

Nigeria Telecom Shared Energy Costs: Start with the Meter Boundary

A shared site bill is not a tenant allocation. Define the meter boundary, evidence chain and commercial rule before assigning telecom-site energy costs.

PRODUCT KNOWLEDGE

Nigeria Telecom Shared Energy Costs: Start with the Meter Boundary

A shared site bill is not a tenant allocation. Define the energy boundary, measurement evidence and commercial rule before assigning common telecom-site costs.

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Meter-boundary allocation guide

Approx. 8 minute read

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The boundary comes before the bill

One utility invoice, generator ledger or hybrid-system dashboard can show the cost of supplying a telecom site. It does not, on its own, show which tenant created that cost. Tenant radio equipment, common cooling, rectifier conversion, security loads and battery charging can sit on different electrical sides of the same cabinet or shelter. A cost allocation becomes defensible only after the parties identify what each meter measures and what the commercial agreement says belongs to each party.

For Nigeria, the regulatory starting point is a collocation framework, not a nationwide energy tariff. The Nigerian Communications Commission's published guidelines list includes the 2021 co-location and infrastructure-sharing guidance. It supports a setting in which licensed parties arrange access and sharing, but it does not publish one universal formula for splitting a tower site's electricity, fuel, battery or cooling cost. The formula, scope and evidence therefore need to be checked against the actual reference offer and agreement.

This article treats **shared energy costs** as a procurement and operating-record question. It does not set Nigerian tenant prices, interpret a particular licence, or decide whether any invoice is payable. Contract counsel, the site owner and each tenant still need to approve the applicable terms.

Editorial illustration: evidence boundaries should be confirmed before commercial allocation.

What does a meter boundary need to establish?

A meter boundary needs to establish the physical point, energy direction, time interval, units and loads included in a reading. It must also show how a downstream tenant measurement is reconciled to an upstream utility, generator or hybrid-source record before it is used for a commercial allocation.

Start with a boundary sheet rather than a spreadsheet of percentages. Give every source, conversion stage and load branch a short identifier. Mark whether it is an energy meter, a fuel measure, a power-quality meter, a battery-state input or an inferred value. A dashboard tag is useful only when its wiring, scaling, timestamp and failure behaviour are known.

Evidence layer	Record to retain	Decision it can support	What it cannot prove alone
Supply boundary	Utility interval record, fuel receipt and run log, or hybrid-source ledger	Total energy or cost entering the agreed site boundary	Which tenant consumed it
Tenant branch	Branch-meter identifier, interval export, wiring diagram and seal or inspection record	Energy measured at that named tenant branch	Upstream losses or common auxiliary load
Common equipment	Cooling, lighting, security and control-load schedule with measurement location	Whether a load is common under the agreed boundary	How the common amount should be apportioned
Storage and conversion	Battery-state record, rectifier or inverter measurements and interval alignment	Whether storage movement or conversion sits between two readings	A tenant's share without an agreed treatment

The most useful check is whether the claimed quantity and the billing quantity are on the same side of the same equipment. A **telecom meter boundary** drawn at a tenant DC branch cannot automatically be compared with an AC utility meter without documenting the intervening conversion, storage and common loads. Mixing those positions creates a residual, not evidence of an overcharge.

Which costs can a shared-site meter support?

A shared-site meter can support allocation only for the quantity it actually measures and only under the agreement that governs that boundary. Separately metered tenant energy may be attributable to that branch; common load, conversion and unmetered residuals need their own defined treatment rather than an assumed percentage.

Consider a hypothetical monthly review. The main AC intake reads 1,000 kWh. Two tenant branch meters report 300 kWh and 250 kWh at their respective downstream branches. A verified common-equipment meter reports 80 kWh at its own stated position. The immediate reconciliation is a gap, not a final tenant bill:

Unexplained boundary difference = 1,000 kWh – (300 kWh + 250 kWh + 80 kWh) = 370 kWh

The 370 kWh can contain conversion losses, battery state-of-charge movement, owner loads, unmetered branches, different meter intervals or measurement error. It must not be silently divided by 50:50, rack space, radio count or nameplate power. Those approaches may be commercial choices in a particular agreement, but they are not deductions from this meter set.

If the agreement explicitly allocates the verified 80 kWh common load equally, the review can record 40 kWh for each tenant as a contractual allocation. It should still leave the 370 kWh in a separate exception line until the boundary bridge is evidenced. That separation keeps **tenant load evidence** from being confused with a residual that has not yet been explained.

The NCC's sample infrastructure-sharing and collocation licence conditions describe a reference offer as the basis for negotiating arrangements and require services to follow approved charges and terms. It is an official regulatory document, but it is not a site-specific allocation schedule. Use it to check the contracting framework; use the signed offer, site schedule and measurement record to decide a particular allocation.

How should battery and backup-source energy be handled?

Battery and backup-source energy should be treated as a boundary bridge with a stated method, not as an invisible tenant load. The review needs to identify when energy entered storage, when it left, which meter sees either event and whether the commercial rule allocates storage losses, generator fuel, utility recharge or a reserve service separately.

A battery state-of-charge percentage can help explain a monthly difference, but it is not a revenue-grade energy reading by itself. A 10 percentage-point change has no allocation value until the usable capacity, state-of-charge basis, interval and the agreed party responsible for storage losses are defined. The same caution applies to generator runtime: it can support an operating record, but not a tenant energy quantity unless fuel, load and measurement boundaries are documented.

For a hybrid site, record source energy and load energy separately. Do not make a solar-production counter the proxy for tenant consumption, and do not charge a tenant for recharge energy twice when a battery branch reading already includes it. The relevant contract may choose an approach, but the engineering record must make that choice testable.

When should allocation remain provisional?

Allocation should remain provisional when the agreement, boundary map or required measurement evidence is missing, inconsistent or time-misaligned. A provisional state is more useful than a confident-looking calculation because it identifies exactly what must be corrected before a cost becomes final.

- The tenant branch cannot be traced from the one-line diagram to the meter export.
- Meter intervals end at different times, or a blackout, generator changeover or maintenance event crosses one interval but not the other.
- Common cooling, access control, lighting or owner equipment lacks a stated boundary and allocation rule.
- A battery state change, rectifier fault or meter communication outage leaves a material gap without supporting evidence.
- The signed agreement, reference offer or amendment does not state whether losses and shared auxiliaries are passed through, retained or apportioned.

Each exception should name an owner, supporting record and resolution path. That might mean testing a meter, restoring an interval export, obtaining the agreed boundary schedule or moving the cost to an owner-held suspense line. It does not mean editing historical data until the totals happen to agree.

A review packet that can be audited

A compact packet keeps the discussion technical before it becomes commercial. It should include the signed allocation clause or applicable offer version, a dated one-line boundary diagram, meter inventory, interval exports, source and backup records, exception log and the calculation version. Retain the raw export as well as the adjusted worksheet so another reviewer can reproduce the result.

Monitoring data can make this process faster when identifiers and timestamps are stable. For signal selection and availability design, see the telecom site monitoring system guide . For fleet-level measures that should not be used as a substitute for a site boundary, see the telecom energy monitoring KPI guide .

Keep the packet distinct from an invoice. The engineering record establishes what is

measured and what remains uncertain; the contract determines which quantities are chargeable. That distinction protects **common load allocation** from being treated as a meter fact when it is actually a negotiated commercial rule.

Bring a boundary diagram to the next shared-site review

Before requesting a telecom energy integration quotation, assemble the one-line diagram, source records, tenant meter list, battery interfaces and the applicable allocation clause. The project team can then define the metering and monitoring inputs without promising a tariff, settlement result or regulatory approval.

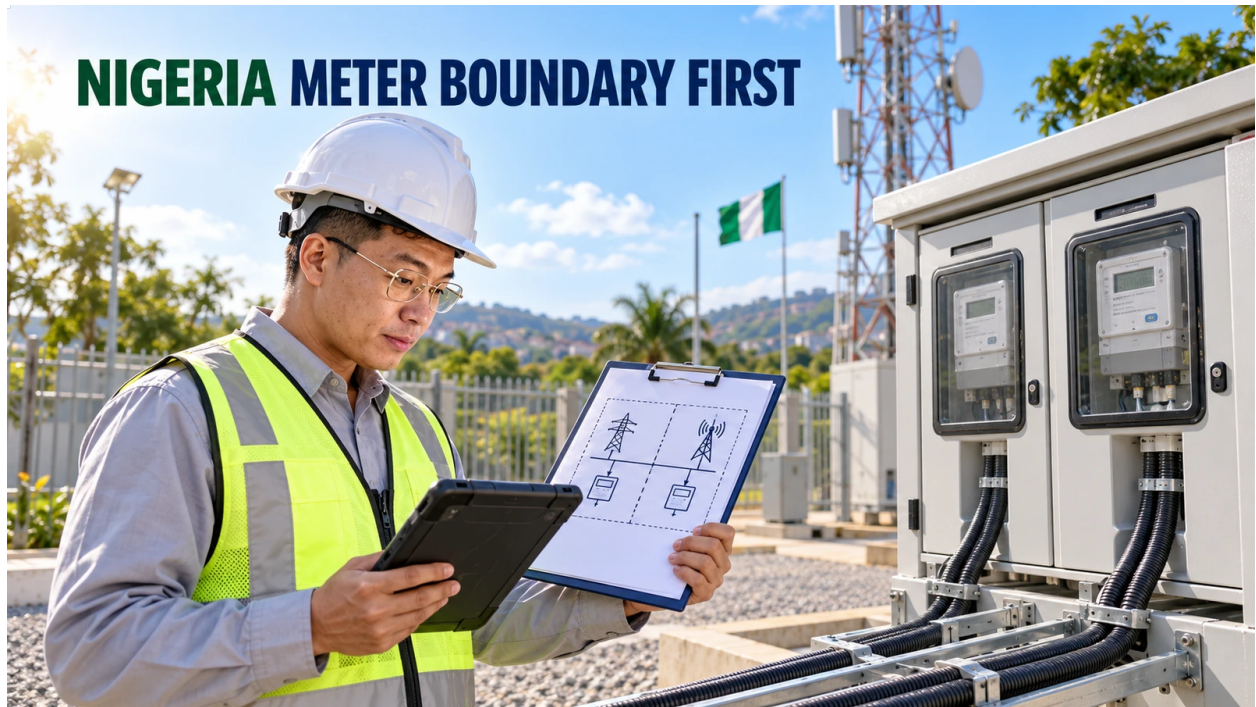
Discuss site energy inputs

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NIGERIA METER BOUNDARY FIRST

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