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How Europe is tackling carbon emissions targets and how this impacts Australia

This article extends ARTSA's contribution to the discussion about greenhouse gas reductions in the road transport sector. This article describes the approach being taken in Europe and contrasts it with the Australian situation. Our May 2024 *Prime Mover* article presented a plan to reduce the Australian road freight sector's emissions.
In April 2024, Members of the European Parliament adopted new measures to strengthen CO_2 emission reduction targets for new heavy-duty vehicles. Carbon Dioxide emissions from new large trucks (including vocational vehicles, such as garbage trucks, tippers or concrete mixers) and buses will have to be reduced by:

- 45 per cent for the period 2030-2034.
- 65 per cent for 2035-2039 and;
- 90 per cent as of 2040 (base year for all EU targets is 1990).

New urban buses will need to reduce their emissions by 90 per cent and become zero-emission vehicles by 2035. Emissions reduction targets are also set for new trailers (7.5 per cent) and new semi-trailers (10 per cent), starting from 2030. To achieve these targets, for vehicles that usually do not have engines, aerodynamic and tyre friction losses need to be reduced. On motor vehicles, the reductions will mainly be achieved by introduction of electric and hybrid drives. Averaging over the manufacturer's fleet of new vehicles will be applied. Australia in contrast has no vehicle-specific targets:

- Australia has committed to achieve net zero CO_2 emissions by 2050.
- Australia has committed to reduce greenhouse gas emissions (across all economic sectors) by 43 per cent below 2005 levels by 2030.
- Each state has also set interim emissions reduction targets for new vehicles by 2030: NSW: 50 per cent; Victoria: 50 per cent; Queensland: 30 per cent; South Australia: at least 50 per cent; Western Australia: 80 per cent below 2020 levels; ACT: 65-75 per cent (on 1990 levels); Tasmania: achieved net zero greenhouse gas emissions in 2015.

On the new vehicle front, the New Vehicle Efficiency Standard Bill (NVES) was released on the 27th March 2024 to:

- Reduce carbon dioxide (CO_2) emissions from new cars, sport utility vehicles, utes and vans, and stimulate the provision of low and zero emissions vehicles into the Australian market.

Note that there is no 'tonne-kilometre greenhouse gas emissions target' being applied to in-service vehicles. There is no in-service vehicle greenhouse reduction plan.
Given the definitive steps taken in Europe and the recent release of the NVES, it is likely that the Australian Government has further targets and instructions to come that will directly impact the road transport industry. However, the Federal Government does not regulate the in-service vehicle sector. If the state government reduction targets stated above are to be met, state and territory government reduction plans will be needed for the road transport sector and mapping and consultation is currently underway.
One stressor felt in the Australian industry is that cost and productivity will be significantly inhibited if we cannot adapt to these targets in a practical way. Early calculations done by the Truck Industry Council already demonstrated that even if manufacturers moved to 100 per cent new electric trucks by 2030, it would still barely put a dint in the numbers due to an ageing fleet of vehicles. Not to mention the challenges which still exist for battery life and long haul applications. Hence the need for in-service reduction measures.
This aside, what can we learn from our European colleagues to better arm ourselves to tackle the emissions challenge on local soil? Well, there is clearly no silver bullet to solve this problem. At the moment, the approach from the European Union seems to be twofold.

1. Move to electric, fuel cell or other zero emissions vehicles as soon as possible and assume technology catches up as well as the infrastructure required.

2. Calculate and record every CO_2 saving possible for both Trucks and trailer by using VECTO — Vehicle Energy Consumption calculation tool.

On point 1 regarding zero emissions trucks: The European union is directing manufacturers to move their production from ICE (Internal Combustion Engine) vehicles to BEV (Battery Electric Vehicles), fuel cell or other zero emissions options. There appears to be very little appetite for biofuels for a couple of key reasons. Firstly, if energy is placed into biofuels, then this will dilute the critical funding and infrastructure required for electric and fuel cell vehicles. It is acknowledged that these vehicles are initially more expensive to build, so it's important to create a level playing field for manufacturers and operators. The bulk move by Europe to zero emissions vehicles will no doubt assist with the economics of the change required locally in Australia. It is likely that prices will stabilise as manufacturing and technology improve.
Secondly, the aviation and shipping industry have no easy solutions to reduce CO_2 emissions and it is thought that they will consume most of the product required to produce biofuels, hence this is not a viable option for trucks long-term.
On point 2 regarding VECTO. This is the new simulation tool developed by the European Commission and is used for determining both CO_2 emissions and fuel consumption for heavy-duty vehicles with a gross weight above 3500kg. Application of this tool is now mandatory for new trucks in certain categories since January 2019, and trailers are included also. Suppliers are required to provide evidence-based information that is added to this calculator periodically. For example, electric axles are still being considered by the European Commission and have not yet been added to VECTO at this time, but will in the future.
As another example, the Knorr-Bremse new generation of disc brake SYNACT is currently being reviewed to be added to the tool. The weight savings and active caliper release (ACR) system demonstrated a one per cent fuel reduction in testing as well as reduced brake pad wear. Essentially every bit counts and global manufacturers now have an obligation not just to move to alternative power supplies, but also to consider sustainability and emissions in every element of product design. Note that the reductions levels are being applied to OEM manufacturers who are insisting that suppliers find emissions savings.
There is also a growing trend around materials and other forms of emissions such as brake dust and particulate matters that will only gain focus in the years to come. One key change we already have seen is in the removal of a large proportion of copper from brake linings to meet global automotive regulations. In recent years this has impacted local heavy vehicle manufacturers and also triggered additional testing and cost not foreseen. It can only be assumed that more changes will come as the environmental impacts of various materials continue to be investigated and actioned globally.
It's also evident that VECTO is a sensible and transparent approach to measuring and meeting emissions targets. Will VECTO be used in Australia? If so, would its use be mandated by the few local vehicle manufacturers we have left or will Australia have its own unique calculator? The other interesting point is that the European mandates have included trailers and a 7.5 per cent to 10 per cent reduction in emissions that have not yet been identified by our government as targets. Would VECTO or an equivalent be an expectation of our local trailer manufacturers? Time will tell.

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Link for VECTO webpage
Vehicle Energy Consumption calculation TOol - VECTO - European Commission (europa.eu)

UNCOMING ARTSA EVENTS
- 24 July 2024 – Auburn Hotel, Auburn, Vic. Dinner meeting with guest speakers.
- 12 September 2024 – Life Saving Victoria, Port Melbourne. Embracing Change & Innovation.

ARTSA membership is free for the remainder of 2024. See the website at:

Overview 'Vecto method'.