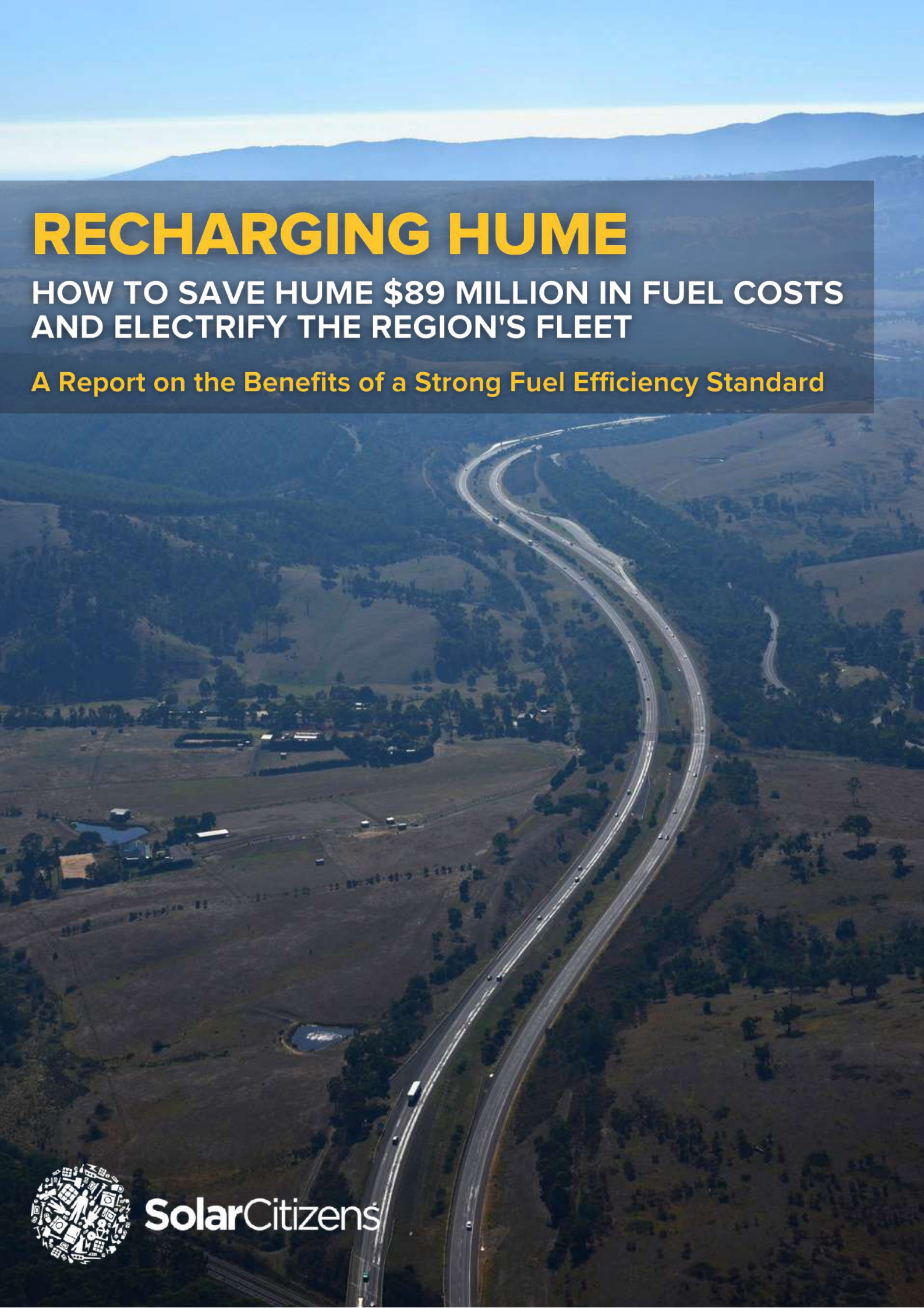

# RECHARGING HUME

## HOW TO SAVE HUME $89 MILLION IN FUEL COSTS AND ELECTRIFY THE REGION'S FLEET

### A Report on the Benefits of a Strong Fuel Efficiency Standard

SolarCitizens

**Published March 2023**
Report prepared by Tom Quinn, Springmount Advisory, in collaboration with Solar Citizens.

**Solar Citizens would like to acknowledge the Traditional Owners of the lands on which we work, in particular the Taungurung and Yorta Yorta peoples on whose land this report is based. Their sovereignty was never ceded.**



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# KEY INSIGHTS

- **A strong Fuel Efficiency Standard is a key policy needed to reduce transport emissions and unlock a supply of affordable electric vehicles (EVs) to help tackle the cost of living crisis for all Australians – but regions like Hume have the most to gain.**

- **The benefits of a strong Fuel Efficiency Standard will be greater for regional drivers, relative to city drivers, because they typically spend a higher percent of weekly earnings on transport costs due to longer average commutes, higher regional fuel prices and higher rates of car ownership.**

- **Introducing a Fuel Efficiency Standard of 95 grams CO2/km would save Hume motorists $89 million in fuel costs over five years.**

- **A Fuel Efficiency Standard will turbocharge the growth of electric vehicles and could see EV registrations in Hume grow from 61 in 2020 to more than 7174 in five years.**

- **The reduction in transport emissions from a strong Fuel Efficiency Standard will improve air quality and health outcomes for Hume – a region with a high rate of lung conditions compared to the national average.**

- **Failing to introduce a strong Standard will lock regions like Hume into spiralling fuel costs, limit vehicle choice for consumers, and see harmful transport emissions continue to rise.**

# CONTENTS

# UNPACKING FUEL EFFICIENCY STANDARDS

**After almost a decade of inaction and roadblocks to affordable clean transport, the time has come for Australia to introduce a Fuel Efficiency Standard to accelerate the shift to electric vehicles.**

**As this report details, a strong Standard will reduce the cost of living and save drivers in regional areas like Hume millions in annual fuel costs, improve local health outcomes, and cut our transport emissions.**

# A Fuel Efficiency Standard Will Deliver the Highest Benefits to Regional Areas Like Hume

Solar Citizens has analysed the impact that a Fuel Efficiency Standard will have on regional areas like Hume, and the benefits of these Standards for local motorists and residents.

This research draws on Australian Bureau of Statistics (ABS) and Census 2021 data to calculate the likely fuel cost savings and growth in electric vehicle (EV) sales in the Hume region. Additional benefits such as improved health outcomes due to reduced transport pollution were also identified.

**The findings demonstrate that the introduction of a Fuel Efficiency Standard for Australia, equivalent to what is already in place in Europe, will slash fuel costs by between $89 million to $113 million for Hume motorists over five years. Introducing this key policy will unlock a reliable supply of affordable EVs and help to address the rising cost of living crisis in regional areas.**

Currently, Australia and Russia are the only two countries in the Organisation for Economic Co-operation and Development (OECD) that lack a Fuel Efficiency Standard. This is holding back the decarbonisation of the Australian motor vehicle fleet, making Australia a dumping ground for inefficient and polluting car models, and depriving Australian drivers of choice in EV models, with only 31 models available for sale in 2021.[1]

Introducing a Standard for Australia will induce global car makers to increase the supply of electric and low-emissions vehicles to the Australian market, giving drivers more consumer choice, slashing domestic fuel usage, and increasing national security – as we will no longer be wholly reliant on imported petroleum, but can instead integrate charging into our energy grid and capitalise on Australia's enthusiastic uptake of domestic solar.

Regional Australia is set to reap the largest benefits of a Fuel Efficiency Standard due to a number of factors. Residents living in regional locations like Hume typically drive longer distances, pay higher fuel prices, and own more vehicles and larger vehicles than the national average, while also earning less than metropolitan areas.

A Standard will save regional Australians millions in fuel costs and result in more local money being invested back into the local economy, rather than funding international petroleum companies.

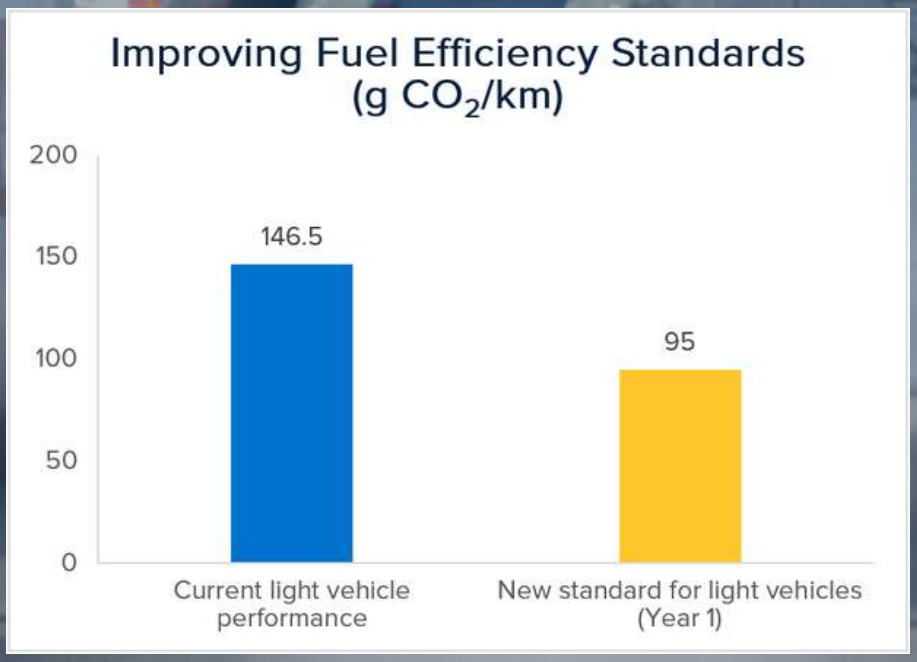


Figure 1: Fuel Efficiency Standard Improvements
(Source: National Transport Commission)

# WHAT IS A FUEL EFFICIENCY STANDARD?

A Fuel Efficiency Standard sets an average carbon emissions target for new vehicles sold by each car maker every year. Globally, more than 80 per cent of vehicles sales already occur in a market covered by a Fuel Efficiency Standard.[2]

Australia, however, doesn't have a mandatory standard and this has resulted in an inefficient and expensive-to-run national internal combustion engine (ICE) car fleet. Emissions from new Australian passenger cars and light SUVs in 2021 averaged 146.5 grams of carbon dioxide per kilometre (g CO2/km) (Figure 1) – in stark contrast to global leader Norway, where new vehicle emissions achieved an average of 28 g CO2/km.[3]

Introducing a Standard will oblige car makers to sell cars and utes that on average meet a limit for CO2 emissions (calculated as an average for all their cars sold), with penalties applied if they don't meet this standard. The Standard is tightened over time, which means that the mix of vehicles a car maker provides Australia will include more EVs as time goes on, until 100% of new vehicles sold are zero emissions.

The lack of a Standard is restricting the supply of EVs to Australia – as manufacturers prioritise markets where Standards are already in place.

**Adopting a Fuel Efficiency Standard of 95g CO2/km, the same that has been in place in the European Union since 2020, will increase the supply of EVs to Australia—including a greater diversity of models—and reduce fuel use, air pollution and the cost of living for everyday Australians.**

# BENEFITS FOR HUME: FUEL COSTS

## A Fuel Efficiency Standard will save Hume motorists $89 million in fuel costs

Solar Citizens' analysis has shown that by introducing a Fuel Efficiency Standard equivalent to current EU policy—our Central scenario—would save motorists in Hume $89 million in fuel costs over five years. Even higher savings of $113 million could be realised by following the more ambitious Supercharge scenario (Figure 2, Table 2).

This research used three scenarios, Flat, Central and Supercharge, to analyse the impacts. In the Flat scenario, a flat 95 g CO2/km Fuel Efficiency Standard (or 35% efficiency improvement) across 10 years was modelled as a baseline, the Central scenario models 95 g CO2/km and reduces to 0 g CO2/km over 10 years, while the Supercharge scenario reaches 0 g CO2/km in five years (Table 1).[4]

**Over time, these small changes in efficiency driven by a stronger Fuel Efficiency Standard lead to big fuel cost savings for motorists.**

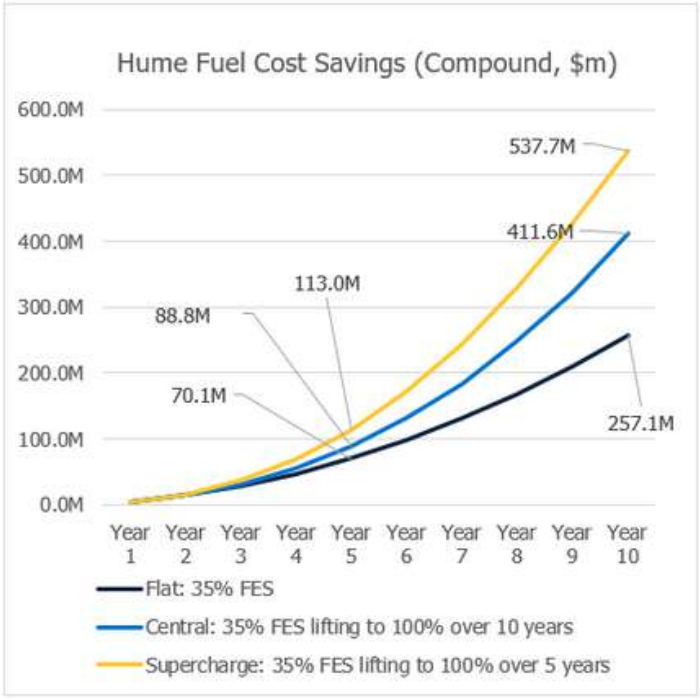


Figure 2: Hume Fuel Cost Savings
(Source: Springmount Advisory modelling based on ABS Census Data)

On average, 5% of vehicles in Australia's fleet are replaced each year. In Hume, this means that each year roughly 5807 new cars join the regional fleet of 116,136 passenger vehicles.[5]

Once a Fuel Efficiency Standard is introduced, those new cars will be substantially more efficient than the rest of the fleet and require less fuel to run, reducing the overall fuel use for Hume. The benefits compound over time as more new cars are added to the fleet and displace older, less efficient models.

As the average lifespan of a car in Australia is 20 years*, rapidly introducing a Standard will prevent Australia being stuck with a fleet of highly polluting vehicles for decades longer.

# BENEFITS FOR HUME:
# MORE EVS IN THE REGION

## A Fuel Efficiency Standard will electrify Hume's vehicle fleet

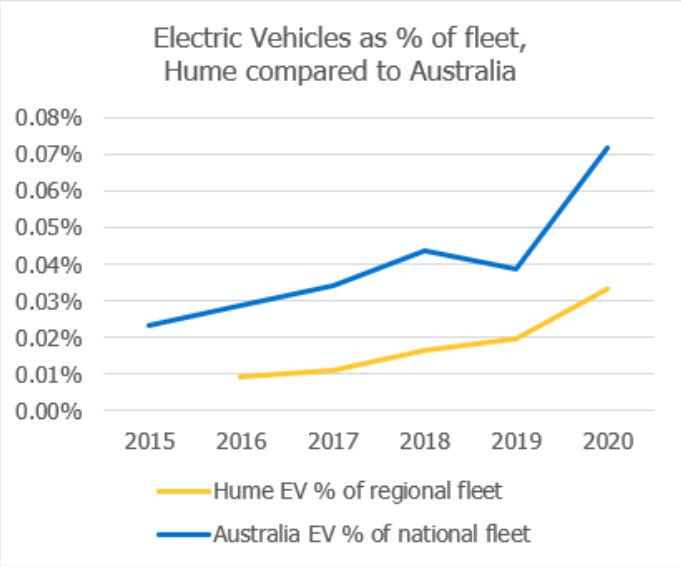


Figure 3: Electric vehicle fleet comparison
(Source: Source: Springmount Advisory modelling based on ABS Census Data, Australia Institute report)

The uptake of EVs in Hume significantly lags behind the national average, with only 61 electric vehicles registered in the region in 2020 – or 0.03% of the local fleet (Figure 3).

While Australia is a global EV laggard, the national fleet has an EV share of 0.07% – more than double the uptake of Hume.

**The introduction of a Fuel Efficiency Standard will drive a rapid increase in the uptake of EVs across Australia.**

In order to achieve a target of 95 g CO2/km, car makers will need to substantially increase the sale of EVs.

We have made a conservative assumption that 50% of the Fuel Efficiency Standard target will be achieved by selling EVs in the first five years, with the remainder from efficiency improvements to ICE vehicles. In our Central scenario, this would see the Hume region grow the local EV fleet on the road from 61 today to 7174 vehicles over five years – lifting the share of EVs from 0.03% to 6%.

This is a conservative estimate, as EVs will likely be responsible for achieving an even greater share of the target. Efficiency improvements to combustion engines are incremental and unlikely to deliver the step change improvements that a Fuel Efficiency Standard requires.

* Roughly 1.1 million vehicles are sold in Australia per year, with a total fleet size of 18 million vehicles in total[6]. This increases by around 0.2 million vehicles per year, which means around 0.9 million are being retired each year. 18 million vehicles / 0.9 million retired per year = 20 year turnover.

# BENEFITS FOR HUME: LOWERING COSTS FOR LONGER COMMUTES

The fuel costs savings modelled for Hume are also based on conservative assumptions, and will likely be higher than $89 million over five years for a number of reasons.

## Hume motorists drive further

The model assumes fuel use in the Hume region is the same as the national average, whereas regional drivers typically drive significantly further than their city counterparts.

In Hume, the average commute is significantly higher than for residents in Greater Melbourne (Figure 4).[7] Longer commutes result in higher fuel use.

**Therefore, a Fuel Efficiency Standard will deliver a higher relative saving to regional drivers compared to metropolitan drivers.**

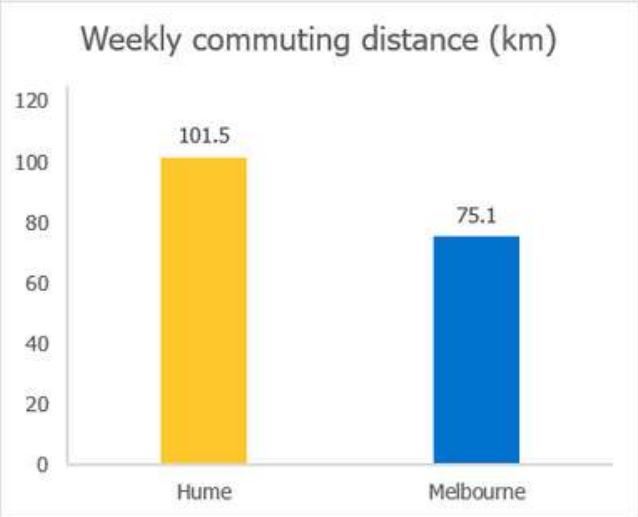


Figure 4: Weekly commuting distance
(Source: ABS Census 2016)

## Regional fuel prices are higher

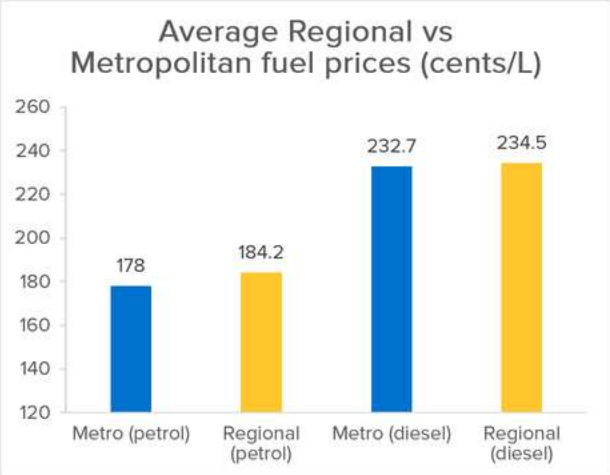


Figure 5: Regional vs Metro fuel prices (cents per Litre)
(Source: AIP Weekly Fuel Reports, 23 October 2022)

Regional drivers in places like Hume typically pay higher prices for fuel, especially petrol (Figure 5). This also indicates that the benefits to Hume region will be higher than the modelled $89 million in savings over five years.

**Higher fuel prices mean efficiency improvements will deliver greater cost saving benefits to regional drivers.**

The less spent on fuel, the more cash can stay in the region and support the local economy.

## Older fleets present greater efficiency gains

Our research also found that vehicles in Hume are typically much older compared to the average for metropolitan locations like Melbourne (Figure 6, Figure 7). In fact, 52% of Hume's car fleet is older than 10 years compared to 44% in Greater Melbourne.

Older vehicle models in general are less efficient, which means that Hume's vehicle fleet is likely to be even less efficient than the national average and the region's share of the national fuel bill higher than modelled.

**The introduction of a Fuel Efficiency Standard will likely result in bigger gains for Hume as when these older, much less efficient vehicles are replaced, they are replaced with more efficient models – and deliver greater fuel savings in practice than the model conservatively forecasts.**

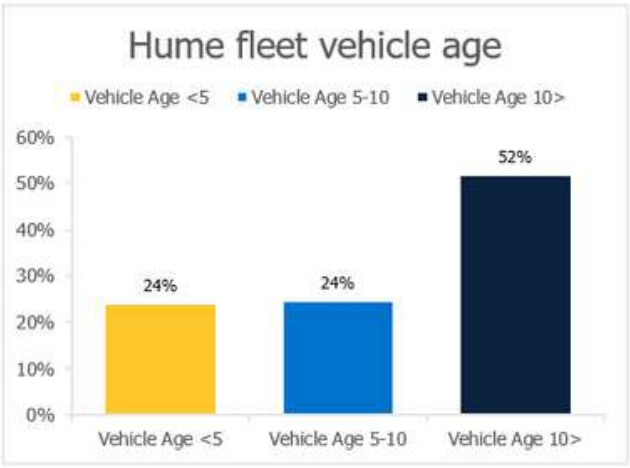


Figure 6: Hume fleet vehicle age
(Source: ABS Census 2021)

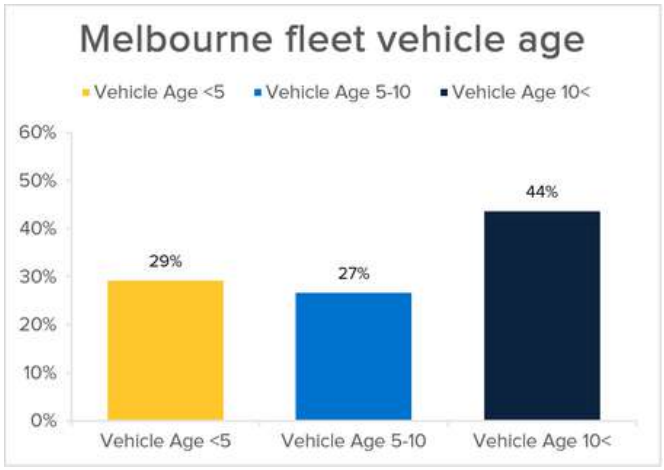


Figure 7: Melbourne fleet vehicle age
(Source: ABS Census 2021)

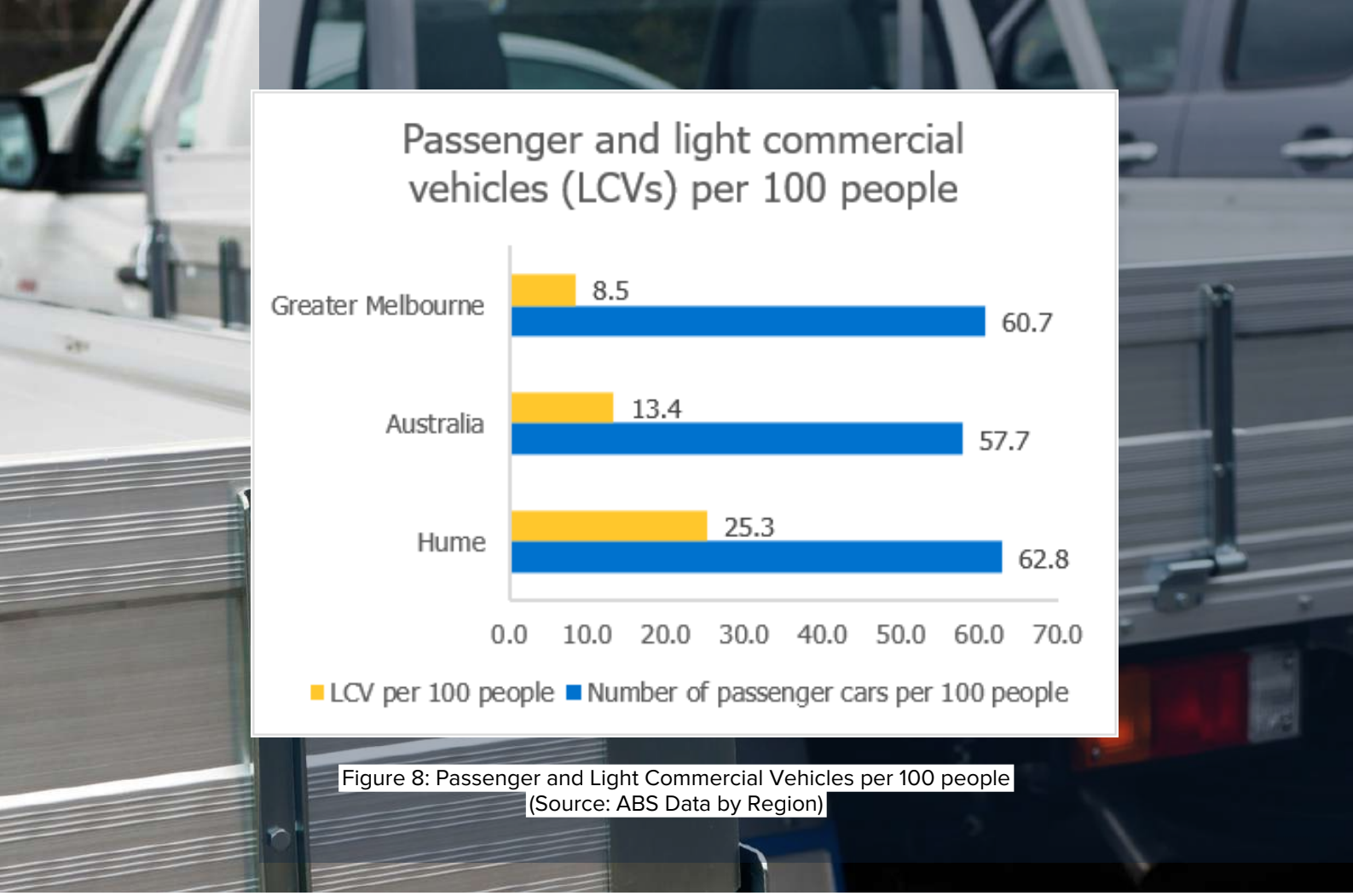


Figure 8: Passenger and Light Commercial Vehicles per 100 people (Source: ABS Data by Region)

Most striking, however, is that ownership of light commercial vehicles (LCVs)—a category that includes utes, pickup trucks, and delivery vans—in Hume is three times that of Greater Melbourne (Figure 8).

**Light Commercial Vehicles in Australia**

A light commercial vehicle (LCV) is a commercial carrier vehicle with a gross vehicle weight of no more than 3.5 metric tonnes.

The term LCV is the catch-all designation for vans, chassis and double cabs, and pickup trucks or utes. Some vehicles under this classification are Toyota HiLux, Ford Ranger, Peugeot Expert, Toyota HiAce, Mitsubishi Triton, Nissan Navara, VW Caddy, and the VW Transporter.

LCVs make up around 24% of new vehicle sales, compared to 19% passenger vehicles and 53% SUVs.

Fuel efficiency in the LCV category is much worse than passenger vehicles, with an average emissions intensity of 223 g CO2/km[8] compared to 146.5 g CO2/km for passenger vehicles.

Introducing a Standard in Australia will level the playing field with other countries with Fuel Efficiency Standards and ensure a strong supply of a variety of EVs, including affordable models and popular regional vehicle types like utes that are available overseas.

# BENEFITS FOR HUME: HEALTHIER AIR, HEALTHIER PEOPLE

## Reduced air pollution in Hume

**Significant fuel cost savings are not the only benefit the introduction of a Fuel Efficiency Standard will deliver to the Hume region.**

Transport emissions are a leading source of air pollution and are particularly unsafe for those with respiratory conditions.

Hume's population has a higher incidence of lung conditions, with 1.9% of the population reporting lung conditions compared to the Australian average of 1.7% (Figure 9).[9]

The introduction of a Fuel Efficiency Standard and the broader transition to electric transport will reduce and eventually eliminate exhaust pollution from cars.

Reduced vehicle pollution will deliver higher relative health benefits to the Hume region due to the higher incidence of respiratory conditions in the region.

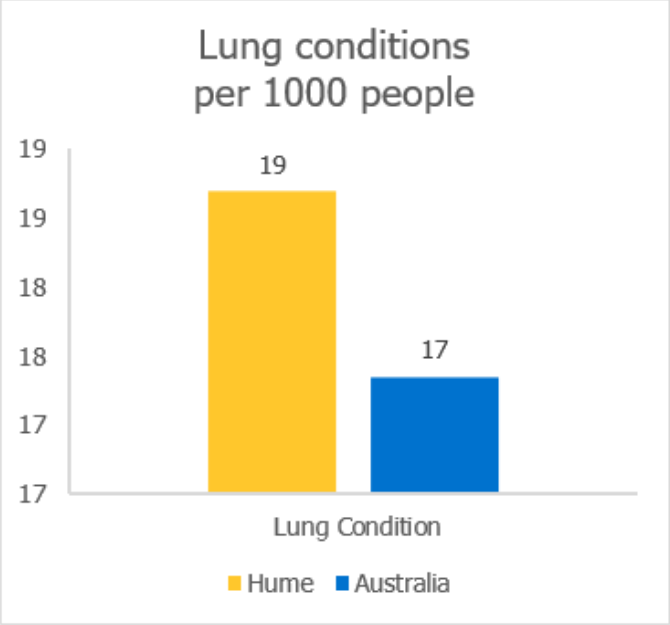


Figure 9: Lung conditions per 1000 people (Source: ABS Census 2021)

**Ultimately, a faster transition to a 0g CO2/km Standard will deliver better health outcomes in Hume and a lower health care load for the region.**

# THE FUEL EFFICIENCY STANDARD HUME NEEDS

The longer regional Australia has to wait for a Fuel Efficiency Standard, the more time that regional Australians—including Hume locals—will be chained to higher fuel costs.

**A Fuel Efficiency Standard should prioritise three components: Ambition, Integrity and Equity.**

## Ambition

The Federal Government should design an ambitious standard that maximises regional benefits by commencing a Standard in the next year – no later than the 1st of January, 2024. This will ensure car makers have sufficient time to get ready, but also send a clear message of what is expected of them in the near future.

We recommend that the starting limit be 95 grams of CO2 per kilometre – a limit that is at least competitive with other countries' Standards. However, Australia is starting from further behind those countries and will need to reduce average emissions at a faster rate – we cannot afford a weak or delayed start. This ensures we don't remain at the back of the international queue for new EVs and low-emissions vehicles, and can catch up to other major markets by 2030.

The Standard should tighten over time and reach 0 grams CO2/km (the point at which 100% of new car sales are zero emissions) as soon as possible, but no later than 2035 in order to meet our commitments under the Paris Climate Accord and limit global warming to 1.5°C.

Given the significantly higher emissions of Light Commercial Vehicles and the availability of electric and low-emissions models on the market right now, this segment could have a higher initial starting limit and different trajectory to passenger vehicles, but still aim to achieve and reach 0 grams CO2/km at the same time.

# THE FUEL EFFICIENCY STANDARD HUME NEEDS

## Integrity

This Standard should apply to all car makers that wish to sell vehicles to the Australian market. Importantly, it should be noted that this Standard is not directed at consumers, and a government body such as the Australian Competition and Consumer Commission should ensure that any penalties incurred by manufacturers are not 'passed on' to consumers.

A government agency such as the Climate Change Authority should be tasked with enforcing the Standard to ensure high consumer trust, with regular reviews at least every two years. The Standard should also use the World Light Vehicle Harmonised Testing Procedure (WLTP) as a measurement system, bringing us up to date with the rest of the world.

Manufacturer penalties should be significant enough to outweigh any commercial benefits of exceeding the limit. We believe that it's fair for Australians to expect car makers to do their bit for the climate and pay their fair share if they aren't able to meet the Standard needed to bring emissions under control.

Additionally, no loopholes like so-called "super credits" or "eco-innovation credits" should be considered that can result in disingenuous participation from car makers and a lower actual reduction in emissions. Strong emissions limits such as our proposed 95 g CO2/km mean that we should not need super credits, which are designed to encourage car makers to supply more zero-emissions vehicles to the market.

Globally, the EV industry is no longer in its infancy so there is not the need to encourage investment in this way.

**Strong emissions limits alone are enough to incentivise manufacturers to provide EVs to the market.**

# THE FUEL EFFICIENCY STANDARD HUME NEEDS

## Equity

When the Standard comes into effect, it should send a strong market signal to car makers that they must prioritise a variety of low and zero emissions vehicles that suit all Australian motorists – including vehicles suitable to regional Australians and for trades, such as utes.

Finally, a Standard should be accompanied by measures to reduce upfront cost of EVs such as the Federal Government's Electric Car Discount bill and increase charging accessibility for all.

# RESEARCH ASSUMPTIONS

Our research uses the SA4-204 ABS statistical region to define the area and geospatial statistics for the Hume region.

**Fuel costs savings make the following assumptions:**

- that 5% of fleet is turned over per annum and is evenly distributed
- that light passenger vehicle are 146.5g Co2/km
- that a new Fuel Efficiency Standard will start in Year 1 at 95g CO2/km
- that 95g CO2/km represents a fuel efficiency improvement of 35% in Year 1
- that fuel prices, fleet size and annual fleet turnover are constant over 10 years
- that fuel use per vehicle in Hume is equivalent to the national average
- that fuel prices as reported in the Australian Institute of Petroleum weekly summary of prices for the "Metropolitan Average" and "Regional Average" in the week of 23 October 2022 remain constant
- that Hume fuel expenditure is proportionate to the national average
- average cost of fuel calculated using 79.94% petrol / 20.06% diesel equivalent p/L – based on percentage of petrol/diesel passenger vehicles in the Australian fleet

**Electric vehicle growth calculations make the following assumptions:**

- that changes to fleet composition will be geographically evenly distributed
- that 50% of emissions reductions required to achieve 95g CO2/km standard are from the sale of electric vehicles

# APPENDIX

**Table 1: Modelled Fuel Efficiency Scenarios**

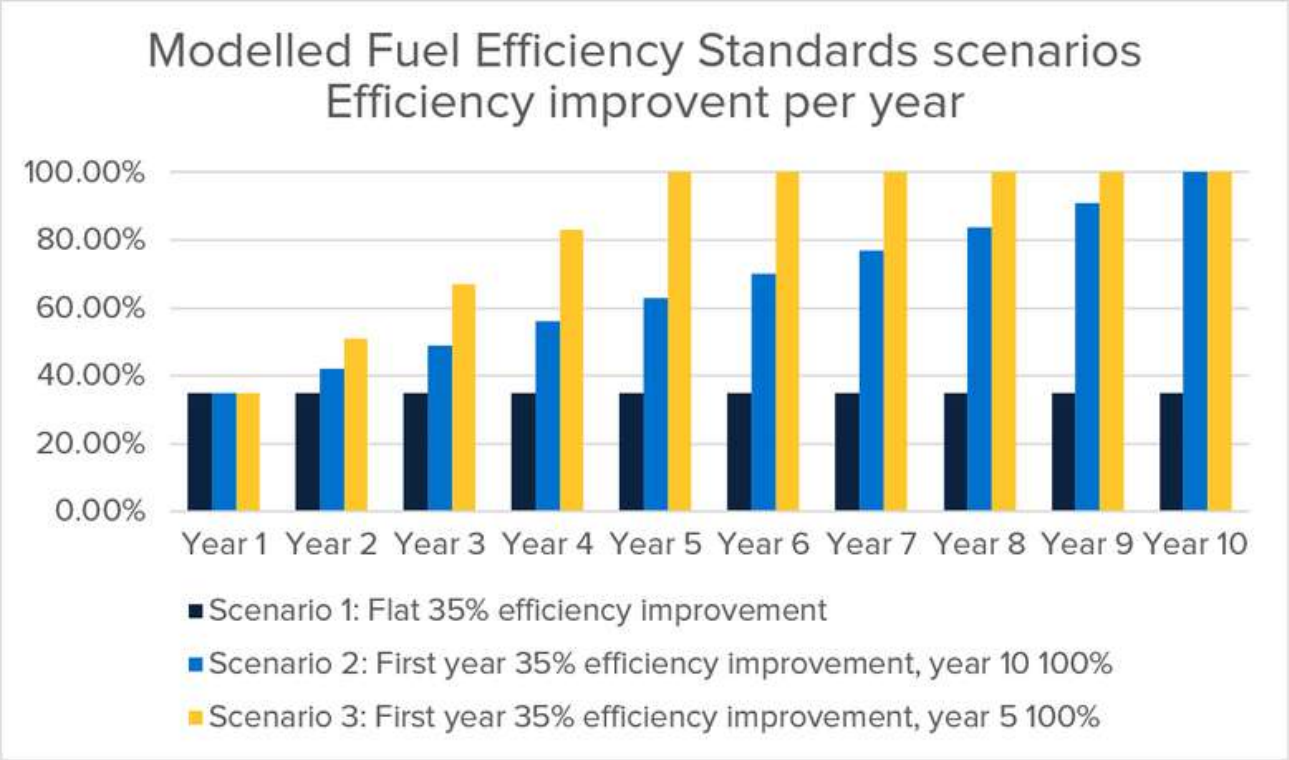


**Table 2: Annual and compound fuel cost savings for Hume region**

| | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 | Y10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Flat annual saving | 4.7M | 9.3M | 14.0M | 18.7M | 23.4M | 28.0M | 32.7M | 37.4M | 42.1M | 46.7M |
| Flat compound saving | 4.7M | 14.0M | 28.0M | 46.7M | 70.1M | 98.2M | 130.9M | 168.3M | 210.3M | 257.1M |
| | | | | | | | | | | |
| Central annual saving | 4.7M | 10.3M | 16.8M | 24.3M | 32.7M | 42.1M | 52.4M | 63.6M | 75.7M | 89.1M |
| Central compound saving | 4.7M | 15.0M | 31.8M | 56.1M | 88.8M | 130.9M | 183.2M | 246.8M | 322.5M | 411.6M |
| | | | | | | | | | | |
| Supercharge annual saving | 4.7M | 11.5M | 20.4M | 31.5M | 44.9M | 58.2M | 71.6M | 84.9M | 98.3M | 111.6M |
| Supercharge compound saving | 4.7M | 16.2M | 36.6M | 68.1M | 113.0M | 171.2M | 242.8M | 327.7M | 426.0M | 537.7M |

**Table 3: Hume Region Statistics (2020/2021)**

| Total Vehicles | Passenger Vehicles | LCVs | EVs | 5% vehicles | Av fuel cost/L | Annual fuel cost | Population | Dwellings |
|---|---|---|---|---|---|---|---|---|
| 184546 | 116136 | 46702 | 61 | 5806.8 | 1.87 | 267.1M | 184,935 | 88,830 |

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