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Advances in Underground Energy Storage for Renewable Energy Sources

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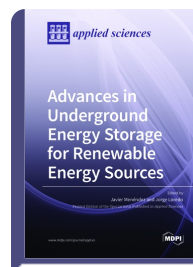
Edited by

Jorge Loredó

Javier Menéndez

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Energy storage currently plays an important role in the electricity systems. Innovative energy storage solutions will play an important role in ensuring the integration of renewable energy sources into the electrical grids in the European Union. Pumped storage hydropower systems are the most mature technology of energy storage and account for over 90% of installed energy storage capacity worldwide. However, PSH technology is constrained by topography and land availability in flat areas. In addition, PSH plants are controversial due to their impacts on landscape, land use and the environment. Conversely, underground energy storage systems may be an interesting alternative to increase the energy storage capacity with low environmental impacts.

To help address and resolve these types of questions, this book is comprised of eleven chapters that explore new ways of energy storage reducing the environmental impacts caused by the installation of conventional energy storage systems, as well as to increase the energy storage capacity and promote the use of disused underground space, such as abandoned mines and quarries.

The chapters included in this book cover a wide spectrum of issues related to underground energy storage systems. Advances in underground pumped storage hydropower, compressed air energy storage and hydrogen energy storage systems are presented. Finally, we would like to thank both the MDPI publishing and editorial staff for their excellent work and support, as well as the authors who collaborated with your interesting research works.



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