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	<ul> <li>Small-scale project; 2.2.1. Simulation inputs</li> <li>2.2.1.1. Primary load data2.2.1.2. Solar resource and photovoltaic module; 2.2.1.3. Wind resource and turbine; 2.2.1.4. Energy storage systems; 2.2.1.4.1. Lead-acid battery: Surrette S4KS25P; 2.2.1.4.2. Vanadium redox flow battery; 2.2.1.5. Diesel generator; 2.2.1.6. Additional considerations; 2.2.2. Simulation results and discussion;</li> <li>2.2.2.1. Energy storage system vs. diesel generator; 2.2.2. Flow-type battery (VRB) versus lead-acid battery; 2.3. Large-scale project; 2.3.1. Simulation inputs; 2.3.1.1. Primary load data; 2.3.1.2. Solar resource and photovoltaic module</li> <li>2.3.1.3. Wind resource and turbine2.3.1.4. Energy storage system and additional considerations; 2.3.2. Simulation results and discussion;</li> <li>2.3.2.1. Energy storage system (VRB) vs. diesel generator; 2.3.2.2. Vanadium redox flow battery vs. lead-acid battery; 2.4. Conclusions; References; Part Two: Lead, nickel, sodium, and lithium-based batteries; Chapter 3: Lead-acid batteries for medium- and large-scale energy storage; 3.1. Introduction; 3.2. Electrochemistry of the lead-acid battery; 3.3. Pb-acid battery designs; 3.4. Aging effects and failure mechanisms; 3.5. Advanced lead-acid batteries</li> <li>3.6. Applications of lead-acid batteries in medium- and long-term energy storage3.7. Summary and future trends; References; Chapter 4: Nickel-based batteries for medium- and large-scale energy storage; 4.1. Introduction; 4.2. Basic battery chemistry; 4.2.1. Ni-Cd battery; 4.2.2. Ni-MH batteries (A.3.1.1. Positive and negative electrodes; 4.3.1.2. Classification; 4.3.2.8. Ni-MH batteries</li> <li>4.3.2.5. Low self-discharge Ni-MH batteries</li> </ul>
Sommario/riassunto	As energy produced from renewable sources is increasingly integrated into the electricity grid, interest in energy storage technologies for grid stabilisation is growing. This book reviews advances in battery technologies and applications for medium and large-scale energy storage. Chapters address advances in nickel, sodium and lithium- based batteries. Other chapters review other emerging battery technologies such as metal-air batteries and flow batteries. The final section of the book discuses design considerations and applications of batteries in remote locations and for grid-scale storage. Reviews advances in battery technologies and applications for medium and large-scale energy storage Examines battery types, including zing- based, lithium-air and vanadium redox flow batteries Analyses design issues and applications of these technologies