



CASE STUDY · INDONESIA · UTILITY & ENERGY

Centiel Protects Power in UPS Mobile PLN

Reliable mobile power protection across the Indonesian archipelago.

PREMIUM TOWER™ · 7 UNITS DEPLOYED

96.6%

Efficiency

7

Units Deployed

120% Continuous

Overload Tested



Authorised Distributor of Centiel UPS in Indonesia

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Centiel Protects Power in UPS Mobile PLN

SEGMENT

Utility & Energy — Mobile Power Deployment

CHALLENGE

PLN required a UPS operating inside truck-mounted containers across Indonesia. Units must withstand road vibration, support both linear and non-linear loads, and be rapidly deployable — all within the confined space of a shipping container.

RESULTS

Centiel Premium Tower™ powers seven Mobile UPS units across Indonesia. Four 100 KVA units for PLN Nusa Tenggara Timur and three 200 KVA units for PLN Aceh are fully operational — successfully protecting power at PON XXI 2024.

POWER PROTECTION SOLUTION

PLN Nusa Tenggara Timur

4 × Premium Tower™ 100 KW
Battery: 2 Banks × 40 × 12V 130Ah per unit

PLN Aceh — PON XXI 2024

3 × Premium Tower™ 200 KW
Battery: 2 Banks × 46 × 12V 200Ah per unit

PROJECT OVERVIEW

Country	Indonesia
Regions	NTT & Aceh
Industry	Utility & Energy
Product	Premium Tower™
Units	7 total
Capacity	4×100 KW + 3×200 KW
Event	PON XXI 2024



Mobile UPS 100 KW – Centiel Premium Tower

Our Customer

PLN (**Perusahaan Listrik Negara**) is Indonesia's state-owned electricity company responsible for power generation, transmission, and distribution across the archipelago. PLN developed the **Mobile UPS programme** — truck-mounted power protection units deployable anywhere in Indonesia on short notice.

PT Centielindo Daya Utama, Centiel's authorised distributor in Indonesia, participated in a competitive tender with a main contractor to supply, install, and commission the UPS systems for this programme.



PLN UID Aceh — PON XXI 2024

The Project

PT Centielindo Daya Utama collaborated with the main contractor to deliver two Mobile UPS configurations timed to support **PON XXI 2024** — Indonesia's premier national multi-sport event.

Configuration	Qty	Capacity	Battery
PLN Mobile Nusa Tenggara Timur	4 units	100 KW	2 × 40 × 12V 130Ah
PLN Mobile Aceh — PON XXI 2024	3 units	200 KW	2 Bank × 46 × 12V 200Ah
Total	7 units	—	—



Interior — 200 KW (Aceh)



Interior — 100 KW (NTT)



PLN Mobile UPS fleet

The Challenge

1 — Mobile & Vibration

UPS units travel inside trucks across Indonesia's terrain. Road vibration stresses electronics and battery banks, demanding a robust and secure enclosure.

2 — Mixed Load Profile

Events range from concerts to sport venues and emergencies — mixed linear and non-linear loads. The UPS must handle all types reliably.

3 — Rapid Commissioning

The PON XXI deadline was tight. All units had to be delivered, container-integrated, tested, and commissioned with zero margin for delay.

The Solution

Despite fierce competition, Centiel was awarded the tender. The **Premium Tower™** was validated by PLN engineers at **120% overload of rated capacity — continuously, without alarm** — confirming suitability for demanding mobile deployment.

Key Advantages — Premium Tower™ Transformerless UPS

Premium Tower™ handles **both linear and non-linear loads equally well** — no additional filtering required. At **up to 96.6% efficiency**, it runs cooler and cheaper than any transformer-based alternative. Its **compact, lightweight form factor** is purpose-suited for truck-container mobile deployment.

Compact Footprint

Slim tower fits inside the container, with clear aisle access for battery racks.

All Load Types Supported

Proven for linear and non-linear loads — concerts, IT, motors, VFDs.

120% Overload Tested

PLN factory-verified at 120% rated load, sustained continuously. No alarm.

Vibration Resilient

Rugged build with shock-mounted internals tolerates constant road vibration.

Up to 96.6% Efficiency

Transformerless design minimises losses — lower heat and energy costs.

Delivered On Time

All 7 units delivered and commissioned ahead of the PON XXI deadline.

Why Centiel Premium Tower Transformerless UPS is the Right Choice

Advances in high-frequency IGBT inverter technology have made Centiel transformerless UPS systems not only viable but **superior in every measurable dimension**. The old belief that industrial loads require transformer-based UPS is no longer valid — Centiel's Premium Tower™ proves this in the field, every day.

Transformer-Based UPS	ASPECT	Centiel Premium Tower™
X 93 – 95% Typical loss: 5–7%	Efficiency	✓ Up to 96.6% Typical loss: 3–4%
X Large — transformer adds 20–40% extra bulk	Physical Size	✓ Compact — up to 40% smaller footprint
X Heavy — transformer core can add 100–300 kg	Weight	✓ Significantly lighter — no transformer core
X Best for linear loads only; non-linear needs extra harmonic filtering	Load Compatibility	✓ Proven for ALL load types — linear & non-linear equally, natively
X Higher losses produce more heat — needs more cooling infrastructure	Heat Generation	✓ Minimal heat — high efficiency keeps container temperature low
X More components: transformer windings, core, insulation	Maintenance	✓ Fewer components = fewer failure points, simpler servicing
X Higher CAPEX + higher running costs over lifespan	Total Cost of Ownership	✓ Lower CAPEX + ~30% lower OpEx — faster ROI
X Heavy & bulky — poor fit for truck-container use	Mobile Suitability	✓ Purpose-suited: light, compact, vibration-tolerant

* PLN engineers conducted live factory acceptance testing at 120% of rated capacity — sustained continuously. The Premium Tower™ passed without alarm or de-rating. This is only achievable with a modern transformerless design.

Conclusion

The PLN Mobile UPS programme is a pioneering application in Indonesia — a fully mobile, truck-mounted power protection fleet deployable nationwide. Centiel's **Premium Tower™**, with its proven transformerless architecture, compact dimensions, light weight, 96.6% efficiency, and factory-validated 120% overload capability, was the ideal and decisive solution for this unique challenge.

The transformerless design addressed every requirement: it handles both linear and non-linear loads natively, fits inside tight container space, reduces vehicle payload, and lowers energy costs — delivering measurable advantages over traditional transformer-based systems at every level.

PT Centielindo Daya Utama delivered all seven units on schedule, supporting PLN through factory testing, container integration, and commissioning. The successful deployment at **PON XXI 2024** in Aceh and Nusa Tenggara Timur proves Premium Tower™ reliability under the most demanding real-world conditions.



PLN Mobile UPS Fleet · Powered by Centiel Premium Tower™



PT CENTIELINDO DAYA UTAMA

Authorised Centiel Distributor — Indonesia

Reach us at:

sales@centielindo.com

(021) 5665369 · 5661872 · 5672837 · 5670216 · 5666053 · 5661787

www.centielindo.com