

# Chapter 6

## Conclusion and Recommendations

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## Chapter 6

### Conclusion and Recommendations

#### **1. Analysis**

As this research has revealed, SMRs can be a new solution for world energy demand that could not be satisfied by conventional large-scale nuclear reactors. It can be said that the technical features of SMRs would be suitable for the general demand in society today because (1) low-carbon energy is required especially after the Paris Agreement of 2016, (2) advanced safety features have become important after the Fukushima Daiichi accident, and (3) modularised small-scale generation capacity is suitable for developing countries in terms of electrical grid capacity and of financial capacity. Therefore, many countries in the world recently have shown interest in investing in SMRs, as clarified in Chapters 3 and 4.

However, there are many problems to be solved, as pointed out in Chapters 4 and 5. Due to such problems, SMRs have not been commercially deployed as of 2021. You can see the concepts of SMRs referred to even in documents or articles published more than 30 years ago, which means SMRs have been researched and developed for such a long period in laboratories but have not been deployed in society yet. Therefore, what you have to do today is not only develop the technical features, but also to get rid of such problems. Keeping in mind the fact that customers finally decide whether to purchase a product or not, it is crucial to make a business environment to facilitate the decision making of potential customers (electric power utilities, in most cases). To this end, the IEEJ makes policy proposals as follows both for the leading countries of SMR development and for the potential customer countries.

#### **2. Policy Proposal**

1) For the leading countries, such as the US, the UK, and Canada:

For these countries, it is recommended that they should continue and accelerate their current development and deployment projects for SMRs. The timescales for their projects should be

clarified, and they should make efforts to follow the schedules because if they take too much time, potential customers around the world will lose interest in SMRs. At the same time, it is important to provide enough data so that potential customers can consider closely whether SMRs are suitable for their plans. Besides the efforts taken by individual countries or vendors, there should be international efforts to harmonise the regulatory requirements for SMRs in the world since regulatory harmonisation is a crucial method for promoting the mass production of reactor modules and accelerating deployment all over the world. Finally, to expand the potential global SMR market, international cooperation with potential newcomer countries should be promoted in the fields of energy planning, feasibility studies, infrastructure development, and so on.

2) For the countries considering the deployment of SMRs in Asia or Africa who need stable and reliable clean energy but currently have small grid systems:

First, these countries should clarify their future energy plans and their needs for nuclear energy to attract the interest of exporter countries of SMRs, which would lead to cooperation agreements and joint feasibility studies. This is the very beginning of a nuclear energy programme. At the same time, they should develop attractive business environments for vendors and investors. After they decide the deployment of SMRs (or even large-scale reactors), they should develop and improve infrastructure for the utilisation of nuclear energy, including the regulatory schemes that are necessary for the deployment of SMRs. Besides all of these processes, it is also important to conduct open discussions in their countries about the future utilisation of nuclear energy, including SMRs, to improve public understanding and acceptance of nuclear energy.