Foreword

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Biographical notes: John Psarras is a Professor in the School of Electrical and Computer Engineering of the National Technical University of Athens (NTUA) and the Director of the Decision Support Systems (DSS) Laboratory. He has been the Project Director, Project Manager or Senior Researcher in numerous EC and national projects acquiring over 25 years experience in the areas of energy policy, national and regional energy planning, energy and environmental modelling, promotion of energy and environmental friendly technologies, energy management, decision support and monitoring systems. He has more than 100 publications in international journals in the above mentioned related fields.

Constantin Zopounidis is a Professor of Financial Management and Operations Research at the Dept. of Production Engineering and Management, Technical University of Crete, Greece. His research interests include multiple criteria decision making, financial engineering and financial risk management. He has published over 300 papers in premier international journals as decision sciences, *European Journal of Operational Research*, *Decision Support Systems*, *Journal of the Operational Research Society* and *Expert Systems with Applications*. He has edited or co-edited more than 35 books on financial management and multicriteria decision aid, and he acts as the Editor-in-Chief and member of the editorial board several international journals.

We are delighted to prologue this special issue on 'Multicriteria decision-making for energy policy and planning' of the *International Journal of Multicriteria Decision Making (IJMCDM)* by Inderscience Publishers. This special issue aims at publishing high quality original research on multicriteria decision-making (MCDM) models and methods for energy policy analysis and planning.

The energy planning, as an important process of energy decision-making, has as a main goal to formulate action plans to sufficiently meet the future energy demand. The energy planning activities result in possible developments of the energy sector and scenarios – roadmaps on the expected impacts. The energy policy defines the critical parameters of scenarios analysis and provides the targets and priorities for their

evaluation. Researchers and practitioners have responded to these challenges with ever-increasing sophisticated problem formulations, models and adequate methods to tackle the diversity of operational and planning problems arising.

Nowadays, the energy policy and planning is at the heart of related discussions among policy and decision-makers and is considered as a matter of high priority, listed in the top of their agenda. This is particularly true, taking also into consideration the growing global energy demand, the corresponding security of supply issues and the prevailing fuel price fluctuations. In addition, the climate change and the increasing complexity of the energy market along with the prerequisite for sustainability have broadened the energy application field by bringing out new challenges. Indeed, energy sustainability is an inherently vague and complex concept and its implications as a policy objective are difficult to be defined or measured.

Moreover, growing environmental concerns, the efforts for the mitigation of climate change effect and limitations in the exploitation of conventional energy resources have given new impulse in alternative technologies, such as energy efficiency, hydrogen and renewables. Such options will play a greater role in the future energy mix in order to achieve low-carbon intensive energy systems. Indeed, selecting appropriate options is inevitably a very complex process, taking into consideration the incomplete and uncertain information as well as inconsistent and/or conflicting objectives and evaluation criteria.

Decision support tools and methods for energy policy and planning in this new era are necessary, in the pursuit of appropriate approaches necessary to restructure energy market from unsustainable to sustainable forms of development.

MCDM is an important supportive tool in the policy making and planning, providing the flexibility and capacity to assess the examined alternatives' implications to the economical, environmental and social framework. Multicriteria decision support methods are needed to analyse all the multiple facets of the examined options, with respect to a much wider range of evaluation criteria under conditions of a higher uncertainty.

We trust the efforts of all involved in this special issue, focused on revealing MCDM effective contribution to the successful resolution of several related problems and the foundations for sound decision support towards the sustainable development of the energy sector.