

Preface

Since 2008, four departments of Kyoto University, Japan—the Graduate School of Energy Science, the Institute of Advanced Energy, the Department of Nuclear Engineering, and the Research Reactor Institute—along with the Institute of Economic Research have been engaged in a Global Center of Excellence (COE) Program entitled “Energy Science in the Age of Global Warming—Toward a CO₂ Zero-emission Energy System”. (Here, we have abbreviated all greenhouse gases including carbon dioxide to “CO₂.”) This Global COE Program is being carried out under the auspices of the Ministry of Education, Culture, Sports, Science and Technology of Japan with the support of Kyoto University. The aim is to establish an international education and research platform to foster educators, researchers, and policymakers who can develop technologies and propose policies for establishing a scenario toward a CO₂ zero-emission society no longer dependent on fossil fuels by the year 2100.

Last year, the Global COE held its First International Symposium, Zero-Carbon Energy, Kyoto 2009, at the Kyoto University Clock Tower and published the proceedings in a book by the same title. This year, the Second International Symposium of the Global COE was held at Kyoto University’s Oubaku Plaza. The many excellent lectures and discussions by invited speakers and members of the Global COE and the interesting presentations by students of the GCOE Unit for Energy Science Education reflect the progress achieved by the program. This book is a compilation of those lectures and presentations.

As part of the further agenda of the Global COE, the Scenario Planning Group is setting out a CO₂ zero-emission technology roadmap and drawing up a CO₂ zero-emission scenario based on analyses of social values and human behavior. The Advanced Research Cluster is promoting a socioeconomic study of energy, a study of new technologies for renewable energies, and research on advanced nuclear energy by following the roadmap established by the Scenario Planning Group. At the GCOE Unit for Energy Science Education, students are planning and conducting interdisciplinary group research of their own, combining social and human sciences with natural science and working toward CO₂ zero emission. By participating in the scenario planning and through interaction with researchers from other fields, students will acquire the ability to survey the whole energy system and to apply the experience to their own research. The Global COE is striving to foster

young researchers who will be able to employ their skills and knowledge with a broad international perspective and expertise in their field of study in order to respond to the needs of society in terms of various energy and environmental problems.

The Global COE is publicly promoting the achievements of the platform by making information available on the website of the Global COE; by publishing annual reports, quarterly newsletters, books, and self-inspection and -evaluation reports; by hosting domestic and international symposia and activity report meetings; by hosting the industry–government–academia collaborative symposia and citizen lectures; and by co-hosting related meetings both domestically and internationally.

For securing energy and conservation of the environment, which are the most important issues for the sustainable development of human beings, the Global COE continues to take action for the establishment of “low-carbon energy science” as an interdisciplinary field integrating social science and human science with the natural sciences.

Takeshi Yao
Program Leader
Global COE “Energy Science in the Age of Global Warming —
Toward a CO₂ Zero-emission Energy System”

Zero-Carbon Energy Kyoto 2010
Proceedings of the Second International Symposium of
Global COE Program "Energy Science in the Age of
Global Warming—Toward CO₂ Zero-emission Energy
System"

Yao, T. (Ed.)

2011, XI, 321 p., Hardcover

ISBN: 978-4-431-53909-4