

Energy and Environment in 21st Century

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Abstract

There exist large disparities of energy consumption among regions of the world. For example, the average primary energy consumptions per capita in Africa and Asia are about one fifth of that in NAFTA. The disparities of electricity consumption per capita are even larger: People in NAFTA are consuming more than ten times of electricity comparing with people in Africa and Asia.

It is one of the biggest challenges in 21st century to minimize these disparities and supply sufficient energy in developing countries so that everyone can have an even chance to enjoy civilized life. Especially, the development of electricity resources in these regions is important in terms of improving public life and keeping environment.

This report focuses on the predicted energy and electricity demands in the future at first. It also discusses available energy resources in each region. Secondly, it introduces the importance to harmonize preservation of the environment and energy development including the past efforts in Japan to reduce air pollutants such as SO_x, NO_x, Particulates and CO₂ from electricity generation plants as well as the role that nuclear energy played in the past and playing now. It also describes the present environmental performance in OECD countries and some representative countries such as China. The third part of the report provides the key technologies to develop clean energy in developing countries taking into account the regional characteristics such as the present energy circumstances, available energy resources and so forth. These technologies consist of both conventional and advanced ones. In the final part, this report emphasizes the importance of IERE's role to provides the information platform for many sectors to collaborate in this field as well as to coordinate the technology transfer programs from developed countries to these regions and to carry out the adequate education and training courses for the engineers and technicians in these regions.

This report concludes by the statement that all members in IERE are responsible to activate the IERE activities and contribute to construct the harmonized world in 21st century.