

Special Issue of the International Journal of Thermodynamics Dedicated to the ECOS 2010 Conference

Energy plays a major role in human societies. The supply of energy services is also a major contributor to the global and, too often, local environmental problems the World is facing. According to the International Energy Agency, actions to target future CO_2 concentrations in atmosphere below either 550 ppm, or even below 450 ppm, will have to be primarily focused on efficiency. A broader use of renewable, nuclear power and perhaps carbon sequestration will also contribute. To maintain a viable economic development these actions will have to be cost effective while globally reducing all emissions and caring about energy and material resources. A systemic approach is therefore essential to get a holistic vision, design better systems and optimize money and resources utilization.

Providing engineers with tools, technologies and methods to tackle this tremendous challenge is the goal of the researchers contributing to the ECOS conference.

This special issue and the one that is to follow have been dedicated to a number of high quality papers first presented at the 23rd International Conference on the Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems (ECOS) held in Lausanne, Switzerland in June 2010 and organized by the Ecole Polytechnique Fédérale de Lausanne. The papers published in this special edition have been highly recommended to the editors of IJoT by the members of the scientific committee of ECOS'10 that we would like to thank here for their involvement in reviewing papers and conducting the conference sessions.

The editorial staff and the guest editors hope that you find these papers as interesting as we have.

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