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**Domestic and Overseas Renewable Energy Markets 2017:  
Outlook and Issues  
<Executive Summary>**

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Overview of global renewable energy market trends

1. Global renewable electricity capacity is expected to exceed 2,200 GW by the end of 2017. Its annual growth in 2017 could be somewhat between 120 GW and 130 GW which mainly driven by Asian countries, particularly China and India.
2. With regard to the US federal policy, the key issue is whether or not the new Trump administration will maintain the tax incentive on wind and solar PV projects. If the tax incentive remains, more than 13 GW of new renewable electricity capacity may come online in 2017, but if not this may drop to somewhat 7 GW.
3. In Europe, the annual amount of new renewable electricity capacity coming online each year marked its peak level of more than 30 GW during the period of 2011 - 2012 which has dropped to around 20 GW after then. This tendency is also likely to maintain in 2017.
4. In Asia, the powerful expansion of the renewable energy sector is continuing. An increase of renewable electricity capacity between 70 GW and 80GW is predicted in 2017. Of this, China is expected to account for 60% with 50 GW, India 13% with 10 GW, and Japan 10% with 8 GW.

A shift in EU renewable energy policies

5. At the end of 2016, the European Union announced a proposed revised renewable energy directive which sets out the target of at least 27% for the share of renewable energy in final energy consumption in the EU in 2030. The proposed directive suggests that the focus of the EU's renewable energy policy has shifted

from an increasing the volume of renewable electricity itself to integrating the increased volume of renewable electricity into the market, and expanding the use of renewable energy in the heating/cooling sector and transport sector.

#### From FIT to competitive auction: The global renewable energy cost reduction trend

6. A number of EU countries are shifting from FIT to competitive auction to determine the tariffs of renewable electricity. This indicates that focus of the renewable energy policy has moved from “capacity growth” to “capacity control” reflecting growing concern about associated the cost rise. Auctions of renewable electricity also have become increasingly popular not only in EU but also in developing countries. This is particularly true for the counties enjoying rich solar and/or wind resources such as India, Brazil, Chile, and Morocco.
7. Auctions have brought a rapid lowering of the cost of solar and wind electricity. The lowest bidding price of solar PV and onshore wind electricity has decreased to less than 4 US cents/kWh. Overall, 8-10 US cents/kWh for solar PV and 6-8 US cents/kWh for onshore wind are the current ranges for many countries. According to the report of IRENA, the cost of solar PV electricity would further decrease by 60% by 2025 and onshore wind would also decrease by further 25% compared to the current levels. If such cost reductions lead to even rapid expansion of renewable electricity, ensuring enough flexibility of the electricity grids to accommodate a large volume of variable renewables will become serious issue.
8. The FIT purchasing prices for solar PV and wind in Japan, on the other hand, are set at two to three times higher than the level of the global standard i.e. the costs of renewable electricity are excessively high in Japan. A number of reasons behind of the higher costs have been identified. They include, for instance, complicated multi-step structure of solar PV panel distribution and installation methods of solar PV facilities that are characteristic of Japan where often suffers from earthquake, typhoon and other severe weather conditions.

#### Renewable energy market and policy trends in Japan

9. Overall renewable electricity capacity (excluding large-scale hydropower) in 2017 is expected to increase by approximately 8 GW to reach an accumulative capacity of 65.5 GW by the end of the year. This is close to double compared to the capacity at the end of 2015. Renewable electricity generation volume is expected

to reach 120 billion kWh in 2017 and account for over 10% of total electricity generation volume. More than 90% of this increase is due to non-residential large scale solar PV projects.

10. The current FIT scheme will be largely amended in April 2017. The intention behind of this amendment is to curb the FIT surcharge rise associated with the rapid increases in solar PV generation. Competitive auction will be introduced for large-scale solar PV more than 2MW in an attempt to reduce the purchase prices. For solar PV (less than 2MW) and wind projects, long-term cost targets will be set in advance, and the purchase prices will be cut down each year in order to bring the costs down toward the targets. In addition, the FIT purchase prices will be announced three years in advance for wind, small-medium hydropower, geothermal and biomass, which have much longer lead times compared to solar PV, in order to increase the predictability of the projects and to reduce business risk encouraging development activities.
- 11 “Non-fossil value trading market” is scheduled to establish within FY2017. It is expected that the FIT surcharge, which is currently equally shared by all electricity consumers, may be lowered by an effective operation of this market. This is because that, in the market, “non-fossil value” of renewable electricity can be subtracted and purchased by particular electricity retailers who want to sale “non-fossil electricity” to their consumers, suggesting that the FIT surcharge can be reduced by the amount paid by the electricity retailers.
12. The updated progress toward the renewable energy target in 2030 is summarised as follows. Solar PV has already exceeded it’s the 2030 target of 64 GW by a large margin at 86 GW including facilities that are already in operation and that have been FIT certified. Although operational and FIT certified wind facilities only have a capacity of 5.6 GW, while the 2030 target is 10 GW, there are 7.5 GW worth of facilities currently under the environmental assessment process. When this is added to the total it would exceed the 2030 target with 13 GW potentially able to come online. Hydro and biomass have also reached 96% and 87% of their 2030 targets respectively if the FIT certified volume is included. Conversely, geothermal capacity has reached only 37% of the 2030 target which needs further promotion of the development. However, if one looks at renewable energy as a whole, one could say that the sector is already fairly close to attaining the 2030 targets. Even taking into account the fact that a certain number of facilities (primarily solar PV) will have their FIT certification cancelled, if the grid is able

to accommodate these renewables electricity, the 2030 targets could be reached by the early 2020s.

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