

NexEnergy Telecom & Critical Infrastructure Case Studies

Powering Resilient Networks with Advanced Energy Storage

NexEnergy's next gen energy storage solutions enable telecom operators and critical infrastructure providers to reduce operating costs, improve uptime, and operate reliably in challenging grid environments.

Technology Overview

NexEnergy delivers systems engineered for high cycle, long life operation in telecom and mission critical environments. Our platforms utilize carbon enhanced, super cap based energy storage architectures that enable ultra fast charge, high performance, and exceptional thermal stability.

Unlike conventional lithium battery systems, NexEnergy solutions operate without cooling, without thermal runaway risk, and without performance degradation over time, providing a future proof energy platform optimized for resilience, efficiency, and lowest total cost of ownership.

Case Study 1: Macro Telecom Tower Diesel Optimization & OPEX Reduction

Sector: Telecom – Macro Cell Tower / Location: ME

Challenge

The operator relied heavily on diesel generation due to weak grid conditions, resulting in high fuel consumption, frequent maintenance, battery failures in high heat, and rising site operating expenses.

Solution

NexEnergy deployed its NEX-ERS storage platform integrated with intelligent generator optimization. The system enabled short, high efficiency generator run cycles while prioritizing stored energy delivery.

Results

- 86% reduction in generator runtime
- 63% reduction in diesel fuel consumption
- 62% reduction in annual site operating costs
- Improved uptime with reduced maintenance intervention

Benefit to Application:

Lower total cost of ownership and improved network reliability with minimal operational complexity.

Case Study 2: 5G / Edge Infrastructure Power Quality & Space Optimization

Sector: Telecom – 5G – Edge Compute / Location: EMEA Urban Market

Challenge

Power quality issues, voltage fluctuations, overheating UPS systems, and space constraints threatened the reliability of 5G and edge computing deployments.

Solution

NexEnergy replaced legacy UPS batteries with its NEX-ERS rack system, delivering instantaneous response to load changes, eliminating cooling requirements, and significantly reducing physical footprint.

Results

- Zero power related outages post deployment
- 85% reduction in energy storage footprint
- Elimination of cooling related energy use
- Enhanced protection for sensitive telecom equipment

Benefit to Application:

Reliable, compact, and maintenance-free power infrastructure supporting high-density 5G expansion.



Case Study 3: Remote Off-Grid Telecom Solar + Storage Microgrid

Sector: Telecom – Rural – Off-Grid / Location: Latin America

Challenge

Remote deployment with no grid access, high diesel logistics costs, theft risks, extreme environmental conditions, and frequent battery replacement cycles.

Solution

NexEnergy deployed a containerized NexPack microgrid solution combining solar generation with advanced electrostatic energy storage and intelligent energy source prioritization.

Results

- 24/7 uninterrupted connectivity
- Complete elimination of diesel dependency
- Zero battery replacements required
- Minimal maintenance and site visits

Benefit to Application:

Enabled sustainable and scalable telecom expansion into previously unreachable regions.