



Application Guide

INDUSTRY & UTILITY





Nexcharge presents the state-of-the-art solution for long pending requirement of Telecom sector to provide complete green operation with improved uptime and total energy accountability with its advanced Battery Management System and value-added features like Remote Asset Services. The premium quality and better life would ensure minimum Total Cost of Ownership (TCO).

NEXCHARGE TELECOM SOLUTION

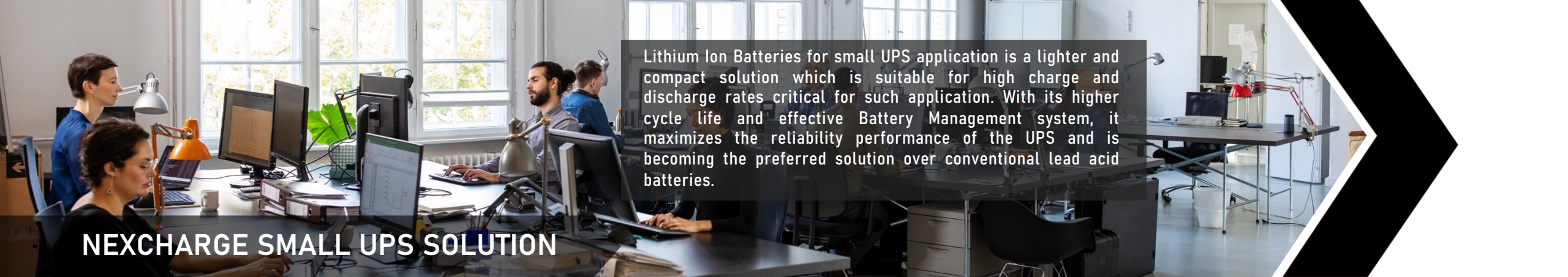
Solution Features

- Reliable & Safe LiFePO4 cell technology
- Advanced Remote Asset Services RAS (Optional)
- Effective failure prevention and analytics with balance of life with RAS
- Communication through RS485 / RS232
- Suitable for multi-unit parallel connection (up to 15 modules)
- State-of-Art BMS with built-in advanced protections
- Higher operating temperature range
- High Cycle life
- High round-trip efficiency
- Standardized 19" rack-mountable



Solution Details

Battery Specification	Dimension	Battery Specification	Dimension
48V, 100Ah	19"4U	48V, 40Ah	19"2U
48V, 75Ah	19"4U	48V, 20Ah	19"1U
48V, 50Ah	19"3U	48V, 10Ah	19"1U



Lithium Ion Batteries for small UPS application is a lighter and compact solution which is suitable for high charge and discharge rates critical for such application. With its higher cycle life and effective Battery Management system, it maximizes the reliability performance of the UPS and is becoming the preferred solution over conventional lead acid batteries.

NEXCHARGE SMALL UPS SOLUTION

Solution Features

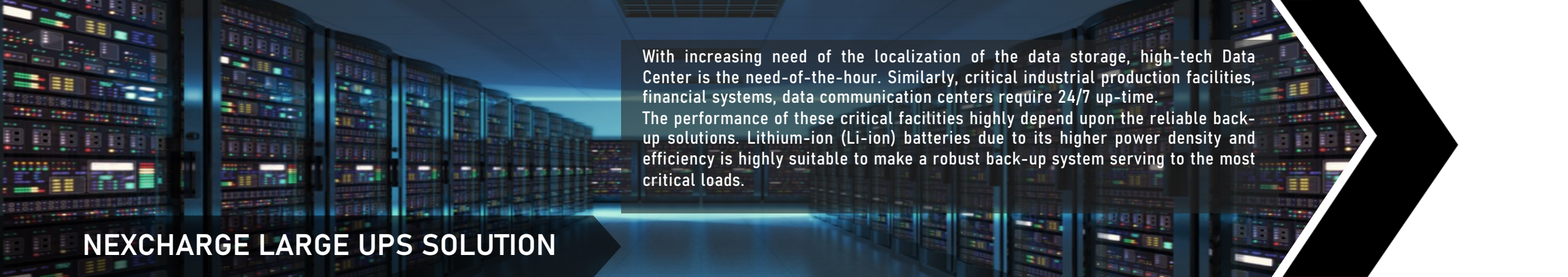
- Safe & Reliable LiFePO4 cell Technology
- High Energy Density
- Superior Thermal Management
- Customizable form factors to suit UPS
- Wide operating temperature range
- Communication interface (Optional)
- Built-in advanced protections
- Less weight & compact
- Long life span
- Low Maintenance
- High round-trip efficiency



Solution Range

Parameter	Details
UPS Capacity	1-5kVA
Run Time	1/2/3 Hrs.
Nominal Voltage	36-192V

*The battery sizing & configurations shall be customized based on the UPS rating and power back up requirement



With increasing need of the localization of the data storage, high-tech Data Center is the need-of-the-hour. Similarly, critical industrial production facilities, financial systems, data communication centers require 24/7 up-time. The performance of these critical facilities highly depend upon the reliable back-up solutions. Lithium-ion (Li-ion) batteries due to its higher power density and efficiency is highly suitable to make a robust back-up system serving to the most critical loads.

NEXCHARGE LARGE UPS SOLUTION

Solution Features

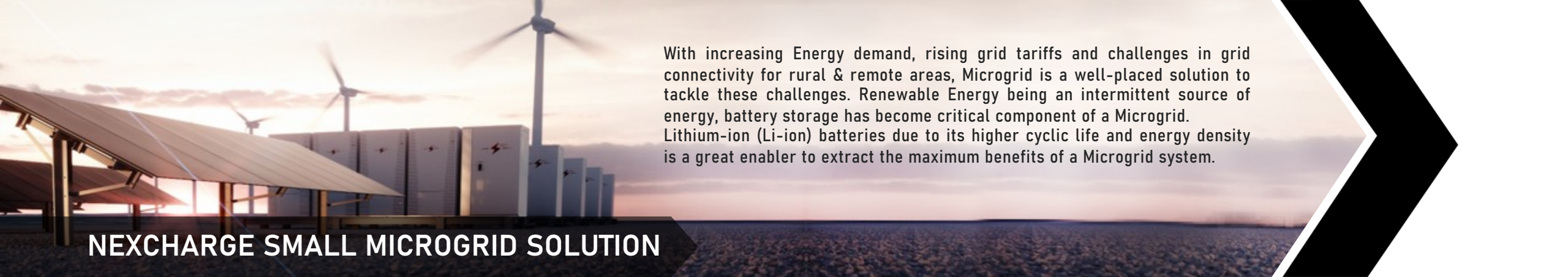
- High Power Density
- Suitable for fast charge & discharge
- Compatible for communication with UPS
- State-of-Art BMS with built-in advanced protections
- Rack level switchgear and controller for centralized communication and protections
- Remote monitoring & diagnostics (Optional)
- Long life span
- High Safety and Reliability
- Less footprint and volume
- Scalable
- Low Maintenance



Solution Range

Parameter	Details
UPS Capacity	10-500kVA
Run Time	10-60 Minutes
Nominal Voltage	240-520V

*The battery sizing & configurations shall be customized based on the UPS rating and power back up requirement



With increasing Energy demand, rising grid tariffs and challenges in grid connectivity for rural & remote areas, Microgrid is a well-placed solution to tackle these challenges. Renewable Energy being an intermittent source of energy, battery storage has become critical component of a Microgrid. Lithium-ion (Li-ion) batteries due to its higher cyclic life and energy density is a great enabler to extract the maximum benefits of a Microgrid system.

NEXCHARGE SMALL MICROGRID SOLUTION

Solution Features

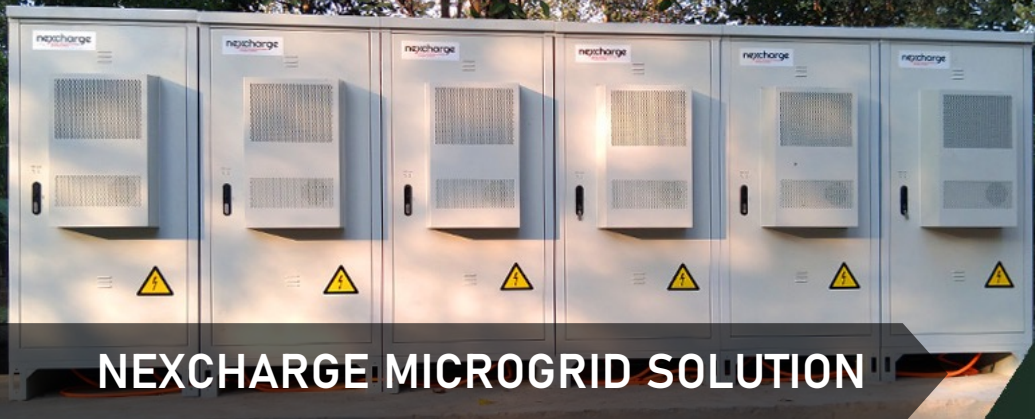
- Reliable & Safe LiFePO4 cell technology
- Wide operating temperature range
- In-built HVAC solution
- Suitable for fast charging, saves fuel consumption of DG
- Less weight and compact footprint
- Compatible for communication with PCS
- State-of-Art Battery Management System
- Remote monitoring & diagnostics (Optional)
- Higher Cyclic life
- Longer Design life
- High round-trip efficiency
- Low Maintenance



Solution Range

Parameter	Details
Nominal Voltage	48V/51.2V
Module Ah rating	50Ah/100/150Ah
Rack Configuration	1SXP

*The battery sizing & rack configurations shall be customized based on the specific application requirement



Microgrid have traditionally relied on diesel generators for electric power, but with inclusion of renewable (Solar PV or Wind) energy, their dependence of diesel fuel decreases, however an Energy Storage System must be included with renewables to get maximum contribution from renewable energy.

Lithium-ion (Li-ion) batteries are the most suitable solution available for Energy Storage System because of high energy density that enables bigger systems to be deployed with a compact footprint.

NEXCHARGE MICROGRID SOLUTION

Application - DG Offset

BESS independently or with Solar PV can be used to offset the use of diesel generators up to a great extent. It helps in reducing the air pollution & noise pollution along with the reduction in levelized cost of energy for customer.

Application - Island operation

In case of Grid unavailability/ outage BESS system can form an island grid and provide reference voltage & frequency for other sources (like Solar PV) to function.



BESS rating for microgrid can be classified in following ranges:

- 50kWh to 1000kWh
- 1MWh to 5MWh
- Above 5MWh

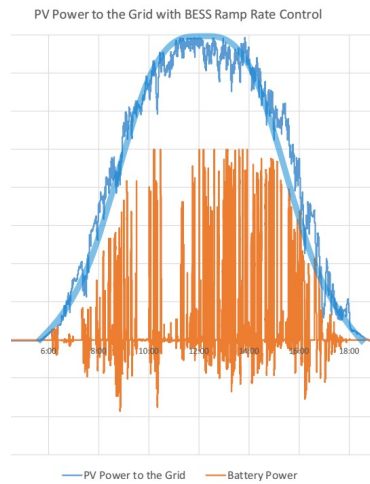
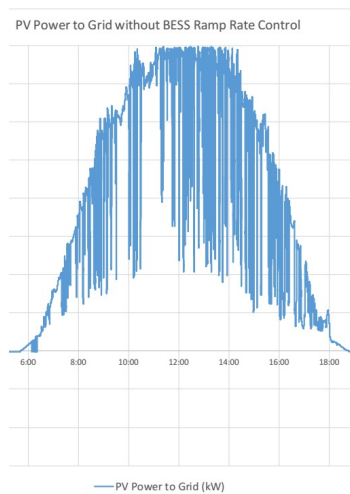


Power generation from renewable sources is inherently intermittent and unpredictable. Hence large-scale integration of renewables into the electricity system requires BESS for energy storage and reliability of discharge. BESS rating for renewable integration varies from few kWh to MWh.

NEXCHARGE RENEWABLE INTEGRATION (SOLAR / WIND) STORAGE SOLUTION

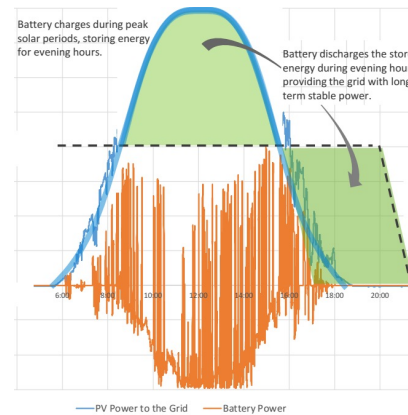
Application - Ramp rate control

Solar PV plant output can fluctuate 80% in a second due to clouds. BESS is used to quickly charge and discharge batteries to smoothen the output of Solar PV Plant.



Application - Energy Shift

BESS is used in Solar PV Plants to store the energy whenever excess solar power is available and give the energy back to the system during off solar hours.



BESS rating for renewable integration can be classified in following ranges:

- a. 50kWh to 1000kWh
- b. 1MWh to 5MWh
- c. Above 5MWh



NEXCHARGE GRID ANCILLARY SOLUTION

The Indian Electricity Grid Code (IEGC) 2010 defines ancillary services in power system as “services necessary to support the power system (or grid) operation in maintaining power quality, reliability and security of grid. With stricter framework including ancillary services through FRAS and governance, the frequency remains in the acceptable band to a large extent, but still, it remains over and above the upper limit of 50.05Hz for around 25% times. T&D network upgradation can also be deferred with the use of BESS.

Application – Frequency & Voltage stabilization

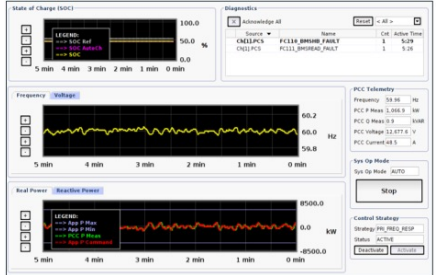
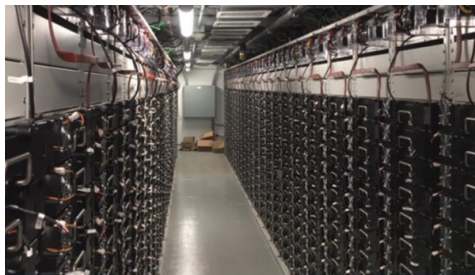
BESS is connected to Grid and charge/ discharge based on an algorithm to keep grid frequency and voltage within desired ranges.

Application – Spinning reserve

BESS can quickly respond to the variation in load on utility and enables generators to work at optimum level without the need to keep the idle capacity for spinning reserve.

Application – T&D deferral

Enable deferral of utility investments by using relatively small amounts of storage for Congestion relief. This will also increase the life of infrastructure (ex. Transformer, distribution network etc.) by reducing the loading on them.



BESS rating for grid ancillary applications can be classified in following ranges:

- a. 50kWh to 1000kWh
- b. 1MWh to 5MWh
- c. Above 5MWh