



U.S. DEPARTMENT OF
ENERGY

Office of
ELECTRICITY

ESGC Summit Final Opening

August 9, 2024

Eric Hsieh

Deputy Assistant Secretary for Energy Storage

How would an English teacher gauge progress with historic Energy Storage texts?

Materials

1925

I believe that the best wood separators are made from selected cedar veneer. [C]are is taken in the lumbering process to produce a veneer free from defects. The veneer is treated in long strips to prevent any defects getting into the separator. The treating process opens the grain of the wood and prevents the destruction of the natural elasticity of the fibers so essential to a good separator.

Motor Trade Association Official Journal

2015

Separators used in today's lithium-ion and lithium-metal batteries are typically non-selective porous polyolefins, which place limits on anode performance due to crossover-related surface reactions. Using LBNL's ion-selective membrane technology, graphite and lithium anodes are chemically and dimensionally stabilized, which increases their lifetime and prospects for safe operation.

LBNL/JCESR - Membrane Technology

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LBNL/JCESR - Membrane Technology

Costs

2003

Obtaining detailed technical information and costs for some of the technologies, particularly those under development, proved to be difficult.

Schoenung and Hassenzahl, Long- vs. Short-Term Energy Storage Technologies Analysis

2022

Cost and performance information was compiled for the defined categories and components based on conversations with technology developers and industry stakeholders, literature, commercial datasets, and reported storage costs for systems deployed across the United States.

Viswanathan et. al., 2022 Grid Energy Storage Technology Cost and Performance Assessment

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Valuation

1968

A pumped storage project with sufficient capacity to operate on a weekly cycle should be considered as having more value than a project which is limited to a daily cycle. These factors are difficult to evaluate in monetary terms.

Federal Power Commission,
Hydroelectric Power Evaluation

2014

If there is a cost to inflexibility then there should be a price for flexibility. And today I think there often isn't a price for that flexibility; it's hidden. And so there isn't a market signal to put storage where it may be needed...

Judith Judson FERC Transcript of Conference on Pirce
Formation under AD14-14

2023

In order for [LDES] value to be realized, many jurisdictions would require changes to modeling methodology for integrated resource planning, resource adequacy studies and their associated methodology... Market and regulatory mechanisms would need to evolve if LDES economics are to be supported.

Viswanathan et. al., 2022 Grid Energy Storage Technology Cost
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