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Energy Storage (ES) Technologies

a) The roles of electrical energy storage technologies (roles from the viewpoint of a utility; roles from the viewpoint of consumers; roles from the viewpoint of generators of renewable energy);
b) Classification of ES systems
c) Mechanical storage systems (Pumped hydro storage, PHS; Compressed air energy storage, CAES; Flywheel energy storage, FES);
d) Electrochemical storage systems (What is a Chemical Battery, Battery Chemistry; Battery Figures of Merit; Battery Charging and Discharging; Battery Design; Types of Batteries);
e) Chemical energy storage (Hydrogen, H2; Synthetic natural gas, SNG);
f) Electrical storage systems (Double-layer capacitors, DLC; Superconducting magnetic energy storage, SMES);
g) Thermal storage systems;
h) Standards for ES;
i) Technical comparison of ES technologies;
j) ES market potential for overall applications;
k) ES market potential estimation for broad introduction of renewable energies.