The continually growing profile of energy issues in the 21st century is closely linked to the challenges of national and global development, international economy, and the emphasis on goods transport and human travel all around us. These challenges make headlines and are reflected in the social trends towards environmentally friendly practices and responsible use of energy. However, major advances and large-scale improvements in the infrastructure can only be achieved by engaging all aspects of engineering research and development, with particular emphasis on the design and incorporation of new materials. The Special Issue was commissioned at Materials & Design since the strategic themes in energy materials research are closely aligned with the scope and priorities of the journal [1].

In the transport sector, energy efficiency has been recognized as a major issue, and continues to gain importance. A number of materials-related developments have already taken place, bringing significant reductions in fossil fuel consumption and CO2 emissions. However, to meet the ever more stringent targets ahead there is a need to develop new materials and to optimise the use of existing ones. Advances in this area require considerable concerted research effort and sustaining synergy across the interconnected disciplines of composites, metallurgy, mechanics, and energy storage and generation.

This Virtual Special Issue contains a collection of contributed papers on the following topics:
(i) materials for lightweight structures including alloys and composites,
(ii) materials for energy storage and the use of alternative energy sources,
(iii) materials for energy harvesting technologies,
(iv) materials for novel sensors.

Acknowledgements
The Special Issue Guest Editors express sincere appreciation to all authors and reviewers for their dedication in putting together a high quality body of joint work. Our acknowledgments are also due to Materials & Design editorial team and support staff for their excellent cooperation and support.

References

Vitae
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