The draft Plan turns a blind eye to such extensive evidence in the world when it claims that renewables "alone cannot achieve decarbonization." This is tantamount to criticism for the sake of criticism.

Why not look squarely at the growing cost of nuclear power?

While persistently warning against already-resolved issues for renewables, the draft Plan rates nuclear power highly, defining it as a "practical option for decarbonization."

Nuclear power, however, cannot possibly be a sustainable energy source that supports a decarbonized society. To prove this point, it suffices to point out that no final disposal site for radioactive waste has been identified as yet amid the growing impasse surrounding the interim storage of spent nuclear fuel.

Another major drawback of nuclear power that the draft Plan fails to mention is its growing generation cost. The Agency for Natural Resources and Energy estimates the generation cost of nuclear power at 10.1 yen or more per kWh; however, this estimation assumes the construction costs of a nuclear power plant to be not more than half of those in new construction projects that are underway in Europe and the US. If the estimation were based on the construction costs in those projects, the nuclear power generation costs would be more than four yen higher per kWh.

It should be common knowledge globally that nuclear power is more costly than other energy sources. In fact, growing construction costs recently stalled the Government-sponsored projects to construct nuclear reactors in Turkey and the UK. This, more than anything else, bears eloquent witness to the fact that nuclear power has lost its cost competitiveness.

Persisting to coal will put the future of Japan's energy business at risk

The draft Plan calls for the "phase-out of inefficient coal power plants" but continues to endorse what it calls "high efficiency" coal power plants. Yet coal-fired power plants that the Government classifies as "high efficiency" plants emit more than twice as much carbon dioxide than LNG counterparts.

The Powering Past Coal Alliance, launched at COP23, aims to terminate the construction of new coal-fired power plants and decommission existing ones before 2030 in many countries and regions. Even the US, where the Trump administration advocates the protection of coal, saw the number of coal-fired power plants halved in the seven-year period ending in October 2017. The once-proposed decarbonization of coal-fired power plants with carbon capture and storage (CCS) technology has rarely been achieved anywhere in the world. It is no longer a practical policy option.

Globally, many financial institutions have stopped financing coal-fired power plants, thus accelerating divestiture from them. The insurance industry has even begun to stop underwriting coal-related projects.

A square look at what is going on in the world clearly shows that coal-fired power generation is an unpromising business. If the revised Basic Energy Plan defines coal-fired power generation as being an "important base-load power source," it will mislead Japanese energy companies in making investment decisions.

Coal and nuclear power generation is declining in the UK and Germany

The draft Plan compares the energy policies of UK and Germany and concludes that the UK, which maintains nuclear energy, has proved to be more successful in reducing CO2 emissions than Germany, which is phasing out nuclear energy. Clearly, there are differences in the focus of energy policy between the UK, which gives priority to coal phase out, and Germany, which leads other countries in nuclear phase out. The draft, however, makes no reference to this key fact: the two countries are both decreasing coal and nuclear generation amid renewable energy expansion.

Between 2000 and 2017, the energy mixes of Germany and the UK underwent the following changes. In Germany, the share of nuclear power dropped from 29% to 12% while the share of coal fell from 51% to 37%. The share of renewables jumped from 7% to 33%. In the UK, the nuclear share edged down from 21% to 19% while the coal share declined drastically from 31% to 6%. These changes are most attributable to the increased deployment of renewables, whose shares soared from 3% to 29%.

What Japan should learn from the experiences of the UK and Germany is that renewable energy expansion should be at the core of energy policy, be it coal phase out or nuclear phase out.

Opt for renewables toward a decarbonized society

The draft Plan advocates adopting a "multi-track scenario" that leaves room for exploring the use of coal in combination with nuclear power and carbon capture and storage (CCS) technology. To construct such a scenario, the draft at the outset tells a tale of "the start of competition among technologies toward decarbonization." In the global power generation business, however, such "competition among technologies" has already been settled.

Even the International Energy Agency (IEA) forecasts that the decarbonization process will be led by renewables. The 2017 version of *World Energy Outlook*, the IEA's most important annual report, predicts that, in its projections of global average annual net capacity additions by type of energy source between 2017 and 2040, 160 GW of renewable energy will be added per year while nuclear power will gain only 4 GW.

Blessed with the abundance of nature that varies from season to season, Japan is by no means a resource-poor country if renewables including solar, wind, hydro, and geothermal power as well as biomass are taken into account. In fact, it is a rich country endowed with these sustainable energy resources. Exploiting the potential of renewables provides the best avenue to free Japan from its heavy dependence on imported energy resources and ensure its energy security.

The revised Basic Energy Plan needs to chart a national energy roadmap toward a decarbonized society with renewables and energy efficiency at its core.