17 ENERGY SURVEYS · POWER-QUALITY + THERMAL BASELINE

Your power bill is hiding three costs.

We'll prove all three.

A non-invasive power-quality and thermal survey of your Philippine plant or commercial site. From a **1-day walkthrough at ₱40K** to a **1-week instrumented Level 1 survey at ₱90K** to a **full RA 11285 compliance audit at ₱250K**. Board-ready report priced in pesos, every time.

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WHY YOUR ELECTRIC UTILITY BILL IS WRONG

Three line items that never appear on your bill — *but you pay for them every month.*

Most Philippine factories, hotels, hospitals and commercial buildings think the electric utility bill tells the whole story. **It doesn't.** Three large costs hide inside the meter, the equipment and the wiring. None of them show up as a line item. All three are measurable — in a 1-day walkthrough, a 1-week instrumented survey, or a multi-week RA 11285 audit. Once measured, fixable.

⚡

A surcharge, because your motors are out of sync with the grid

When your chillers, compressors and big motors don't move power in step with the grid, your electric utility adds a surcharge. Most plant managers don't know it's there. Most fix-it capacitor banks installed 5+ years ago have **silently failed**. We measure it. We price it in pesos.

POWER FACTOR · UTILITY PF < 0.85 CLAUSE

📊

A single spike that re-prices your whole month

Your electric utility bills commercial accounts on the highest 15-minute peak in the month. **One uncontrolled chiller startup at the wrong moment re-rates the entire month upward** — and nothing on the bill explains why. Our loggers catch the spike, time-stamp it, name the equipment.

DEMAND CHARGE · 15-MINUTE KVA PEAK

🔥

Dirty power cooking your transformer in slow motion

Your VFDs, LED retrofits, UPS units and battery chargers **pollute your power supply**. Transformers run hot. Motors fail "randomly." Capacitors blow. We measure the pollution against IEEE 519 and name the load that's doing the damage.

TOTAL HARMONIC DISTORTION · IEEE 519

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HOW A LEVEL 1 SURVEY WORKS

Scope. Install. *Report.*

A licensed electrician clamps non-invasive sensors onto your switchboard in half a day. **Dashboard live inside an hour.** No production downtime. Seven days of second-resolution logging, board-ready PDF on Day 10. (Walkthrough is 1 day, Level 2 audit runs multi-week.)

DAY 1 · SCOPE

01

Walk the plant. Pull 12 months of bills.

One day on site. Our engineer photographs the single-line diagram, maps your major loads (chillers, compressors, AHUs, motors > 5 kW), pulls your **last 12 months of electric utility bills**, and agrees the install window with your electrical safety officer.

DAY 2 · INSTALL

02

Clamp on. Cellular gateway. Dashboard live.

Half a day. Licensed electrician. **Non-invasive clamp-on sensors** on the incoming feeder and 4–8 priority sub-circuits. Voltage taps on the bus. Cellular gateway to the cloud. **Dashboard live inside an hour** — you watch your own plant from day one.

DAY 10 · REPORT

03

15-page PDF. Priced in pesos. Board-ready.

Seven days of second-resolution data, then a **15-page executive report**, a technical appendix, a board-ready savings summary, and a heat-pump proposal sized against your real thermal load with an **IPMVP M&V plan** that DBP, BPI and LandBank will lend against. (Level 2 audits run multi-week with DOE submission.)

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WHAT WE MEASURE · FOUR CHANNELS

Four channels of measurement. *One report priced in pesos.*

True consumption

kWh · kW · kVA per phase, per feeder, every second

Validates the electric utility bill against measured reality. Reveals **ghost loads** running 24/7 that nobody knew about. Maps your real 24/7 load profile — the data you need before any sizing conversation.

Penalty exposure

Power factor + reactive power vs utility 0.85 clause

Catches the **surcharge buried in your bill**. Most fix-it capacitor banks installed 5+ years ago have failed silently — we'll know within the first 24 hours of data.

Dirty-power damage

Total + individual harmonics · IEEE 519

Names the **specific load that's overheating** your transformer and shortening your motor life. VFDs · LED retrofits · UPS units · rectifiers · battery chargers.

Thermal demand

Boiler · chiller · AHU sub-metering

Maps your **real 24/7 thermal load**. Sizes the heat pump against measured data, not a nameplate. **The single biggest reason heat pump projects fail commercially is oversizing** — this is how we kill that risk.

WHAT YOUR BILL IS HIDING · IN PESOS

Indicative hidden-cost exposure. *From real Philippine survey data.*

HIDDEN COST	WHERE IT HIDES IN YOUR BILL	TYPICAL ANNUAL EXPOSURE
Power-factor penalty	Utility surcharge when PF < 0.85	**₱180K – ₱1.2M**
Demand-charge spike	Highest 15-min kVA peak — one event re-rates the month	**₱240K – ₱2.1M**
Harmonic damage (IEEE 519)	Transformer life cut by half · motor failures	**₱350K+ per event**
Phase imbalance + voltage instability	Burned motors · failed neutrals · tripped production	**₱120K – ₱600K**
Oversized heat-pump retrofit	The project that fails commercially — never properly costed	**Project IRR – 30 to – 60%**
Typical hidden total / site / year	—	**₱500K – ₱3M+**

Indicative exposure ranges from Karnot survey scoping calls on Philippine industrial & commercial sites · 2024–2026. Real numbers come from a free scoping conversation on your own site. ***The survey itself costs ₱40,000 — refunded when you proceed with the Karnot install. Often less than one month of the PF penalty alone.***

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WHAT YOU GET ON DAY 10 (LEVEL 1)

A 15-page board-ready PDF. *Every number from your own plant.*

01
True baseline
Site-level kWh, kW, kVA — and **per feeder**. The picture your bill never shows you.

02
PF penalty in pesos
Your current annual surcharge exposure, modelled against your utility's PF clause. Priced in pesos.

03
Demand-spike breakdown
Which event re-priced your month, traced to the equipment that caused it. **One graph, one culprit.**

04
Dirty-power audit
Harmonic load named, equipment-life impact quantified, fix priced. IEEE 519 compliant.

05
24/7 load profile
When you run hard, when you don't — the curve that tells thermal storage where to shift load.

06
Thermal demand
What your boiler / chiller / AHUs **actually do**, not what their nameplates claim.

07
Karnot install sizing
Heat pump + storage + solar sized to your measured data, with peso ROI and a fixed-price quote.

08
IPMVP M&V plan
Audit-grade baseline DBP, BPI & LandBank lend against. Satisfies **SEC PFRS S2**.

Plus ***a live cloud dashboard*** we leave running through Day 17 — you watch your own plant during the survey, and we use the same dashboard as the M&V tool after the install. **Continuous monitoring optional from ₱8,000 / month / site.**

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WHAT IT COSTS · THREE TIERS

Walkthrough. Survey. *Audit.*

WALKTHROUGH · 1 DAY

₱40K

Refunded on install.

One day on site. Engineer walks the plant, reviews 12 months of utility bills, photographs the single-line and major equipment. You get a **4-page executive memo** with top 3 recommendations and a sized install proposal.

For owners who want a same-week answer.

RECOMMENDED

LEVEL 1 SURVEY · 1 WEEK

₱90K

Refunded on install.

The full instrumented power-quality + thermal survey. **A-Eberle PQ-Box logger** clamped on for the week, **cellular dashboard live from day one**, 15-page board-ready PDF with **IPMVP M&V plan** on Day 10.

For serious buyers committing to a retrofit in 12 months.

LEVEL 2 AUDIT · RA 11285

₱250K

DOE submission.

Multi-week deep audit for **Type 1 / Type 2 Designated Establishments**. IPMVP Option B/C baseline, certified energy auditor signature, full **DOE submission package**. Required every 3 years for >500,000 kWh/yr consumers.

Compliance product — not refundable.

Post-install · Continuous M&V from ₱8K / month. Same dashboard the survey ran on. Monthly performance report, anomaly alerts, peso-denominated savings dashboard. SEC PFRS S2 / I-REC reporting export included. Bundled into project finance or stand-alone.

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WHEN THE FIX GOES IN · HOW YOU PAY FOR IT

Three Philippine banks *already lend against an IPMVP baseline.*

A survey is the start, not the end. Once we've shown you what your bill is hiding, the install that fixes it (heat pumps, storage, solar) is financed by a green-loan programme built for exactly this kind of project. **The monthly saving covers the loan payment — net cash flow goes up from day one.**

DBP

Sustainable Energy Finance Programme (SEFP)

Agri-industrial priority · 70–80% LTV · 5–10 year terms · designed for energy-efficiency CAPEX.

~6.5–8% p.a.

LandBank

Sustainable Energy Investment Loan (SEILP)

Path of least resistance if you already bank with LandBank. Standard SME terms with green-discount.

~7% p.a.

BPI

Sustainable Development Finance (SDF)

Fastest decisions for established SMEs with a BPI relationship. Sized for renewable + efficiency CAPEX.

~1–1.5% below standard SME

These are **loans**, not grants. We don't pretend otherwise — if you call the bank expecting a grant the conversation ends fast. The bank needs an **audit-grade, IPMVP-compliant baseline** to size the loan against. **That's the survey.** Without it, no shared-savings or pay-from-savings deal is possible. With it, the bank pays for the kit, the saving pays the bank, and the net cash flow is positive from month one. **Karnot files the application as part of project scope.**

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BEYOND THE BILL · WHAT THE BASELINE UNLOCKS

One survey. *Three problems solved at once.*

The same instrumented baseline that proves the install economics also satisfies the CFO, the bank and the ESG officer. **One audit. Three deliverables. No second visit.**

FOR THE CFO

A number the board will sign

Defensible CAPEX paper — payback, IRR, NPV all anchored to **your own measured data**, not a brochure. Pre-empts the "your numbers are too optimistic" objection before it starts. **Quote-grade peso math.**

FOR THE BANK

An IPMVP baseline they'll lend against

IPMVP Option B or C — the global M&V protocol every green-finance team recognises. The baseline DBP, BPI and LandBank need to **size a green loan, an ESCo deal or a pay-from-savings contract**. Without it, none of those are possible.

FOR THE ESG OFFICER

Audit-grade Scope 2 data

SEC PFRS S2 climate-disclosure compliant. I-REC eligible. Pre-installation baseline + continuous post-install M&V is exactly the dataset the auditor will ask for — and the green-bond / green-loan reviewer will expect.

The survey isn't a cost. ***It's the dataset that unlocks the next three commercial conversations.***

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THE NEXT STEP

Three things from you. *The rest is on us.*

01 **Twelve months of electric utility bills**

Just the front summary pages. We model your current PF penalty exposure and demand-charge profile before we even arrive.

02 **Your single-line diagram (or a phone photo of your MDB)**

A snapshot of your main distribution board and the major sub-circuits is enough. We size the CT clamps and confirm the install window in 48 hours.

03 **A site visit window**

One day for scope, half a day for install. No production downtime. Dashboard live within an hour of clamp-on.

WHAT YOU GET BACK

A 15-page board-ready PDF. A live dashboard. A sized install proposal. *And a finance route the bank already lends for.*

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