#### Why is LCoS important?

Energy storage addresses the intermittence of renewable energy and realizes grid stability. Therefore, the cost-effectiveness of energy storage systems is of vital importance, and LCOS is a critical metric that influences project investment and policymaking.

How much does a LCoS cost?

This LCOS compares with second-life BESS TCC range from 222 to 274 (\$/kWh) depending on the business model. The nominal capacity factor for SBESS ranges from 6.80 to 7.18%/yr, reflecting the low initial state of health and conservative DoD. Likewise, the equivalent O&M costs are 3.15-7.78 (\$/kW-yr). Table 4.

What is the LCoS for a new Bess?

The harmonized LCOS for new BESS predicts a mean value of 211(\$/MWh). The mean TCC across the new BESS is 312 (\$/kWh). The capacity factor is based on the nominal capacity and is a function of calendar degradation rates and DoD. The range of degradation rates results in a nominal capacity factor of 10.0-11.5%.

#### How is LCoS calculated?

The calculation of LCOS converts the total CapEx from project construction to retirement with a discount rate, then divided by the number of roundtrips. This calculation considers the time value of money, thus presenting cost-effectiveness more accurately. The formula is as follows:



Striking a balance between promoting renewable energy adoption, protecting existing jobs, ensuring affordability, and incentivizing grid contributions is essential for a successful and equitable transition to solar power in the British Virgin Islands.

# BRITISH VIRGIN ISLANDS LCOS BATTERY

In a groundbreaking move, grid-scale battery storage will be integrated with solar PV systems in the US Virgin Islands and St Kitts & Nevis. These collaborations, totaling 167.6MWh in energy storage capacity across seven solar-plus-storage projects, aim to propel both territories to achieve 30% or more renewable energy consumption, marking a

**SOLAR**<sup>°</sup>





Work has begun on Anegada's Hybrid Renewable Energy & Battery Storage System in the British Virgin Islands (BVI), which, upon completion in November of this year, would harness solar energy to power the island of Anegada. Power52, an American solar energy firm, will manage the project for \$4,687,944.72.



# **BRITISH VIRGIN ISLANDS LCOS BATTERY**

The Anegada Hybrid Renewable Energy & Battery Storage System (BESS) Project has a lot of benefits for the Virgin Islands, and for Anegada in particular. As I mentioned earlier, fossil fuel is harmful to the environment.

The British Virgin Islands Electricity Corporation (BVIEC) and Power52 executed the contract for the Anegada Hybrid Renewable Energy & Battery Storage System (BESS) Project in November 2021 in the sum of \$4,687,944.72.



Statistics show the cost of lithium-ion battery energy storage systems (li-ion BESS) reduced by around 80% over the recent decade. As of early 2024, the levelized cost of storage (LCOS) of li-ion BESS declined to RMB 0.3-0.4/kWh, even close to RMB 0.2/kWh for some li-ion BESS projects.









### **BRITISH VIRGIN ISLANDS LCOS BATTERY**

This study refines the LCOS model to compare the economics of second-life EV LIBs in utility-scale BESS to new batteries in the same application. A probabilistic LCOS model is developed and used to compare prior studies through Monte Carlo analysis based on a harmonization of parameters.

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ATEC BVI facilitates the transition to renewable energy in the British Virgin Islands and the wider Caribbean region. We are local leaders and pioneers in the development of the micro-grid energy production field.

