Mobilising Australia's energy transition

Design principles for electric truck incentives

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Energy Futures Foundation

ELECTRIC VEHICLE COUNCIL

Executive Summary

Australia is falling behind comparable nations in supporting freight electrification. California provides up to USD $330,000 per heavy electric truck.[1] Until 2024 Germany provided €190,000-230,000.[2] The UK recently announced up to £120,000 for the heaviest zero emissions vehicles.[3]

Existing support mechanisms in Australia via ARENA and CEFC have successfully de-risked early technology trials and built essential operational knowledge. However, competitive grant processes are naturally geared towards large, complex projects. They present high barriers to entry for SMEs lacking dedicated sustainability teams. International experience suggests that at this stage of commercial readiness, we should shift focus from demonstration grants to mass market incentives such as vouchers.

Australia's SME-dominated trucking sector cannot bridge the gap without government co-investment. 98% of Australia's 59,100 trucking businesses are small operators running on a median 2% profit margin.[4] SMEs will not bridge the 2-3x purchase price premium of electric trucks without government co-investment.

While EFF Analysis shows that lifetime ownership may already favour some currently available electric truck models for particular duty cycles,[5] and the Grattan Institute estimates TCO parity for articulated trucks will occur before 2029[6] - TCO parity does not automatically alter purchase behaviour.

SMEs face binding capital constraints that make future operating savings insignificant for immediate purchase decisions. The purchase premium is simply too high, and access to finance is often non-existent, or non-viable given tight operating margins. Without intervention, electrification could be limited to the less than 1% of businesses with more than 100 vehicles.[7]

Analysis of 15 incentive programs across 9 jurisdictions[8] reveals clear success factors:

- Point-of-sale vouchers outperform tax credits, especially among SMEs.
- Dealer-processed applications remove administrative barriers for SMEs.
- Policy stability and certainty matters given long purchase cycles.
- Infrastructure coordination is an important factor in accelerating uptake.

This paper presents four implementation options. In the near term, there is an opportunity to leverage existing ARENA and CEFC funding to deliver a subsidised lease product with residual value guarantee (Option B). Modelling shows this structure can close the total cost of ownership gap for electric trucks today. A subsidy pool of $50m, layered into a finance facility could electrify 3000 trucks over 5 years and deliver 3.4 Mt CO_2-e of abatement at $44 per tonne.

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Accelerating the adoption curve

The technology underpinning zero-emissions freight has advanced rapidly, and in some global markets has already reached a high level of penetration. Australia's electric truck sales currently lag global markets at 0.5% of new sales (approximately 200-300 vehicles annually).[10] In contrast, in 2025, 67% of all new medium truck (3.5-16t) registrations in the Netherlands were battery electric,[11] and in December last year electric trucks passed 50% of all new truck sales in China.[12]

It is difficult for industry analysts, let alone policy-makers, to keep pace with the rapid commercialisation we are witnessing.

- Technology has now matured sufficiently for mass-market deployment of electric trucks in urban and regional delivery applications.
- Large articulated truck models available in the Australian market today have ranges of 500km+ which will only rise with continued advances in batteries.[13]
- Battery prices (which make up more than 50% of the cost of electric trucks) have plummeted, driving down the total cost of ownership profile of electric trucks faster than the most optimistic forecasts. A decade ago, batteries cost approximately USD $1,000/kWh – today they are approaching $100/kWh.[14] Market analysts currently estimate that we will reach $80/kWh by the end of this year, and as low as $60/kWh by 2030.[15]
- AEMO's latest fleet projections indicate that most tonne-kilometres currently serviced by diesel trucks are capable of moving electric, and a greater percentage than previously expected will be possible to electrify.[16]

Australia's policy framework must adapt to this context of faster-than-expected commercial readiness:

- Programs like ARENA's Driving the Nation program supported early innovation projects, providing valuable insight into the challenges of running electric fleets. But the administration of that funding scheme is, by design, geared toward larger fleets with the staff and capacity to go through a 1-2 year grant process, and commit to ongoing reports on transferable market learnings.
- State-based programs such as the NSW EV Fleets Kickstart funding are more accessible - but subsidy thresholds are not adapted to current premiums, and some of the design choices around eligibility are major hurdles for the companies most likely to be early movers in the transition.[17]
- A promising framework is the CEFC's emerging residual value guarantee program launched with Volvo. Initial discussions with CEFC suggest this framework could be expanded to aggregate and deliver to the needs of the Small-Medium Enterprises that make up the bulk of Australia's logistics market.

The market failures stalling transition

Technology transitions of this nature face two separate market failures:[18]

1. **Unpriced externalities** of current technologies (i.e. diesel emissions) make the status quo artificially cost-competitive for industries and delay the uptake of new technologies.
2. **Knowledge/technology spillovers** create a first-mover disadvantage – as early adopters pay a premium to move the market down the learning curve and build fleet confidence for the mass-market.

These market failures are both addressable via subsidies that level the playing field for emergent technologies, share the first-mover costs with early adopters, and help signal the readiness and availability of fast-moving technology cycles to industry.

In the case of Australia's transport sector:

- Electric trucks face a purchase premium of 1.5-3x the cost of a diesel equivalent.[19]
- 98% of trucking businesses are SMEs, 70% of operators run a single truck.[20]
- The median profit margin is 2%, with the bottom quartile in negative territory.[21]
- SMEs apply higher discount rates than large corporates – meaning they are less likely to realise long-term operating savings at the cost of an upfront premium.[22]

Without support electrification will be limited to corporate fleets with dedicated sustainability staff, and access to ARENA demonstration funding. It is clear from industry consultation that companies of all sizes see upfront prices and first-mover learning costs as a drag on uptake in the absence of government support.

> **Woolworths:** *"The business case for BEVs is positive... however the upfront capital cost remains a significant barrier."* [23]
>
> **ALSCO:** *"will not consider additional units until the initial cost gap is addressed and supported adequately by the Government. This feedback is common to all our customers currently operating one or two zero emission trucks."* [24]

Principles of effective subsidy design for ZEHVs

1. Point-of-Sale/Point-of-Lease delivery

The most important choice in subsidy design is the choice to make the subsidy realisable up-front and in a predictable way for asset purchasers. SMEs cannot wait for tax refunds or navigate post-purchase rebate claims. The New Zealand LEHVF is widely regarded as best-practice in terms of limiting complexity and removing friction toward uptake.

Pre-approve truck dealers and OEMs. Dealers submit voucher requests via online portal, receive funding confirmation within 5 business days, and are reimbursed within 2 weeks of vehicle registration. Operators pay only net price. This is crucial to minimising the administrative and financial burden on SMEs.

An added benefit of this approach is that the government receives visibility over the contracted sale price of similar configurations of vehicle models and can better regulate OEMs in their pricing practices. See implementation options below for possible opportunity to mirror this model through an expanded CEFC + ARENA subsidised leasing and residual guarantee program.

2. Set subsidies as a percentage of cost-price

Purchasing a truck is a complicated process. It requires significant design input from the buyer on battery configuration and size based on the range and use-case requirements.

Batteries make up more than 50% of the final truck price, which means configuration decisions have a significant impact on the final negotiated price. For example, a 10t refrigerated electric truck might cost the same as a 16t regular truck - but the purchaser may require a larger capacity truck due to payload penalties associated with battery trucks. A heavy articulated truck that mostly does urban delivery will require a significantly smaller battery than one set up for regional haul, and be far cheaper.

Setting subsidies based on GVM/GCM thresholds doesn’t acknowledge these operational challenges and may distort market behaviour in undesirable ways. A fairer, more efficient model is a capped-price subsidy set as a percentage of the cost price - with government oversight over OEM pricing practices, with pricing caps on approved model configurations to prevent absorption of the cost by manufacturers.

3. Explicitly prioritise SMEs

Without differentiation, large fleet operators capture disproportionate benefits. HVIP's small fleet modifier achieved 32% of vouchers reaching fleets with 10 or fewer vehicles. Stanford/NBER analysis of US EV subsidies found 75% went to consumers who would have purchased anyway.[25] Differentiated subsidies targeting marginal adopters, along

with caps on the overall subsidy available per truck and per corporate group can significantly increase the efficiency of public spending. There are a range of policy design levers that can be pulled to achieve this:

- Define small fleet as 10 or fewer trucks AND annual revenue below $10 million
- Provide 50% voucher uplift for small fleets
- Consider dedicated SME funding pool (e.g. 50% of program budget)
- Cap vouchers per operator per year (eg. $500,000-1,000,000)

4. Technology neutrality is important even with electrification likely for the vast majority of the market

Most forecasts suggest that electrification will form the bulk of Australia's freight decarbonisation pathway.[26] Nonetheless, battery electric trucks may not suit all Australian applications given long distances and infrastructure constraints – and there is some uncertainty about how the economics of alternative fuel pathways will evolve. New Zealand's inclusion of plug-in hybrids and hydrogen-diesel dual fuel acknowledges these operational realities and technology uncertainties.

- Eligible technologies: Battery-electric, fuel cell electric, plug-in hybrid
- Consider tiered vouchers: 100% for zero-emission, 50% for low-emission
- Require minimum emission reduction thresholds (e.g. 50% below diesel)

5. Multi-year funding certainty

Fleet planning requires confidence in funding availability. One of the challenges of Australia's current case-by-case support through ARENA is that the application processes are long, and the outcomes uncertain.

The literature on mitigation pathways typically emphasises that policy design and timing matter in sectors characterised by high upfront capital costs and long asset lifetimes. Instruments that influence investment decisions and encourage capital turnover reduce stranded-asset risks relative to immediate carbon pricing.[27] Optimal pathways may require expensive (in terms of marginal cost of abatement), high-potential initiatives to be implemented early to drive behaviour change for long-adoption cycles.[28]

- Minimum 3-5 year program commitment in enabling legislation or appropriation
- Pre-announce any planned phase-down schedule (e.g. voucher amounts decline X% per year from Year 2 – to reward early-adopters and create urgency for early adoption while providing certainty).

6. Infrastructure coordination

ARENA lessons show 2+ year grid connection timelines versus 6-month vehicle delivery.[29] Subsidising vehicles without addressing infrastructure creates stranded assets and imposes hidden costs. The KsNI evaluation found that 25% of approved vehicle funding (€229 million) was ultimately returned or revoked, with operators citing processing delays, missing charging infrastructure, and changed business conditions over the long granting process. A key recommendation for future programs was to focus on improving support for timely grid connections and depot charging.[30] Australia should focus on:

- Expedited grid connection pathway for approved projects
- Parallel depot charging grants (e.g. 50% of installation up to $100,000)
- Consider hub-centric / geographic strategies that provide subsidies alongside planned investments along particular routes, or for trucks operating from sites with existing infrastructure.
- Consider infrastructure assessment as part of vehicle application (although this adds a barrier to uptake)

7. Scrappage requirements for environmental integrity

Without verified destruction of legacy assets, subsidies can stimulate secondary markets for polluting technology, undermining environmental objectives.

- Possible implementation: Require scrapping of pre-Euro VI diesel truck as condition of full voucher.
- Alternatives: reduced voucher (70%) for additions to fleet without scrappage.
- Note that this requires careful consultation with industry as many smaller operators may rely on continued use or resale value of second-hand trucks.

A framework for subsidy sizing

Different policy objectives imply different subsidy levels.

Subsidy sizing approaches

Objective	Solving For	Implied subsidy
Externality correction	Unpriced emissions damage	$/tonne CO2 x emissions difference
TCO equalisation	Lifetime costs equivalency	10-30% of purchase price depending on duty cycle
Purchase threshold	Owner/operator willingness to pay	Survey-based, likely lower than full TCO equalisation

For SME programs, the purchase threshold framing is most useful. The goal is not making electric trucks free or even achieving TCO parity - which some models may

reach without subsidy. It is making them attractive enough that operators will accept paying more upfront to capture operating savings, given their risk tolerance, capital constraints, and planning horizons.

The problem of discount rates

TCO models using a standard corporate Weighted Average Cost of Capital (7-10%) may understate required subsidies for SME operators facing greater financial constraints, and the higher hurdle rates they use in practice. There is a body of literature that explores the impact of firm size on the under-investment in new technologies.[31]

Discount rate implications

Operator Type	Eg. Discount Rate	Implication
Large corporate fleet	7-10%	TCO models approximately correct
SME operator	20-30%	TCO models understate required subsidy
Highly constrained owners	20-40%	Future savings of negligible value

The binding constraint is the down payment, not the interest rate. Mechanisms that reduce capital requirements will generally outperform those spreading value over time in shifting purchasing behaviour, especially among smaller, capital constrained firms.

The role of tipping points and network effects

There is some historical data to indicate an adoption tipping point is reached as low as 5% sales[32] – although a more commonly cited range is 15-25% adoption to realise the impact of peer effects, social diffusion, and network externalities.[33]

The mechanism for these tipping points in the case of the freight transition is intuitive: many of the risk factors that pose a hurdle to fleet confidence are resolved as supporting industries like - charging infrastructure, local service, maintenance, second-hand vehicle markets - reach sufficient maturity for a critical mass of demand. Subsidies should be sized to reach this threshold rapidly, and phase out.

Potential Australian voucher levels

Vehicle Class	Indicative Base Voucher	Small Fleet Bonus (+50%)
Light rigid (3.5-7.5t GVM)	$25,000-40,000	$37,500-60,000
Heavy rigid (7.5-16t GVM)	$50,000-80,000	$75,000-120,000
Articulated (prime movers)	$100,000-160,000	$150,000-240,000

Source: EFF analysis based on international benchmarks and Australian price gap data

Note the preferred implementation approach would be to structure subsidies as a simple percentage of cost price (table above implies ~20-30% depending on configuration) - with caps both per vehicle, and per corporate group to prevent distorting purchase decisions, and ensure the benefits are fairly distributed.

Implementation Options (recommended)

Option A: Australian Zero-Emission Heavy Vehicle Voucher Scheme under ARENA

Redirect existing Driving the Nation funding to a dealer-processed, point-of-sale voucher program modelled on California's HVIP and New Zealand's LEHVF. Vouchers at 20-30% of verified purchase price, capped per vehicle and corporate group, with 50% uplift for small fleets (≤10 trucks, <$10M revenue). Operators pay only the net price.

Advantages*:* Achievable within existing appropriations. Most frictionless purchase experience for SMEs.

Disadvantages*:* ARENA's current granting process not fit for purpose - requires new administrative infrastructure for dealer accreditation and pricing oversight. Does not address financing, residual value, or charging barriers.

Estimated impact: limited scale (~1,000-1,250 vehicles).

Option B: Leverage existing ARENA and CEFC funding for a subsidised lease + residual value guarantee program

Mobilise $50m in additional ARENA funds to expand the CEFC's concessional finance pool to support a subsidised leasing product, that would build upon the CEFC-Volvo residual value guarantee program to bring Battery Electric Trucks to TCO parity for more OEMs within the term of a standard five year lease.

Advantages*:* Deliverable within existing appropriations, noting residual value guarantees carry contingent fiscal exposure depending on the level set. Natural demand aggregation via OEM and leasing channels simplifies access for small operators. Transparent pricing data ensures the benefit of subsidies aren't captured by suppliers. Stackable with green finance and charging infrastructure products.

Disadvantages*:* Limited direct subsidy scale. Residual value guarantees create contingent liability.

Estimated impact*:* If fully deployed this would unlock 3000 additional Battery Electric trucks before 2030, with a total lifetime abatement of 3.2Mt at a cost of abatement of $44/t.

Option C: Feebates

Hypothecate fees on new diesel truck registrations fund rebates on electric truck purchases, creating revenue-neutral transfer within the truck market.

Advantages: Self-funding mechanism immune to budget fluctuations, creates direct incentive to shift from diesel to electric, aligned with polluter-pays principle.

Disadvantages: Breaks from trend away from hypothecation of revenue streams like Fuel Tax Credits towards road investment. Industry and political opposition likely.

Estimated impact: variable depending on revenue generated.

Option D: New dedicated SME Electrification Fund

$500-600 million new appropriation over 3-5 years for point-of-sale vouchers, administered by a new entity or existing agency.

Advantages: Scale sufficient for rapid market transformation, administration can be designed with SME access in mind, a dedicated program creates clear market signals.

Disadvantages: Requires new budget allocation in a constrained fiscal environment. Requires a new mechanism to effectively aggregate demand outside of the normal buying cycle of SMEs.

Estimated impact: 5,000-7,000 vehicles over 3-5 years could reach 5%+ market share.

Appendix A: International comparison

International heavy vehicle electrification programs

Program	Country	Mechanism	Amount	SME Provisions
HVIP[34]	California	Point-of-sale voucher	$120,000-$330,000	Doubled amounts, 32% to small fleets
AanZET[35]	Netherlands	Pre-purchase grant	Up to €115,200	Tiered by enterprise size (10-29%)
KsNI[36]	Germany	Post-purchase reimbursement	80% of premium	None originally
PITrG[37]	UK	Point-of-sale voucher	£25,000 £120,000 for >26t	Not differentiated
Enova	Norway	Competitive grant	60% of premium	Competition may favour large companies
LEHVF[38]	NZ	Supplier-managed grant	25% of price (capped)	Dual operator/importer caps

Source: EFF analysis of program documentation

California HVIP

California's Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project represents the most successful freight electrification program globally.

The mechanism uses point-of-sale vouchers processed by 139 pre-approved dealers. Dealers reserve voucher funds through an online portal before vehicle delivery, deduct the amount from purchase price, and receive reimbursement from CALSTART within 2 weeks of document approval.

Class 8 battery-electric tractors receive $120,000 base vouchers, which double to $240,000-330,000 for small fleets (20 or fewer vehicles, under $15M revenue). Vouchers can stack with federal tax credits and local programs up to 90% of vehicle cost.

The program has allocated $1.83 billion, with approximately $1.34 billion implemented. 32.3% of vouchers went to fleets with 10 or fewer vehicles, and 81% of 2024 funding supported public agencies and small businesses.

Netherlands AanZET

The Netherlands achieved 78% electric van market share in H1 2025 by combining AanZET purchase subsidies with Zero-Emission Zone mandates. Since January 2025, 18 Dutch cities operate zero-emission zones for freight, expanding to 29 by 2030.[39]

This creates compliance-driven demand that subsidies alone cannot generate. When operators must transition regardless of subsidies, the subsidy reduces cost rather than

driving adoption. The policy mix also shows spillover effects, with municipalities adjacent to ZEZ zones experiencing elevated EV uptake (2.9% vs 1.7% national average).

Germany KsNI

Germany's KsNI program provides cautionary lessons about a reimbursement model of purchase incentive - despite funding 8,343 trucks.

The program was terminated abruptly in February 2024 after a Constitutional Court ruling blocked €60 billion in climate spending.[40] The 3-year lead time from application to vehicle deployment meant operators had funding cancelled mid-procurement. Approximately 25% of approved funding (roughly €229 million) was returned or revoked.

The primary causes of this lead time were delivery delays from manufacturers and the inability of operators to secure grid connections for the bundled infrastructure in time. The reimbursement model placed disproportionate administrative burdens on smaller operators, who were hardest hit by cancelled funding. The official BMDV evaluation stated 80% subsidy rates were "viewed critically" as potentially distorting market price signals.

ICCT analysis found US Class 8 electric truck prices rose 27% between 2020 and 2025, while over the same time period the costs for similar trucks in Europe *fell* by 23%, suggesting partial OEM capture of voucher value.[41]

New Zealand LEHVF

New Zealand's Low Emissions Heavy Vehicle Fund shares Australian market characteristics: small market, SME-dominated, similar regulatory environment.

The supplier-managed point-of-sale model means operators select from an approved vehicle whitelist, contact approved dealers, and pay only the net price. Dealers manage all grant administration and receive EECA reimbursement after vehicle registration.

The program provides up to 25% of purchase price with caps: $1 million per operator and $4 million per importer/supplier per year.[42] The dual-cap structure ensures broad distribution. Technology flexibility (includes hybrids, hydrogen-diesel dual fuel) acknowledges not all applications suit battery-electric.

Appendix B: Local market context

The Australian logistics industry is poorly understood. It is highly fragmented - with large end-users many layers removed from the truck owners and drivers. Major retailers will often subcontract to an agency or delivery service provider that sub-contract to truck owners, who sub-contract to drivers. Often these structures are necessary for compliance with industrial relations laws - with lease agreements designed to share the cost of the vehicle and maintain arms-length contracting in situations where an employee relationship is inappropriate for variable delivery schedules.

This structure has implications for subsidy design. Complex application processes, and subsidies that use an absolute dollar figure regardless of truck design, use-case, or price make it more difficult for every layer of the market to negotiate service rates. Delivery rates are often agreed years in advance at the time of purchase based on the total cost of ownership, and what it implies for lease rates that allow sub-contractors and drivers to sustain a living. Unless the impact of the subsidy is transparent, immediately realisable, and easy to assess - the benefits won't flow along the supply chain and won't reach end-users like retailers and customers.

Metric	Value
Total trucking businesses	59,100
Size of truck fleet	660,000
Average truck age	15 years
Single-truck operators	70%
Operators with < 5 staff	92%
Industry median profit margin	2%

Source: ATA 2023, TIC 2023

Examples of electric truck deployments

ARENA-funded demonstration projects represent the largest commercial deployments.

- Linfox: 26 Volvo FH electric prime movers[43]
- Toll Group: 28 heavy BEVs across 9 sites[44]
- Team Global Express: 60 BEV trucks at Bungarribee[45]
- Zenobe/Woolworths: 60 Foton T5 trucks[46]

ARENA pilots revealed that grid connection and permit costs add significant unexpected barriers beyond vehicle purchase prices. Toll Group found that current weight restrictions and payload limitations could require 1 diesel truck per 2-3 BEVs on certain routes.[47] It is worth noting these lessons as they also inform subsidy design - infrastructure availability must be considered alongside vehicle purchases.

Appendix C: CEFC & ARENA Subsidy Design

In December 2025, the CEFC launched a $70m financing package with Volvo Group Australia which includes an explicit residual value support mechanism, alongside interest rate discounts of up to 0.5%. This structure has enormous potential to simplify access for SMEs at the point of sale or lease, and bring TCOs for Battery Electric Trucks to parity within the term of a standard 5 year lease while drawing in private capital.

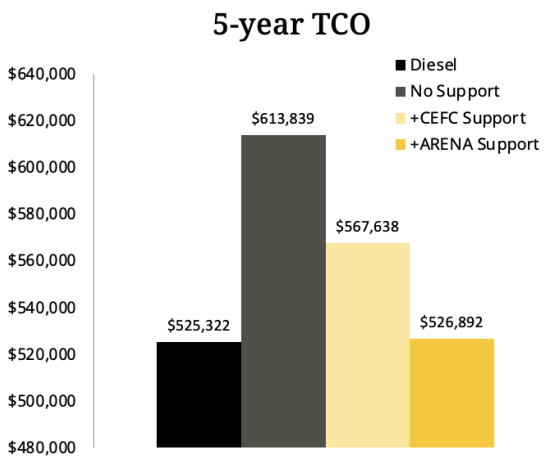
Operators and lenders cannot reliably forecast the resale value of BEVs at the end of a lease or ownership period due to an absent used BEV market and shifting economics. This makes investment decisions riskier, and increases the lease rate for consumers.

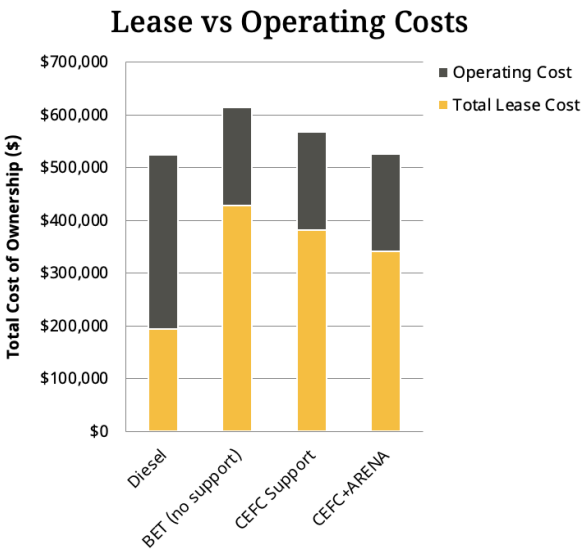
A government-backed residual value guarantee (RVG) over the next two decades removes this barrier as a market for used BEV develops.

Initial modelling demonstrates that a subsidy pool of $50m layered into a CEFC concessional finance facility could electrify 3000 trucks over 5 years and deliver 3.4 Mt CO_2-e of abatement at $44 per tonne. A significant number of existing rigid and articulated truck models can approach parity.

This structure could also:

- Deliver paired charging infrastructure and charging-as-a-service products.
- Leverage existing OEM financing channels and aggregators - specifically targeting the channels used by SMEs.
- Accelerate Trucking-as-as-service and Charging-as-a-service business models.
- Uplift SMEs for example through additional targeted grants for operators with less than $500,000 in turnover, at a capped value of $15,000 per truck.





Appendix D: Emerging themes & questions for further consultation

1. **Enablement of full grid value of freight assets** - how might the subsidy be designed to incentivise operators and purchasers to make their battery electric assets grid ready?
2. **Supply chain pass through** - how might subsidy design and price transparency measures ensure that value flows through to leasing arrangements, especially for complex multi-layer subcontracting arrangements and lease-structures?
3. **Second hand market -** in the absence of a mature second hand market, what complementary measures could accelerate vehicle access for those purchasing in the used market?
4. **Demand side signals** - Supply-side subsidies are more effective when paired with demand-side pull. Currently, few major shippers or retailers offer premium rates for zero-emission delivery. Government procurement, scope 3 reporting requirements, and urban access incentives could all create demand signals that complement purchase subsidies. Should the subsidy program be linked to any demand-side measures? Is there a role for government fleet procurement commitments in building market confidence?
5. **Inclusion of light commercial vehicles** - vans represent a major cohort of commercial vehicles. Battery electric models in this class are at or close to parity on total cost of ownership with their diesel or petrol equivalents. What, if any, subsidy is appropriate to support this market?
6. **Voucher sizing and vehicle ratios** - This paper uses a baseline assumption of one-for-one diesel replacement. ARENA trials indicate payload constraints may require higher replacement ratios on some routes - further modelling is needed to quantify this effect on program sizing, and subsidy design should account for operators who may need to upsize vehicle class to maintain payload capacity.
7. **Program integrity** - what controls should be in place to minimise moral hazard across the program?
8. **Road user charging and regulatory coherence** - incentive design should take into account the likely timeline and impact of complementary regulatory measures such as a road user charge.

Endnotes

1. California Air Resources Board (CARB) and CALSTART (2024), *Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) Implementation Manual, FY24-25,* at p25.

2. Bundesministerium für Digitales und Verkehr (BMDV) (2025), Abschlussbericht zur Evaluation des KsNI-Förderprogramms, at p16.

3. UK Department for Transport (2026), "Boost for British business as government slashes cost of electric lorries by up to £120,000".

4. Australian Trucking Association (ATA) (2023), Trucking Australia: The Report, at p12.

5. Energy Futures Foundation (EFF) (2025), A Clean Freight Future, at p11.

6. Terrill et al (2022), The Grattan Truck Plan: Practical Policies for Cleaner Freight, Grattan Institute Report No. 2022-11, at p34.

7. ATA and Electric Vehicle Council (2022), Electric trucks: keeping shelves stocked in a net zero world, at p5.

8. EFF conducted analysis of official program documentation from: California (HVIP, Carl Moyer, Prop 1B), US Federal (EPA CHDV, IRA 45W), UK (PITrG), Germany (KsNI), Netherlands (AanZET, SWIM, MIA/VAMIL), Norway (Enova), New Zealand (LEHVF), China (NEV Tax Exemption), India (PM E-DRIVE).

9. This estimate was calculated using publicly available data on the structure of the CEFC-Volvo agreement, and industry input on the current residual values being offered by leasing channels to model the impact of layering additional concessional finance alongside further residual value support over a 15 year period.

10. Truck Industry Council (TIC) (2025), Low and Zero Emissions Truck Sales Dashboard, Historical data showing BEV sales figures 213 (2023), 278 (2024), 332 (2025), last accessed 13 February 2026.

11. ACEA (European Automobile Manufacturers' Association) (2025), Zero Emission Tracker - Mapping Europe's zero-emission transformation - new vehicle registration data dashboard. See medium duty truck registrations (3.5-16t) by country for 2025, last accessed 13 February 2026.

12. Phate Zhang (2026), Demand frontloading propels China's new energy heavy-duty truck penetration past 50% for first time, CNEV Post.

13. Volvo, DAF, and Mercedes all have model variants that can reach 500km, Windrose has announced the E1400 for release in Q1 2026 with a claimed range of 670km, see Mov3ment (2025), Electric Truck Report 2025, at pp6-7.

14. Bloomberg NEF (2025), McKerracher, C, New Record Lows for Battery Prices, last accessed 13 February 2026.

15. Goldman Sachs Research (2024), Electric vehicle battery prices are expected to fall almost 50% by 2026. See also: BloombergNEF (2024), Zero-Emission Commercial Vehicles: The Time Is

Now - A Factbook for Investors, commissioned by the Dutch Ministry of Infrastructure and Water Management, in partnership with Smart Freight Centre.

16. Australian Energy Market Operator (AEMO) (2025), Draft 2026 Forecasting Assumptions Update – Detailed EV Workbook - revised projections show an increase in the absolute percentage of ZEHVs projected, and a dramatic increase market share for electric trucks relative to FCEVs.

17. For example, the eligibility requirement that applicants already own and operate trucks prior to applying excludes anyone that currently leases or sub-contracts delivery services. This means many major retail conglomerates, and other end-users of delivery services can't access funding support despite being the only ones capable of bearing the up-front costs.

18. See discussion in Jaffe, Adam B. & Newell, Richard G. & Stavins, Robert N. (2005), "A tale of two market failures: Technology and environmental policy," Ecological Economics, Elsevier, vol. 54(2-3), at pp164-174.

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Energy Futures Foundation values academic and commercial rigour in our policy analysis. Every effort has been made to ensure the content and evidence of this report is accurate. Should you have any questions or corrections, we'd be glad to hear from you.

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