

Electrochemical Energy Storage in Nepal





Overview

Can Nepal produce green hydrogen & electrify the transportation sector?

Nepal's hydropower resource can produce green hydrogen as an energy storage medium and electrify the transportation sector . Since Nepal is expected to have about a 3000 MW electricity surplus by the year 2030, it is time to practice alternative electricity use to make hydropower projects financially feasible .

Why should we study pumped storage systems in Nepal Himalayas?

Nepal Himalayas provide an ideal testbed to study pumped storage systems given high topographic gradients, large flow fluctuations, and prevalent energy demand patterns.

How to store hydrogen produced in Nepal?

The storage method can be a good option for storing hydrogen produced in Nepal. Alkaline water electrolysis (AWE) operated by surplus electricity is suitable for producing green hydrogen in Nepal. Simulation models are built using DWSIM software for AWE, multistage compression, and the Organic Rankine Cycle (ORC).

How are pumped storage hydropower schemes distributed in Nepal?

Strip distribution of technically viable pumped storage hydropower (PSH) schemes at different elevation bands (EB1: 0---500 m, EB2: 500---1000 m, EB3: 1000---2000 m, EB4: 2000---3000 m, and EB5: 3000---5000 m above sea level) across Nepal.



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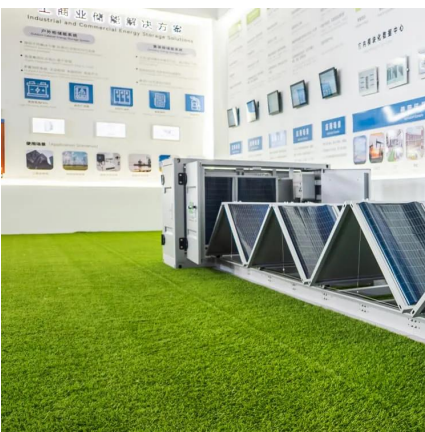


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region. Furthermore, in the South Asia region, ...



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