

The Feasibility Study for Production of Water and Salt by Renewable Energy on Ocean (Analytical Research of "REPO" Project)

By

Supported Researcher : Dr. Yoshinori Yasuda (The International Society of Lebanon Cedar)
Co-operator : Dr. Takashi Horigome (Japan Solar Energy Association)
Dr. Koichi Watanabe (Keio University)
Dr. Masao Kabaya (Solar System Institute Co., Ltd.)
Shin Tanimoto (Politics Institute of Kochi Prefecture)
Dr. Yoshikuma Ishikawa (Mitsubishi Research Institute Co., Ltd.)

Summary

The global environmental problems such as the air and water pollution as well as the ozone hole, acid rain, desertification, etc. have been deeply recognized as an important issue of international concern crossing the borders of racial differences or national boundaries. Particularly, the increasing of greenhouse effect gases including CO₂ is closely correlated with the mass consumption of fossil energy resources, and the recent trend towards its regulation of international scope in the form of "Framework Convention on Climate Change".

On the other hand, a considerable advance has been achieved in the development of the photovoltaic power generation technology. Especially, the efficiency of polycrystalline silicone and amorphous silicone solar cells has been substantially improved, and the photovoltaic power generation using those cells are already in the practical level.

With the times and the current social situation as background, it is considered to be an extremely important issue for us to pursue possibilities of utilizing the so-called "Renewable Energy", which is consisted of primarily solar energy with additional contribution from wind power, tidal power and ocean thermal energy, and to clearly recognize the present status and the future outlook for their practical use.

The present research is a feasibility study of the composite power generation system by renewable energy on the ocean. The current problems are pointed out and, based on the analytical results, the possible solutions for future directions are proposed.

Among other things, in view of the present situation of worldwide deficiencies of drinking and irrigation water, a "REPO (Renewable Energy Park on Ocean)", which includes production plants of water and salt using renewable energy, is proposed with the analytical research of relevant technologies.