

Zero emissions for our local government fleet

We are seeking the Federal Government to achieve a greener transport sector by:

1. Investing in research and development projects to pilot zero emission alternatives for Councils' heavy vehicle fleet and support the introduction of new technologies in Australia.
2. Partnering with Banyule City Council to financially support Council's EV fleet conversion (e.g. power upgrades, charging station installations).
3. Partnering with local government to find solutions for different fleet and plant and financially support the pilot of new zero emission heavy machinery such as waste collection trucks and street sweepers.



Council's fleet contributes 47 per cent of the carbon emissions created from all of Council's activities.

Our fleet is responsible for producing 2200 tonnes of CO₂ emissions, which is equivalent to the average energy consumption of 188 Australian homes.

Despite a commitment to be carbon neutral by 2028, technology is not sufficiently advanced to support Council in achieving this goal and requires government leadership to facilitate the research and development of low emission transport modes, and provide the policy to support the market conditions for the profitable sale of Zero & Low emissions vehicles in Australia.

Banyule commits to carbon neutrality by 2028

In December 2019, Banyule City Council established a target to achieve carbon neutrality by 2028, without the purchase of carbon offsets.

It also required the Council Executive to establish a pathway to carbon neutrality.

With Council's fleet generating about 47% of corporate greenhouse gas emissions, a specific plan or roadmap for transitioning the fleet to zero emissions by 2028 is required.



Council's Fleet

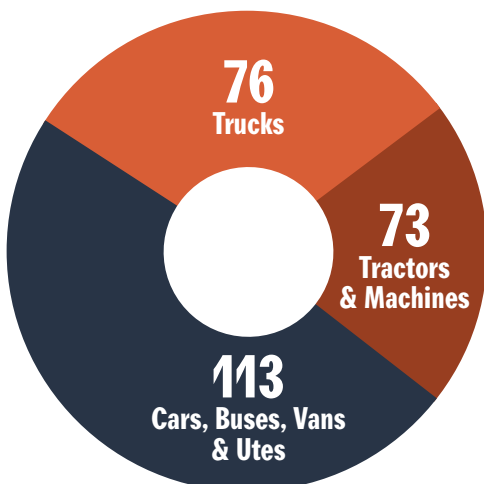
Council's fleet comprises 262 items of mobile plant, trucks and light commercial and passenger vehicles. It includes plant such as mower, tractors and backhoes.

The current replacement value of the fleet is in the region of \$34M. The approach for transitioning to low emission will vary depending on the vehicle and service requirements.

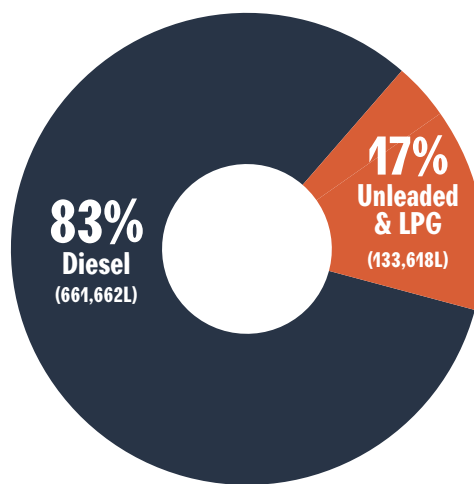
Some are suited to technologies already available while others will need more investigation, development and testing to determine the appropriate solution.

With 57% of the fleet being made up of trucks, tractors and machines, the largest proportion of the annual fuel use, and therefore the emissions generated by Council's fleet, is from diesel. Diesel generate about 19% more CO₂ emissions per litre than unleaded petrol.

Banyule's Fleet Mix



Fuel Use (Litres)



1. We are seeking the Federal Government to achieve a greener transport sector by investing in research and development projects to pilot zero emission alternatives for Councils' heavy vehicle fleet and support the introduction of new technologies in Australia.

Current fuel options to achieve zero emissions

For many years, manufacturers have been developing engine technologies that will reduce emissions from vehicles. Diesel engines were seen as preferable to petrol because of their better fuel economy and LPG generated less greenhouse gas emissions.

Biofuels were seen as being preferable to diesel because they were not being created from fossil fuels. However, each of these technologies still generates CO₂ emissions, and so are not considered suitable options for a zero emissions fleet.

Currently the only technology options available for zero emissions are electric vehicle variants:

- with battery packs (BEVs), where charging power is generated or purchased from green power sources (wind, wave, hydro and solar), or
- by using "green" hydrogen power and fuel cells combined with electric drive trains (FOEVs), to be able to certify zero emissions. However, hydrogen powered FOEVs are still only available in very few options as the technology and refueling infrastructure still requires development.

Barriers to achieving zero emissions

Passenger vehicles

With increasing availability of electric passenger vehicles on the Australian market there is not expected to be any barrier to running a fully electric passenger vehicle fleet by 2028.

Light commercial

Energy use is the greatest barrier to effectively using fully electric technology in trucks. Vehicles that have high energy use will drain batteries much quicker and so range is a large factor in whether fully electric technology will be effective.

Vehicles that need to be stopped during the day to be connected to a charging point for a period of time until sufficient charge is available to finish the day will be inefficient from a productivity perspective.

Vehicles that have auxiliary equipment attached could have energy demands that outweigh the capacity of the batteries.

Also, vehicles that tow other equipment, particularly through the hilly terrain found throughout Banyule. While battery technology is rapidly improving, certain service applications will not be suited to BEV technology in the short to medium term.

Heavy Trucks and Plant

Mass produced heavy electric trucks are only just starting to be released into international markets, and it may be years before the necessary volumes of electric heavy trucks arrive on our shores.

Currently, the only heavy electric trucks available in Australia need to be specially ordered and individually built from imported parts.

In addition these trucks are operationally limited in Council applications.

Options for electric mobile plant and machinery in Australia are still limited. However, mowers, utility vehicles and footpath sweepers are now available in low numbers and Council has trialled electric plant and will continue to do so. However, unit prices remain high at 160% to 190% more than the cost of a diesel powered equivalent machine.

Council's heavy fleet is subjected to high ongoing daily workloads. These vehicles, tractors and backhoes use far more energy than is available with current battery technologies. Trying to use fully electric battery technology would mean that they would regularly need to stop to recharge, which would have a massive impact on the efficiency of the services they are required to provide.

An alternative technology solution is required that will allow for zero emissions and easy, fast refuelling when required. Currently only hydrogen fuel would meet this need, as it only emits water vapour and could be easily and quickly refuelled, similar to other gas fuels in the past.

While hydrogen fuel cells have been effectively used in commuter buses in Australia for some years, they are yet to be applied for use in trucks and plant, such as larger waste trucks and tractors.

There is global discussion and development about hydrogen fuel cell technology, and a handful of demonstration models are currently in testing to determine their suitability for our operating conditions.

With the limited zero emissions fuel options presently available, the Federal Government must take a leadership role to facilitate the market conditions required to make Australia an attractive commercial option for the newest Low and Zero emissions vehicle technologies.

2. We are seeking the Federal Government to achieve a greener transport sector by partnering with Banyule City Council to financially support Council's EV fleet conversion (e.g. power upgrades, charging station installations).

For Banyule to meet its target of a zero emissions fleet by 2028, it is critical for the government to investigate opportunities for escalating the development or availability in Australia of current or emerging technologies in high energy use heavy trucks and plant.

This may include hydrogen, or even batteries as their capacity and efficiency improves, or other technologies that could emerge to produce zero emissions.

This could include power upgrades, charging station installations, and support for the Hydrogen fuel industry infrastructure.

As this technology is not yet mainstream, the cost of converting to a new zero emissions fleet may be as much as 2-3 times the replacement cost of current diesel/petrol powered fleet, once current operational limitations are taken into consideration.

3. We are seeking the Federal Government to achieve a greener transport sector by partnering with local government to find solutions for different fleet and plant and financially support the pilot of new zero emission heavy machinery such as waste collection trucks and street sweepers.

With no suitable zero emissions technology currently available, it will be necessary for council to escalate the development or availability of electric, hydrogen or other emerging zero emissions technologies in order to meet its 2028 target.

It is essential that the Federal Government takes on a leadership role to advocate for OEMs to develop and export to Australia the appropriate technologies and facilitate procurement. The promised purchase of only a few of the developed product by an individual council may not be enough to convince manufacturers to develop the prototypes.

If the development cost is borne by individual councils, it would likely make the cost of procuring the final product prohibitive.

The likelihood of the technology being developed and/or brought to Australia will be increased if manufacturers believe that they will have a sizeable market when the development is complete.

This can be achieved through economies of scale which that are possible via a partnership between the Federal Government, Local Government and businesses that provide services to councils.

The size of the combined Australian market would then be greater, and a far more attractive export market to the foreign OEMs.

Individual councils will not have the resources to source solutions for some medium and heavy trucks including side loaders and street sweepers and heavy plant such as tractors and backhoes before the 2028 deadline.

Partnering with the Federal Government would provide economy of scale for procuring EV fleets, and more resources to drive the second stage manufacture of commercial plant and equipment.

