

Preface

This special issue of Jordan Journal of Mechanical and Industrial Engineering contains papers contributed to the International Conference and Exhibition on Green Energy & Sustainability for Arid Region & Mediterranean Countries (ICEGES 2009) held on November 10–12th, 2009 in Amman (Jordan); the Conference was organized by the Hashemite University. This conference was an attempt to answer a fundamental question: how to handle the problem of facing growing prospects of climate problems that are blamed on current fossil fuel energy consumption because of massive CO₂ release into the atmosphere and associated global pollution, so our civilization will survive in the future without experiencing lack of energy. If the use of fossil fuels continues, our civilization will face environmental catastrophe in the near future. In a future energy scenario, our civilization may use nuclear energy, non-nuclear renewable energy, fossil energy with CO₂ sequestration, more efficient energy technologies, energy saving, etc. To design the scenario for the use of renewable energy, the Conference discussed the following themes: wind energy systems, environmental and sustainable development, solar thermal energy systems, reduction of CO₂ emissions, photovoltaic and thermoelectric energy, and green energy technologies.

Energy is one of the most essential human needs. Energy in different forms has enabled the accomplishments of human civilization, and created human good living. Its use has been affordable, efficient and extensive. However, like other human activities, energy consumption created (global and local) pollution. Through the release of CO₂ into the atmosphere, consumption (through combustion) of fossil fuels developed the most dangerous form of pollution – global pollution.

Prior to this special issue, a book of Proceedings with a total of eighty eight contributions had been published at the date of the conference. The growing interest in this conference is clearly seen by the large number of authors from all over the world. The presentations are meanwhile coming from more than twenty countries all over the world, mainly from Europe, Japan, Middle East, Far East and the United States. This selection of papers of the conference contains a total of thirty papers that were peer-reviewed by at least two expert referees and were accepted on the basis of their scientific or technical merit and significance to the field. The activities of the conference included twelve keynote lectures carried out by distinguished scientists from the international scientific community in the field of energy and renewable energy; their lectures covered the main themes of the Conference.

Following the objective of the conference as a forum for scientists, researchers, and engineers in the field of energy and renewable energy, it contains both scientific and technical, application-oriented papers. The unique combination of papers on the latest results from the science and technology of green energies with application- and production-related aspects and market analyses is to be regarded as one of the strengths of this conference for the energy community.

We would like to thank the members of the International Scientific Advisory Committee, authors, as well as the reviewers, for their advice which have certainly helped to improve the quality, accuracy and relevance of this conference program and publications. We would also thank the Hashemite University; the main sponsor of ICEGES 2009, and all organizations for supporting the conference, as well as the organizing committee.

Prof. Mousa S. Mohsen
Editor-in-Chief
Hashemite University
Zarqa, January 2010