

Special Issue

Power System Expansion Planning

Message from the Guest Editors

Energy is the prerequisite of industrial activities, a necessity for human communities, and a basic requirement for food production. As the world population grows, the demand of energy also increases. At the same time, climate change is accelerating and raw materials are being depleted. To meet the above challenges, the world is currently undergoing a radical transition towards sustainable energy. In many cases, this means electrification of energy uses in traffic, heating systems, and industrial processes. The increased demand of carbon-free electricity leads to the extensive utilization of weather-dependent variable renewable energy sources like wind and solar power. This calls for new flexibility in power and energy systems which can be achieved—in addition to energy-storage solutions—by the sector coupling of power and heat, as well as the utilization of the flexibility of power uses in industrial processes, electrified traffic, and power-to-X applications.

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