

# Freight Energy Productivity Program

## Industry Consultation Information Pack



This project received funding from the Australian Government's Freight Energy Productivity Program. The views and opinions expressed in this information are those of the authors, and do not necessarily reflect those of the Australian Government.

# The Freight Energy Productivity Program (FEPP)

The Freight Energy Productivity Program (FEPP) comprises \$24.5M to support improved energy productivity in the heavy vehicle road freight industry.

*The FEPP is designed to:*

- co-invest with road freight businesses with heavy vehicle fleets, to overcome barriers to improving energy productivity
- raise awareness of the benefits of improved energy productivity in the heavy road freight sector
- provide the evidence base for, and increase the capacity of freight operators to make ongoing decisions on productivity improvements in their heavy road vehicle fleets

*Elements that are in scope include:*

- Co-investment grants for companies that operate heavy vehicles moving goods (rigid or articulated, greater than 4.5 tonnes gross vehicle mass) in their fleet. Co-investment grants could include:
  - Trials of a range of technologies (and practices) with potential to increase the efficiency of heavy road freight vehicles that have not undergone objective testing and verification under Australian conditions. Funding would mostly be for expertise, with limited funding for testing equipment, vehicle modifications or vehicle hire
  - Expert advice for a heavy road freight business to:
    - collect and analyse data on operations and quantify opportunities to increase their energy efficiency
    - develop a business case to have fleet improvement projects approved and financed
  - Certification for operators, if a certification scheme was introduced under the FEPP to encourage improvements in energy productivity of heavy road freight fleets or trucks
- Effective dissemination of information on energy productivity measures, their costs and benefits

*Out of Scope:*

- Commercial or other vehicles with gross vehicle mass under 4.5 tonnes e.g. vans, utes, cars
- Other modes of transport (rail, shipping, air) or others purposes (non-freight such like buses)
- Funding of vehicle purchases or charging/refuelling infrastructure as part of trials
- Government subsidies or financial incentives



# What is energy productivity?

Energy productivity is a measure of the productive value generated (output) per unit of energy used (input). At a vehicle or fleet level, it could be considered as the revenue generated per litre of fuel. At a sectoral level, energy productivity and energy intensity in the road freight sector have been relatively stagnant since 2011.



How is energy productivity measured and tracked in your organisation or in your customer's fleets?



## Both a problem and opportunity

Transport is already the largest energy using sector in the economy, and the freight task is projected to increase strongly over the next decade. Currently, most of this energy is derived from non-renewable fuels, the combustion of which produces greenhouse gas emissions. This has led to an overall increase in emissions associated with heavy freight vehicles (Figure 1 below, referenced against 2005). Without improvements in energy productivity, emissions will continue to increase.

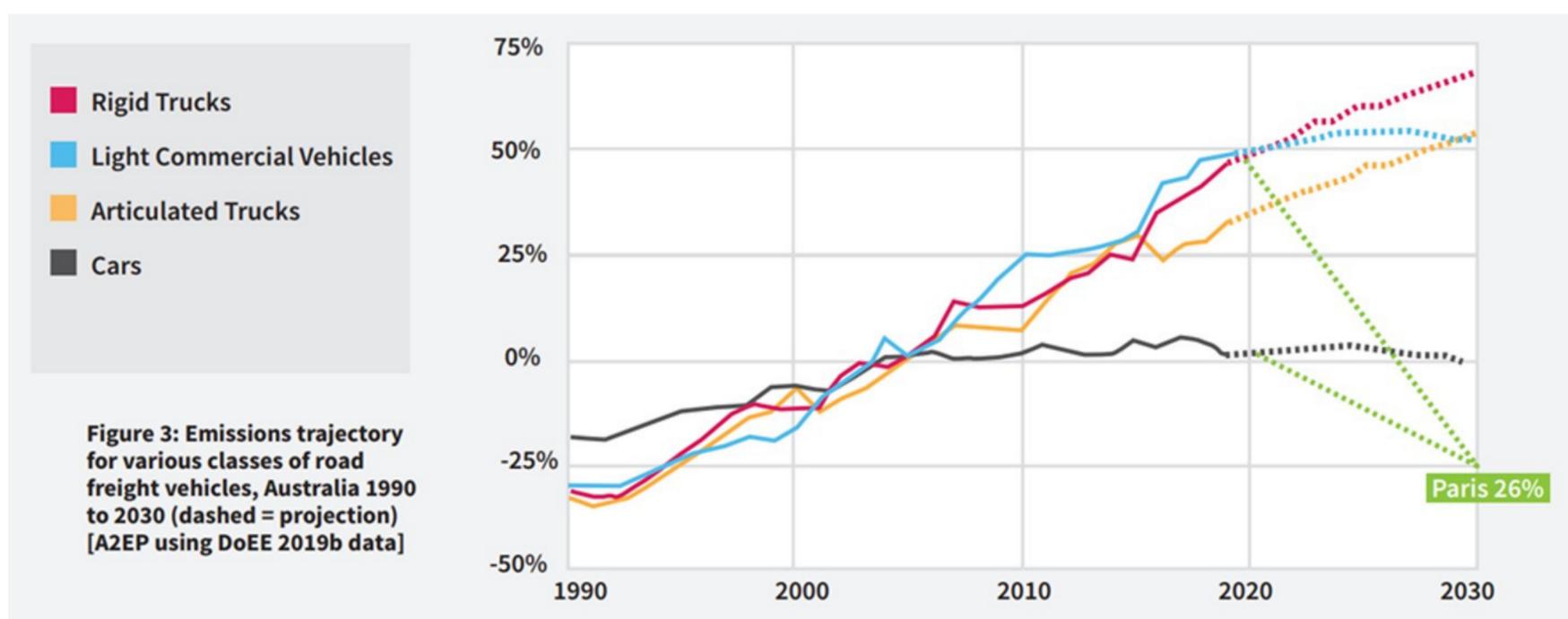


Figure 1: Actual and projected (dotted) growth in Australian vehicle emissions 1990–2030, vs 2005 (A2EP, 2021)

# Energy Productivity

There are proven, cost-effective pathways to improve energy productivity (see Figure 2). These bring many co-benefits such as lower operating costs for fleets, reduced greenhouse gas emissions, less air pollution and associated health costs, improved energy security, better road safety, and in some case more local jobs.

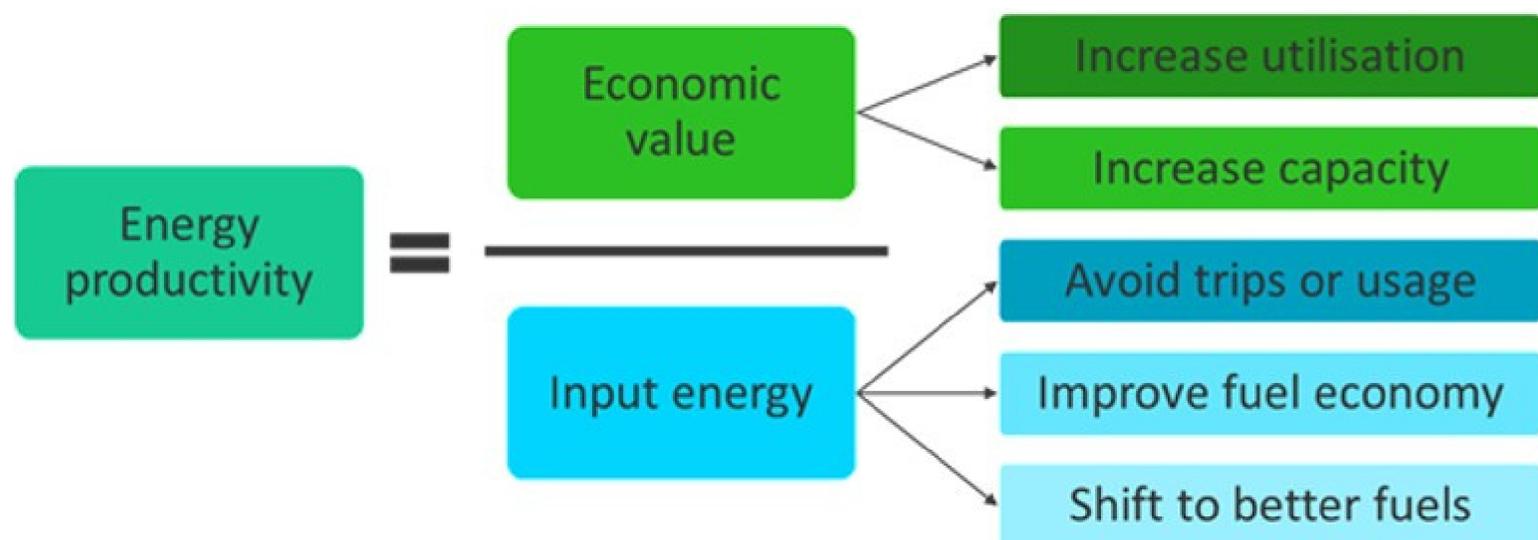


Figure 2: Pathways to improved energy productivity in road freight

However, despite the apparent cost-effectiveness of many of the known opportunities, market adoption of these continues to be low. This disparity is best explained by the structure and characteristics of the road freight sector, as well as a range of barriers and market failures.

Structural factors include a majority of very small operators (owner-drivers and small fleets) who are not experts in complex energy analysis; and an old and ageing national truck fleet. These are compounded by other barriers summarised in the table below.



Which segments of the road freight sector are best suited to improve and invest in energy productivity?

What kind of support do they need?

# The barriers

Table 1: Typical barriers to improving energy productivity in road freight

Barrier		Potential remedy
Information gaps	Lack of credible information about energy efficiency opportunities is a major barrier in the transport sector (ATC, 2009) (ACEEE, 2016), resulting in poor decisions or a slow rate of improvement in energy efficiency. This can include a lack of independent trials, testing and/or research.	<b>Trials, Case studies, Resources, Information portal, Accreditations/ratings, Benchmarks, Regulations/MEPS</b>
Information asymmetry	An example is when fleets have less information about performance or efficiency than suppliers do, or when only the best case scenario is promoted, or there is contradictory information from different suppliers	<b>Accreditations/ratings, Information portal, Benchmarks, Regulations/MEPS, Freight market place, Refuellers/rechargers</b>
Split incentives	Occurs when the benefits of an investment are not captured by the party that incurs the costs of the investment, distorting the rationale for investing in improvements like productivity. An example of this is fleets passing on a fuel levy to customers, when removes the impetus to improve efficiency	<b>Accreditations/ratings, Vehicle standards, Carbon tax, Mandated Energy analysis (EEO)</b>
Access to capital	New technology tends to have a price premium. With most transport operators being small businesses operating on low margins, they are less inclined to accept financial risk and also find capital harder to secure.	Co-funding / Grants, Financing mechanisms
Policy and regulatory distortions	Australian regulations (Australian Design Rules) impose development and compliance costs, without delivering significant increase in benefits for fleet operators, resulting in operators holding onto aging fleet.	Policies, Carbon tax
Immature market for energy efficiency	A double-hit since most technology is imported after adoption in other markets; plus fleet operators tend not to hire “experts” to improve their opportunities/efficiency.	<b>Resources, Trials, Events, Benchmarking, Accreditation / Ratings, Business improvement grants, Co-Funding equipment purchase / grants</b>



What are the most significant barriers to energy productivity improvements in freight trucks?

What remedies or support could be considered to address these barriers under the FEPP?



# Learning from others to address this issue?

Australia is not alone in facing the challenge of reducing emissions from road freight. Other markets have adopted a combination of policies and programs including:

- Mandatory fuel economy / CO2 standards (minimum performance removes complexity for small operators)
- Information portals (to fill information gaps or provide trusted, independent sources)
- Financial incentives such as tax allowances or grants (to improve the business case for investment)
- Financial disincentives such as fuel taxes, carbon taxes and access fees (to monetise externalities)
- Fleet Renewal Policies
- Green Freight Programs combine various support measures for data, knowledge, and benchmarking.

Green Freight Programs typically cover a range of complementary measures such as technology trials and demonstrations; business improvement audits; information portals to disseminate case studies and other performance information; accreditations and ratings; events; and foundation research/reports. Examples of such Green Freight Programs include Smartway (USA), Green Freight Asia, LERS (UK), and Objectif CO2 (France). These overseas programs have taken years to get established, recognised, and trusted.



Have you heard of these overseas programs or used the information they provide?

Which of these programs or program elements would work in Australia?



# What do we have in Australia?

Some Australian jurisdictions have developed and implemented elements of these programs in the past, on a more ad-hoc basis and not over an extended period. Examples of past and current programs are shown below. Clearly, many elements have been developed or attempted at various times, but providing trusted information seems to be a particular focus of programs in Australia.

		Info / tools	Energy audit / baseline	Opportunity assessment	Benchmarks	Trials	Demonstration	Meetings / Events	Project / equipment funding
Retired programs	Green Truck Partnership								
	AFCP								
	NSW Fleetwise fleet support								
	NSW Fleetwise benchmarks								
	Vic Ecostation								
	Tasmanian Smarter Fleets								
	EEO								
Active programs	EEX								
	NSW Sustainability Advantage								
	SCLAA								
	Truck Buyers Guide								

Table 2: Australian green freight programs

Which of these programs were most effective or useful to your business?



What are the remaining gaps or requirements you see that could support vehicle operators?

Which areas should the FEPP focus on?

What additional information is required, and how should it be disseminated to reach more fleets?

# How can the FEPP help?

## Technology trials

Part of the reason energy productivity in road freight has stagnated is the low adoption rate of alternative fuels and fuel-saving technologies into the truck fleet. Even from a very low base, the use of alternative fuels and electrified trucks has declined further over the last decade to almost nothing.

This project considered over 60 individual technologies and practices, which were grouped into technology “packages”, as summarised in Table 3. The technology packages were assessed against five criteria to highlight the most prospective options for potential trials. The criteria included: current commercial availability; lack of independent information or case studies; cost-effectiveness; scalability; and total abatement potential. The assessment produced a shortlist of 8 areas considered most relevant for the FEPP, as shown in Figure 3.

Table 3: Technology packages and practices supporting EP pathways

Energy productivity path	Technology or practice
Increase capacity	PBS or additional trailers
Avoid usage	Routing software Idle reduction
Improve fuel economy	Cab/prime mover aero
	Trailer/body aero
	Driver coaching aids
	Transmissions
	Tyres and monitoring
Switch fuels	Hybrid powertrain
	Driver training and incentives
	Vehicle specifications
	Battery electric trucks
	Hydrogen fuel cell trucks
	Biofuelled trucks (B20/ED95)
Increase utilisation, Avoid & Improve	Gas fuelling (CNG, LNG)
	Hydrogen diesel dual fuel
	Solar panels for refrigeration
	Fleet practices

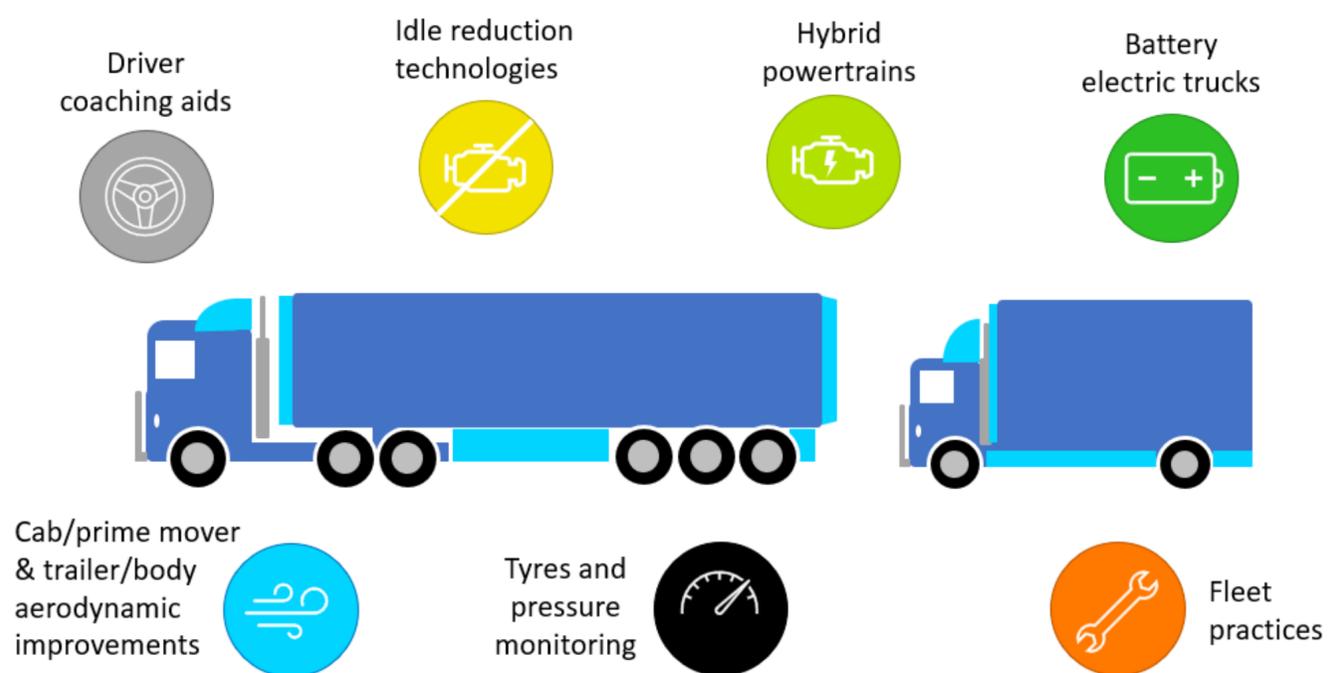


Figure 3: Top-scoring technologies for further investigation



Do you agree this is the right shortlist of technologies needing more independent trials? If not, why not?

# How can the FEPP help?

## *Business improvement support*

Programs both in Australia and overseas have provided funding for experts to conduct energy health checks, site audits and fleet assessments to help identify cost savings and efficiencies. Experience from past Australian programs is that fleets are difficult to recruit and engage (often busy running the business), and there is a lack of confidence in outside “experts”.



How can the trust / confidence barrier be overcome to provide advice to fleets?

What can government do to engage businesses and support business improvement?

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## *Accreditations and ratings*

These are widely used (buildings, food, appliances) because they are easily understood, and they work. In heavy vehicles, technology adoption is largely about confidence – in savings, reliability, certainty – and this is an area that ratings can significantly influence.

Ratings and accreditations tend to fall into one of two categories: scoring relative performance of products (e.g. star ratings and alphabetical scores); or certifying a product meets a standard (e.g. SmartWay certified). In the heavy vehicle sector, accreditations are used to increase confidence that equipment can achieve a certain level of fuel saving that operators can rely on. They have been used for entire vehicles (USA and a trial in Australia); for components like tyres (US, EU), aero devices, and idle-reduction devices; and for trailers.

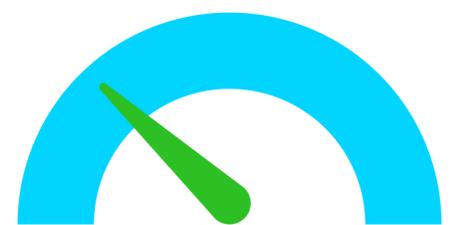
Accreditation schemes are also being used to recognise and improve vehicle operator performance, with fleet accreditation schemes operating in the UK, EU and US.

What equipment do you think would most benefit from ratings/accreditations in Australia?



What sort of accreditation or recognition scheme would you participate in?

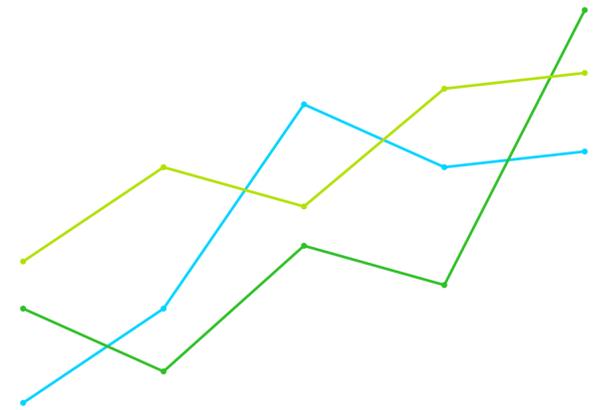
How would fleet operators benefit from an efficiency or emissions accreditation scheme?



# How can the FEPP help?

## Benchmarking and standards

Relative performance of a truck or fleet can be framed against a standard or benchmark so that operators know “what good looks like” or what to aim for. But to be widely accepted and effective, relevance of the benchmarks to the vehicle operator needs to be well understood. This requires common language and classifications.



The US, EU and UK have developed their own definitions of particular drive cycles relevant to their industry, which support lab and track testing and performance simulations.

Unlike other markets, Australia does not have a common definition of different drive cycles or duty cycles representing the different use cases trucks operate in. Terms like “local pick-up and delivery” or “regional haul” are used without a quantitative definition of what that means. This makes comparison difficult because differences in test conditions or environmental factors aren’t quantified, affecting confidence in and interpretation of the results.



How do fleets compare their performance or productivity with others doing similar work? Do they use benchmarks?

What is required to understand the relevance of test/trial results to real world fleets?

We look forward to engaging with you.