



# JUMP-STARTING

## THE CARIBBEAN'S ENERGY TRANSITION: BATTERY STORAGE AND GRID MODERNISATION

The Caribbean Region is making progress in the shift to renewable energy. As this transition takes place and the supply from solar and wind power continues to grow, the region's electric utilities are faced with the challenge of managing these new distributed sources of generation and maintaining the reliability of their grids.

### THE SOLUTION: ENERGY STORAGE IN ELECTRICITY GRIDS

The variability of solar and wind resources throughout the day means energy storage solutions are required to increase the penetration of these renewables. Typically, a grid can accommodate variable renewable energy generation up to approximately 10% to 15% of its generation capacity. However, to increase the amount of renewables, innovative measures such as modern grid control systems and battery storage are required.

Battery storage is commonly considered for:

- energy-supply-shift application, for storing excess energy production to match periods of higher demand or where supply from renewable energy is low;
- reducing variability of renewable energy supply;
- maintaining power quality parameters, system stability and reliability; and
- providing spinning and non-spinning reserve to balance energy demand and supply.

### THE CHALLENGE: DEVELOPMENT AND PLANNING

The energy storage market has developed significantly in recent years, with costs of Lithium-ion batteries halving between 2010 and 2016. A further reduction of 50% is forecast for 2021. This has inundated utilities with a host of options that make it difficult for them to begin developing and planning projects integrating this technology.

The Caribbean Development Bank's Technical Assistance for Energy Storage and Grid Modernisation aims to assist utilities by providing access to grid and battery expertise for developing projects including the following aspects:

- selecting the best suited technology amongst various options;

- assessing impact of battery storage on grid parameters and determining acceptable levels of variable renewable energy penetration;
- defining technical specifications and performance requirements;
- assessing technical and financial feasibility;
- determining grid stability;
- developing commercial scenarios;
- reviewing regulatory frameworks and tariff mechanisms for repayment of investments; and
- identifying operational and maintenance needs.



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The Caribbean Development Bank's Grant Funded Technical Assistance for Energy Storage and Grid Modernisation is available for all Borrowing Member Countries.

### HOW CAN THE CARIBBEAN DEVELOPMENT BANK HELP?

CDB can provide support for grid modernisation and energy storage projects through:

- grant-funded expert advice from regional and international consultants with extensive experience in the design and installation of new network assets and energy storage;
- financing for investment projects (subject to demonstrated feasibility); and
- quick response to utilities' requests, with the consultant being deployed within three weeks of agreeing the Terms of Reference.

### LET'S TALK

Contact us to discuss support for grid modernisation and energy storage projects.

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### ABOUT CDB

CDB is a regional financial institution established for the purpose of contributing to the harmonious economic growth and development of its 19 Borrowing Member Countries. CDB promotes economic cooperation and integration among these countries, having special and urgent regard to the less developed members of the Region.

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 **RENEWABLE ENERGY  
ENERGY EFFICIENCY**