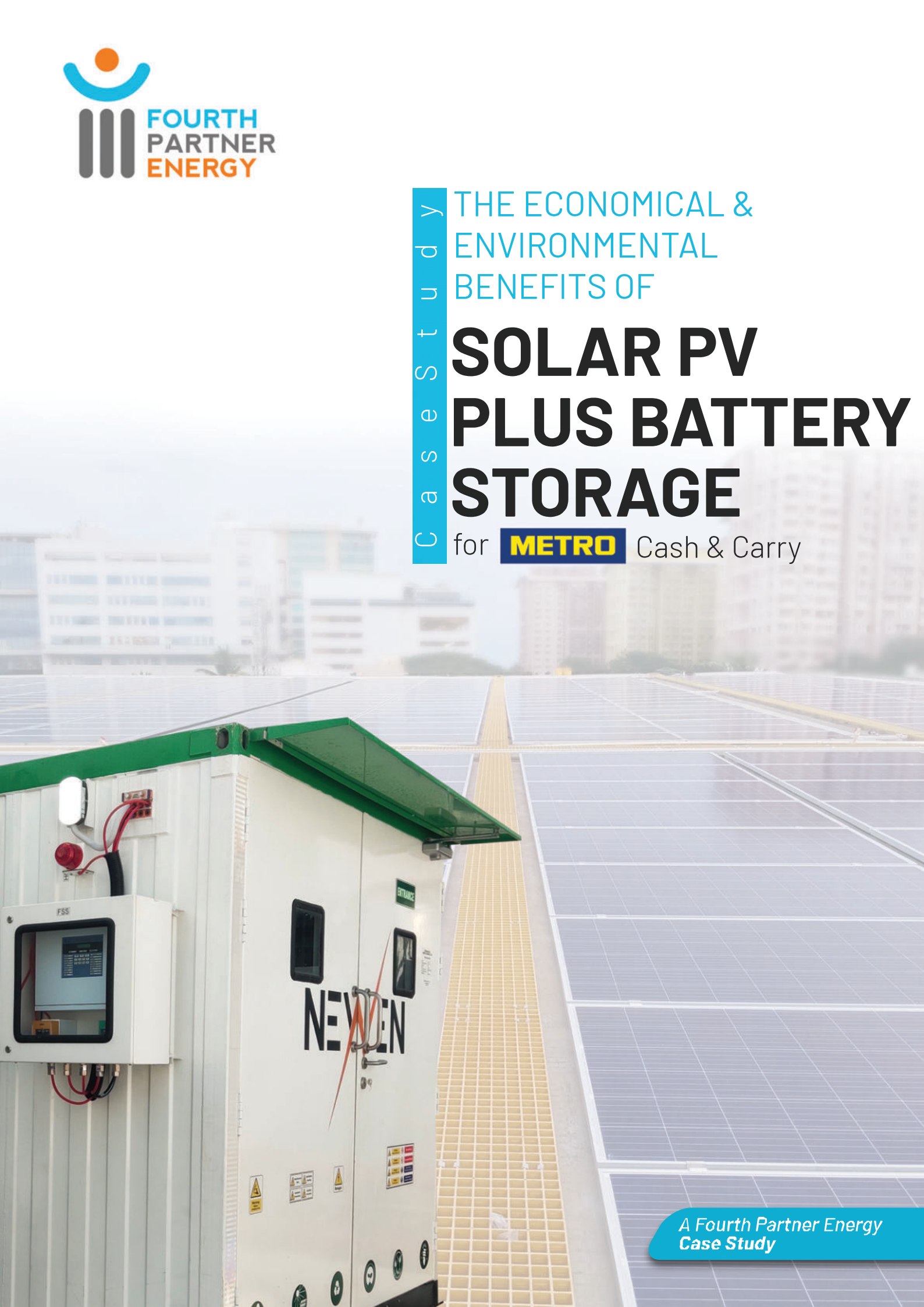
FOURTH PARTNER ENERGY

Case Study

THE ECONOMICAL & ENVIRONMENTAL BENEFITS OF SOLAR PV PLUS BATTERY STORAGE

for METRO Cash & Carry



A Fourth Partner Energy ***Case Study***

SOLAR PLUS STORAGE FOR METRO CASH & CARRY

415 KWp Rooftop Solar unit plus 250 kWh battery system for Metro's facility in Bengaluru

The system is designed in a way that provides the client with clean solar power, coupled with a battery system as a back-up and referencing source of power. It also provides for the solar plant to generate in an off-grid format

550 KW INTERCONNECTION

416 kWp DC

300 kW AC Solar PV

AC Coupled with 250 Kw

250 kW Battery Energy Storage System

415 V Interaction

PV SYSTEM

Renewsys 335 Wp PV Modules

Sungrow 100 kW Inverter

indus Power Systems 416.07 kWp

BATTERY INTEGRATOR

Newen Systems Private Limited

BATTERY TECHNOLOGY

Lithium-ion NMC Batteries

PCS & CONTROLLER TECHNOLOGY

250 kW PCS: Newen with Dynapower Technology

Micro Grid Controller: Newen

% ENERGY REPLACEMENT: 40-50%

METRO's OPERATIONS:

METRO is a leading international specialist in wholesale and food retail which operates in 34 countries. The Pan-India business offers close to 7,000 world-class products across a multitude of categories - all under one roof, and at transparent, low wholesale prices.

FOURTH PARTNER ENERGY's CUSTOMISED SOLUTION:

A solar plus battery storage model was designed by FPEL's team to meet METRO's specific energy requirement, **the first of its kind for a commercial client in India.** The project executed in a record time of 53 days for the Solar installation and 23 days for the Battery system.

METRO's UNIQUE ENERGY REQUIREMENT:

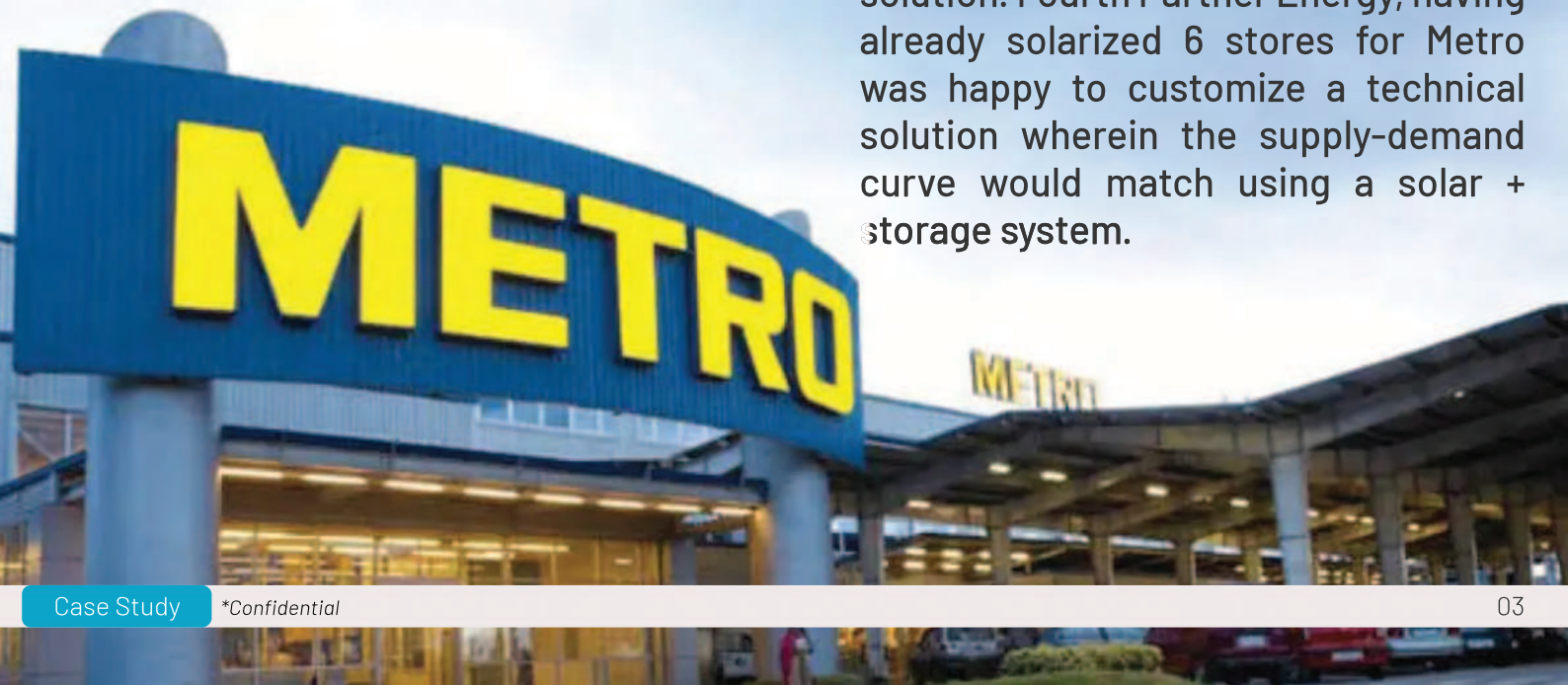
One of Metro's many sustainable goal is in India to become climate neutral by 2040 in addition to adoption of rooftop solar systems (via the OPEX model) across all their stores.

Due to space and regulator constraints specific to the State of Karnataka – a rooftop solar plant under the OPEX model was not permissible for METRO at its Bengaluru facility. The CAPEX model was financially unviable for the client, as it entailed a large initial investment.

The nature of METRO's business meant the site could not stop functioning during daytime; with critical load having to run 24/7 without failure of operation, even during integration.

The company's stringent sustainability targets had to be met – but in a commercially feasible manner.

The team at Metro then took the bold decision of opting for an off-grid solution. Fourth Partner Energy, having already solarized 6 stores for Metro was happy to customize a technical solution wherein the supply-demand curve would match using a solar + storage system.



SALIENT FEATURES OF THE SOLAR + BESS PROJECT FOR METRO

- Innovative architecture that enabled the Solar Plant to generate independently from the grid and thus form a local Micro-Grid
- Smart System with a micro-grid controller which dynamically monitors and prioritizes the ideal source for generation
- The solar installation was completed in a record time of 53 days and the BESS installation in 23 days

ANNUAL COST-SAVINGS TO THE CLIENT

Annual Savings: **Rs 24,74,020**

ENVIRONMENTAL IMPACT ANNUAL

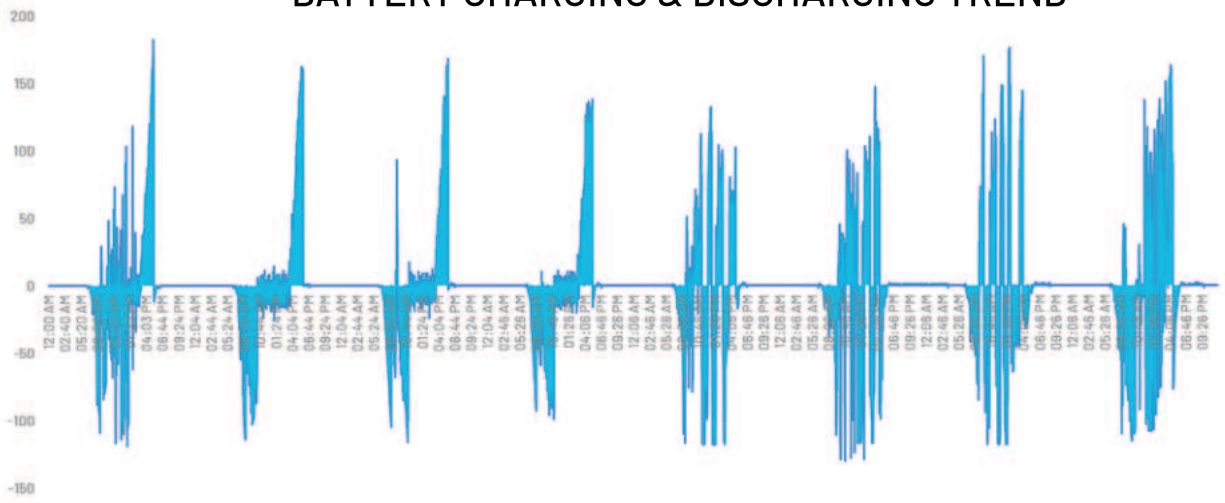
Water Conserved
13.5 Lk Litres

Carbon Offset:
1,300 MT

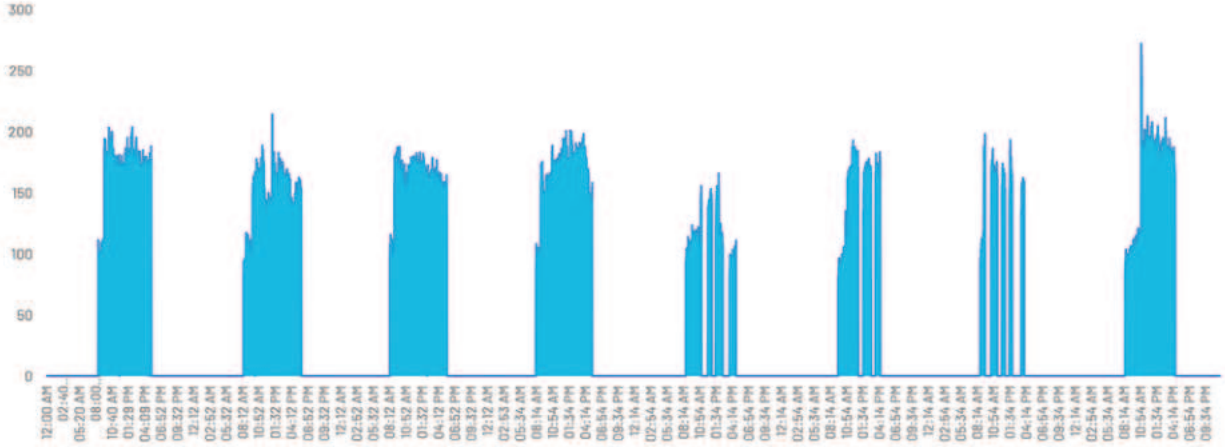
Trees Planted (Equivalent)
~50,000 Trees

WEEKLY ANALYSIS OF
CLIENT's SOLAR + STORAGE USAGE

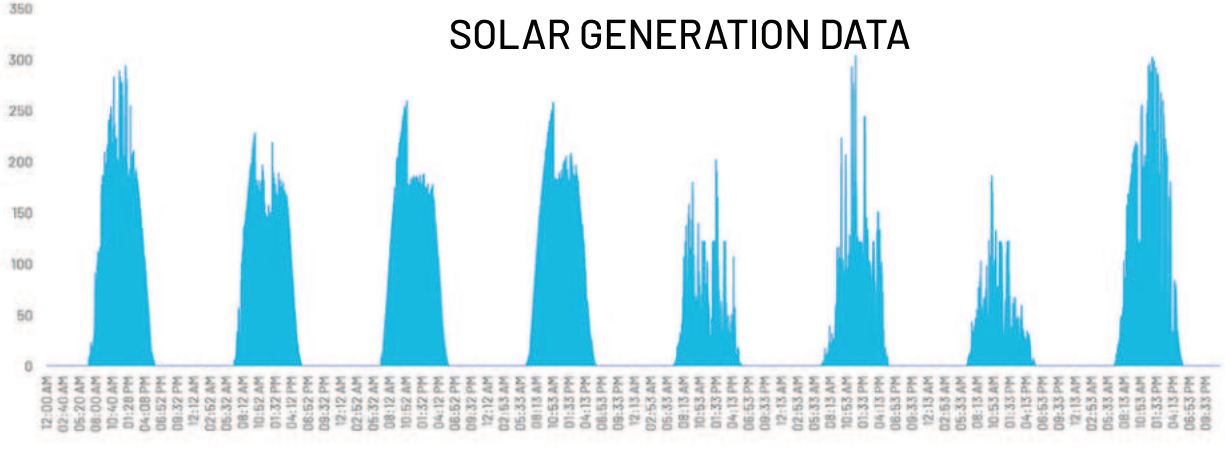
BATTERY CHARGING & DISCHARGING TREND



CLIENT's WEEKLY CONSUMPTION PATTERN

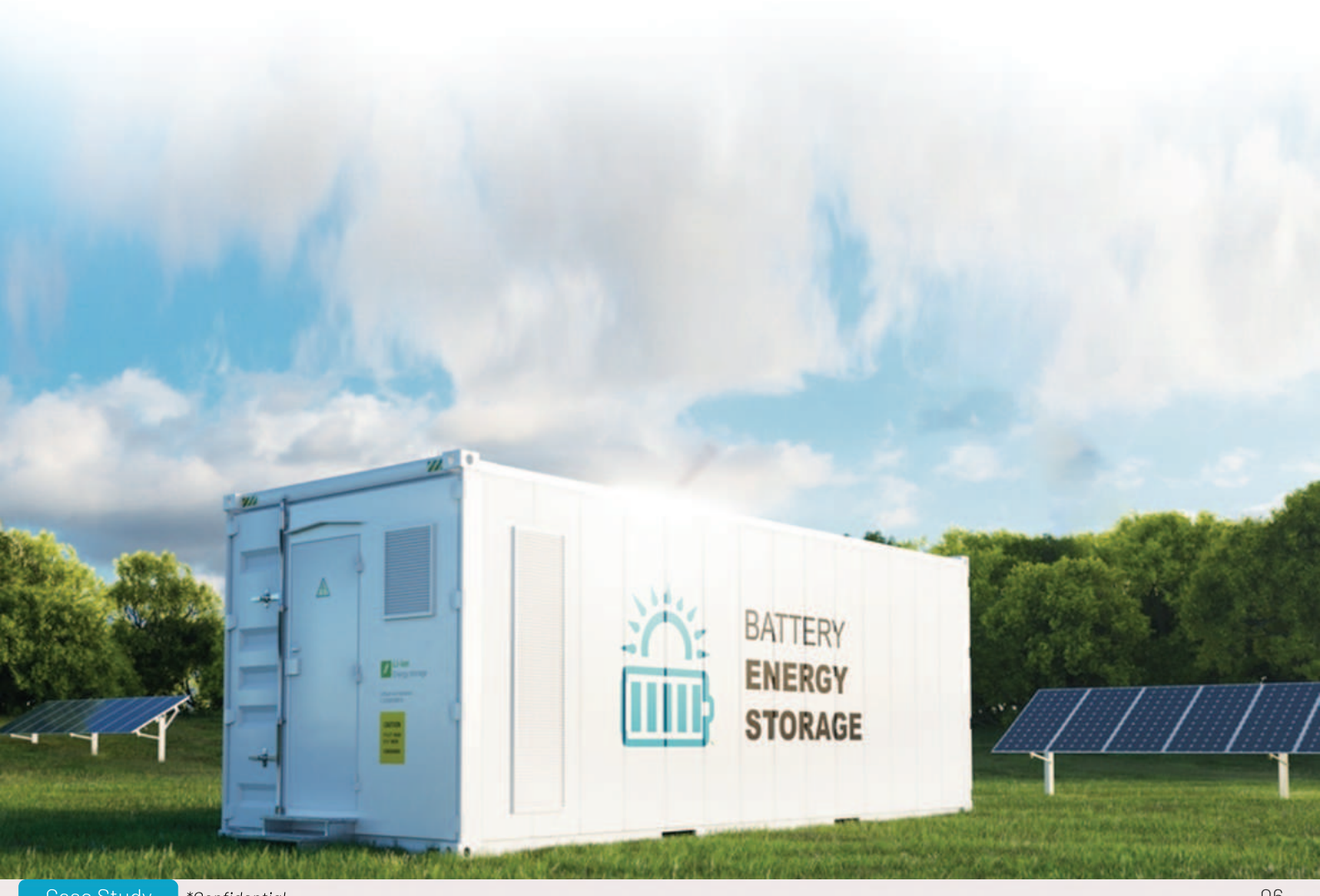


SOLAR GENERATION DATA



WHY SOLAR + STORAGE ?

- **100% Clean Energy:** Battery Storage is the ideal solution to address the intermittency of Solar%
- **Grid Independence:** Helps reduce the client's reliance on the grid, while lowering Electricity costs
- **Reduces Carbon Footprint:** Is far more environmentally friendly than running a Diesel Generator
- **Resilient Power:** Addresses the need for stability and flexibility in energy demand
- **Zero Upfront Investment:** Under the EaaS model



INDIA's BESS OUTLOOK

140 – 200 GW

The International Energy Agency's (IEA) India Energy Outlook 2021 projects that India could have **140-200 GW** of battery storage capacity by 2040. This would make it the 3rd largest in the world in terms of total battery storage capacity.

The pace of change in the electricity sector puts a huge premium on robust grids and other sources of flexibility, with India becoming a global leader in battery storage. India has a higher requirement for flexibility in its power system operation than almost any other country in the world.

Battery storage is particularly well suited to the short-run flexibility that India needs to align its solar-led generation peak in the middle of the day with the country's early evening peak in demand.

*Source: International Energy Agency

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