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# AI Applications to Power Systems

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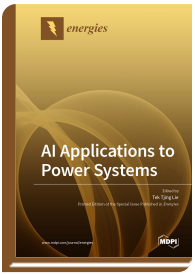
ISBN 978-3-0365-3653-8 (Hardback)
ISBN 978-3-0365-3654-5 (PDF)




Today, the flow of electricity is bidirectional, and not all electricity is centrally produced in large power plants. With the growing emergence of prosumers and microgrids, the amount of electricity produced by sources other than large, traditional power plants is ever-increasing. These alternative sources include photovoltaic (PV), wind turbine (WT), geothermal, and biomass renewable generation plants. Some renewable energy resources (solar PV and wind turbine generation) are highly dependent on natural processes and parameters (wind speed, wind direction, temperature, solar irradiation, humidity, etc.). Thus, the outputs are so stochastic in nature. New data-science-inspired real-time solutions are needed in order to co-develop digital twins of large intermittent renewable plants whose services can be globally delivered.

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