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EDITORIAL

Guest editorial for the special issue on progress in energy storage systems

As greenhouse gas emissions reach a new record high in 2018 according to World Meteorological Organization, our time to switch to low-carbon energy systems is running out. Our energy system has to change rapidly to adapt to the actions and new policies to be taken according to 1.5°C Paris agreement on climate change. Common target of the countries around the world should be low-carbon energy system that will replace fossil fuels by renewable energy sources. Growing energy demand by industries and consumers worldwide makes reaching this target even more challenging. Another challenge is matching the variable renewable production to different load profiles in energy consumption. Energy storage is the key technology to bridge the gap between supply and demand of such intermittent energy sources and realize ambitious goals of the low-carbon future. However, the potential of energy storage sometimes is underestimated, because it can be a hidden technology in the whole energy system. The environmental and economic benefits of energy storage need to be emphasized and demonstrated more.

The "STOCK" conferences have been organized in cooperation with International Energy Agency Technology Collaboration Program on Energy Conservation Through Energy Storage (IEA-TCP ECES) since 1983. IEA-TCP ECES is the international network that coordinates and prioritizes the research and development activities in approximately 20 countries within the IEA technology framework. These triennial STOCK conference series provide the forum for presenting and discussing the state of the art in research and deployment on energy storage. EnerSTOCK 2018—the 14th conference in this series—was organized by Çukurova University in Adana, Turkey, on April 25 to 28. The opening keynote by Fatih Birol, executive director of the IEA, and other high-quality speakers offered up to date and the most recent insight in the technological developments and the role of energy storage in our changing energy system. The EnerSTOCK 2018 was attended by more than 250 participants from 24 different countries from all over the world delivering papers on energy storage-related topics of materials, applications, cross-cutting aspects, and climate change.

As a result of this success, we were given a unique opportunity by Professor İbrahim Dincer and Wiley to compile together selected papers in this special issue in the International Journal of Energy Research (IJER). All selected and accepted high-quality conference papers have passed through another peer-review process for this special issue to improve their quality further for readers of IJER. In addition, there were closely related papers as accepted by the IJER editors and selected for this special issue to make even a bigger impact.

In conclusion, we would like to take this opportunity to warmly thank Professor Dincer and the editorial team of Wiley, associate guest editors, all contributing authors, reviewers, scientific committee, and our assistants for their efforts that have made this special issue a true and unique success. We believe that this special issue will be a valuable contribution to energy storage literature and open new frontiers for the researchers.

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