Submission No 36

INFRASTRUCTURE FOR ELECTRIC AND ALTERNATIVE ENERGY SOURCE VEHICLES IN NSW

Organisation: MOV3MENT

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Committee on Transport and Infrastructure
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To whom it may concern

Submission: Infrastructure for electric & alternative energy source vehicles

MOV3MENT is pleased to provide the following submission in response to the inquiry by the NSW Legislative Assembly Committee on Transport and Infrastructure into existing and future infrastructure needed to support electric and alternative energy source vehicles across New South Wales. We understand this is a key process to inform infrastructure planning and policy actions the Government will take to decarbonise heavy transport. Ensuring it addresses barriers and market failures slowing the adoption of clean energy technologies is therefore critical.

MOV3MENT is a specialist consultancy on a mission to decarbonise road transport. Our clients trust us to develop practical and cost-effective strategies to reduce vehicle-related emissions. They include fleets, government (QLD, NSW, TAS, WA, ACT and the Commonwealth), vehicle manufacturers, and truck industry associations (TIC, NatRoad, HVIA). As Australia's only consultancy dedicated to the decarbonisation of heavy vehicles, our submission focuses on implications for trucks and road freight.

We applaud the inquiry's emphasis on long-haul freight transport, and recommend it targets three critical barriers to zero-emission truck (ZET) uptake: vehicle weight, charging and refuelling availability, and extra upfront costs of ZETs.

Our recommendations include:

1. Standardised vehicle axle weight concessions for ZET general road access
2. Multi-user open access to enroute electric charging and refuelling infrastructure
3. Easier access to greater grant funding for low emission trucks

We commend the Parliament for undertaking this inquiry and would welcome any opportunity to discuss this submission with the Committee in further detail, or to clarify any of the points made.

Yours sincerely

[redacted]

Mark Gjerek
Founder & Director

Long-Haul Freight Transport in Context

Decarbonisation may be the single biggest disruption to the transport system in over 100 years.

Commercially, the transport sector can no longer resist calls from higher up the supply chain for rapid decarbonisation. Yet road freight and logistics are dominated by small and micro businesses that have no plan or capacity to tackle this looming challenge. This places Australia's transport sector in a paradox: the shift to cleaner transport is already locked-in but the industry itself is not ready.

Relying on new sales to decarbonise the fleet will be far too slow. Not only are new trucks just a small proportion of the on-road fleet, but low-emission trucks are just a small proportion (<1%) of that small proportion. With trucks staying on the road for over 25 years and 80% of new truck sales still expected to be diesel in 2030, nearly the entire truck parc (up to 97%) will still be producing emissions.

These are material considerations given the structure of the industry and operator capabilities. The largest transport fleets face tightening regulatory pressure (e.g. Safeguard Mechanism, Australian Sustainability Reporting Standards) but they also have access to the finance necessary to respond. On the other hand, around 98% of truck operators are small/medium businesses; 70% own just one truck.

Owner-operators and small businesses have limited ability to finance the transition to low-emission freight. For them, an unsupported transition to net zero represents an existential threat. Irrespective of the specific pathway chosen (e.g. electrification, renewable fuels, or both), doing *something* for this trucking segment is paramount. For instance, applying a diesel blending mandate using 10% biodiesel/renewable diesel would allow those trucks that cannot reasonably be electrified to reduce emissions without significant upfront investment, major operational changes, or indeed any new refuelling infrastructure to access low carbon liquid fuels. The cost of this could also be offset with mechanisms that have been proven in other jurisdictions, via specific cap-and-trade mechanisms, excise adjustments or producer incentives. No need to reinvent the wheel.

In individual supply chains, there is significant uncertainty as to the best alternative energy pathway to pursue. Increasing emissions from trucks are partly explained by the low adoption rate of alternative fuels and advanced powertrains in the Australian truck market. All options currently add costs compared with diesel, but the transition will have differential risks and impacts.

There are already electric trucks in Australia today that can drive approx. 450km in semi-trailer configuration before needing to recharge. Models available overseas have achieved 750km between charges and driven more than 1700km in a day. These models cannot cover the full spectrum of Australian applications or the hardest operational requirements in terms of trip time or payload. But they would suit a large proportion of inter-capital city shipments that are not mass constrained – which are still many. And with technology developing rapidly, the next generation of battery-powered trucks will deliver even better capability, meaning any support measures may only need to be short-lived.

Investing in the infrastructure (e.g. heavy vehicle chargers, roads upgrades, bridges) that could support more of these trucks, and de-risking the transition cost for early movers, will achieve greater and faster decarbonisation. The technology and fuels needed to decarbonise transport are ready and have been known for more than a decade. The challenge now is commercial: lowering the cost, improving access, and building certainty and industry confidence to adopt at scale.

Recommended Priority Actions

Accounting for the issues above and the terms of reference for this inquiry, MOV3MENT recommends prioritising the following three policy interventions.

1.Standardised vehicle axle weight concessions for ZET general road access

- **Increase mass allowances, particularly to enable 8 tonnes on the steer axle, for ZETs to use major freight routes without the need for separate permits or exemptions and align the extra mass allowances nationally with other states.**

As a market signal, ongoing uncertainty over where ZETs can operate is undoubtedly an immediate barrier to commercial uptake.

Due to the extra weight of batteries and fuel cell systems in ZETs, the heavier drivetrain increases the unladen (tare) mass of the vehicle, thereby displacing a proportion of the allowable Gross Vehicle Mass (GVM) that would otherwise be used for payload. This reduction or 'payload penalty' can be up to 1 to 3 tonnes compared with a diesel truck. While the GVM limit does not of itself obstruct deployment of ZETs, the payload penalty damages the commercial case for switching by reducing revenue.

The heaviest ZET designs can reach up to 8 tonnes on the forward (steer) axle. With few exceptions, maximum weights on steer axles for general access vehicles are limited to 6.5t in New South Wales and other Australian jurisdictions. By contrast, the USA allows almost 9t on the steer axle and the EU allows up to 10t. While GVM limits impact the commercial viability of ZETs, steer axle limits can prevent ZETs complying without any payload. For this reason, steer axle mass limits currently represent the single biggest regulatory barrier to ZETs in Australia.

Until ZET technologies decrease in weight, uptake will be contingent on ZETs accessing NSW's network at higher masses and steer axle weights than currently allowed in regulation. Higher vehicle weights (particularly increased axle masses) are disproportionately responsible for damaging pavements, bridges, culverts and other road infrastructure. How NSW balances the legitimate desire to protect public road assets against the imperative of accelerating ZET uptake is an open policy question.

As the state's principal road manager, Transport for NSW (TfNSW) has primary carriage of defining which parts of the road network ZETs can access. TfNSW currently has a Zero Emission Heavy Vehicle Access Trial underway until May 2026, which grants expanded network access to ZETs at higher weights through exemptions. Learnings from the trial must be used to facilitate widespread network access along major freight routes within NSW and, importantly, connecting to other Australian states. Here, too, lies the challenge of harmonising standards with adjacent States to improve road access while reducing complexity of mass compliance for interstate long-haul freight transport.

2. Multi-user open access to electric charging and refuelling infrastructure

- **Facilitate development of charging and refuelling infrastructure at key demand locations along major long-haul freight routes with open access to all clean energy technologies for all truck operators.**

Decarbonising one articulated truck in long haul operations can deliver 9 times the abatement of decarbonising smaller urban delivery trucks. But these articulated trucks are less likely to return to the

same depot each day or to have significant dwell time for daytime or overnight charging of batteries. Therefore, the ability for ZETs to conveniently access ultrafast charging and refuelling on urban, regional and interstate highways is a critical foundation needed to leverage their greater potential.

State and federal governments have already supported the beginnings of a Hume Hydrogen Highway refuelling network on the east coast, despite a lack of available hydrogen truck models and few current commercial advantages over the latest battery-electric models. It is already clear that electrification and battery-power will be a solution for many truck applications; but there is no apparent investment in an equivalent charging network for electric trucks as there is for hydrogen. This must change.

New South Wales is uniquely positioned to benefit enormously from electrified road freight thanks to our low-cost renewable energy resources and its central position within Australia's concentrated freight networks. Government planning and incentives for the development of a network of highway charging infrastructure – in concert with other supportive policies – are required for vehicle manufacturers to bring electric truck models to Australia and for freight operators to have the confidence to invest in electric alternatives. It is not a new concept – the NSW government is enthusiastically doing this for light vehicle charging. But to-date, there seems to be little appetite to support an equivalent network for trucks. This should be even easier in NSW and other Australian jurisdictions due to the limited number of routes needing coverage, compared with complex routes overseas.

Potential electric freight recharging network in Australia (Image: NewVolt, 2024)

A significant constraint for battery-electric trucks is how long it takes to recharge and the consequent downtime that means for the vehicle. In long-haul freight transport, this downtime is a significant barrier to adoption. That's where the concept of exchangeable batteries becomes compelling. A battery swap can occur in the same time it takes to refuel a diesel truck, sometimes less, allowing the driver to continue their journey without precious time impacts that affect driver fatigue, legal operation of the vehicle, asset and driver resource planning, and delivery time to customers. A fast battery swap means smaller batteries can also be used, reducing the payload penalty described above. In China, by far the largest producer of electric trucks globally, half of all battery-powered trucks made each year are capable of battery exchange. Establishing truck charging hubs in NSW with battery exchange capability powered by renewable energy will broaden the viable use cases for ZETs in long haul freight transport to facilitate greater adoption.

Low carbon liquid fuels, such as renewable diesel, are alternative energy sources with great potential for decarbonising the legacy fleet of diesel trucks that still account for more than 99% of new truck sales. Those bought today will still be operating in the 2040s, so diesel-powered trucks will continue to dominate the emissions profile of the long-haul trucking fleet for many years to come. Due to their extra cost and supply constraints, renewable fuels are barely used in long-haul trucking at present. To expand availability and cost-effective access, NSW must facilitate supply of renewable diesel to long-haul trucks at refuelling

points along major freight routes. This could be through blending biofuel into the diesel supply chain so that it becomes available at current locations everywhere (and therefore also used by all passenger cars, urban trucks and other non-freight applications), or through dedicated biofuel storage and refuelling infrastructure on freight routes. Again, this does not require novel solutions: California has managed to support renewable fuels production at sufficient scale and incentives such that they are now at similar cost to regular diesel.

Finally, NSW should select priority freight corridors such as the Hume Highway and form a consortium of industry, infrastructure and government stakeholders to plan investments. A key learning from the first pilot project under the Global Green Road Corridors (GGRC) Initiative is the importance of anchoring projects on shipper demand by securing commitments from a group of freight buyers (cargo owners) who can aggregate demand for ZETs and provide anchor volume to improve overall economics and certainty for infrastructure investors and bring other parties into the initiative. Some of these shippers are even paying a "green premium" to ensure the carrier fleets are sufficiently incentivised and supported.

Enroute recharging and refuelling is a primary consideration for long-haul operations and must not favour one pathway over another. Ultrafast truck charging, battery exchange, low carbon liquid fuels, and hydrogen must all be accommodated. MOV3MENT urges government to implement the principle of 'neutrality' to facilitate all promising technology options, not some at the expense of others. With barely 25 years to decarbonise NSW freight, governments and investors cannot afford to back the wrong horse.

3. Easier access to greater grant funding for low emission trucks

- **Introduce funding to substantially subsidise the extra upfront capital cost of ZETs using a simple voucher system providing price discounts at point of purchase.**

Today, the price of a battery electric truck can be 2-3 times the price of an equivalent diesel truck. For a hydrogen fuel cell truck, the price is often 4 times a diesel truck or more. In many cases, the lower operating costs for ZETs are either not enough to overcome the upfront premium, or buyers cannot access the additional capital required to transition their fleet. Without financial support, high costs will continue to slow emissions reduction.

At this early stage of the transition, one of the most effective policy levers to increase uptake of low-emission trucks would be some form of subsidy supporting purchase of these trucks. Government incentives that either bridge the price gap or partially subsidise the cost premium have been successfully deployed worldwide.

In Australia, governments have provided significant financial support to *passenger* EV purchasers. MOV3MENT therefore strongly advocates for at least a commensurate level of government support for trucks – evidently a harder-to-abate transport mode.

Crucially, such funds must be more accessible. Applicants report that even the limited government support that is available (e.g. ARENA) is complex, time-consuming and favours only large fleets initiatives. More needs to be done to simplify access to government funding, particularly for smaller operators. This could be via a voucher scheme (per California's successful model), a contestable fund (as in New Zealand), or any number of grants and rebate models used in Europe. We understand NSW has the Electric Vehicle Fleets Incentive which includes small trucks up to 4.5t, but even this process can be difficult for time-poor small fleets and single truck operators to utilise.

ABOUT MOV3MENT

Motor vehicles enable the modern economy but also impose burdens on society. MOV3MENT's mission is to make vehicles part of the solution not the problem. We take complex questions on energy, cost and emissions and simplify them into actionable fleet strategies, policies, and programs.

Our knowledge and advice are built on practical, cost-effective improvements that benefit vehicle operators and the community, with a particular focus on truck and bus operators, suppliers, and policymakers.

We leverage this knowledge to help governments develop programs and policies that overcome barriers to improvement, demonstrate real-world benefits, and increase awareness and knowledge. This includes innovation projects that use information to transform the market – like our world-first Smart Truck Rating.

We're fiercely proud of the things that set us apart: our independence, our principled approach, and our evidence-based advice.

We are ready to provide further information or clarify any points should the committee require. To accelerate the decarbonisation of fleets, you can get in touch via emai[redacted] or find out more on our website www.mov3ment.com.au.

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