

Fuelling budget repair

How to reform fuel taxes for business

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February 2023



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Grattan Institute Report No. 2023-02, July 2023

This report was written by Marion Terrill, Ingrid Burfurd, and Natasha Bradshaw. Isabel Campbell-Taylor and Liam Dillon contributed valuable research.

We would like to thank numerous government and industry participants and officials for their input.

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This report may be cited as: Terrill, M., Burfurd, I., and Bradshaw, N. (2023). *Fuelling budget repair: How to reform fuel taxes for business*. Grattan Institute.

ISBN: 978-0-6456349-4-5

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Overview

Fuel tax credits are worth \$8 billion a year to the businesses that receive them, but only about half that outlay is justified in economic or social terms. Fuel tax credits are gnawing away an ever-growing share of fuel tax revenue: a decade ago, credits reduced gross fuel tax revenue by 30 per cent; today, it's almost 40 per cent. Winding back the credits could reduce the structural budget deficit by about 10 per cent, or \$4 billion a year.

Fuel tax is imposed at a current rate of 47.7 cents per litre – but not all fuel use attracts the charge. No fuel tax is payable for vehicles that only drive off-road, such as trucks on mine-sites, or for other off-road uses such as in heavy machinery, and for heating and cooling. And a reduced rate of fuel tax is payable for on-road vehicles heavier than 4.5 tonnes, such as semi-trailers, B-doubles, and passenger buses.

The mechanism for refunding the fuel tax paid at the bowser is fuel tax credits. Companies claim credits at either a full or partial rate, currently 20.5 cents per litre.

Fuel tax credits were introduced 40 years ago, but the more favourable deal for bigger on-road vehicles has only been in place since 1999. There is no business reason why larger vehicles should pay less than smaller vehicles – in fact quite the reverse, since heavy vehicles do far more damage to road surfaces.

The usual tax-policy orthodoxy is that governments should not tax business inputs, to avoid skewing business decisions about what goods and services to produce and with what inputs. Important as these arguments are, they don't hold when the input itself causes harm. And that's the situation with burning diesel.

Burning diesel contributes about 17 per cent of Australia's total carbon emissions. Using a conservative international benchmark price of \$75 per tonne of carbon emitted, this harm can be expressed in monetary terms as 20 cents per litre of diesel.

Politicians promote fuel tax credits as a way to help regional Australia. For now, credits support Australian exporters, particularly miners and farmers. But this advantage has a use-by date, because Europe, the UK, the US, and Canada are imposing or planning to impose levies on specific imported products to reflect the carbon taxes that would have been paid had the goods been produced domestically (known as Carbon Border Adjustment Mechanisms).

This report calls for an overhaul of fuel taxes in Australia. On-road heavy vehicles should pay the same rate as utes, vans, cars, and small trucks used by Australian businesses. Off-road vehicles and machinery should still be eligible for fuel tax credits, but at a lower rate than at present, to reflect the carbon emissions and other damage they cause to the community as a whole.

The impact on households would be extremely small: prices at the supermarket would increase by an average of about 0.35 of 1 per cent – or 35 cents on a \$100 grocery shop.

These reforms would improve the efficiency of the tax system, contribute to budget repair, and help Australia hit its target of net-zero emissions by 2050.

Recommendations

1. Fuel tax credits should be removed for heavy on-road vehicles, increasing the effective fuel tax rate to 47.7 cents per litre, indexed to CPI.
2. Fuel used off-road should receive a reduced credit of 25.6 cents per litre, increasing the effective fuel tax rate to 22.1 cents per litre, indexed to CPI.
3. The on-road fuel tax rate should apply to all fuel used on-road, including fuel used for powering auxiliary equipment.

1 Reducing fuel tax credits would contribute to budget repair

It's hard to find a hollow log in Canberra, but one exception is fuel tax credits.

Fuel tax credits cost the budget close to \$8 billion a year,¹ about half of which is poorly justified in economic or social terms. This report proposes a way to save about \$4 billion per year from fuel tax credits.

An overhaul of fuel tax credits would not only make a meaningful dent in the structural deficit, but also help end a longstanding failure to properly account for the carbon emissions and air pollution caused by burning diesel.

And the impacts on the cost of living for Australian households would be very small.

1.1 The federal budget is in structural deficit

The federal budget has a structural deficit of about 2 per cent of GDP. It's forecast to stay at that level for the next decade. After stripping out the effect of temporary factors such as high commodity prices, there remains a stubborn shortfall of about \$40 billion a year.²

Government debt has shot up, from nothing before the Global Financial Crisis to 23 per cent of GDP in 2021-22.³ Interest payments on that debt are the fastest growing payment in the budget, at 14.4 per cent on average per year, outstripping even growth in the National Disability Insurance Scheme.⁴

1. Commonwealth of Australia (2022, p. 196).

2. Ibid (pp. 6, 117–118).

3. Ibid (pp. 380–381).

4. Ibid (p. 87).

The consequence of the structural deficit is that the task of finding structural savings is urgent.

1.2 Reforming fuel tax credits could make a serious dent in the structural deficit

Fuel tax credits are the mechanism that permits heavy vehicle operators and other users of petroleum products to receive a full or partial refund of any fuel tax they pay (see Box 1 on the following page). While the gross fuel tax raises more than \$20 billion a year, fuel tax credits reduce this by close to \$8 billion.⁵

Fuel tax credits are gnawing away more and more of the revenue from fuel tax. A decade ago, credits reduced gross fuel tax revenue by 30 per cent; today, it's almost 40 per cent (Figure 1.2 on page 8).

This report argues that about half of the cost to government of fuel tax credits is poorly justified, and should be cut. We build a case for a conservative tax reform where fuel tax credits are:

- Removed entirely for users of on-road vehicles heavier than 4.5 tonnes, increasing their fuel tax rate by 20.5 cents per litre in 2023; and
- Approximately halved for off-road users of diesel and other fuels, increasing their fuel tax rate by 22.1 cents per litre in 2023 (Figure 1.2).

The savings from our proposal would amount to about \$4 billion a year – about 10 per cent of the structural budget deficit.

5. Ibid (pp. 164, 180).

Box 1: How fuel tax credits work

Fuel tax is an excise (for domestically produced fuels) and customs duty (for imports), imposed at a rate of 47.7 cents per litre on diesel, petrol, condensate, kerosene, heating oil, and other petroleum products, indexed twice a year by the Consumer Price Index (CPI).^a

But not all fuel use attracts the tax. No fuel tax is payable for vehicles that only drive off-road, such as trucks on mine-sites, or for other off-road uses such as in heavy machinery, and for heating and cooling. And a reduced rate of tax is payable for on-road vehicles heavier than 4.5 tonnes, such as semi-trailers, B-doubles, and passenger buses.^b

Fuel tax credits are the mechanism for refunding fuel tax paid at the bowser. Companies claim full or partial credits on their regular Business Activity Statement to the Australian Taxation Office. The partial credit rate is currently 20.5 cents per litre – the difference between the fuel tax rate of 47.7 cents and the heavy vehicle Road User Charge (RUC), currently 27.2 cents per litre.^c

The RUC is intended to cover public spending on roads that can be attributed to heavy vehicles. The rate is reviewed annually by the federal, state, and territory infrastructure and transport ministers, under the auspices of National Cabinet, with the final decision resting with the federal minister.^d

Private drivers pay the full rate of fuel tax, plus GST on both the fuel itself and the fuel tax. Business operators whose vehicles are smaller than 4.5 tonnes pay the full rate, but they do not pay GST on the fuel or the tax, and can deduct the cost of fuel plus fuel tax from their business income.^e

a. *Excise Tariff Act 1921*. Fuel tax is also imposed at lower rates on several other fuels, including aviation fuel, liquefied petroleum gas, and biodiesel.

b. *Fuel Tax Act 2006*.

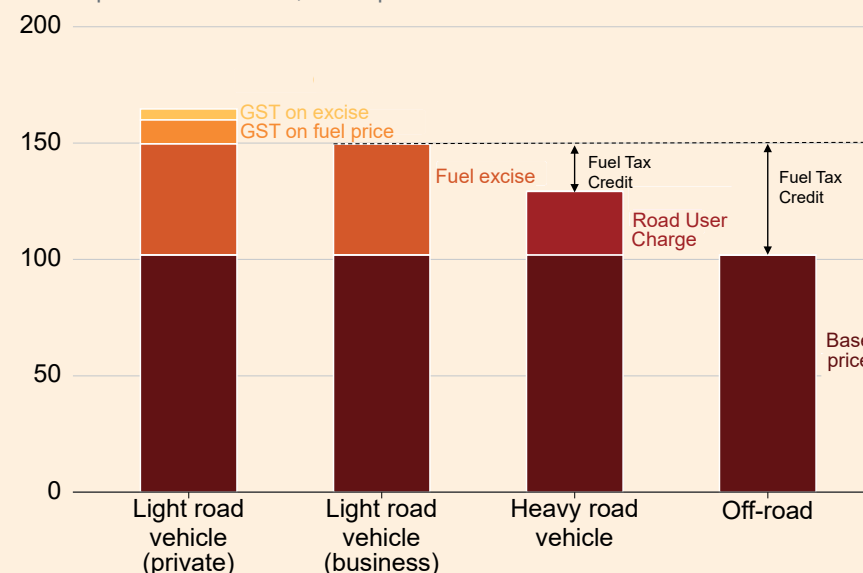
c. ATO (2021a). The credit is a refundable tax offset, treated as an expense in the budget.

d. National Transport Commission (2022a, pp. 6–7).

e. Parliamentary Budget Office (2022, p. 11).

Figure 1.1: How fuel tax works

Diesel price and taxation, cents per litre



Notes: Diesel price as at December quarter 2021. Heavy road vehicles are those weighing more than 4.5 tonnes.

Sources: Department of Climate Change, Energy, the Environment and Water 2022; ATO 2021a; Fuel Tax Act 2006.

Savings of this order naturally cause some disruption in the economy. However, this proposed tax reform would support the government's commitment to achieve net-zero carbon emissions by 2050; would have only a very small impact on the cost of living; and would be entirely consistent with the long history of fuel tax credits being modified to suit the imperatives of the day.

1.3 A forward-looking policy that would support the government's net-zero commitment

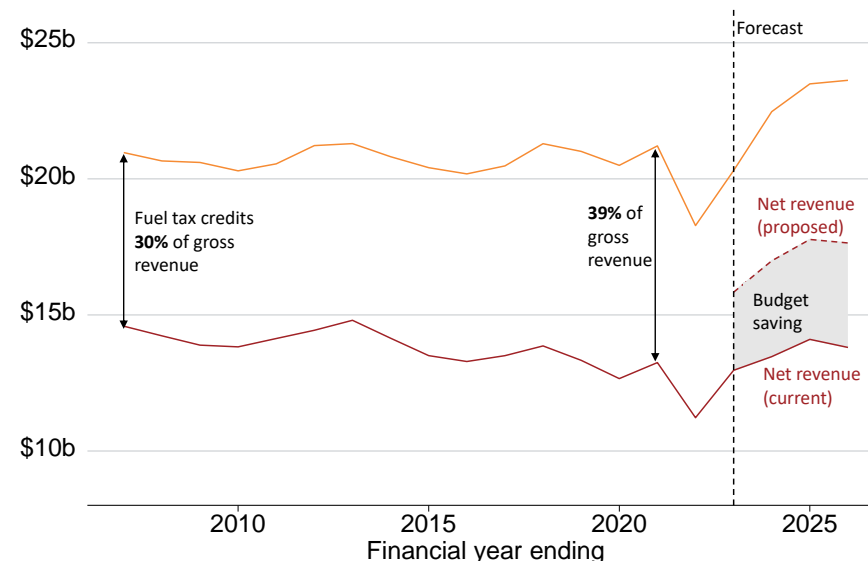
Although our policy proposal would yield substantial savings, it is not a simple revenue grab. Rather, it is a genuine reform that would help end a longstanding policy failure to properly account for the costs to the community of the carbon emissions and air pollution caused by burning diesel.

The federal government has committed to achieving net-zero carbon emissions by 2050.⁶ To do so in the absence of an economy-wide carbon price, it will need policies that tackle the highest-emitting sectors. Of a total of 19 industries in Australia, the five that receive most of the value of fuel tax credits are collectively responsible for more than half of Australia's emissions (Figure 2.1 on page 14).

It is unlikely that diesel and other fuel users will achieve zero carbon emissions by 2050.⁷ Only 0.03 per cent of the heavy vehicle fleet is electric or hybrid at present,⁸ and previous Grattan Institute analysis indicates that an ambitious but achievable goal would be for 100 per cent of new rigid truck sales and 70 per cent of new articulated truck sales to be electric by 2040.⁹ And the problem does not end with

Figure 1.2: Grattan Institute's proposed reduction in fuel tax credits could save \$4 billion per year

Gross and net fuel tax revenue, 2007 to 2026



Notes: 2021-22 dollars. See Appendix B for further detail on budget savings estimates. Savings in nominal terms are \$15.4 billion over the four years to the 2025-26 financial year. Y-axis does not start at 0.

Sources: Commonwealth of Australia 2022; ATO 2019; National Transport Commission 2021; ATO 2021b; ABS 2022a.

6. United Nations (2022).

7. Diesel users claim about 80 per cent of the value of fuel tax credits: ABS (2017), Commonwealth of Australia (2022) and ABS (2020).

8. National Transport Commission (2021, p. 68).

9. Terrill et al (2022, p. 44).

trucks, because specialised off-road vehicles and machinery also need to decarbonise.

There are at present limited price or other signals to encourage users of diesel and other fuels to take into account the carbon emissions from their fuel use in their business decision-making. Scaling back current fuel tax credits would be a modest but meaningful step in this direction.

As well as carbon emissions, exhaust-pipe pollution has also been the subject of a longstanding failure to act. Australia introduced the Euro-V pollution standard for trucks in 2011, at a time when Japan, the UK, and Europe were already moving to Euro-VI standards. This is a problem because trucks are a major source of harmful air pollution, which causes respiratory and other illnesses, impairs cognitive function, and kills at least 400 Australians per year.¹⁰

The federal government announced in October 2022 that Australia will move to the Euro-VI standard for new truck sales from 2024.¹¹ Scaling back fuel tax credits would build on this initiative, by nudging heavy vehicle operators towards more-efficient and less-polluting vehicles.

Chapter 2 shows that this tax reform would be efficient, equitable, and simple.

1.4 Cost-of-living impacts would be very small

Cost-of-living pressures are front of mind for Australian governments, with inflation now rising more than twice as fast as wages.¹²

Our proposed reform to fuel tax credits would have only an extremely small impact on the cost of living. The average increase in the price

of goods at the supermarket would be about 0.35 of 1 per cent, or 35 cents extra for a \$100 grocery shop.

When taken across the economy, the average impact on households would be very small – about 0.1 of 1 per cent – across the goods and services consumed by households. It would not directly affect petrol for private use, or housing costs.

Because the impacts on households would be very small, there is no compelling reason for government to compensate households, and to do so could be counter to its goal of constraining inflation.

Chapter 3 explains in more detail the very small impacts on households and businesses.

1.5 Successive policy decisions have hastened the decline in fuel tax revenue

At some point, fuel tax revenue will probably dwindle away completely. This is due in part to greater fuel efficiency of vehicles and other machinery.¹³ Greater fuel efficiency benefits operators, because more efficient vehicles and machinery are cheaper to run, but it also means that about 3 per cent of the federal government's revenues today are set to wither away.

But fuel efficiency is only part of the story. The decline in fuel tax revenue is in large part a direct result of four key policy decisions over the past 25 years (Figure 1.3 on the next page).

One of these policy decisions was to cut the fuel tax rate by 1.5 cents per litre from March 2001. Another was to stop indexing the rate from 2001-02 until 2014-15. These decisions were taken as part of the introduction of the GST. In combination, these decisions have significantly reduced the real rate of fuel tax: the ongoing cumulative

10. Ibid (pp. 13, 25).

11. King and Bowen (2022).

12. ABS (2022a) and ABS (2022b).

13. Reedman and Graham (2015) and Dosser (2016).

impact of the indexation pause is of about the same magnitude as the six-month halving of the fuel tax rate between March and September 2022.¹⁴

The other two policy decisions were to extend eligibility for fuel tax credits to a wider range of fuel uses.

In 1999-2000, the Howard Government extended fuel tax credits to marine and rail use, and to on-road vehicles heavier than 20 tonnes and to on-road vehicles between 4.5 and 20 tonnes, provided that the start or end point of their journey was non-metropolitan.¹⁵ The extensions introduced in 1999-2000 persist to this day.

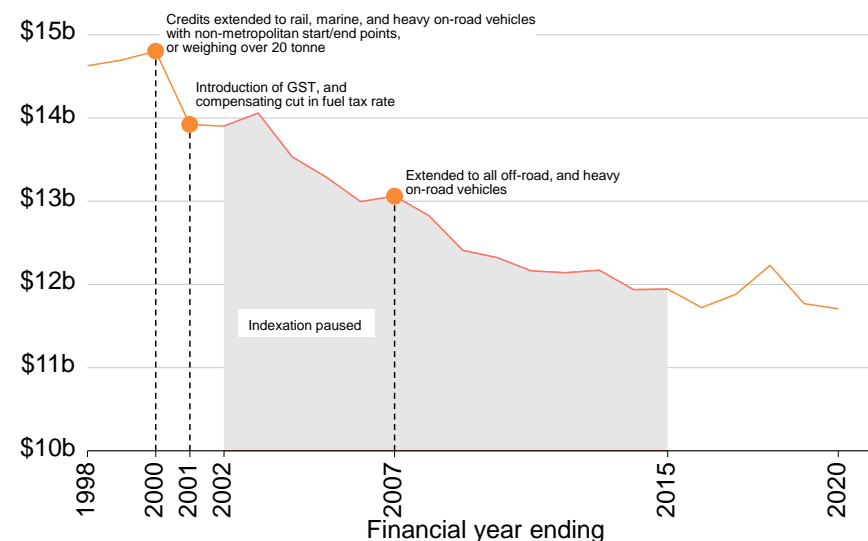
In 2006-07, the Howard Government extended fuel tax credits even further. The on-road use was opened up substantially, by removing the restriction that the journey had to begin or end in a non-metropolitan area. As well, the scheme opened up to other off-road use, including manufacturing and construction. These extensions also persist to this day.¹⁶

The decisions to shift the goals of the policy have caused confusion. As early as 1991, the Australian National Audit Office recommended that the credit scheme ‘clarify its purpose and objectives’.¹⁷

In 1994, the Department of Industry, Science, and Technology said the ‘objectives of the scheme are blurred’, while Treasury commented that it ‘does not appear to be a logically targeted spending program’.¹⁸

In 1996, an Auditor-General report argued that the the difficulty in administering the scheme was in part due to a ‘lack of clear

Figure 1.3: Four key policy decisions have caused much of the decline in fuel tax revenue



Notes: 2019-20 dollars. Heavy vehicles are those that weigh more than 4.5 tonnes. Road-related revenue only. Y-axis does not start at 0.

Sources: BITRE 2021a; Webb 2002a; Webb 2002b; Parliamentary Budget Office 2022; and Fuel Tax Act 2006.

14. Parliamentary Budget Office (2022, p. 13).

15. Pule and Webb (1999).

16. Fuel Tax Act 2006.

17. Australian National Audit Office and Spedding (1995, p. 11).

18. Ibid (p. 13).

objectives'.¹⁹ And in 2002, the Fuel Tax Inquiry noted that the widely differing views on the purpose of fuel tax can be attributed to changing objectives over time, in combination with a failure on the part of government to explain when and why those objectives had changed.²⁰

The reality is that the fuel tax credit scheme has every appearance of a political gift to rural and regional Australia. The scheme is not well suited to the policy imperatives facing the federal government today: tackling the structural budget deficit, and hitting net-zero carbon emissions by 2050.

19. Ibid (p. xii).

20. Trebeck et al (2002, p. 11).

2 Reducing fuel tax credits is good tax policy

Taxes usually come with economic costs, creating a trade-off for government between raising revenue and maximising economic output.

But the current fuel tax and credit system is riddled with baseless carve-outs and does not account for many of the costs of using fuel. There is no rationale for the favourable treatment that heavy business vehicles receive over lighter ones, especially given that heavy vehicles do far more damage to our roads. And the price businesses pay for fuel does not account for the substantial damage that burning diesel does to the environment and our health.

The federal government therefore has a rare opportunity to deliver genuine efficiency-improving tax reform while simultaneously raising revenue to reduce the budget deficit.

Our proposed rates of fuel taxation for business do not exceed conservative estimates of the external costs of fuel use. This ensures the tax rate we propose would be fair both to businesses and the community at large.

2.1 Business inputs should not usually be taxed

Tax orthodoxy tells us we shouldn't tax business inputs,²¹ for two main reasons.

First, governments try to raise revenue in ways that minimise the impact on what we buy and how businesses produce their goods and services. Taxing consumers influences what people buy, while taxing business inputs can influence both what people buy and also how businesses produce those goods and services.

21. There is a gap between this principle and usual practice. For example, the single largest input for many businesses – labour – is taxed.

But there is a strong case to tax business inputs when the use of that input causes harm to others.

The second reason tax orthodoxy tells us not to tax business inputs is the argument that taxes should not be imposed on both businesses and consumers, because they end up being 'double taxed'.²² This principle was a key consideration in the development of the GST. But fuel tax is very different to the GST.

GST is a broad-based tax on final consumption. If businesses were required to pay GST on their production inputs, it would be charged multiple times. For example, if the wholesaler, retailer, and final consumer of a good were all required to pay GST, it would be paid three times over. To avoid this scenario, businesses do not have to pay GST on their inputs, only on the value they add to those inputs.²³

Excise and customs taxes, such as fuel tax, operate quite differently. Fuel tax is paid by importers or producers of fuel at the point it leaves their refinery, terminal, or storage depot, and is not charged again.²⁴ This means there is no risk of fuel being taxed multiple times. Businesses that use fuel can also also claim a tax deduction on any fuel-related costs, including fuel tax (see Box 2 on the following page for an example).

The rest of this chapter argues the case for scaling back fuel tax credits, and by how much. The key argument is that burning fuels causes harm to the community above and beyond what is currently captured through fuel taxes. This argument is explained in Section 2.2,

22. The Fuel Tax Credit Alliance (2017) and Deloitte Access Economics (2014, pp. 7–9).

23. ATO (2022a).

24. Parliamentary Budget Office (2022, pp. 1–2).

with a proposal for a reformed fuel tax credit that would capture these harms.

Further arguments in favour of our proposal are that it would be fairer for business operators of on-road vehicles to face the same fuel tax regime, regardless of the size of their vehicles, outlined in Section 2.3, and that our proposal would simplify the fuel tax system for business and government, explained in Section 2.4.

2.2 ... but taxing a business input is sensible in this case

While taxing a business input such as fuel would typically be considered inefficient, there are exceptions. There is a strong case to tax goods or activities that cause harm to others. We all hate dodging potholes on damaged roads, squeezing our cars between trucks on the freeway, or being late to work because we're stuck in traffic. And there are other, bigger costs of fuel use: carbon emissions and air pollution. These costs, or 'externalities', are imposed on all of us by users of fuel, but the price paid for fuel by many businesses does not reflect this.

We would all be better off if businesses paid a price for fuel that reflected both the market cost of fuel and the also costs imposed on others from their fuel use.

An increase in the price of fuel may encourage businesses to find ways to reduce their use of fuel, reducing the harm they impose on others. Alternatively, if businesses continue to use large amounts of fuel, the government will receive increased revenue from the fuel tax.

We should, however, be careful not to overreach. Imposing a tax on fuel users that exceeded the externality costs of using fuel would have economic costs. The following sections outline conservative estimates of the social and economic costs of burning fuel.

Box 2: Businesses can tax-deduct their fuel expenses

When the cost of a business input such as fuel increases, the amount businesses can claim in tax deductions also increases.

Let's take the example of a small transport business, 'Liz's Trucks'. Liz owns one 7-tonne truck and uses 10,000 litres of diesel per year on-road.

Fuel costs under current arrangements

If fuel costs an average of \$1 per litre, Liz would pay \$1.477 per litre at the bowser, and claim back 20.5 cents per litre in fuel tax credits on her Business Activity Statement. This would bring the actual fuel price to \$1.272 per litre, so 10,000 litres will cost her \$12,720.

Liz then files her tax return and claims a tax deduction for the fuel she used in her business. She pays a company tax rate of 30 cents in the dollar, and so is refunded \$3,816 for her fuel expenses.

Her net fuel costs for the year are \$8,904, or 89 cents per litre.

Fuel costs without fuel tax credits

If Liz was no longer able to claim any fuel tax credits, the price she pays for fuel would increase to \$1.477 per litre, an increase of 20.5 cents per litre. 10,000 litres would cost her \$14,770.

Liz would still claim a 30 per cent tax deduction on her fuel costs, and would be refunded \$4,431, so her net fuel cost would be \$10,339, or 102 cents per litre.

Removing fuel tax credits would increase the price of fuel by 20.5 cents per litre, but after claiming a tax deduction, Liz would only pay an increase of 14.35 cents per litre.

2.2.1 Fuel combustion harms the environment

As the planet continues to warm, heatwaves, bushfires, and floods will inflict greater harm.²⁵

The burning of fuel is a significant contributor to Australia's carbon emissions. Five of the 19 industries in Australia receive 88 per cent of the total value of the fuel tax credits (Figure 2.1). These fuel-intensive industries directly produced more than half of Australia's carbon-equivalent emissions in 2020. And this share is expected to increase to 64 per cent by 2030 as some sectors increase their emissions while other sectors de-carbonise. Petrol and diesel combustion account for about one-fifth of emissions in these industries.²⁶

The mining industry is the largest recipient of fuel tax credits; it claimed more than \$3 billion in the 2021-22 financial year. Just 10 mining companies are estimated to have claimed more than \$1.7 billion in fuel tax credits, and emitted more than 40 million tonnes of carbon, over the same period (Figure 2.2 on the following page). BHP, the largest recipient, received about \$475 million, and emitted 8 million tonnes.

And this includes only two business segments – coal and ore mining – which represent about 70 per cent of fuel tax credit claims in mining.

Fuel tax credits are out of step with the government's climate goals

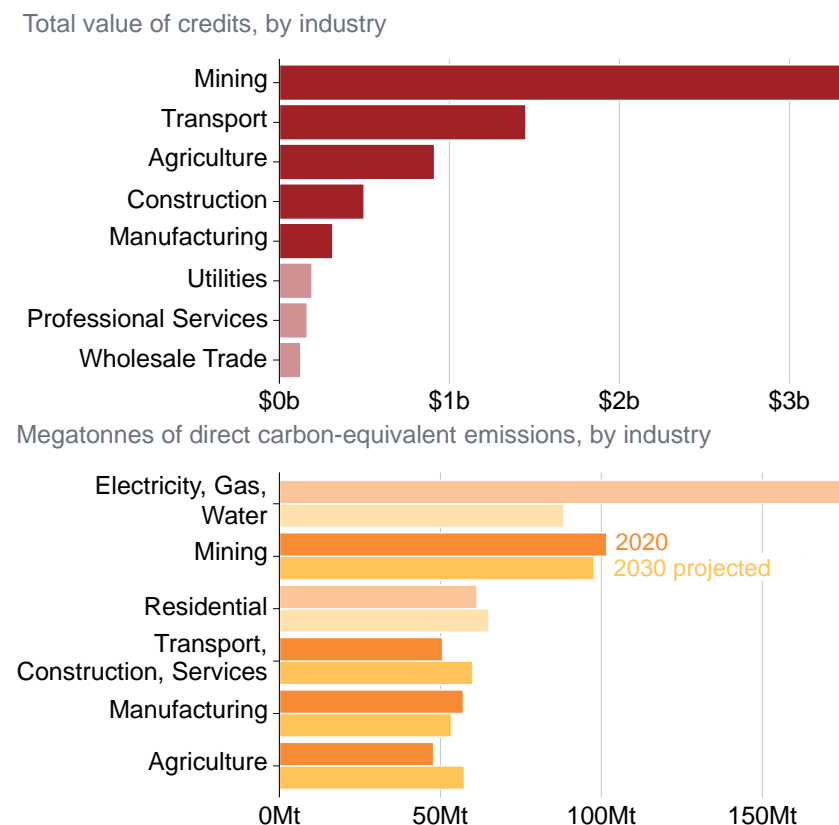
Recognising the urgency of limiting global warming, Australia, along with many other countries, has committed to achieving net-zero carbon emissions by 2050. This commitment includes 'accelerating efforts towards ... the phase-out of inefficient fossil-fuel subsidies'.²⁷ The

25. Climate Council (2014).

26. Grattan analysis of DISER 2022; ABS 2017. The estimate for the petrol and diesel combustion share of industry emissions excludes agriculture because data were unavailable.

27. United Nations (2022, para 36).

Figure 2.1: The five industries that receive the most fuel tax credits are responsible for more than half of Australia's carbon emissions



Notes: Direct emissions only. Only industries that received more than \$100 million in credits shown in top panel. 'Transport, Construction, Services' are grouped as a single industry in the data. The highest emitters within this group are mostly in the Transport, Postal, and Warehousing industry (Clean Energy Regulator 2022a).

Sources: DISER 2022; ATO 2021b.

Albanese Government has also committed to reducing emissions by 43 per cent by 2030, compared to 2005 levels.²⁸

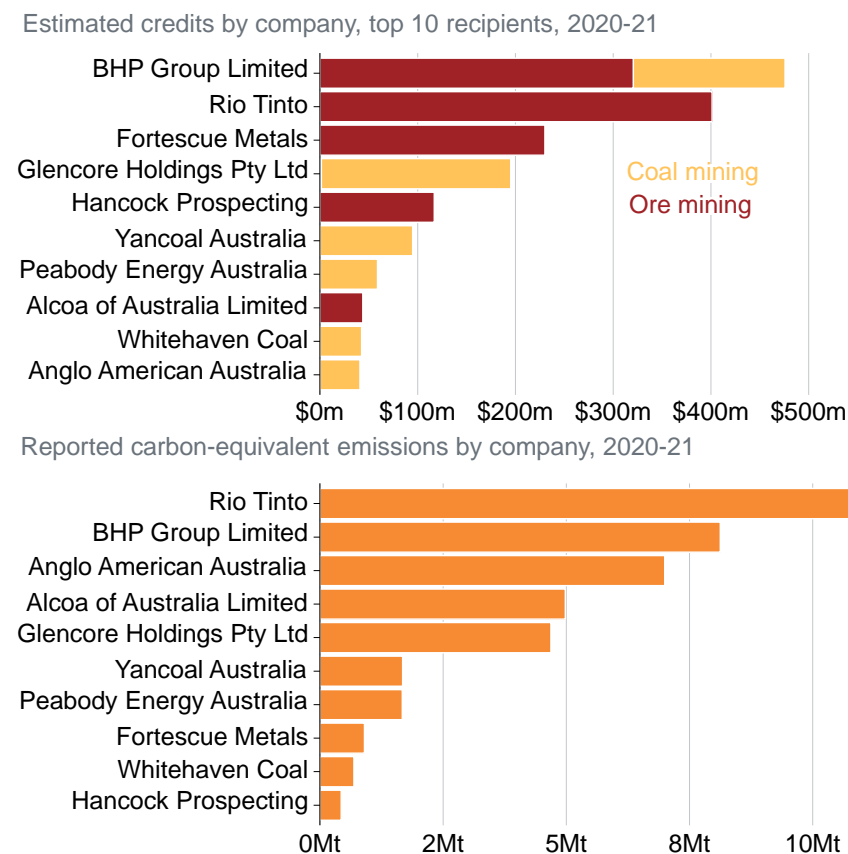
But fuel tax credits, as they currently operate, make it harder than necessary to reach these targets, by masking the true cost of burning diesel. Scaling back fuel tax credits would signal to businesses that they need to properly account for these carbon emissions when making investment decisions.

Diesel is cheap, energy dense, and works in a wide variety of heavy vehicles and machines. The transition to net zero will require substantial reductions in the use of diesel, replacing it with alternative fuels, new technology, and adapted business processes. (Box 3 on the next page outlines some alternatives to diesel use).

Businesses that anticipate higher fuel prices will invest in fuel-efficient technologies and practices, leading to a reduction in fuel use or a switch to cleaner energy sources.²⁹ Investing in greener technology early would not only help Australia meet its 2030 and 2050 emissions targets, it would improve the competitiveness of our industry in the longer term.

While there was some attempt to limit environmental harm when the fuel tax credit scheme was introduced, the attempt was half-hearted. The *Fuel Tax Act 2006* required that any business claiming more than \$3 million in fuel tax credits be a member of the Greenhouse Challenge Plus Program.³⁰ But that program had been set up to avoid requiring businesses to adopt any environmental practices that might reduce their profitability, and in the knowledge that it was difficult to assess whether the emissions reductions under the program were ‘over and

Figure 2.2: The top 10 mining recipients claim more than \$1.7b in credits



Notes: Estimated credits are based on average fuel tax credit per unit of production at the sub-industry level, multiplied by each firm's total production quantity. Assumes fuel inputs per unit of production do not vary between firms in a sub-industry. Only coal and ore mining are included in the top panel, which represent about 70 per cent of total credits to the mining industry, and probably results in an underestimation of credits for some firms.

Sources: Grattan analysis of publicly available company data, ATO 2021b, DISR 2022, and Clean Energy Regulator 2022b.

28. Albanese and Bowen (2022).

29. OECD (2019, pp. 68–72).

30. Webb (2006).

above what would have been achieved through a business-as-usual approach'.³¹ The program was discontinued in 2009.

Environmental considerations are partially recognised in current fuel taxation rates, because liquefied natural gas and other alternative fuels are taxed at 50 per cent of their full energy content tax rate. But the credit and the Road User Charge (RUC) remove or reduce this advantage. For instance, the fuel tax rate on liquefied natural gas is still about half that on diesel, but interactions with the heavy vehicle RUC mean that users of LNG now pay more than 80 per cent of their energy-intensity-equivalent rate.³²

This means that businesses can claim millions of dollars in fuel tax credits without any conditions on their carbon emissions.

The price of carbon is uncertain

To price carbon emissions from a given activity, we can multiply the amount of CO₂ emissions from each litre of fuel used in that activity by a carbon price.³³ Each litre of diesel burned emits 2.68kg of carbon dioxide (CO₂), and each litre of petrol emits 2.31kg of CO₂.³⁴ However, there is no consensus about what a CO₂ price should be.

The lack of consensus in CO₂ pricing is evident from the range of prices adopted by countries around the world.³⁵ Carbon prices, emissions trading schemes, or hybrid models exist in 39 countries, and a number of sub-national schemes also operate. The share of emissions covered by these policies range from 30 per cent to 70 per cent, and the economy-wide average price ranges from \$7 per tonne

31. Parliament of Australia (2000, pp. 334–335).

32. Griffiths (2021).

33. Coady et al (2019).

34. University of Exeter (2022).

35. All international carbon price estimates in this report are presented in 2021-22 Australian dollars: ABS 2022a; RBA 2022.

Box 3: There are alternatives to diesel

Diesel use can be replaced with alternative fuel types, new machine technologies, and/or modified business practices.

Electricity, increasingly generated from renewables, can replace diesel in some circumstances. It's becoming widespread in light passenger vehicles, and can work in certain predictable industrial settings; for instance, electric cables can be used in deep pit mining.

But electricity is less suited to heavy vehicles, at least for now. This is because the time it takes to recharge a battery limits a vehicle's productive time, and also because the weight of the battery reduces a vehicle's potential payload.

Low-carbon fuels, such as biodiesel, synthetic diesel, and green hydrogen, are less carbon-intensive than conventional diesel. Synthetic diesel is a 'drop-in' fuel that can replace conventional diesel without major changes to diesel engines.

Low-carbon fuels are much more expensive than conventional diesel, and have lower energy density.

But things are changing. Batteries are becoming becoming increasingly dense,^a so that they last longer without an increase in weight. Low-carbon fuels are becoming more affordable, with synthetic diesel expected to be available at scale by the early 2030s.^b New vehicle and machine technologies are also developing; for instance, small and medium-sized electric tractors are coming onto the market overseas.^c

a. Office of Energy Efficiency and Renewable Energy (2022).

b. Russell et al (2021).

c. For example from New Holland, Kubota, Solectrac, and Monarch.

to more than \$130 per tonne.³⁶ Box 4 explains common approaches to pricing carbon.

A conservative carbon price of \$75 per tonne would imply a carbon 'externality' cost of 20 cents per litre on diesel fuel. A higher carbon price of \$140 per tonne would imply a cost of 37.5 cents per litre. The price is likely to increase as the damage caused by additional emissions increases, and we move closer to our 2050 deadlines.

The federal government is finalising a set of reforms to the Safeguard Mechanism that would effectively cap the carbon price applying to about 215 large industrial facilities, and currently covering about 28 per cent of Australia's emissions. The specific proposals will cover 4.9 per cent of affected companies' emissions in 2024, 9.8 per cent in 2025, 14.7 per cent in 2026, and so on until 2030. The effective cap on the carbon price will be created by selling domestic offsets at \$75 per tonne, rising by the rate of the CPI plus 2 per cent per year, for emissions above allowable levels required to achieve the 2030 emissions reduction target.³⁷

While these reforms clearly entail an increase in Australia's emissions reduction effort, the carbon price implied by the Safeguard Mechanism reforms is still very low. The effective carbon price in 2024 by these rates is \$3.68 per tonne, rising to \$33.50 in 2030.³⁸ By way of comparison, industry experts estimate that the carbon price needed to limit global warming to 1.5 degrees above pre-industrial levels would have to reach US\$160 per tonne by 2030.³⁹

36. Parry et al (2022).

37. DCCEEW (2023).

38. Grattan Institute analysis.

39. Wood Mackenzie (2021).

Box 4: Three approaches to pricing carbon

One approach is to model how much damage each extra tonne of CO₂ emissions causes, referred to as the Social Cost of Carbon (SCC). Estimating the SCC involves modelling a number of highly uncertain factors, such as the effect of CO₂ emissions on temperatures and the climate, long-term population and economic growth rates, and how to weight current costs against future costs.^a Estimates of the SCC range from AU\$-20 to AU\$3,491 per tonne of CO₂.^b The US government uses a SCC measure in cost-benefit analysis, currently at the rate of AU\$75 per tonne.^c

A second approach is a cap-and-trade program, which entails setting a net-zero target date and pathway, and then issuing tradeable permits to achieve these goals. In the US, this results in an estimated carbon price of AU\$75 per tonne in 2025 to achieve net zero by 2050, though the estimate varies depending on factors such as other environmental policy settings and the price of fuel.^d In the well-established European market, prices climbed as high as AU\$154 a tonne in 2022.^e

A third approach is to use the market price for offsetting carbon emissions. This price will become increasingly relevant as we approach the deadlines for emissions reduction, because remaining emissions will have to be offset at the market rate. In Australia, today's offset price is about \$37 a tonne,^f with a proposal to cap the price at \$75 a tonne in 2023-24 for companies subject to the Safeguard Mechanism.^g

a. Barron et al (2020) and Rennert et al (2021).

b. Wang et al (2019).

c. This has differed under past administrations: Woellert and Colman (2021).

d. Barron et al (2020).

e. Trading Economics (2022).

f. Jarden Australia (2022).

g. DCCEEW (2023).

... but that does not mean it should be ignored

The price of carbon may be uncertain, but there is no disputing that carbon emissions produce real social, economic, and environmental costs, and that therefore a price of zero is too low.

Even companies that would be affected by our policy proposal accept that \$75 per tonne is a conservative carbon price. Look no further than what they tell their shareholders. Several companies in industries which are large recipients of fuel tax credits factor 'internal' carbon prices of more than \$100 per tonne into their investment decisions. These companies include Toll, BHP, BP, Bulga Coal Management, Rio Tinto, and Newmont.⁴⁰

As we get closer to 2050, the price of carbon is likely to increase. As the offset market in Australia matures and applies to a larger share of emissions, it will also become a more reliable measure of the carbon price. The government should ensure the rate of fuel tax credits for off-road use remains in step with the carbon price applying more broadly in the economy.

2.2.2 Fuel combustion harms our health

Fuel combustion processes are the primary cause of air pollution in Australia,⁴¹ mostly from vehicles, coal-fired power stations, and industry emissions.

Air pollution causes and exacerbates a number of deadly diseases, ranging from asthma to coronary heart disease and lung cancer. In 2018, more than 3,200 premature deaths were attributed to air pollution from fine particulate matter, known as PM2.5,⁴² almost three times the road death toll.⁴³

40. Grattan analysis of publicly available data.

41. Parliament of Victoria (2021).

42. AIHW (2021, p. 67).

43. BITRE (2021a, p. 2).

To make matters worse, air pollution disproportionately affects the most vulnerable members of society, including unborn babies, children, the elderly, and people with existing health conditions. Because air pollution exists in the air where we live and work, it is almost impossible to avoid.⁴⁴

Air pollution also damages the natural environment and wildlife, by impairing vegetation growth, acidifying soils and freshwater, and causing disease.⁴⁵

Health costs vary by location and technology

The amount of pollution caused by fuel combustion, and the damage this pollution causes to human health, varies depending on the location and technology. But fuel tax is not well-suited to differentiating between more and less harmful locations and technologies, because it is applied at a flat rate per litre.

Location matters because air pollution only harms people who breathe it in, meaning the impacts are highest in areas of high population density.

More than 85 per cent of the cost of air pollution from motor vehicles is borne in capital cities.⁴⁶ Since heavy vehicles drive on public roads, which are typically where people live, they are likely to create more health costs than industrial processes, which primarily occur in regions with lower population density.

44. For further detail on the health and cognitive burdens of air pollution, see Terrill et al 2022.

45. Parliament of Victoria (2021, p. 18).

46. BITRE (2005, pp. 100–101).

The cost of pollution in urban areas is estimated to be 15-to-19 cents per litre of fuel, compared to about 2 cents per litre in rural areas.⁴⁷

While fuel tax credits have in the past been limited to journeys with a start or finish destination outside metropolitan boundaries,⁴⁸ this provision did not reflect the costs of heavy vehicles driving through metropolitan areas. It also had significant compliance costs for businesses, which had to record their journeys and fuel use to determine what share of their fuel consumption was eligible for credits.

Technology matters because it can be used to reduce the amount of pollution that vehicles and industrial processes produce.

For example, trucks manufactured before 1996, when pollution standards were introduced, produce more than 60 times more particulate matter than trucks manufactured today. These old and dirty trucks continue to make up more than 14 per cent of Australia's truck fleet.⁴⁹

While the fuel tax credit scheme requires on-road vehicles manufactured before 1996 to meet one of three environmental criteria to qualify for credits,⁵⁰ these criteria are far from effective at reducing harmful pollutants. Two criteria impose modest truck maintenance obligations, while a third requires trucks to pass an emissions test that is no longer enforceable in most states due to facilities closing.⁵¹

47. IPART 2012; AustRoads 2014 and Department of Infrastructure, Transport, Regional Development and Communications 2021. Amounts converted into cents per litre using ABS 2020 and inflated to 2022 dollars using ABS 2022a.

48. This restriction excluded vehicles weighing more than 20 tonnes: Australian Government (2004).

49. See Terrill et al 2022 for a detailed discussion of the impacts of trucks, and Grattan's recommendations to reduce air pollution.

50. Vehicles used mainly for primary production or on an agricultural property are exempt.

51. Gjerek et al (2021) and Department of Transport and Regional Services (2006).

Vehicles manufactured after 1996 are not required to meet any further environmental criteria. At the time of policy implementation in 2006, this only included vehicles less than 10 years old. Today, that includes vehicles that are 27 years old.

A mix of price and improved regulatory measures is needed

Given the substantial differences in costs depending on location and technology, a tax based on average air pollution would result in emitters in regional areas paying too much, and emitters in cities paying too little.

Because fuel is imposed at a flat rate per litre and does not vary by vehicle or location, a lower bound estimate of air pollution costs should be included in the fuel taxation paid by business users. Regulation will be necessary to supplement this by addressing the more variable costs of air pollution.

While Australia has lagged behind other advanced countries, it has introduced increasingly stringent limits on the amount of harmful pollutants that new trucks can emit. These limits, known as 'Euro Standards', reflect the pollution-reducing technologies available at the time. The federal government recently announced that it will introduce Euro-VI standards for new truck sales from 2024.⁵² A higher price for fuel would complement this policy by reinforcing the benefits of moving to more fuel-efficient and less-polluting vehicles.

Regulatory policies to reduce emissions in areas of high population density are lacking. As outlined in the 2022 *Grattan Truck Plan*, a low-cost way of achieving this would be to ban old and dirty trucks from Sydney and Melbourne.⁵³

52. King and Bowen (2022).

53. Terrill et al (2022).

2.2.3 A user-pays approach to road use and damage

A common misconception about fuel taxation is that the revenue is used to pay for roads. In general, this is not the case (see Box 5 on the next page).

However, businesses expect high-quality roads to be available for their use, and so they should pay for their share of the costs.

Heavy vehicles are currently under-charged

Heavy vehicle operators are supposed to pay for their share of road damage and construction costs through a federal heavy vehicle RUC and state-based vehicle registration fees. Registration fees differ by state and vary depending on the amount of damage that different types of heavy vehicles are estimated to do to the road, while the RUC depends on fuel consumption, to take account of the distance travelled. The current RUC is 27.2 cents per litre, and is paid through a reduction in the rate of fuel tax credits for heavy vehicle users.⁵⁴

The National Transport Commission is responsible for recommending the rate these charges need to be set at to fully recover heavy vehicles' share of road construction and maintenance costs.⁵⁵ However, the final decision on the rate sits with infrastructure and transport ministers, with the federal government deciding the RUC rate and the states and territories deciding registration fees for their jurisdictions.⁵⁶

Since 2014-15, transport ministers have limited increases in the RUC, because they have been concerned about how the charges were calculated, the difficulty for the industry to absorb large fluctuations in costs, and, more recently, the impacts of COVID-19 on the transport

industry. Between 2015 and 2020, the RUC rate was reduced,⁵⁷ while total government expenditure on roads increased by 27 per cent.⁵⁸

The combination of lower charges and higher spending means that costs have been under-recovered for several years, and the problem is growing. For 2022-23, the gap between full cost recovery and revenue from the RUC and registration charges is estimated to be 24.1 per cent, or \$847 million.⁵⁹ In 2023-24, the gap is expected to be 38.7 per cent, or \$1.4 billion.⁶⁰ Achieving full cost recovery would require increasing the RUC from 27.2 cents per litre to 37.7 cents per litre.

The level of under-recovery is exacerbated by rules about powering auxiliary equipment on trucks. A potentially substantial amount of fuel has become exempt from the RUC where that fuel is used to power auxiliary equipment, rather than 'for travelling' on a public road, as specified in the *Fuel Tax Act 2006*. For example, a cement truck operator only pays the RUC for the fuel it uses to propel the truck, not the fuel it uses to mix the concrete.

This kind of exemption results in under-recovery because of the way the RUC is estimated. The RUC is designed to achieve full cost recovery of the heavy vehicle cost base, and the recommended rate of the RUC is set accordingly. The amount of fuel upon which the RUC is imposed is estimated using the ABS Survey of Motor Vehicle Use; however, this survey does not ask respondents to differentiate between fuel to propel vehicles and fuel for auxiliary uses. The result is that the recommended RUC rate is insufficient for full cost recovery.

The National Transport Commission states that exemptions of this kind have become more widespread since the Tax Office first issued the

54. National Transport Commission (2022b).

55. National Transport Commission (2021, p. 9).

56. Department of Infrastructure, Transport, Regional Development and Communications (2020, p. 8).

57. ATO (2015).

58. BITRE (2021c).

59. National Transport Commission (2022a, p. 12).

60. National Transport Commission (2022c, pp. 6–7).

Box 5: Fuel tax is not used to pay for roads

When first introduced, revenue from excises on petrol and diesel used on-road were earmarked, or ‘hypothecated’, for expenditure on roads. But this practice ended in 1959, more than 60 years ago.^a

Today, there is essentially no link between most fuel tax revenue, other road-related revenue, and the level of road-related expenditure in Australia (Figure 2.3).

About one third of road-related revenue comes from fuel tax. This revenue is not hypothecated to road spending (other than the small fraction attributable to indexation dating from the reintroduction of indexation in 2014-15).^b

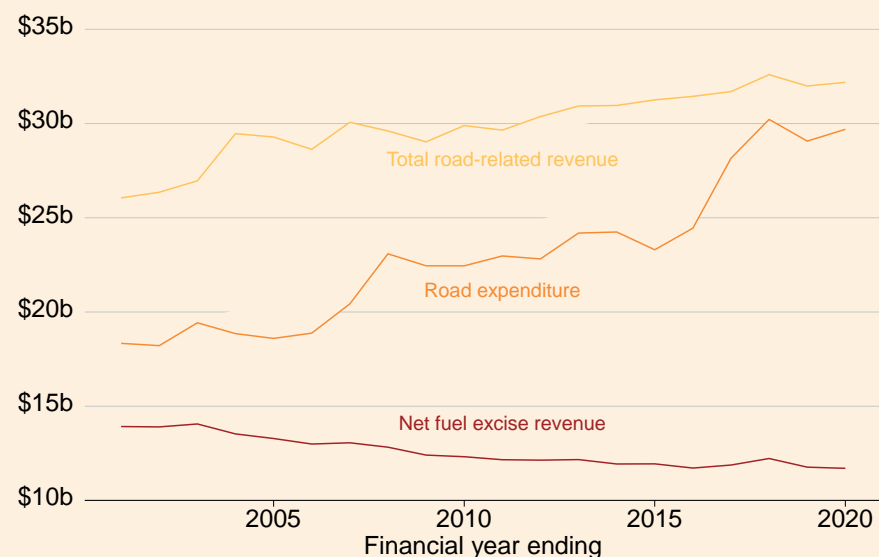
The remaining two thirds of road-related revenue comes from sources including vehicle registration fees, customs duties on motor vehicles, license fees, stamp duty, tolls, road-related fringe benefits tax and GST, and the luxury car tax.^c Revenue from these sources is not hypothecated to road spending.

The heavy vehicle RUC operates differently to other road-related taxes and charges. It recovers money already spent on roads that is attributable to heavy vehicles, and returns that expenditure to general revenue.

- a. There has been hypothecation of parts of the fuel excise in subsequent policy. In 1982, a surcharge was imposed to provide grants for road construction to the states under the *Australian Bicentennial Road Development Trust Fund Act 1982*. In 1985, the *The Australian Land Transport (Financial Assistance) Act 1985* hypothecated a proportion of the excise to road funding. These Acts were replaced in 1988 by the *Land Transport Development Act 1988*, which also contained a provision for hypothecation, though the practice was discontinued.
- b. *Fuel Indexation (Road Funding) Special Account Act 2015*.
- c. BITRE (2021b, p. 71).

Figure 2.3: Road-related spending is going up, but net fuel tax revenue is going down

Net road-related revenue and expenditure



Sources: BITRE 2021c.

relevant guidance in 2016.⁶¹ It estimates that the under-recovery from this source amounts to about \$68 million a year.⁶²

Heavy vehicle charging in the longer-term

Even though the number of diesel vehicles on our roads will dwindle over time, and so will the revenue from fuel taxes, the transition will take decades. Only 0.03 per cent of the Australian heavy vehicle fleet is electric or hybrid at present.⁶³ By 2040, when we could reasonably expect that 100 per cent of new rigid truck sales could be electric, it's likely that new articulated truck sales would fall some way short of that.⁶⁴

Implementing heavy vehicle road-user charging through a fuel-based tax will gradually become unviable as the fleet shifts towards electric and hybrid options, and alternative fuels. Under current policy, drivers of electric trucks do not pay a distance-related charge for the damage they cause to roads, and users of some alternative fuels pay discounted rates.

Australian governments have responded to these changes in two ways.

One approach has been to introduce distance-based charges on electric and hybrid light vehicles, which could form a model for heavy vehicles. In 2021, Victoria introduced a charge for zero- and low-emissions vehicles, currently set at 2.6 cents per kilometre for electric vehicles, and 2.1 cents per kilometre for hybrids. NSW plans to follow suit. Victoria's charge is subject to a challenge in the High Court;

the outcome of that challenge will determine whether these charges can be levied by states, or only by the federal government.⁶⁵

Another approach is multi-jurisdictional reform of the current heavy vehicle charging scheme. The reforms under consideration to come into effect in 2024 aim to create a tighter nexus between what heavy vehicle users pay and the services they receive, as well as to improve budget predictability for road building and maintenance.⁶⁶ The mechanisms to achieve these aims include developing service level standards for roads, which would guide investment; creating state and territory government expenditure plans, which would be assessed by an independent body; establishing an independent price regulator to set heavy vehicle charges; and working out hypothecation arrangements for the revenue.⁶⁷

The degree of difficulty of this approach is evident from the fact that although the mechanisms were agreed to back in 2014, they remain at an early stage of development.⁶⁸ Indeed, reform to heavy vehicle road charging and investment has been a focus for Australian governments for at least the past 20 years, and a particular focus of the reform agenda of the Council of Australian Governments and its successor, the National Cabinet, since 2007.

Any reforms to road-user charging should ensure that the on-road fuel tax rate doesn't drop below our proposed off-road rate. This would ensure that all diesel users continue to pay for the environmental and health damage they cause.

61. National Transport Commission (2021, pp. 60–61).

62. Ibid (pp. 60–63).

63. Ibid (p. 68).

64. A reasonable assumption is that 70 per cent of new articulated truck sales could be electric by 2040: Terrill et al (2022).

65. Holcombe Henley (2022).

66. Department of Infrastructure, Transport, Regional Development, Communication and the Arts (2019, p. 1).

67. Department of Infrastructure, Transport, Regional Development and Communications (2020).

68. Infrastructure and Transport Ministers (n.d.).

2.2.4 Getting the price right

The sections above outline the environmental and health costs that businesses impose on others, and the full cost of heavy vehicles' share of road construction and maintenance expenses.

For heavy on-road vehicles, these costs can be expressed in monetary terms at 59.8 cents per litre of diesel burned, comprising:

- 20.1 cents per litre for carbon emissions;
- 2 cents per litre for exhaust pipe pollutants; and
- 37.7 cents per litre for road construction and maintenance.

Other costs, including noise pollution, accidents, and traffic congestion, are not included in these estimates. Noise pollution and traffic congestion are both inherently localised; fuel tax is poorly suited to recovering such costs. Accidents can occur anywhere, but our estimates exclude them because the costs are addressed through safety regulations and compulsory insurance, and because accidents are caused by the behaviour of a few, rather than each driver causing a small share of those costs.

A cost of 59.8 cents per litre is well below the current rate of fuel tax paid by heavy on-road vehicles (Figure 2.4).

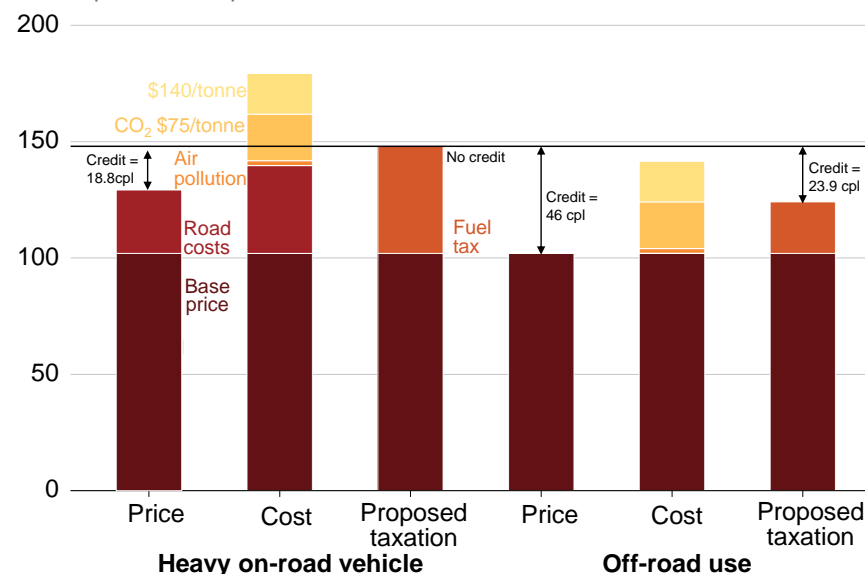
Even at very conservative cost estimates, heavy on-road vehicles' costs are also higher than the current fuel tax rate. There is therefore no rationale for fuel used for this purpose to attract any fuel tax credits.

Recommendation 1

Fuel tax credits should be removed for heavy on-road vehicles, increasing the effective fuel tax rate to 47.7 cents per litre in 2023, indexed to CPI.

Figure 2.4: It's time for businesses to cover their costs

Diesel price, cents per litre



Note: Fuel base price as at December quarter 2021.

Sources: IPART 2012; AustRoads 2014; Department of Climate Change, Energy, the Environment and Water 2022; National Transport Commission 2022a; ABS 2022a; ABS 2020.

For off-road fuel use, conservative cost estimates fall below the current fuel tax rate. This is because off-road vehicles and machines do not use public roads and therefore should not pay any user charges for road use. The cost of a conservative charge for air pollution and carbon emissions is 22.1 cents per litre, and off-road charges should not exceed this amount.

Recommendation 2

Fuel used off-road should receive a reduced credit of 25.6 cents per litre in 2023, indexed to CPI, increasing the effective fuel tax rate to 22.1 cents per litre.

Fuel tax interacts with other emissions-reduction policies

In the absence of an economy-wide carbon price or emissions trading scheme, sector-specific or fossil fuel-specific policies are required to meet Australia's legislated emissions-reduction targets. As different policies come into play, there are two ways that they might interact with changes to fuel tax credits.

First, having a range of policies will probably entail a range of carbon prices, resulting in some businesses paying more for their emissions than others. It also means that emissions from fuel are priced while emissions from some other sources are not. This gives some businesses an unfair advantage.

But all businesses should pay for the environmental damage they cause, and other emitters not being taxed is a poor reason not to tax fuel.

Having a range of prices might encourage businesses to switch from diesel towards other fossil fuels that don't incur the same rates of

taxation. But the ability to replace petrol and diesel with other fossil fuels is limited. For example, you cannot use coal to power a truck.

Second, there is a risk of businesses paying twice for their carbon emissions. For example, the government is consulting on its reform plans for the Safeguard Mechanism, which will require large industrial emitters to reduce their carbon emissions or pay an offset price that it proposes should be capped at \$75 per tonne in 2023-24 for 4.9 per cent of emissions, rising both in price and also the share of emissions covered.⁶⁹ The risk is that some businesses subject to the Safeguard Mechanism may end up paying to offset emissions from burning diesel, while also paying fuel tax on that diesel.

Business should not have to pay for the same emissions twice. As more carbon policies are introduced in Australia, a system of refunding this double-taxation will be required.⁷⁰

2.3 Removing heavy vehicles' unfair advantage

For on-road business vehicles, a partial credit is available for fuel used in vehicles weighing more than 4.5 tonnes, but no credit is available for fuel used in vehicles weighing less than 4.5 tonnes. This disparity, shown in Figure 2.5 on the following page, is arbitrary and inefficient.

It is arbitrary because it excludes many vehicles that are used primarily for business purposes. While it's true that most vehicles weighing more than 4.5 tonnes are used exclusively for business purposes, the same could be said for vehicles weighing more than 3.5 tonnes. Indeed, both

69. DCCEE (2023, p. 40).

70. Under the carbon pricing scheme in operation between 2012 and 2014, light commercial vehicles continued to pay fuel tax and were not subject to the carbon price; heavy on-road vehicles were intended to face a carbon price from 2014; and off-road users faced a reduction in fuel tax credits and the choice to opt into the carbon pricing scheme. Agricultural producers were exempt: Australian Government (2013).

of Australia's primary surveys on motor vehicles draw the boundary between light and heavy freight vehicles at 3.5 tonnes.⁷¹ A 3.5-tonne vehicle might be a very large van, or a small rigid truck, both of which might be used primarily for business purposes.

There are also more than 3.5 million light commercial vehicles registered in Australia that were constructed to carry goods or specialist equipment.⁷² This includes vehicles such as panel vans and utes, which weigh less than 3.5 tonnes. And many light passenger vehicles are also used for business purposes, such as taxis and delivery vans.

The preferential tax treatment of heavier vehicles is also inefficient.

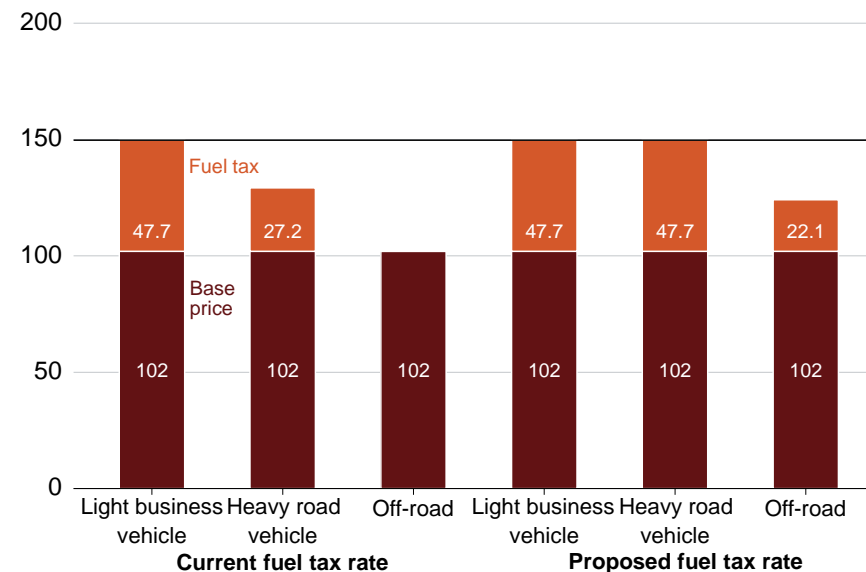
First, heavier vehicles do much more damage to our roads than light vehicles, yet pay less fuel tax. Vehicles that weigh more than 4.5 tonnes account for about 94 per cent of deep road wear, whereas light vehicles do very little damage to roads.⁷³

Second, the preferential tax treatment of heavier vehicles makes goods or services that are transported by heavy vehicles artificially cheaper than goods or services transported in lighter vehicles. This affects the prices of goods, and may encourage businesses to purchase heavier vehicles to minimise their tax burden.⁷⁴

Under our proposal, heavy and light on-road vehicles would pay the same rate of tax, removing these inefficiencies (Figure 2.5). The difference in fuel tax between off-road and on-road users reflects that off-road users do not have to pay a road user charge.

Figure 2.5: Our proposal would remove the unfair tax advantage for heavy vehicles

Effective diesel price, cents per litre



Note: Diesel price as at December 2021.

Sources: Department of Climate Change, Energy, the Environment and Water 2022; ATO 2022b.

71. ABS (2021a) and ABS (2020).

72. ABS (2021a).

73. National Transport Commission (2021, p. 49).

74. At the margin, the higher tax for smaller vehicles could encourage the use of rail, since diesel used for rail also attracts the full fuel tax credit; however, the scope to substitute between road and rail freight is very limited: Terrill et al (2022, pp. 8–9).

A natural question is whether light business vehicles would be paying too much fuel tax under our proposal, since they do less harm than heavier vehicles. But light vehicles are not without costs.

In fact, the harm done by light vehicles also clearly exceeds the fuel tax rate of 47.7 cents per litre in 2023. For petrol cars, the damage can be expressed in monetary terms at 49.3 cents per litre (and for diesel utes and other light vehicles, at 52.1 cents per litre), comprising:

- 17.3 cents per litre for petrol and 20.1 cents per litre for diesel, for the cost of carbon emissions;⁷⁵
- 32 cents per litre for road construction and maintenance.⁷⁶

2.4 A simplified tax

A reduction in the fuel tax credit rate would also reduce regulatory costs for businesses and government.

Compared with other taxes, fuel tax is very simple to implement and enforce. It is collected from producers or importers of fuel, at the point it leaves their refinery, terminal, or storage depot, and is already built into the price at the bowser. This makes it very difficult to evade, and simple to enforce.

Fuel tax credits require more effort: businesses calculate how much they are owed in fuel tax credits, and report that amount to the Tax Office in their regular business activity statements. The Tax Office conducts regular audits to ensure businesses are complying with their tax obligations and calculating their credits correctly. The National Transport Commission calculates the RUC on the basis of full cost

75. A \$75 per tonne carbon price translates to 17.3 cents per litre for petrol cars, and 20.1 cents per litre for diesels.

76. Grattan analysis of National Transport Commission (2019) and ABS (2020); and BITRE. See Appendix A for further detail.

recovery of the road construction and maintenance costs attributable to heavy vehicles.

Under our proposal, businesses and government would both have a lighter compliance burden.

Businesses would continue to pay fuel tax at the bowser, but those businesses only using heavy vehicles on-road would no longer need to calculate their fuel tax credit amount. Businesses using vehicles both on- and off-road would only need to calculate their off-road credits.

This tax simplification is a further argument not to charge the full on-road cost for heavy vehicles, which we estimate to be 59.8 cents per litre. A simple removal of the credit for this class of user would constitute a meaningful reduction in regulatory burden.

Businesses would also no longer need to calculate the share of their on-road fuel used for powering auxiliary equipment. Fuel used for auxiliary purposes, such as for refrigeration, does not currently incur a road user charge. The different effective tax rates for fuel used to propel the truck and to power auxiliary equipment require the business to calculate the share of fuel used for each purpose. While the Tax Office provides simple rules to calculate this, businesses typically claim well above the recommended amounts.⁷⁷ Fuel used in auxiliary equipment in road vehicles should not be eligible for the fuel tax credits, and should be taxed at the same rate as all on-road fuel. This would simplify the administration of the scheme.

Recommendation 3

The on-road fuel tax rate should apply to all fuel used on-road, including fuel used for powering auxiliary equipment.

77. National Transport Commission (2021, p. 61).

Under our proposal, businesses would also be better placed to predict their RUC costs. The model the National Transport Commission currently uses to recommend the rate of the RUC depends on road expenditure in any given year. But the costs associated with road construction and maintenance fluctuate substantially year-on-year, because a single large project can have a large effect on overall spending, and because road investment decisions are often only weakly connected to need or economic efficiency.⁷⁸ Indexing to CPI, rather than expenditure, would help to smooth out the costs incurred by businesses over time.

Under our proposal, government administration would also be simplified. Removing the credit for on-road vehicles would remove or reduce the need for the National Transport Commission to calculate and recommend the rate of the RUC each year.⁷⁹ Federal transport ministers have not followed the Commission's advice for several years, instead choosing to minimise cost increases and under-recover for expenses attributed to heavy vehicles.⁸⁰ This has meant that the gap between the estimated cost base and revenue has grown over time, from 11.4 per cent in 2019-20 to 38.7 per cent in 2023-24.⁸¹

Under our proposal, there would be a one-off increase to the rate of fuel tax paid by heavy vehicles, and that amount would then be indexed to CPI. This change would be timely, because the ABS Survey of Motor Vehicle Use, which the National Transport Commission uses in its modelling, has recently been discontinued.⁸²

78. Terrill et al (2016).

79. Some method of regularly updating states' heavy vehicle registration charges would still be needed, but this could be achieved by indexing current rates and conducting periodic reviews.

80. Expenses are collected two years after the time period that they are estimated. This means that some over- and under-recovery would be expected even if ministers followed the recommendation of the National Transport Commission.

81. National Transport Commission (2022a).

82. ABS (2020).

3 The impact on households and businesses would be very limited

Reforming fuel tax credits could make a meaningful dent in the structural budget deficit, and also help end a longstanding failure to properly account for the damage caused by carbon emissions and air pollution from burning diesel fuel.

Savings in the order of \$4 billion per year do not come without some costs, but the impacts on households' cost of living would be very small.

The impacts on businesses that receive the credit would also be very small. In part that is because the increment to costs would be so small, comparable to normal fluctuations in fuel prices. It's also because many businesses don't claim the credit, particularly small and medium businesses. And while there would probably be a small impact on exports, Australian businesses face very low effective taxes on carbon by international standards – at least for now.

3.1 Impacts on households' cost of living would be very small

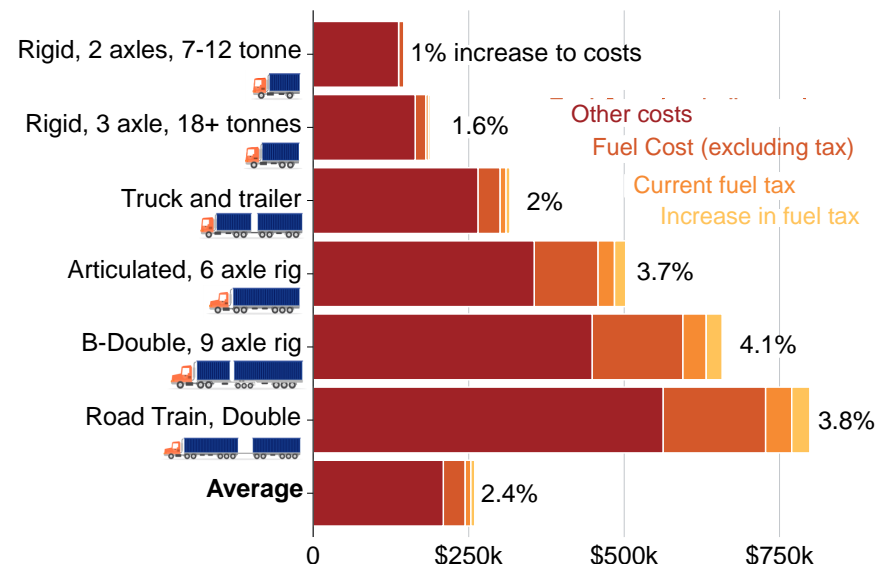
Households spend their incomes on all sorts of things, expressing what they need, what they like, and what they can afford. The largest categories of consumption are housing, which accounts for 24 per cent of the typical CPI basket of goods and services, followed by food and non-alcoholic drinks, at 17 per cent, and transport, at 11 per cent.⁸³

Grattan Institute analysis indicates that the price of a \$100 shop at the supermarket would rise to \$100.35 if our fuel tax credit reforms were introduced. This price increase would arise for two reasons.

First, the cost of freighting goods would go up, by about 0.1 of 1 per cent, or 10 cents for a \$100 item. That's because a reduction in fuel

83. ABS (2021b).

Figure 3.1: The increase to transport costs would be very small
Annual operating costs of common heavy vehicles



Notes: Trucks were selected to reflect the most common type within broad size categories. 2020 prices. The average cost is a weighted average that reflects the share of different truck types in use.

Source: Grattan analysis of National Transport Commission 2020.

tax credits would increase the cost of operating a truck by an average of 2.7 per cent (Figure 3.1), and the cost of freighting a good typically accounts for about 5 per cent of the final retail price.⁸⁴

Second, the cost of food and other products that derive from Australian agriculture would increase by 0.5 of 1 per cent. This reflects that costs

84. See, for example, Productivity Commission (2006, F.1), and BITRE (2001, p. 28).

to the agricultural industry would increase by just under 1 per cent, and these costs make up about half of the final price paid by consumers. Meat, dairy, fruit and vegetables, most of which are produced in Australia,⁸⁵ make up about half the cost of a typical trolley's worth of goods.⁸⁶

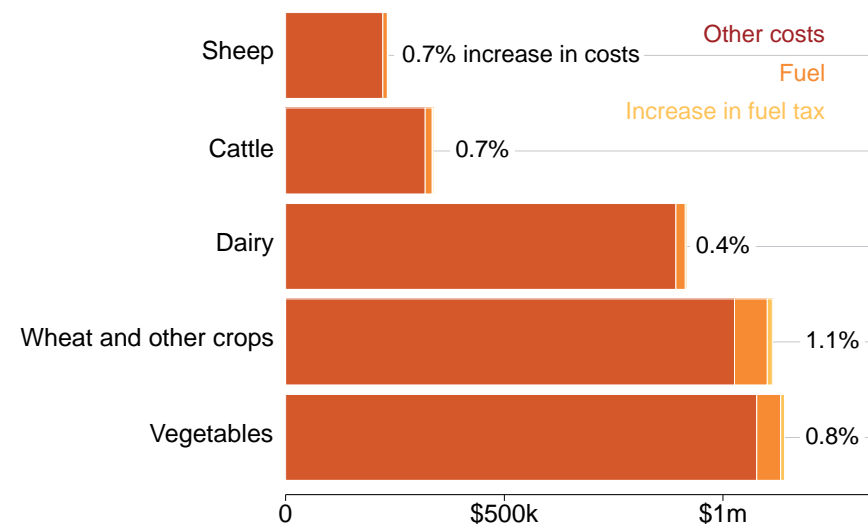
Fuel accounts for about 5 per cent of farm production costs on average, and the estimated increase in costs would generally be below 1 per cent for sheep, cattle, dairy, and vegetable growers, and slightly above 1 per cent for growers of crops such as wheat (Figure 3.2). These differences reflect the different fuels and fuel intensity of different crops. For example, heavy machinery used in the production of wheat and other crops currently relies on diesel, while it's more common for dairy farming to use electricity. Depending on the suitability of land, the accessibility of technology, and consumer demand, farmers can also change the mix of commodities they produce.⁸⁷

Other household costs would also increase if fuel tax credits were reduced, but again, the increases would tend to be very small.

Lower-income households typically spend a larger proportion of their income on groceries and other essentials. We estimate the increase in costs for the 20 per cent of households on the lowest incomes would be 0.1 of 1 per cent, equivalent to an average of \$45 per year. The percentage increase for higher income households would typically be slightly lower, although the dollar increase would be higher, at an average of about \$108 per year.⁸⁸

Figure 3.2: The average increase in costs to farm businesses would be very small

Annual operating costs of the average farm, 2021 dollars



Notes: All fuel is assumed to be used in off-road production activities. Costs for vegetable farms was inflated from 2017 dollars to 2021 dollars.

Sources: Grattan analysis of Weragoda et al 2017; ABARES 2022a; and ABARES 2022b.

85. Rural Industries Research and Development Corporation (2016, p. 23).

86. Oo (2022).

87. Cameron and Greenville (2022, p. 7).

88. Grattan analysis of ABS (2016, Equivalised disposable household income).

3.2 Impacts on business would be very small

The costs to business of our recommendations would be concentrated in certain industries. That's because about 45 per cent of the value of fuel tax credits is paid to businesses in the mining industry, and 88 per cent goes to just five of 19 industries: mining, agriculture, transport, construction, and manufacturing.

But the actual increment to business costs would be extremely small.

Grattan Institute analysis indicates that the impacts on business costs of our recommendations would generally be at or below 1 per cent for most business types in these five industries.

Such impacts are comparable to or lower than normal fluctuations in fuel prices. It is not unusual for the price of diesel to fluctuate by 30 cents per litre between years (Figure 3.3), and it has also been pretty volatile over the very long term.⁸⁹ By contrast, we recommend reducing fuel tax credits by 22.1 cents per litre for heavy on-road vehicles.

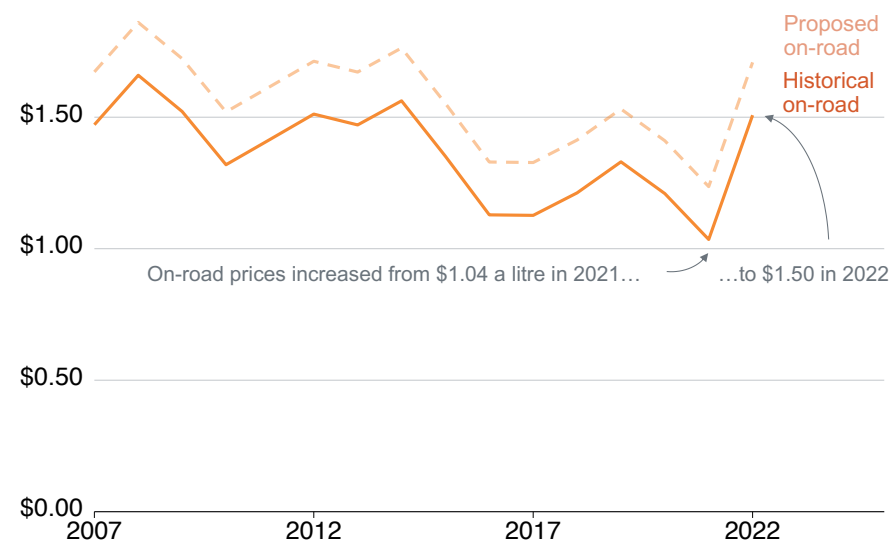
The following two subsections focus in more detail on the expected impacts on two business segments of particular concern: small transport businesses, and exporters.

3.2.1 Many smaller businesses don't claim fuel tax credits

While the increase in business costs would generally be small, larger average increases to costs are likely to occur in the transport, postal, and warehousing industry, particularly for micro, small, and medium-sized businesses (Figure 3.4 on the following page).

On the one hand, the true situation may be less concerning than the data would suggest, because, in reality, small businesses mostly don't claim fuel tax credits.

Figure 3.3: There have always been big fluctuations in the price of fuel
Average annual diesel prices, historical and with our proposed reduction in credits



Notes: Historical annual average national prices paid by eligible businesses operating vehicles heavier than 4.5 tonnes on public roads, reported in 2022 dollars. Price is the national average bowser price, minus GST and with the average annual fuel tax credit applied, but before further tax deductions are applied to the remaining cost of fuel. In March 2022 the fuel excise was halved for six months, reducing the average price for that year.

Sources: ATO 2014; ABS 2022a; Australian Institute of Petroleum 2022; ATAP 2022; ATO 2022b.

89. BITRE (2016, p. 3).

In the five key industries for fuel tax credits, the great majority of large businesses, with turnover of \$100 million or more per year, claim credits. In agriculture, mining, and transport, almost all such large businesses claim. By contrast, only a tiny minority of small firms, with turnover up to \$200,000, claim fuel tax credits (Figure 3.5 on the next page).

This effect is particularly striking in the transport, postal, and warehousing industry, where almost none of the many businesses with turnover up to \$50,000 per year claim fuel tax credits, whereas almost all of the very few businesses with turnover of more than \$100 million claim credits.

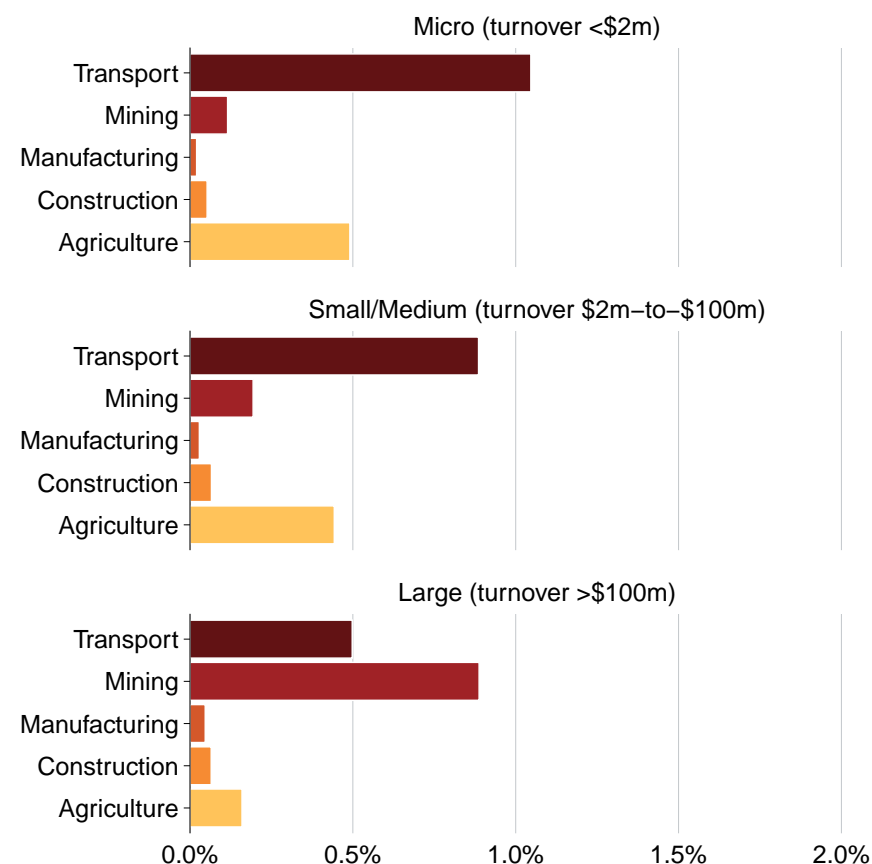
There are several circumstances where businesses cannot claim fuel tax credits, and these may apply more commonly to smaller than larger businesses. One is where they are operating vehicles weighing 4.5 tonnes or less, since the diesel used in these vehicles does not attract fuel tax credits. And even if they are operating vehicles heavier than 4.5 tonnes, business operators may not claim fuel tax credits because their trucks are pre-1996.⁹⁰ Operators can only claim credits for pre-1996 trucks if they meet the pre-1996 maintenance or emissions criteria, as explained in Section 2.2.2.

The effect is similar for mining: the few mining businesses that are particularly large all claim credits, while only 9 per cent of mining businesses with turnover less than \$50,000 per year claim.

On the other hand, however, small transport, postal, and warehousing businesses could be negatively affected, because the industry operates on tighter margins and has higher rates of churn than some other industries in Australia.

Of 19 industries in Australia, the transport industry has the highest rates of business entry and exit. In June 2019, more than 25 per cent

Figure 3.4: The average increase in costs for business would be small
Estimated increase to costs, by industry and business size



Notes: Expenses adjusted to 2020-21 dollars. Assumes 70 per cent of the value of credits in the transport, postal, and warehousing industry, and 2 per cent for all other industries, is for on-road use. This sums to the total on-road share of credits, which is estimated to be 16.4 per cent.

Source: Grattan analysis of ABS 2019 with ATO 2021b.

90. National Transport Commission (2021, p. 61).

of businesses in the transport industry had started within the past year, compared to about 17 per cent across all industries. And of existing transport businesses in June 2018, about one-fifth had closed-down by June 2019, compared with 13 per cent across all industries.⁹¹

High levels of business exit may reflect the low costs of starting a business, a lack of commercial sophistication by new operators leading to underquoting,⁹² and a high share of low-turnover firms, which are more likely to close down,⁹³ among other reasons. Business exits were much more likely for newer firms, and firms with lower turnover.⁹⁴

Many trucking businesses also report difficulty passing on fluctuations in costs, particularly smaller operators.⁹⁵ More businesses report that they can pass on increases in the price of fuel, at 34 per cent, than can pass on increases to registration charges, at 16 per cent.

Agriculture and mining, by contrast, have below-average rates of business exits.⁹⁶

Given these concerns, the government should phase in a reduction in credits in such a way as to help small businesses adapt. It could do this by implementing a reduction in the fuel tax credit, while at the same time offering a time-limited grant scheme, transparently on-budget, to affected businesses. Since the vast majority of transport companies have turnover below \$2 million per year, and their average annual claim is \$8,336 (and for agriculture it is \$5,768), such grants should be

91. We report the 2019 financial year to reflect the period before COVID, but rates do not vary substantially across years. Across four years to June 2022, the annual entry rate for transport was 25 per cent, and the exit rate was 20 per cent. Across all industries, the entry rate was 17 per cent, and the exit rate was 13 per cent.

92. Korda Mentha (2012).

93. ABS (2022c).

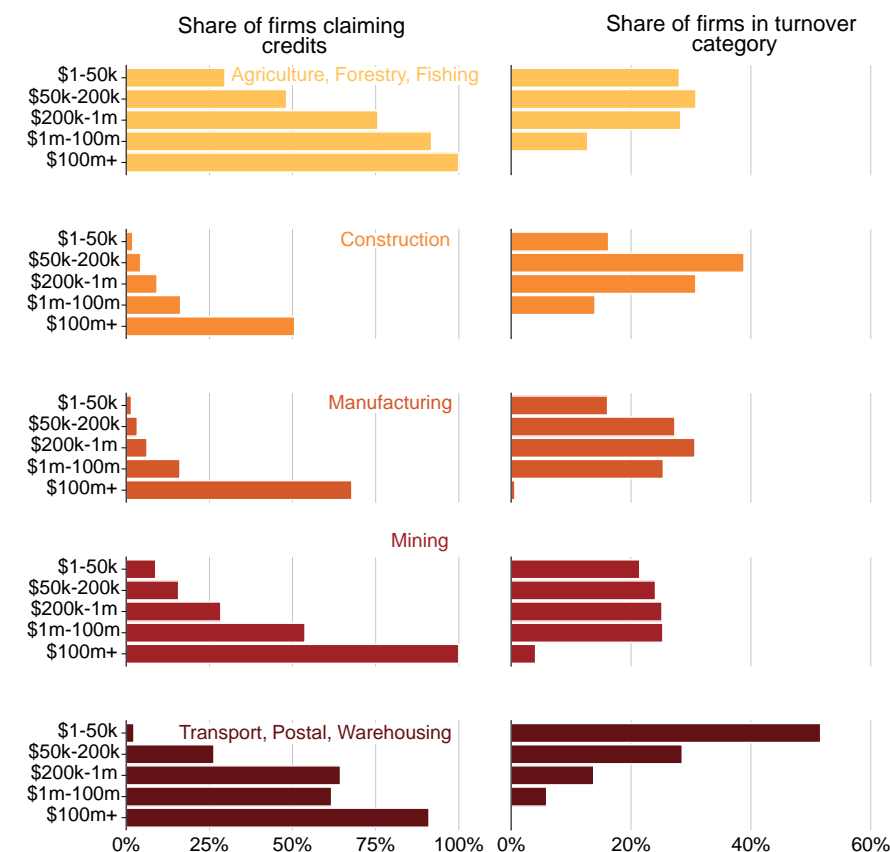
94. Ibid.

95. Australian Trucking Association (2016).

96. ABS 2022c and ABS 2022d. These averages might mask important differences between businesses within each industry.

Figure 3.5: Larger businesses are much more likely to claim credits

Share of businesses, by industry and turnover band



Note: Shares of firms claiming credits should be treated as approximations only, due to differences in counting practises between datasets.

Source: Grattan analysis of ABS 2019 and ATO 2021b.

capped at \$10,000 per business in the first year, \$7,000 in the second year, \$3,000 in the third year, and zero thereafter.⁹⁷

This would provide sufficient time for businesses to factor increased prices into their contracts and cash-flow management,⁹⁸ protect smaller and newer businesses which are more marginal, but retain most of the budget saving. Monitoring would be required to ensure businesses did not restructure to claim additional grants during the transition period.

A slower implementation could be achieved by halting the indexation of fuel tax credits, while retaining indexation of the fuel tax rate. Naturally this would have a delayed impact on the structural deficit in the federal budget, but it would allow businesses plenty of time to adapt.

Since the final price of fuel would increase by a standard amount across the industry, price increases should not affect the relative competitiveness of any business. As shown in the previous section, the small nature of these cost increases would mean that even a full pass-on of costs would have only a tiny impact on the prices faced by consumers.

3.2.2 Exporters would still face a low effective carbon price by global standards – for now

Fuel tax credits are substantially directed to export industries. Mining businesses receive 45 per cent of credits, and export the great majority of their products;⁹⁹ while agriculture businesses receive about 12 per cent, and export about 70 per cent of their products by value.¹⁰⁰

97. ATO (2021b).

98. The industry says fuel tax credits are used by many operators to manage their cash-flows, because the fuel expense and credit occur in different time periods: Wright 2022.

99. Minerals Council of Australia (2022).

100. ABARES (2022c, p. 6).

The usual tax orthodoxy is that if Australia increased its domestic tax on an exported good, there would be a reduction in the quantity of that good exported, because Australian businesses generally do not determine the price at which they sell goods and services overseas. But because the increase in domestic tax that our recommendations imply is very small, the reduction in the quantity of goods exported would also be expected to be very small.

In the particular instance of a reduction in fuel tax credits, the expected small reduction in the quantity of exports is of limited concern for two reasons.

First, Australia's implied carbon tax on fuel is very low by international standards (Figure 3.6 on the following page). Australia's implied tax on fuel per tonne of carbon from fuel is in the bottom quarter of OECD countries for both on- and off-road use.

Second, the writing is on the wall for the advantage that fuel-intensive Australian exporters currently enjoy. Countries are increasingly instituting mechanisms to push economic activity towards lower-emitting practices. For instance, nearly all OECD countries have committed to net-zero emissions by 2050, and the organisation's International Programme for Action on Climate supports countries' efforts to strengthen and coordinate their climate actions.¹⁰¹ This is important because OECD countries are the destination for about 35 per cent of Australia's exports.¹⁰²

Major markets including the EU, the UK, the US, and Canada – destinations for more than 10 per cent of Australian exports – are already adopting or planning to adopt policies known as Carbon

101. OECD (2021).

102. ABS (2021c).

Adjustment Border Mechanisms, or CBAMs.¹⁰³ CBAMs impose a tax at the border on the carbon content of certain imported goods, with the goal of putting producers on a level footing regardless of the carbon taxing regime in their country. Europe's CBAM is explained in Box 6 on the next page.

Back in 2009, there was support for some level of assistance going to emissions-intensive trade-exposed industries in Australia, to prevent 'carbon leakage' – production moving offshore to countries with higher emissions intensity of production.¹⁰⁴ The latest planned reforms to the Safeguard Mechanism include \$600 million in funding for trade-exposed businesses to reduce their emissions, and concessions for a small number of highly affected businesses.¹⁰⁵

3.3 Fuel tax credits are a political gift

It is difficult to avoid the conclusion that fuel tax credits have been conceived as a political gift.

In 1999, the Nationals' then federal leader John Anderson said fuel tax credits were intended to reduce transport costs, particularly for

those people living in regional, rural, and remote areas, where transport costs are a significant part of the cost of living and doing business.¹⁰⁶

In 2004, the then minister for industry, Ian Macfarlane, said fuel tax credits were:

103. Trade data from ABS (2021c); see UK Environmental Audit Committee (2021), European Parliament (2022), Whitehouse (2022) and Government of Canada (2021) regarding policies in the EU, UK, US, and Canada, respectively.

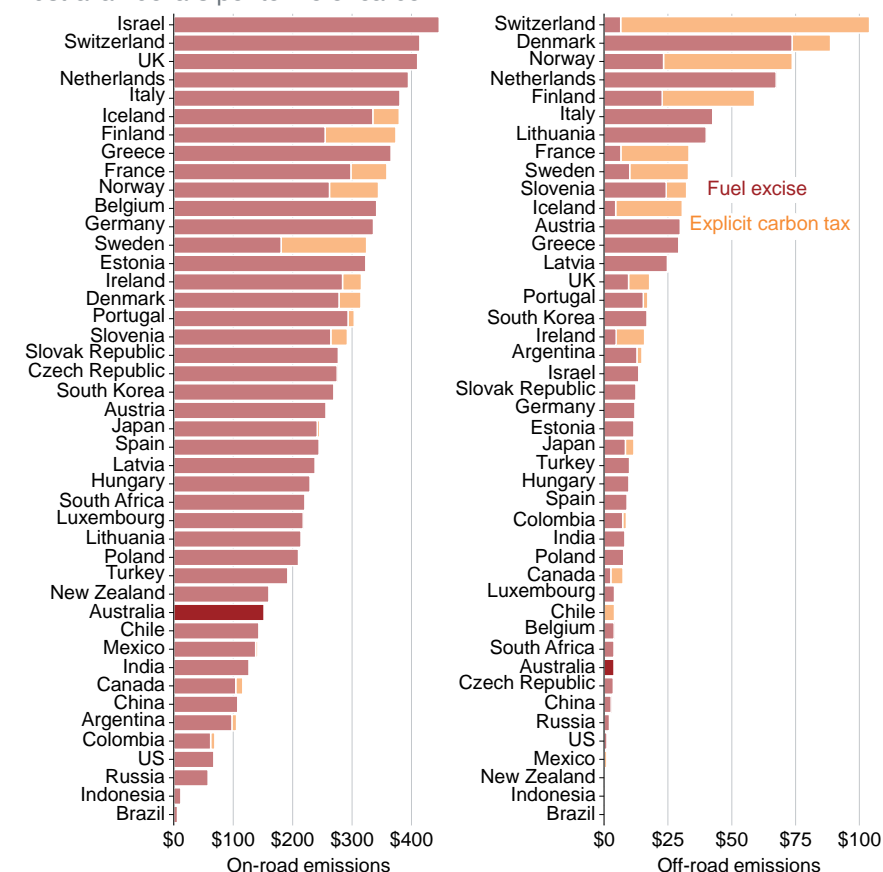
104. Wood et al (2022, pp. 19–22).

105. DCCEE (2023, pp. 41–48).

106. Anderson (1999).

Figure 3.6: By international standards, Australia's fuel taxes imply a very low per-tonne price on carbon

Australian dollars per tonne of carbon



Notes: Excludes emissions from biofuel. 2018 tax rates as applicable on 1 July 2018. Assumes full value of fuel excises is an indirect carbon tax.

Source: OECD 2019.

money in the pocket for thousands of rural businesses and consumers.¹⁰⁷

In 2006, the then assistant treasurer, Peter Dutton, introduced the latest iteration of the credit, and said:

The new fuel tax credit system will... remove the burden of fuel tax from thousands of individual businesses and households. This is good news for business and regional Australia in particular.¹⁰⁸

But despite repeated claims that credits benefit regions, there is no evidence that fuel tax credits deliver substantial benefits to regional Australia. In fact, the Fuel Tax Inquiry noted that:

no analysis has been undertaken to establish the benefits to rural and regional areas of the tax concessions and whether they could be achieved at lower cost by other means.¹⁰⁹

And more than 60 per cent of businesses in the top-five industries that receive the vast majority of credits are in major cities, where two-thirds of their employees are also based.¹¹⁰

Most small businesses, whether rural or otherwise, do not benefit from fuel tax credits, and to the extent that fuel tax credits are a political gift, it is large businesses that benefit.

If supporting the mining industry, and/or directing funds to regional areas, are the real goals, this should be weighed up against more targeted measures to achieve these goals, and also against the pressing need to tackle the structural budget deficit.

107. Macfarlane (2004).

108. Dutton (2006).

109. Trebeck et al (2002).

110. ABS (2019) and ABS (2022e).

Box 6: The European Carbon Border Adjustment Mechanism

In December 2022, the European Parliament agreed to place a levy on the embedded carbon content of certain imports, a policy known as a Carbon Border Adjustment Mechanism, or CBAM. The CBAM puts European producers, who face a higher carbon price, on a fair footing with producers in other countries, who face a lower or no carbon price. The goals are to prevent 'carbon leakage', to counteract the advantage that some countries give to their carbon-intensive exports, and, more broadly, to encourage cleaner industrial production in non-European countries.^a

The CBAM is being phased in between 2023 and 2026, and initially will apply just to electricity, iron and steel, cement, aluminium, fertilisers, and hydrogen.^b It is part of Europe's commitment to reduce carbon emissions by 55 per cent by 2030.

CBAMs require the price of carbon to be disentangled from other taxes on fuel, such as fuel excise, which increases the price of emitting carbon but is not an explicit carbon tax.^c

Support for CBAMs is growing: they are being negotiated in major markets, including the UK, the US, and Canada.^d Alternative trade mechanisms to combat carbon leakage include a global minimum carbon price,^e and the creation of 'climate clubs' with mutual agreements on decarbonisation.^f

a. European Parliament (2022).

b. European Commission (2023).

c. The EU has been reluctant to recognise fuel taxes as a carbon price.

d. UK Environmental Audit Committee (2021); Whitehouse (2022); and Government of Canada (2021).

e. Advocated by the International Monetary Fund and World Trade Organisation.

f. For example, the proposed US-EU Carbon-Based Sectoral Arrangement on Steel and Aluminum Trade aims to establish common definitions of low-carbon steel through mutual trade arrangements: White House (2021).

Appendix A: How we estimated user charges for light business vehicles

This appendix shows how we estimated how much a user charge for light business vehicles would be, if light business vehicles were charged the same way as heavy vehicles for their share of road maintenance and construction costs.

Our estimate is that the required per-litre charge for light business vehicles would be 32 cents per litre.

This estimate is derived by dividing the total fuel consumed by light business vehicles by the total amount to be recovered from light business vehicles.

Total fuel consumed by light business vehicles

Total fuel consumed by light vehicles in 2018-19 was 26.4 billion litres.

Total amount to be recovered from light business vehicles

The National Transport Commission estimates the amount of the revenue that should be collected from registration fees and road-user charges. It estimated that the cost base for heavy vehicles (that is, the amount they cost in road maintenance and construction) in 2018-19 was \$3.7 billion, or 22 per cent of the total. The cost base for light vehicles was therefore \$12.9 billion (78 per cent).

The component of the total cost base covered by registration fees was \$7.5 billion in 2018-19. Heavy vehicle registration fees were \$1.5 billion. Light vehicles registration fees were therefore \$6 billion.

The gap between the light vehicle cost base (\$12.9 billion) and the registration fees paid by light vehicles (\$6 billion) in 2018-19 was \$6.9 billion. This was the amount that should be recovered through a road user charge.

The required per litre charge for cost recovery in 2018-19 therefore was 6.9 billion (dollars) divided by 26.4 billion (litres), which amounts to 26.1 cents per litre.

Between 2018-19 and 2020-21, the cost base for heavy vehicles increased by 24.1 per cent. This would have led to an increase in the per litre road use charge for light vehicles to 32 cents per litre in that year, if transport ministers had accepted the recommendation of the National Transport Commission to reflect that increase in an increased road user charge.

This is an average across all light vehicles, and may not perfectly reflect the costs for light vehicles that are used for business purposes.

Appendix B: How we estimated the budget saving

This appendix shows how we estimated the budget saving associated with our proposal.

Share of fuel tax credit expense for on- and off-road use

In 2020-21, the road user charge is estimated to have raised \$1.9 billion. At the time, the road user charge was 25.6 cents per litre, implying that about 7.4 billion litres of fuel were used on-road by businesses eligible for the credit.

The fuel tax credit rate for on-road vehicles in that year averaged 16.7 cents per litre. The total amount of fuel tax credits for on-road is therefore \$1.2 billion. This is 16.4 per cent of the total amount of credits (\$7.8 billion). The remaining 83.6 per cent relates to off-road use. We assume that this ratio holds in all future years.

Cost saving in the 2022-23 financial year

In 2022-23, the total cost of credits for on-road users was \$1.3 billion (16.4 per cent of \$7.8 billion). Under our proposal, the on-road credit is reduced to 0, so the government saves this full amount. For off road-use, the total cost of credits was \$6.5 billion (83.6 per cent of \$7.8 billion). Under our proposal, off-road users would receive a reduced fuel tax credit, down from 46.85 on average cents per litre to 24.75 cents per litre. This reduces the expense by 48 per cent, or \$3.1 billion.

This results in a total cost saving of \$4.4 billion.

Tax deductions

Assuming an average marginal tax rate of 30 per cent, tax deductions on the additional fuel expenses incurred by businesses would reduce the total fiscal saving to about \$3 billion in 2022-23. This number is

lower than usual because the temporary halving of the fuel excise also reduced the amount of fuel tax credits.

Savings in future years

For future years, we use the same method described above, and Treasury's estimated fuel tax credit expenses for a given year. We index our proposed taxation rates to CPI. This results in an estimated saving of \$3.9 billion in 2023-24, \$4.1 billion in 2024-25, and \$4.4 billion in 2025-26.

Charging at the full 'externality' cost

If businesses' fuel was taxed at the full rate of the costs that their use of that fuel imposes on the community, as detailed in Chapter 3, the total fuel tax paid by heavy vehicles used on-road should be 61.8 cents per litre. This would result in an additional \$0.8 billion per year in budget savings, after accounting for additional tax deductions.

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