Summary

Entrusted Work Concerning Promotion of the Introduction of Renewable Energies Utilizing Information on the Introduction Potential of Renewable Energies (FY 2020)

The Ministry of the Environment (MoE) has been continually implementing the "Study on the Introduction Potential of Renewable Energies" and the "Development of Basic Zoning Information Concerning Renewable Energies" since FY 2009, has consolidated an information base on the potential of all kinds of renewable energies (including electricity and heat), such as PV power, wind power, small and medium-scale hydropower, solar heat, geothermal heat and underground heat, and has achieved certain positive results for the increased introduction of renewable energies.

Meanwhile, to further accelerate the realization of renewable energies becoming the main energy supply sources in Japan, it is essential to strengthen functions of this information base to facilitate to promote the introduction, utilization and application of renewable energies by stakeholders, including enterprises and local governments, which are expected to pursue decarbonized business operation (zero carbon companies) and the decarbonisation of local areas (zero carbon cities).

For this reason, a comprehensive information base must be developed to provide not only conventional information on the introduction potential of renewable energies but also information related to the so-called "demand side" of renewable energies, meaning information on the prevention or mitigation of local disasters in view of the increased frequency of severe disasters in recent years and also on the improvement of resilience.

Based on the above, the function of the REPOS to promote the introduction of renewable energies was strengthened in this work by means of primarily developing "data on the actual introduction of renewable energies, including non-FIT power sources" and "such data as disaster prevention-related data relating to conditions affecting the introduction, utilization and application of renewable energies" in addition to data on the introduction potential of renewable energies which has been consolidated over the years by the MoE.

1. Discovery and Arrangement of the Needs for Information Required for Promotion of the Introduction of Renewable Energies

To promote the introduction of renewable energies, necessary information other than information on the introduction potential of renewable energies was extracted through a series of interviews with enterprises, local governments and experts and a study on pioneering examples overseas.

The extracted information was examined in terms of such factors to determine the direction for the renewal of the existing REPOS site in the coming years as the characteristics and importance of information, period required to obtain information, information granularity, etc., followed by examination of the role of and future scenario for the REPOS site.

2. Visualization of Areas Where Renewable Energies Have Not Been Introduced

For the purpose of visualizing areas where renewable energies have not been introduced, information on renewable energy power sources was arranged. In the case of information of FIT power sources, information already made available to the public was used as the base for information development. As there was no publicly available information on non-FIT power sources, possible methods to identify non-FIT power sources were examined and the accuracy of information, development cost and advantages and disadvantages of such sources were examined. A demonstration test was conducted regarding the examined methods to understand the performance of introducing renewable energies.

As it would be necessary to superimpose actual introduction performance data with accurate information on the location on a potential map depicting the target categories of renewable energy to enable a search for areas of non-introduction, the relevance of such superimposition was verified as an attempt to visualize areas where renewable energies have not been introduced.

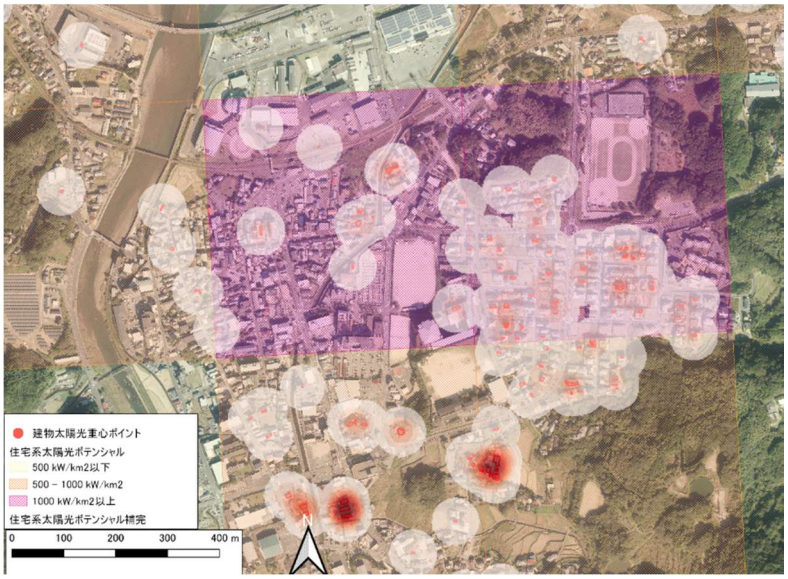

Fig. 1 Areas of non-introduction as indicated as a result of superimposition (1/5,000)

3. Visualization of Areas Suitable for the Introduction of Renewable Energies

For the purpose of visualizing areas suitable for the introduction of renewable energies, a study was conducted on areas of much advanced introduction of renewable energies and new efforts contributing to expansion of the introduction of renewable energies to extract and analyse affecting local conditions and the types of data to be obtained. Based on the analysis results, the feasibility of visualizing areas suitable for the introduction of renewable energies was examined through trial and error to find a way to display the superimposition results with information on the utilization potential of renewable energies.

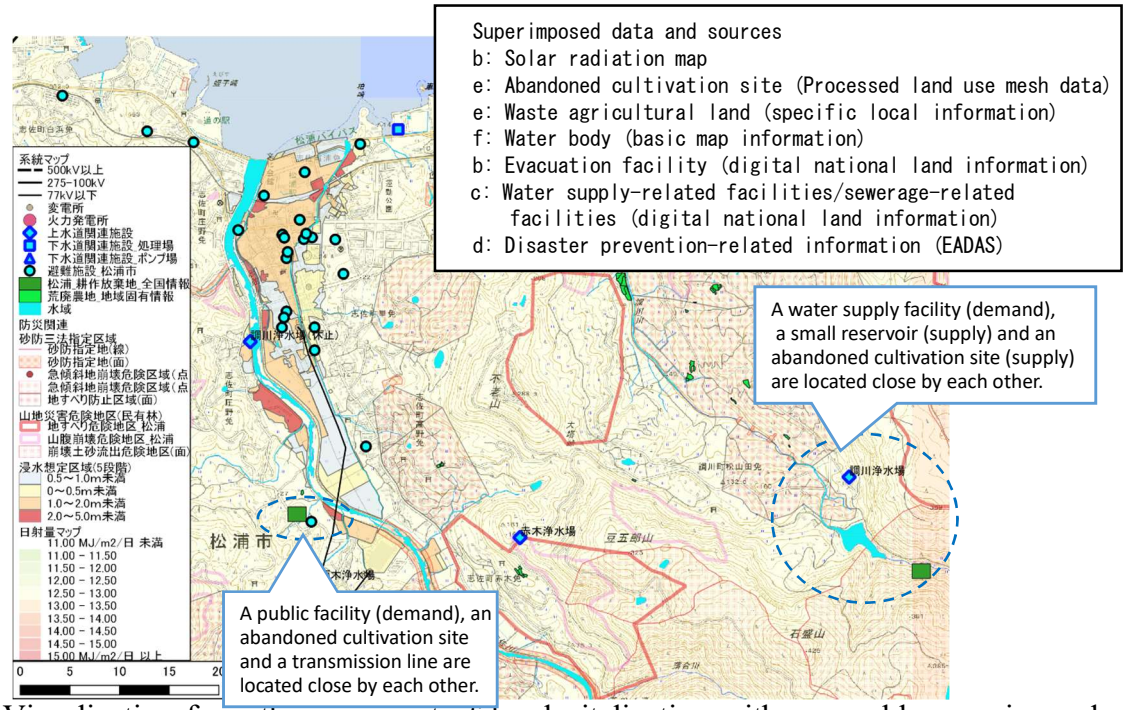

Fig. 2 Visualization from the viewpoint of local vitalization with renewable energies and resilience against disasters

4. Examination Towards the Expansion of Areas Suitable for the Introduction of Renewable Energies

An appropriate way of providing information was examined with a view to facilitating efforts by local governments themselves to increase the number of suitable sites for the introduction of renewable energies in their own areas of jurisdiction. To be more precise, the issues examined were a suitable spatial scale for the type of renewable energy considered, necessary information and way of providing information to increase the number of suitable sites for introduction.

5. Other

An appropriate method to improve the degree of recognition and utilization rate of existing systems was examined, targeting those working for an enterprise or local government. In addition, with the data examined and prepared as described earlier, the contents of system adjustment were designed to ensure the effective utilization of data based on the examination results of a desirable installation method. To ensure the efficient continuation of the operation of the site, a low cost and efficient way of obtaining data to be installed and the possibility of fund raising to cover the operation cost of the site in a self-reliant manner were examined.