FOURTH PARTNER ENERGY

NTPC NETRA's SOLAR + BATTERY STORAGE SYSTEM

Case Study on FPEL's customised Microgrid solution consisting of **4MWp** Ground Mounted solar and 1 MWhr BESS.

NTPC Netra: India's largest
Research & Technology Development centre of NTPC

In India, NTPC needs no introduction. It is the sub-continent's largest power utility, with a total installed capacity of 75 GW, contributing 25% to the total power generated here. The power behemoth is also deeply committed to Research & Development, keeping in mind the dynamism and paradigm shifts in generation technology across the globe. In 2009, NTPC established NETRA (NTPC Energy Technology Research Alliance) to advance this vision of prowess in R&D.

NETRA's key expertise lies in providing scientific support to improve the life and performance of power stations and developing technologies for clean and economical power generation. They have established networks with prestigious national and international institutions to harness specialized knowledge and expertise.

A notable milestone in their journey is NETRA's recognition as the winner of the Fly Ash Utilization Award by the Mission Energy Foundation, highlighting their dedication to R&D in fly ash utilization.

NTPC's commitment to Sustainable Energy and Environmental Goals

On 27th June 2021, NTPC Limited became the first energy company in India to declare its Energy Compact goals as part of the UN High-Level Dialogue on Energy (HLDE). NTPC aims to install 60 GW of renewable energy capacity by 2032 and achieve a 10% reduction in net energy intensity by the same year.

As part of its commitment to sustainability, NTPC has implemented a detailed ash management program to reclaim and recycle ash into new products.

In FY 23, NTPC recycled over 1700 tonnes of hazardous waste. Additionally, NTPC is working towards Zero Liquid Discharge (ZLD) at all its stations; 19 stations have already implemented ZLD, with the rest in advanced stages of implementation.

FPEL's Unique Solar + Storage (Microgrid) for NTPC NETRA

NTPC NETRA in 2022 began exploring options on how to switch to Renewables at its Noida centre; their partnership with Fourth Partner Energy began soon afterwards. In less than 3 months, FPEL executed a **4 MWp** Ground Mount Solar unit at NTPC's Noida facility and supplemented this with an innovative 1 MWh Battery system for storage of clean power. This customised, advanced setup not only ensures the delivery of clean solar power but also enhances reliability with its backup battery system.

This project is also a remarkable feather in FPEL's cap as it showcases their prowess in innovation and clean energy technologies – together, both players are taking the lead paving the way for a more sustainable future.

BATTERY INTEGRATOR

Newen Systems Private Limited

BATTERY TECHNOLOGY

Lithium-ion NMC Batteries

PCS & CONTROLLER TECHNOLOGY

1MW PCS: Newen with Dynapower Technology
Micro Grid Controller: Newen

Key System Size

AC Coupled system
~ 4 MWp Solar
1 MW/1.25 MWh BESS

PV System

Renewsys **545 Wp** PV Modules
Sungrow **3.3 MVA** Inverter

Annual Environmental Impact

1,02,578 Tons
of reduced Carbon Offset

2635 Kgs
of reduction in Coal

1,28,94,720 Litres
of Water Conservation

Equivalent to Planting
2,52,350 Trees

Key Challenges
in Project Execution

Multiple sources and varying loads

BESS and Solar combine for continuous green power, with Newen PCS forming the local grid and NEEMS enabling dynamic control and monitoring.

Complex Infrastructure with various connection points

Dynamic control of the loads as per defined logic
Load priority: Solar > Bio-Mass > Batteries > Grid > DG

What is a
Micro Grid System?

Microgrid means a localized electricity distribution network that includes solar panels for generation and battery energy storage for storing excess energy. The microgrid can operate independently of the main grid.

Microgrid technology helps maximize the use of solar energy by storing extra power in batteries. This means the consumer can still have electricity even after the sun sets, without relying on the main power grid. It makes the developer's energy supply more reliable and resilient.

Weekly Analysis of NTPC Netra's
Solar + Storage Usage

How can India's Corporates Benefit from 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 environment-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

Battery Energy Storage Systems
India Outlook

The increasing adoption of Battery Energy Storage Systems (BESS) is pivotal to India's RE transition, enhancing grid stability and reliability. By efficiently harnessing solar power throughout the day and reserving a portion for nighttime use, BESS plays a crucial role in optimizing renewable energy utilization.

Projections indicate significant growth in both RE and power sectors, with the stationary BESS market is poised to reach 208 GWh by 2030, building upon India's existing installed capacity of approximately 40 MWh as of March 2023. Government initiatives such as Viability Gap Funding (VGF) and Production Linked Incentive (PLI) schemes aim to reduce the cost of Storage, facilitating wider adoption. Plans for a 4,000 MWh BESS development scheme further underscore the government's commitment to advancing energy storage infrastructure.

At Fourth Partner Energy, we have a dedicated in-house vertical that looks at BESS as a tool to supplement clean energy solutions to India Inc. – thereby maximising the Client's consumption of Renewables, while providing an economical solution to address intermittency and reliability.

1800 1203 41345

marketing@fourthpartner.co

www.fourthpartner.co