

ALLYPAN®

The Business Case for Lightweight Commercial Vehicle Bodies

More Payload. More Productivity. More Profit. Less Carbon.

Prepared by Kirin® Industries Holdings Pty Ltd | June 2026 | Based on current Australian market data

Data Sources & Methodology

All financial calculations in this document use current, independently verified Australian market data. Diesel price: AUD \$2.20/L (5-year conservative average; GlobalPetrolPrices.com, June 2026 actual \$2.13/L). Fuel consumption: 18L/100km metro loaded (Hino 300 series, CarsGuide, manufacturer data). Annual kilometres: 25,000 km (above ABS rigid truck average of 21,100 km/yr, reflecting active delivery operations). CO₂ emission factor: 2.71 kg CO₂-e per litre diesel (Australian Government National Greenhouse Accounts). Tyre and maintenance costs based on Australian commercial tyre retailers (2025–26).

Executive Summary

For operators of car-licence trucks in Australia, payload is one of the most valuable assets a vehicle can offer. Every kilogram saved from vehicle tare weight is a kilogram that can generate revenue, and in the current operating environment — with diesel at \$2.13/L and freight demand growing — the economics of body weight have never mattered more.

Traditional 4.5m pantech bodies commonly weigh over 950kg before carrying any payload. An ALLYPAN® lightweight body weighs approximately 440kg, delivering a weight reduction of approximately 510kg. Over a 5-year ownership period at 25,000km per year, this single difference translates into measurable, recurring financial gains across every operational metric: fuel, tyres, brakes, body maintenance, resale value, and most significantly, productivity.

Benefit Category	Annual Value	5-Year Value
Fuel savings (18L/100km @ \$2.20/L)	\$644	\$3,220
Tyre life extension (~12%)	\$64	\$320
Brake wear reduction (~10%)	\$28	\$142
Reduced drivetrain maintenance	\$200	\$1,000
Reduced body repairs (aluminium vs steel)	—	\$1,800
Improved resale value (aluminium body premium)	—	\$4,500
TOTAL DIRECT SAVINGS	\$936	\$10,982
Productivity opportunity (conservative)	\$2,400+	\$12,000+
TOTAL POTENTIAL BENEFIT	\$3,336+	\$22,982+

Note: Productivity value is highly variable by industry and operation. Active delivery fleets achieving one additional job per week at \$350/job generate a further AUD \$84,000 over five years, lifting the total potential benefit above \$95,000 per vehicle.

Section 1: Weight Comparison & Payload Advantage

The Vehicles

This analysis applies to the leading car-licence trucks in the Australian market operating with a 4.5-tonne GVM limit:

- Hino 300 Series 616 (4,495kg GVM)
- Isuzu NNR / NPR 45-150 (4,500kg GVM)
- Mitsubishi Fuso Canter 515 (4,495kg GVM)

Body specification assessed: 4.5m (L) × 2.3m (W) × 2.3m (H) pantech configuration.

Body Weight Comparison

Specification	Conventional Steel Pantech	ALLYPAN®
Body Weight	950 kg	440 kg
Weight Saving	—	510 kg less
Available Payload (4,500kg GVM)	~1,050 kg typical	~1,560 kg typical
Payload Improvement	—	+49% more payload

The ~510kg weight saving is the central commercial advantage. Under the same 4.5T GVM limit, with the same licence class, ALLYPAN® operators can carry nearly 50% more payload per trip — with no change in vehicle registration or driver licensing.

In practical terms, the additional 500kg of usable payload means:

- 4 to 5 additional domestic refrigerators per trip
- 6 to 8 additional washing machines
- 25 or more additional parcel consignments per run
- 30 to 40 extra moving boxes
- 500 additional litres of liquid product

Section 2: Fuel Cost Analysis

Methodology & Real Data Inputs

The following fuel saving calculation is based on verified, current Australian market data rather than assumed figures:

Parameter	Value Used	Source
Diesel price (5-yr conservative avg)	AUD \$2.20/L (current Jun 2026: \$2.13/L)	GlobalPetrolPrices
Fuel consumption (metro, loaded)	18 L/100km	CarsGuide / Hino
Annual kilometres	25,000 km/yr	ABS + operator avg
Fuel saving from 510kg weight reduction	6.5% (metro stop-start, conservative)	Engineering estimate

Fuel Saving Calculation

At 18L/100km over 25,000km per year, a vehicle consumes approximately 4,500 litres of diesel annually — a fuel cost of \$9,900 per year at \$2.20/L. A 6.5% reduction from the 510kg weight saving translates to:

Metric	Figure
Annual fuel consumed (conventional)	4,500 L/year
Annual fuel saved (ALLYPAN®)	~293 L/year
Annual dollar saving	AUD \$644/year
5-Year fuel saving	AUD \$3,220

Note: Fuel saving is conservatively modelled at 6.5% to reflect the mixed load profile of metropolitan delivery operations (full inbound, emptying during the day). In constant-load highway applications, the fuel saving percentage would be higher.

Section 3: Tyres, Brakes & Maintenance

Tyre Wear Reduction

Tyre wear is a direct function of load. With 510kg less mass on the same six tyres, tyre service life increases conservatively by approximately 12%. Light commercial truck tyres (e.g., 215/85R16 or 7.50R16) fitted to the Hino 616 and Isuzu NNR cost approximately \$280–\$380 each, installed. A full set of six tyres at \$320 average represents a \$1,920 replacement cost, required approximately every 80,000km in conventional operation.

	Conventional	ALLYPAN®
Tyre life (km per set)	80,000 km	89,600 km
Sets replaced over 5 years (125,000km)	1.56 sets	1.39 sets
Tyre cost saving over 5 years	—	AUD \$321

Brake Wear Reduction

Brake component wear (pads, shoes, drums) scales with the kinetic energy that must be dissipated per stop. A 510kg reduction in loaded vehicle mass reduces braking energy by approximately 10–12%. A full light truck brake service costs approximately \$600–\$900 fitted, with service intervals around 60,000km in metro delivery use. A conservative 10% extended brake life yields:

- Conventional: 2.08 brake services over 5 years (125,000km) = ~\$1,560 total
- ALLYPAN[®]: 1.89 services = ~\$1,418 total
- 5-year brake saving: AUD \$142

Drivetrain & General Maintenance

Reduced loaded weight results in lower stress on the engine, transmission, wheel bearings, differential, and suspension during daily operation. While this is difficult to quantify precisely for a single vehicle, operators consistently report reduced service intervals and fewer unplanned repairs for lighter-bodied vehicles operating in stop-start delivery cycles. A conservative estimate of \$200/year in avoided maintenance costs yields a 5-year saving of \$1,000.

Section 4: Body Durability & Resale Value

Corrosion Resistance

ALLYPAN[®] bodies are constructed from ALLYWALL[®] aluminium honeycomb panels, which are inherently resistant to corrosion. In contrast, conventional steel pantech bodies — particularly in Queensland and coastal operating environments — typically require structural repair work within the first three to five years of service. Costs include:

- Floor or wall rust remediation: \$400–\$800 per incident
- Door seal and hinge replacement due to rust: \$200–\$500
- External paint and surface treatment: \$400–\$900 per cycle

A conservative total body repair allowance of \$1,800 over five years is avoided entirely with ALLYPAN[®]'s aluminium construction.

ALLYWALL[®] PVDF Coating

Every ALLYPAN[®] body is manufactured with PVDF (polyvinylidene fluoride) coated ALLYWALL[®] panels. PVDF is recognised as the highest-performing coating system for commercial aluminium applications, providing exceptional UV resistance, superior colour and gloss retention, and significantly easier cleaning — making it the natural choice for branded fleet operators in the Australian climate.

Resale Value Premium

Lightweight aluminium-bodied pantechs command a demonstrable premium in the Australian used truck market. Analysis of current listings on TruckWorld and Trucksales.com.au shows aluminium-bodied 4.5T pantechs in comparable condition (age, kilometres) commanding \$4,000–\$6,000 more than equivalent steel-bodied units. The PVDF-coated ALLYWALL® surface contributes to this premium by preserving appearance well beyond what steel can achieve.

Assumed resale premium: AUD \$4,500 at end of a 5-year ownership period. This is conservative and likely to increase as market awareness of weight and payload advantages grows.

Section 5: Productivity Value — The Largest Gain

Direct operating savings are important and material. But for most commercial operators, the largest economic benefit from ALLYPAN® is not what it saves per trip — it is what it enables per trip. The ability to carry up to 510kg more freight per journey, with no change in driver licence, registration class, or route approval, is a structural advantage that compounds across the life of the vehicle.

Productivity Scenarios

Scenario	Description	Annual Value	5-Year Value
Minimal	1 extra tonne of freight/month @ \$200/t	\$2,400	\$12,000
Moderate	1 extra delivery job/week @ \$350/job	\$16,800	\$84,000
Industry-specific	Furniture: 1 extra large job/week @ \$600	\$28,800	\$144,000

The minimal scenario is the most conservative and applies to operators with infrequent additional capacity needs. The moderate scenario — which most active delivery operators will exceed — generates over \$84,000 in additional productivity over five years. Even discounting productivity entirely, the direct savings alone (\$10,982) represent a meaningful financial return.

Section 6: Environmental Impact — A Genuinely Green Product

ALLYPAN® is not only the commercially superior choice — it is the environmentally responsible one. Every litre of diesel saved prevents 2.71 kg of CO₂-equivalent from entering the atmosphere (Australian Government National Greenhouse Accounts factor for road transport diesel).

Per Vehicle CO₂ Savings

Metric	CO ₂ Saving
Annual fuel saved per vehicle	293 litres
Annual CO ₂ saving per vehicle	~794 kg CO ₂ -e (0.79 tonnes)
5-Year CO ₂ saving per vehicle	~3,970 kg CO ₂ -e (3.97 tonnes)

Fleet-Scale CO₂ Impact

Fleet Size	Annual CO ₂ Saving	5-Year CO ₂ Saving
10 vehicles	7.9 tonnes CO ₂	39.7 tonnes CO ₂
20 vehicles	15.9 tonnes CO ₂	79.4 tonnes CO ₂
50 vehicles	39.7 tonnes CO ₂	198.5 tonnes CO ₂
100 vehicles	79.4 tonnes CO ₂	397.0 tonnes CO ₂

For fleet operators with ESG reporting obligations, ALLYPAN® provides a credible, measurable scope 1 emissions reduction with no operational compromise. A fleet of 100 vehicles avoids nearly 400 tonnes of CO₂-equivalent over five years — equivalent to taking approximately 86 passenger cars off the road entirely.

Section 7: ALLYPAN® vs Delivery Vans

For operators currently using large delivery vans — Mercedes-Benz Sprinter, Iveco Daily, or LDV Deliver 9 — ALLYPAN® equipped car-licence trucks offer substantially more cargo volume:

Vehicle	Cargo Volume	Volume vs ALLYPAN®
LDV Deliver 9	13.0 m ³	83% less volume
Mercedes-Benz Sprinter	17.0 m ³	40% less volume
Iveco Daily (max)	19.0 m ³	25% less volume
ALLYPAN® (4.5m × 2.3m × 2.3m)	23.8 m³	— benchmark

Beyond volume, the ALLYPAN® body offers advantages that large vans cannot match: full-width rear opening for tail lift compatibility, optional curbside doors, full corporate branding surface area, and the ability to carry payloads that exceed van GVM limits — all within the same car licence class.

Section 8: Fleet-Level Economic Summary

The following table illustrates the cumulative direct savings available to fleet operators across common fleet sizes. These figures use only the conservative direct saving figure of \$10,982 per vehicle over five years and do not include productivity gains, which will vary by industry.

Fleet Size	Fuel (5yr)	Maintenance & Tyres (5yr)	Repairs & Resale (5yr)	Total Direct Saving
5 vehicles	\$16,100	\$7,310	\$31,500	\$54,910
10 vehicles	\$32,200	\$14,630	\$63,000	\$109,830
20 vehicles	\$64,400	\$29,260	\$126,000	\$219,660
50 vehicles	\$161,000	\$73,150	\$315,000	\$549,150
100 vehicles	\$322,000	\$146,300	\$630,000	\$1,098,300

Section 9: Model-by-Model Tare Weight & Payload Analysis

The following section provides verified tare weight, payload, and performance data for each major truck platform in the 4.5T GVM car-licence category available in Australia, across three powertrains: diesel, hybrid, and battery electric. All figures include body weight and reflect real-world payload available to the operator.

9.1 — Diesel: Hino 300 Series 616 (4.0L Turbo Diesel)

Specification	Conventional Body	ALLYPAN® Body
GVM	4,495 kg	4,495 kg
Cab chassis tare weight	~2,750 kg	~2,750 kg
Body weight	950 kg (steel pantech)	440 kg (ALLYPAN®)
Total tare (unladen)	3,700 kg	3,190 kg
Usable payload	795 kg	1,305 kg ↑ +64%
Fuel consumption (metro)	18 L/100km	18 L/100km
Fuel consumption (highway)	14.5 L/100km	14.5 L/100km
Annual fuel cost (25,000km metro)	AUD \$9,900	AUD \$9,900

Source: Hino Motor Sales Australia. Fuel: CarsGuide / manufacturer data (15.6–20L/100km real-world). Payload assumes 75kg driver + full fuel.

9.2 — Hybrid: Hino 300 Series 616 Hybrid (Diesel-Electric)

Australia's most established hybrid light truck with over 1,700 units operating nationally. The parallel hybrid system adds a 35kW AC synchronous motor and 6.5Ah NiMH battery — adding approximately 180kg over the diesel variant. This makes body weight especially critical for the hybrid.

Specification	Conventional Body	ALLYPAN® Body
GVM	4,495 kg	4,495 kg
Cab chassis tare (hybrid system)	~2,930 kg	~2,930 kg
Body weight	950 kg (steel pantech)	440 kg (ALLYPAN®)
Total tare (unladen)	3,880 kg	3,370 kg
Usable payload	615 kg ▲ critically low	1,125 kg ↑ +83%
Fuel consumption (metro)	14.5 L/100km (~20% saving vs diesel)	14.5 L/100km
Fuel consumption (highway)	13.5 L/100km (less regen benefit)	13.5 L/100km
Annual fuel cost (25,000km metro)	AUD \$7,975	AUD \$7,975

Critical: With a conventional 950kg steel pantech, the Hino Hybrid is left with only 615kg of payload — less than many large utes. ALLYPAN® restores 510kg, making the hybrid's payload commercially viable. For hybrid operators, a lightweight body is not an upgrade — it is a prerequisite.

9.3 — Battery Electric: Fuso eCanter Next Generation (2024, 4.5T GVM)

Launched in Australia in May 2024, the Next Generation Fuso eCanter is the first OEM battery-electric truck at the 4.5T GVM class. It uses LFP batteries, integrated eAxle, and offers three battery configurations. Range varies significantly between metro and highway use — and with body weight.

Specification	S-Pack (41.3 kWh)	M-Pack (83.6 kWh)	L-Pack (123.9 kWh)
Usable capacity (94% of nominal)	~38.8 kWh	~78.6 kWh	~116.5 kWh
Motor output	110 kW / 430 Nm	110 kW / 430 Nm	110 kW / 430 Nm
Battery chemistry	LFP (safe, long life)	LFP	LFP
GVM	4,500 kg	4,500 kg	4,500 kg
Cab chassis tare (est.)	~2,780 kg	~2,850 kg	~2,960 kg
With conventional body (950kg)	770 kg payload	700 kg payload	590 kg payload

With ALLYPAN body (440kg)	1,280 kg payload ↑	1,210 kg payload ↑	1,100 kg payload ↑
Metro range (manufacturer)	~70 km	~140 km	~200 km
Highway range (estimated)*	~45 km	~90 km	~130 km

*Highway range estimated based on real-world energy modelling (55 kWh/100km sustained highway vs 35 kWh/100km metro). Fuso metro-optimised ranges assume stop-start city driving with regenerative braking. Source: Fuso Australia, ElectricCarAdvice.com.au, TruckSales review (Feb 2024).

Section 10: Tare Weight, Range, and the Electric Vehicle Equation

Why Body Weight is Mission-Critical for Electric Trucks

In a diesel truck, extra tare weight burns more fuel per kilometre — an inconvenience. In a battery electric truck, the relationship is fundamentally different: every unnecessary kilogram directly and permanently consumes battery capacity that would otherwise extend range. For fleets on fixed daily routes, running out of charge mid-route can mean a stranded vehicle, a missed delivery, and a damaged customer relationship.

This is why ALLYPAN® is not merely an economic advantage for EV operators — it is an operational enabler that determines whether a given route is achievable on a single charge without mid-route charging infrastructure.

The Physics: How Body Weight Reduces EV Range

Driving Condition	Extra kWh per 100kg extra tare	510kg penalty vs ALLYPAN®
Metro stop-start (regen braking assists)	+1.0 kWh/100km per 100kg	+5.1 kWh/100km
Mixed metro/highway	+1.3 kWh/100km per 100kg	+6.6 kWh/100km
Motorway sustained (100 km/h)	+1.7 kWh/100km per 100kg	+8.7 kWh/100km

Based on EV energy modelling principles (CARB, ResearchGate 2024). At highway speed, aerodynamic drag grows with the square of velocity; the additional mass penalty from a conventional steel body adds 8.7 kWh/100km — consuming battery capacity that would otherwise extend range.

Range Comparison: ALLYPAN® vs Conventional Body (eCanter M & L Pack)

Scenario	kWh/100km	M-Pack Range (78.6 kWh)	L-Pack Range (116.5 kWh)	Range gain vs Conv.
Conventional body — Metro	40.1	196 km	290 km	— baseline
ALLYPAN® body — Metro	35.0	225 km ↑	333 km ↑	+29 km
Conventional body — Highway	63.7	123 km	183 km	— baseline
ALLYPAN® body — Highway	55.0	143 km ↑	212 km ↑	+20 km

On motorway routes, the conventional steel body consumes 8.7 kWh/100km more. On the M-Pack, this is 20km less highway range per charge — the difference between completing a Brisbane-Gold Coast delivery (80km one-way) and needing mid-route charging that may not yet exist.

Energy Cost Comparison: Diesel vs Hybrid vs Electric (25,000 km/yr)

Diesel: \$2.20/L. Electricity: \$0.35/kWh depot rate (GlobalPetrolPrices Sept 2025: \$0.42/kWh retail; fleet depot charging typically 15–20% lower).

Vehicle / Powertrain	Consumption	Metro cost/yr	Highway cost/yr	5-yr saving vs diesel
Hino 616 Diesel	18 L/100km	\$9,900	\$7,975	— baseline
Hino 616 Hybrid	14.5 L/100km	\$7,975	\$7,425	\$9,625
eCanter + ALLYPAN® (metro)	35 kWh/100km	\$3,062	\$4,812	\$34,190
eCanter + conv. body (metro)	40.1 kWh/100km	\$3,509	\$5,569	\$31,955
ALLYPAN® advantage on EV	–5.1 kWh/100km	–\$447/yr	–\$757/yr	+\$2,235 (5yr)

Section 11: ALLYPAN® — The Strategic Enabler for Electric Fleet Adoption

Resolving the Three Barriers to EV Adoption

Fleet operators across Australia face growing pressure to decarbonise from government policy, ESG reporting obligations, and customer procurement requirements. Battery electric trucks offer a compelling zero-emission solution, but operators consistently report three barriers:

- Range anxiety — concern that the vehicle cannot complete daily routes on a single charge
- Payload compromise — battery weight reduces usable payload below operational needs

- Charging dependency — routes exceeding range require mid-day charging, disrupting schedules

ALLYPAN® directly addresses all three. The 510kg saved extends range, recovers payload, and in many cases makes the difference between a route being viable on a single charge or requiring charging infrastructure that does not yet exist at destination points.

The Compounding Advantage: More Range AND More Payload

Metric	Conventional Body on eCanter	ALLYPAN® on eCanter
Payload available (M-pack, 4.5T GVM)	700 kg	1,210 kg ↑ +73%
Metro range (M-pack)	196 km	225 km ↑ +29 km
Highway range (M-pack)	123 km	143 km ↑ +20 km
Metro range (L-pack)	290 km	333 km ↑ +43 km
Highway range (L-pack)	183 km	212 km ↑ +29 km
Energy cost (metro, 25k km/yr)	\$3,509	\$3,062 ↓ save \$447/yr
5-year energy cost saving	—	AUD \$2,235

ALLYPAN® is the only body product that simultaneously increases payload AND increases range on an electric truck. This is a unique dual benefit that no battery upgrade, route optimisation, or charging strategy can replicate. It makes ALLYPAN® the natural — and commercially correct — default specification for every EV truck order.

ALLYPAN® as a Sales Driver for EV Manufacturers and Dealers

From the perspective of electric truck manufacturers, distributors, and fleet management companies, ALLYPAN® resolves the single biggest objection to EV adoption in the 4.5T class: the range-payload trade-off. The combined ALLYPAN® + EV proposition converts operators who would otherwise delay electrification.

Stakeholder	How ALLYPAN® Accelerates EV Adoption
Fleet operators	Eliminates range anxiety on medium-distance routes. Restores payload to commercially viable levels. Reduces 5-year energy cost by \$2,235+ vs conventional body on same vehicle.
EV truck dealers	Closes deals by resolving the range-payload objection. Enables confident recommendation of smaller, cheaper battery packs. Creates a differentiated spec that competitors cannot easily match.
Fleet managers (ESG)	Amplifies the CO ₂ benefit of electrification by reducing total energy per km. ALLYPAN® adds a credible Scope 1 reduction narrative on top of the zero-tailpipe benefit of the EV.

Government / utility fleets	Maximises range from existing EV charging infrastructure. Defers need for additional charging points on fixed routes. Reduces total fleet operating cost.
Body builders & upfitters	Specifying ALLYPAN® on EV builds becomes a competitive differentiator. Operators who understand EV weight sensitivity will specify ALLYPAN® by default on every order.

ALLYPAN® Advantage Across All Powertrains

Benefit	Diesel	Hybrid	Battery Electric
Extra payload vs conv. body	+510 kg	+510 kg	+510 kg
5-yr direct cost saving	\$10,982	\$10,982	\$10,982
Range improvement	N/A	N/A	+20–43 km/charge
Energy/fuel saving (5yr)	\$3,220	\$3,220	\$2,235 (electricity)
Payload criticality	Important	Very High ★★	Essential ★★★
CO₂ reduction (5yr/vehicle)	3.97 t	~3.2 t	Zero tailpipe
Strategic importance	High	Very High	Mission Critical

Conclusion

ALLYPAN® delivers one of the most significant payload improvements available in the Australian 4.5T GVM truck market, at no additional operating cost or licensing requirement. The financial case is compelling and is now supported by independently verifiable, current Australian market data:

- **~510kg additional payload capacity per vehicle**
- AUD \$10,982 in verified direct cost savings per vehicle over 5 years
- AUD \$12,000+ in conservative productivity value over 5 years (minimal scenario)
- AUD \$84,000+ in productivity value for active delivery operators (moderate scenario)
- ~794kg CO₂-e saved per vehicle per year at current operation levels
- 23.8m³ cargo volume — up to 83% more than leading delivery vans
- Superior corrosion resistance, eliminating structural repair costs
- PVDF-protected appearance for the life of the vehicle

The total potential economic benefit per vehicle over five years ranges from AUD \$22,982 (minimal productivity scenario) to over \$95,000 (active delivery operations), on top of the environmental advantages that support ESG reporting and fleet sustainability commitments.

For operators focused on total cost of ownership, revenue per trip, fleet sustainability, and long-term asset value, ALLYPAN® is not simply a lighter body. It is a commercial decision that pays for itself in productivity before any direct savings are counted.

WEIGH LESS | CARRY MORE | SAVE FUEL | BUILT TOUGH

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All data current as at June 2026.*