

Special Issue

Seasonal Energy Storage with Power-to-Methane Technology

Message from the Guest Editor

To have a sustainable society, the need to use renewable sources to produce electricity is inevitable. Due to the fluctuation of some of these sources (wind, solar), utility-scale energy storage has to be used. These fluctuations are wide-ranged from minutes (passing cloud) to whole season (Winter/Summer solar availability). Short-time storage can be solved (at least theoretically) with batteries, but for seasonal storage—due to the amount of storable energy and the self-discharging of some storage methods—is a challenge. Recently, among the standard long-term storage technologies (like pumped hydro-storage), novel methods are available. Power-to-Gas methods (mainly Power-to-Hydrogen, P2H, and Power-to-Methane, P2M) are one of these new possibilities. Although round-trip efficiency is better for P2H, the simplicity of storage (in existing natural gas storage facilities) and the well-established methods of energy recovery for methane suggest P2M technology for a suitable basis for utility-scale seasonal energy storage. P2M technology is now on the verge of full-scale industrial use; therefore, a Special Issue dedicated to this method would be very timely.

Guest Editor

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Energies is an international, open access journal in energy engineering and research. The journal publishes original papers, review articles, technical notes, and letters. Authors are encouraged to submit manuscripts which bridge the gaps between research, development and implementation. The journal provides a forum for information on research, innovation, and demonstration in the areas of energy conversion and conservation, the optimal use of energy resources, optimization of energy processes, mitigation of environmental pollutants, and sustainable energy systems.

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