

Special Issue

Decentralized Control of Thermostatically Controlled Loads

Message from the Guest Editor

Thermostatically controlled loads (TCLs) present a unique opportunity for continuous load management due to the fact that they are designed to store thermal energy while maintaining the controlled temperature within a band of tolerance. In addition, most TCLs can tolerate even wider temperature swings under certain circumstances. The current state of the literature more than proves the potential of TCLs to play a critical role in the evolving electric grid, however many challenges remain. Since the amount of energy that can be counted on to 'charge' or 'discharge' any given load is rather small, practical applications require the aggregation of a large number of loads that can act in concert. Given the fact that these load are dominated by household appliances like space air conditioners or domestic hot water heaters, large scale penetration of such programs will have to designed around customer sensitivities to personal comfort and private information. A decentralized approach to the aggregated control of TCLs is indicated if large scale and practical applications are going to be deployed.

Guest Editor

Prof. Dr. John Gardner

Mechanical & Biomedical Engineering, Boise State University, Boise, ID 83712, USA

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Energies
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
energies@mdpi.com

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Editor-in-Chief

Prof. Dr. Enrico Sciubba

Department of Mechanical and Industrial Engineering, University
Niccolò Cusano, 00166 Roma, Italy

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