

3 October 2014

Towards Overcoming the Issue of Suspended Grid Connection and Making Renewable Energy a Basic Energy Source of Japan

Utilities should achieve sufficient accountability

Following and including Kyushu Electric Power Company, five utilities in total announced measures, such as a suspension of response, over the applications for grid connection of renewable energy. Those utilities have explained as a justification that the total amount of electricity to be generated by solar PV, etc. and connected to grids will exceed the minimum demand, hence leading to an imbalance of supply and demand.

However, as can be seen from the materials prepared by the Electricity Supply-Demand Verification Sub-committee of the government, it is clear that the total amount of electricity which the utilities insist is to be connected to grids will be substantially different from the amount to be actually generated (see Note 1). Also, it is considered that it will take several years before a large number of certified facilities will actually start power generation.

On top of that, it is incomprehensible that they have dealt even geothermal and biomass, which stably generate electricity irrespective of the weather, with a suspension of response across the board and have sought proposals such as load following. Should the utilities make it a priority to keep operating their own thermal and other power plants, then the fairness in utilization of electric power systems will be undermined.

They are far from achieving sufficient accountability in that they have suddenly initiated these measures, which will have a profound impact on communities and other operators, without disclosing necessary data.

On the other hand, under the Act on Special Measures Concerning Procurement of Electricity from Renewable Energy Sources by Electricity Utilities, the government is in a position to be able to give guidance and advice to electric utilities operators if it is necessary for smooth grid connection. The government is supposed to provide a clear explanation to the people on whether or not it was informed of the utilities' actions of this time in advance and how it has reacted to them.

Lag in preparation for full-scale utilization of renewable energy is the root cause

Kyushu Electric Power Company and other utilities have expressed a stance to consider “operating pumped-storage hydropower plants and taking advantage of interconnection lines between regions” and other measures from here on. The government has also shown a stance that it will create the Working Group for Grid and there conduct study on a possible increase of the connectable amount of electricity through measures including further utilization of flexible power sources, utilization of power output estimation, and demand-side measures.

Such measures should be considered as a matter of course. The countries and regions in Europe and the United States which have actively worked on introducing renewable energy have been conducting such measures for a long time, and while absorbing renewable energy of as much as 20-30% of the total electricity generated in a year into the electric power systems (see Note 2), they have still achieved a stable power supply.

In the background of the current situation, there are factors caused by how feed-in tariff schemes are operated, but more essentially the root cause lies in the fact that the government and utilities have failed to endeavor to make renewable energy a basic energy source of the country.

An opportunity to make renewable energy a basic energy source of Japan

Currently, Japan is largely dependent on fossil fuels imported from abroad for its power supply. While there are various opinions on nuclear power generation, in the future, its share is unlikely to reach the level prior to the nuclear accident at Fukushima.

If the situation of largely depending on imported fossil fuels continues, it will cause a significant economic impact as well as concern over energy security. Also, in the environment where the international framework to counteract climate change is being fortified, it is certain that even further demand will be placed on Japan to reduce CO₂ emissions.

In light of such circumstances, the promotion of renewable energy to become a basic energy source as soon as possible is urgent and indispensable. The situation at this time can be seen as showing that Japan has large potential regarding renewable energy. We think that the following efforts should be undertaken toward full-scale utilization of renewable energy in Japan.

1. Establishing a mechanism to realize the fair operation of electric power systems

The current situation not only highlights the significance of grid connection for a wider introduction of renewable energy but also sheds light once again on the importance of fair operation of electric power systems. It is necessary, without waiting for unbundling in the electricity system reform, to accelerate construction of a mechanism where the government, organizations promoting wide-area system operations, and independent regulatory bodies are involved in the operation of electric power systems rather than leaving it in the hands of utilities.

2. Learning grid operating technologies from leading operators and putting a system for full-scale utilization of renewable energy in place

There are a lot of points that Japan should learn from the examples of Europe and the United States, which include construction of command systems for electrical supply to power plants, including renewable energy facilities, utilization of power generation forecasting systems that are based on meteorological information, scheduling of load following of renewable energy and flexible power sources, active utilization of interconnection lines between regions, and the introduction of wide-area supply and demand coordination. Japan should overcome the lag in grid operation technologies and promptly undertake the measures that will enable full-scale utilization of renewable energy.

3. Holding meetings of Working Group for Grid in public

The government should take the initiative to encourage discussions that are free from the narrowly-defined benefits of utilities by making discussions at the Working Group for Grid that will be newly created open to the public as a matter of course, and directly hearing opinions of overseas experts in leading nations and regions.

4. Immediately advancing disclosure of information on grid operations

In countries like Germany, the United Kingdom, France, and Spain, everybody has almost real-time access to the information on the electricity flowing in grids and the electricity generated, for example, by thermal power generation or with renewable energy. Also in the United States, similar information is provided in regions such as California (see Note 3). By contrast, in Japan, such data are kept entirely undisclosed. As the first step toward securing

transparency of grid operations, such data should be immediately disclosed.

5. Setting a high target for the introduction of renewable energy and advancing comprehensive efforts to achieve it

In Europe, Spain and Germany have set targets of 40% for 2020 and 50% for 2030 respectively, and also in the United States, the State of California for instance has set a target of 33% for 2020, and on the premise of achieving the targets they are considering what are necessary for grid operations. Japan also should set a high target from a viewpoint of self-sufficient energy supply, countermeasures against climate change and so on and promote improvements in grid operations as a part of the strategies that are based on the premise of achieving the goal. In so doing, measures should be considered to promote the introduction of wind power generation, which is in particular lagging behind.

Note 1: According to the Meeting Document No. 4 of the 7th meeting of the Electricity Supply-Demand Verification Sub-committee in the Strategic Policy Sub-committee under the Advisory Committee for Natural Resources and Energy, which is titled About the Verification of Demand and Supply in Summer FY2014, the solar PV power ratio is 32% for Kyushu Electric Power Company (the largest figure is 55% for Hokuriku Electric Power Company).

Note 2: Even only looking at the variable renewable power sources, namely solar PV and wind power, not a few countries have introduced them and reached levels ranging from 10% or so to 30% or so in terms of the electricity generated in a year (as of 2013).

Denmark: 33.7%, Portugal: 24.2%

Spain: 23.1%, Ireland: 17.4%

Germany: 13.1% (16.0% for the first half of 2014)

Note 3: The data on the electricity generated is available to the public in real time on the following websites:

Germany and Austria by the European Energy Exchange;

<http://www.transparency.eex.com/en/Statutory%20Publication%20Requirements%20of%20the%20Transmission%20System%20Operators/Power%20generation/Actual%20wind%20power%20generation>

United Kingdom by Gridwatch (data courtesy of BM Reports);
<http://www.gridwatch.templar.co.uk/>

France by the French TSO *Réseau de Transport d'Electricité*;
<http://www.rte-france.com/en/eco2mix/eco2mix-mix-energetique-en>

Spain by the Spanish TSO Red Electrica de España;
<https://demanda.ree.es/demandaEng.html>

California by the Californian ISO (California Independent System Operator)
<http://www.caiso.com/outlook/outlook.html>