

17 COMMERCIAL LAUNDRIES · WASH WATER WITHOUT LPG

₱40,000 a month back in your pocket. *From day one.*

For Philippine commercial laundries — hotel back-of-house, hospital outsourcing, coin-op chains, uniform contracts. The LPG boiler feeding your washers, swapped for one Karnot iHEAT R290 cascade. **One bill, financed by the bank, paid for out of the saving** — with no flame on site.

500 KG/DAY COMMERCIAL LAUNDRY · LPG BOILER RETIRED · IHEAT R290 CASCADE INSTALLED

₱40K

In your pocket every month

Net of the green-loan payment · from day one

1.1 yr

Cash payback

Kit pays for itself before the loan's first interest-only quarter ends

33 t

CO₂ avoided per year

LPG combustion retired · Scope 1 → zero · no flame on site

You pay nothing up front. *The bank does.*

DBP, LandBank and BPI all run **green-loan programmes** built for exactly this kind of project — **~6.5-8% p.a., 5-10 year terms, 70-80% LTV**. The monthly LPG saving is larger than the monthly loan payment. Net result: **cash flow goes UP from day one**. After the loan is paid off in year 5, you keep 100% of the saving for the remaining ten years of asset life. Karnot files the loan application as part of project scope — you don't fight the bank alone.

— WHY YOUR WASHERS RUN ON FIRE

Your laundry's biggest input cost is the boiler. *And the boiler is on fire.*

A 500 kg/day commercial laundry burns roughly **11 tonnes of LPG a year** just to feed the washers with 60–80 °C hot water — about **₱935,000 a year on fuel** alone. LPG prices in the Philippines have tracked oil up **40% since 2020**, and there is no scenario where they reverse. Every kilogram of LPG you burn is a kilogram of CO₂ in your Scope 1 line, a flame on your site, and a price you don't control. A Karnot iHEAT R290 heat pump *moves heat from the air into your wash water* — same duty, no combustion, **1.1-year cash payback**.



LPG price is going one way — up

LPG in PH has climbed **~40% since 2020** and there is no realistic scenario where it reverses. Hotels, hospitals and coin-op chains are now bearing fuel cost increases their contracts didn't anticipate. Every extra peso per kilo of LPG flows directly to the wash-water line.



A flame on site, every operating hour

An LPG boiler room means a permit, a periodic DENR inspection, an insurance loading, and a fire risk attached to your operating licence. Karnot iHEAT R290 sits outdoors with a **1.4 kg sealed refrigerant charge**, no flue, no flame — and no boiler-room maintenance schedule.

— ONE MACHINE. SAME DUTY. NO COMBUSTION.

KARNOT iHEAT R290 CASCADE · 500 KG/DAY COMMERCIAL LAUNDRY

AIR IN

Tropical ambient · 28–35 °C

The free input. **75% of the heat you put into your wash water comes from the air around your building** — not from a peso paid to a fuel supplier. An aircon takes heat OUT of a room and dumps it OUTSIDE. The heat pump runs that machine in reverse.



1 × iHEAT R290 50 KW

Air-to-water heat pump. Outdoor, sealed, R290 natural refrigerant. COP 4.0 annualised. Replaces the LPG boiler.



WASH WATER OUT

60–80 °C · 4,800 L/day

Same duty the LPG boiler used to deliver, into the same 2,000 L buffer tank, into the same washer fill lines. **Your laundry sees no change in process — just in the bill.**

— THE FOUR BOXES · ONE PROJECT

Karnot iHEAT R290

The heart · 25–100 kW

Air-to-water heat pump. COP **4.0+ at PH ambient**, 60–85 °C delivery. R290 natural refrigerant — GWP 3 vs 2,088 for legacy R410A. Outdoor unit, no boiler room. Cascade from 25 kW (one washer line) to 100 kW (hotel chain back-of-house).

iSTOR M500 buffer

2,000 L thermal store

Phase-change thermal battery holds 60–80 °C wash water on demand. **Decouples WHEN the heat pump runs from WHEN the washers fill.** Pump runs at low ambient (cool of evening), washers fill at full capacity in the morning.

iCOOL CO₂

Linen cold store · R744

Walk-in storage for soiled-linen segregation (infection control for hospital contracts) and clean-linen holding. Transcritical CO₂ refrigeration, GWP 1, A1 safety class. **No R404A phasedown clock on the asset register.**

iVOLT Solar

Zero-export · flat-roof gold

Laundries have huge flat roofs and daytime load curves that match Philippine solar irradiance perfectly. Sized to feed the iHEAT cascade **30–50% directly from the roof**, with non-lithium battery for evening run-down. No export to the grid.

— WHAT YOU STOP PAYING

500 kg/day commercial laundry — *LPG boiler retired, iHEAT R290 installed.*

ANNUAL FIGURE · 500 KG/DAY LAUNDRY	TODAY · LPG BOILER	KARNOT iHEAT R290 CASCADE	YOU STOP PAYING
Fuel / electricity input	11,000 kg LPG/yr	23,856 kWh electric/yr	no flame on site
System efficiency	82% boiler efficiency	COP 4.0 annualised	4.9x better per peso
Refrigerant / combustion	Scope 1 LPG · ~33 tCO ₂ e/yr	R290 · GWP 3 · natural	Scope 1 → zero
Annual energy cost	~₱935,000 · LPG ₱85/kg	~₱334,000 · Meralco GP ₱14/kWh	-64% / ~₱601K
Total investment (VAT-inc)	(legacy already paid)	~₱660,000 (iHEAT 50 kW + buffer + install)	1.1 yr cash payback

Modelled · 500 kg/day PH commercial laundry · 4,800 L/day wash water 22 → 70 °C · 6 day/week, 50 week/yr operation. LPG baseline ₱85/kg, 13.6 kWh/kg, 82% boiler efficiency. iHEAT R290 cascade 50 kW, COP 4.0 annualised, Meralco GP ₱14/kWh including 3-phase premium. CAPEX includes 2,000 L buffer tank, controls and Permits-Managed Service LOW tier. NPV ~₱6.4M at 8%, lifetime saving ~₱9M over 15-year asset life. Excludes iVOLT solar (cuts OPEX 30–50% further) and Scope 1 LPG reduction (~33 tCO₂e/yr). Your laundry might be 200 kg/day (divide by 2.5) or 2,000 kg/day hotel chain back-of-house (multiply by 4) — the per-kg economics hold.

— THE CASH FLOW · PLAIN AND DULL

<p>MONTH 1</p> <p>₱40K</p> <p>Saving on the bill minus the green-loan payment. Net cash in pocket. Every month. From day one.</p>	<p>YEAR 1</p> <p>₱480K</p> <p>In your pocket while the loan is still being repaid. The kit has already paid for itself in cash terms by month 13.</p>	<p>YEAR 5</p> <p>₱2.4M</p> <p>Loan paid off. From now on you keep every peso of the ₱601K annual saving — with no LPG price-risk exposure.</p>	<p>YEAR 15</p> <p>₱8.4M</p> <p>Total cash retained over the 15-year asset life vs running the existing LPG boiler. The hidden bill you stopped paying.</p>
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— HOW YOU PAY FOR IT · YOU DON'T

Three banks already lend for this. *Karnot files the paperwork.*

Philippine green-loan programmes *built for exactly this project*

DBP · SEFP

Sustainable Energy Finance Programme

Agri-industrial priority · 70–80% LTV · 5–10 year terms · ~6.5–8% p.a.

LANDBANK · SEILP

Sustainable Energy Investment Loan

Path of least resistance if you already bank with LandBank · ~7% p.a.

BPI · SDF

Sustainable Development Finance

Fastest decisions for established SMEs with BPI relationships · ~1–1.5% below standard SME rate

These are **loans**, not grants. We don't pretend otherwise — if you call the bank expecting a grant the conversation ends fast. They are real green-discounted commercial loans, with payment schedules sized to fit on top of the monthly LPG savings. **Karnot files the application as part of the project scope.** You sign at the bank window, not before.

— WHY WE SIZE THE SOLAR TO NOT EXPORT

ZERO-EXPORT · SIZED TO LAUNDRY LOAD

Meralco buys back at ₱6. They sell to you at ₱14. *Exporting kills the maths.*

A typical commercial laundry has a flat roof, generous square footage, and a daytime load curve that matches PH solar irradiance almost perfectly. If you put 30 kWp on that roof and export the surplus to the grid, you sell at the Bilateral Generation Contract rate (~₱6/kWh) and buy back at retail (~₱14/kWh). **You lose 60% on every kWh you exported.** Karnot iVOLT is sized at ~117% of the iHEAT cascade's electrical demand so the solar runs the heat pump directly during the day, charges the iSTOR buffer for evening run-down, and exports essentially nothing. **No Meralco net-metering paperwork, no export losses, no surprise bill from a wrong tariff classification.**

“ Commercial laundries are the second-easiest payback in the country after hospitals. Same story: continuous hot-water demand, paid for in LPG today, every kg of LPG flowing straight to the bottom line. We bolt an iHEAT R290 cascade onto the buffer tank, decommission the boiler, and the wash-water cost drops by two-thirds — with no flame on site. 1.1-year payback. ₱40K a month in your pocket from day one. Coin-op chains, hotel back-of-house, hospital outsourced laundries, uniform-rental contracts — same maths. The only question is when you want it to start. ”

Stuart Cox · Founder & CEO · Karnot Energy Solutions Inc.