

Brussels, 30 March 2017 - Meeting European Air Quality targets, latest technology Euro 6 petrol and diesel, and electro-mobility; why all will contribute?

In its briefing note *“rethinking the cost of conventionally fueled road transport”*¹ the NGO Bellona rightly argue that air pollution, based on current scientific knowledge, is the first cause of death in the EU. Bellona however makes a questionable shortcut by largely attributing air pollution to road transport. Based on the latest data from the European Environmental Agency updated in December 2016 (see graph below) air pollution includes a number of pollutants which originate from different sources.

As a result, the NGO Bellona are making the assertion that electro-mobility is “the only viable cost-effective approach to drastically reducing damaging air pollution while safeguarding human health” and state that a conventionally fuelled car would have to pay back €2,371 per year to correctly compensate the public.

This figure is very misleading, being based on a questionable mix of old and new facts, and arguably incomplete logic. Bellona conclusions:

- Propose a simplistic assessment of the sources of air pollution,
- Refer to a 2013 Commission impact assessment using 2010 data and technological development level to build their cost evaluation,
- Fail to mention the €10,000 in subsidies needed on average to get every electric vehicle (EV) onto the road in Europe,
- Ignore the environmental footprint of electric vehicles.

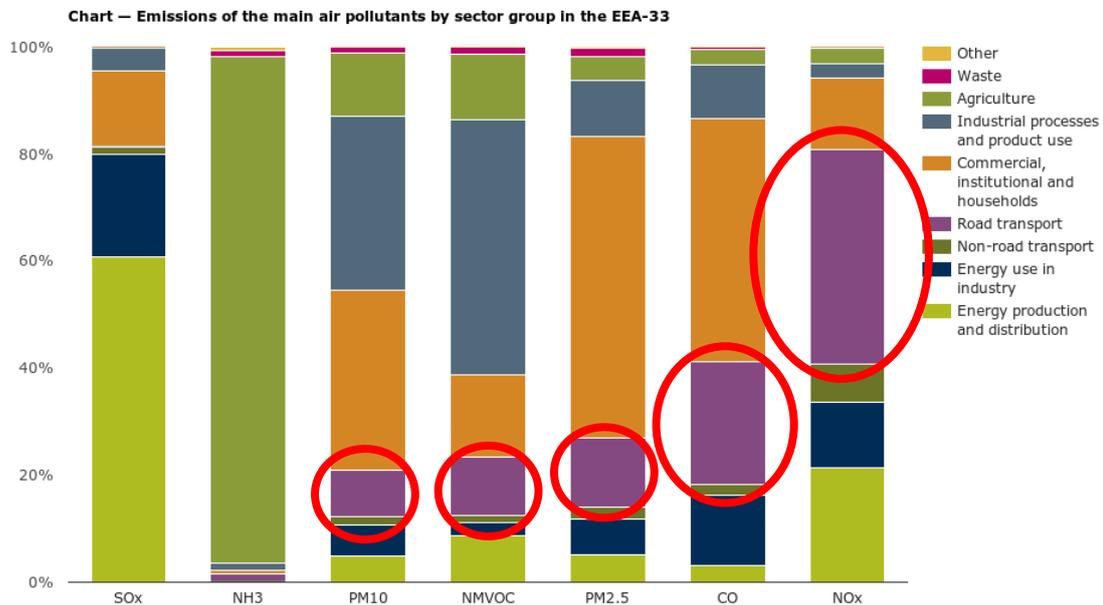
Discussion

Bellona study overlooks the variety of sources of Ambient Air Pollution

From the EEA chart below and various other studies, we can see that road transport is currently the main contributor to NOx with a share of 40% of its emissions resulting from road transport.

For all other sources, road transport is either a small (PMs10 & 2.5) or even negligible contributor (NH3, VOC) to the emission of pollutants.

¹ <http://bit.ly/2nOUrbb>



All new diesel and petrol vehicles since September 2015 have been certified as Euro 6.

Interestingly, when looking at the impact of EURO 6 on the reduction of emissions of NOx and PMs one can see from a report by Concawe, “The 2016 Study on Urban Air Quality, examining and modelling NOx and PM emissions in EU cities” that full turnover of the vehicle fleet to Euro 6 vehicles (over a 10 years period) results in the situation that by 2025:

- Transport NOx and PM results are dramatically reduced.
- The remaining road transport emissions of PM 2.5 will originate from non-exhaust sources (brake wear, tyre wear, road wear & resuspension).
- For NOx, by 2025, 90% of the population living in areas fully compliant with air quality standards. Targeted measures² adapted to the local specificities of the remaining uncompliant areas will contribute to addressing these areas.

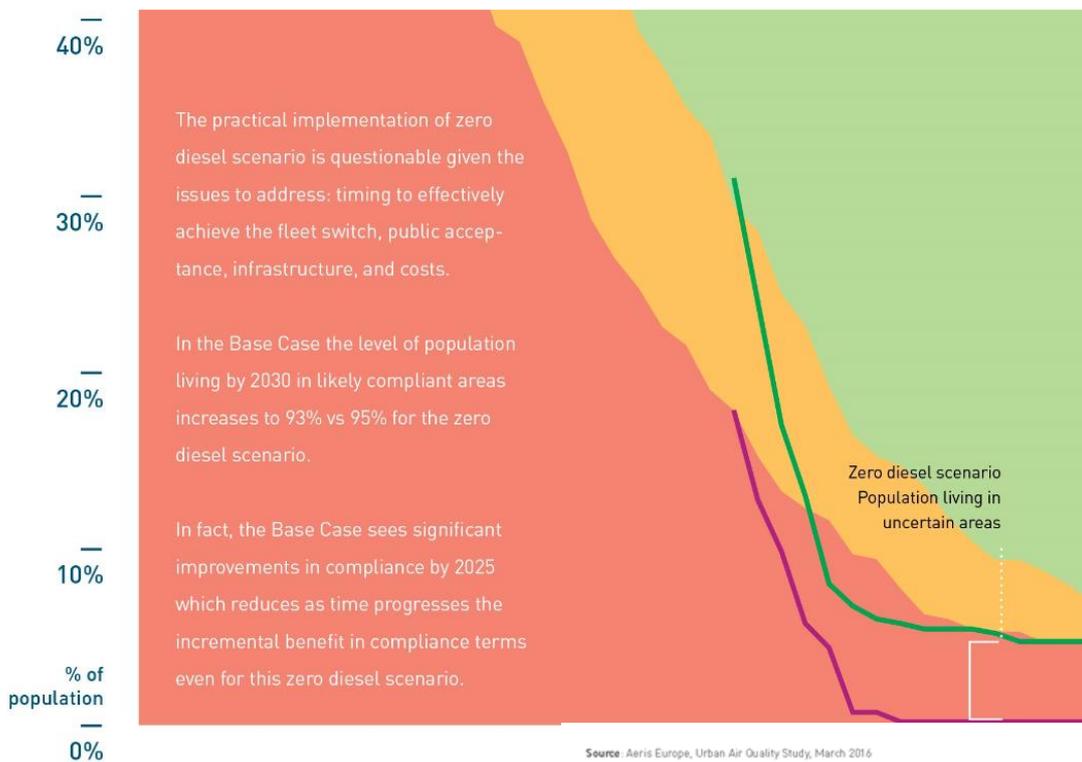
² Concawe study does indeed show that targeted use of EVs (e.g. taxis and buses in central urban areas) along with other targeted measures for non-transport sources, can make marginal additional improvements in central urban areas.

FuelsEurope – Comment on Bellona Brief
Meeting European Air Quality targets, latest technology Euro 6 petrol and diesel, and electro-mobility; why all will contribute

CONTRIBUTION FROM ROAD TO TRANSPORTS
TO TOTAL PM EMISSIONS EU27 - KILO TONNES (% OF TOTAL)¹⁰

	2015	2020	2025	2030	
PM₁₀	Road transport exhaust emissions	77 (4%)	38 (2%)	21 (1%)	15 (1%)
	Road transport non-exhaust emissions	149 (7%)	186 (9%)	199 (11%)	208 (11%)
PM_{2,5}	Road transport exhaust emissions	77 (5%)	38 (3%)	21 (2%)	15 (1%)
	Road transport non-exhaust emissions	50 (4%)	53 (4%)	54 (5%)	56 (5%)

Source: Aeris Europe, Urban Air Quality Study, March 2016



This study used an average vehicle NOx conformity factor of 2.8 for the base case³.

³No other measures to reduce the conformity factor which may have been implemented since the start of the study have been taken into account. It thus proposes a conservative view (i.e. the real situation could be better than the modelled results in the study).

The Bellona study refers to a 2013 Commission impact assessment using 2010 data and technology development to evaluate the cost resulting from the health impact

The figure of €2,371 per year and vehicle is based on quite old data – a 2013 EU Commission Staff Working Document presenting the Impact Assessment accompanying a revised EU Strategy on Air Pollution.

This impact assessment published in 2013 is looking at health impact evaluations using 2010 data reporting on the impact of Air Quality and its societal costs. One should also remember that in 2010 the vehicle fleet only comprised EURO 1 to EURO 4 vehicles which could be as old as 2000.

We must not compare the 15 year old high mileage vehicles with new EVs and then make a conclusion about the cost-effectiveness of new vehicle policy.

In addition, the Commission Impact Assessment does not attribute the estimated cost to road transport. Given the multiple sources of air pollution a more careful approach should have been adopted by Bellona by assessing the share of transport in the total cost and using more recent data to develop their analysis.

The Bellona study fail to mention the €10,000 in subsidies needed on average to get every EV onto the road in Europe

In 2016, EV sales account for just 1.1 % of total passenger car sales, and will take many years of very strong, expensive subsidies to get to 100% of new light duty sales.

At current rates of subsidy for EVs of €10,000 per car in average, it would cost some €2.5 Trillion to subsidise the full turnover of the 250 million cars in the EU to EVs. Not only is this amount completely unthinkable, it is unnecessary to meet the objectives.

There is another viable, much more cost-effective approach, based on the EU regulation currently in force, (now reinforced since the diesel emissions scandal) of implementation of Euro 6 emission standards for all new vehicles, light and heavy duty. There are no vehicle subsidies required for this either.

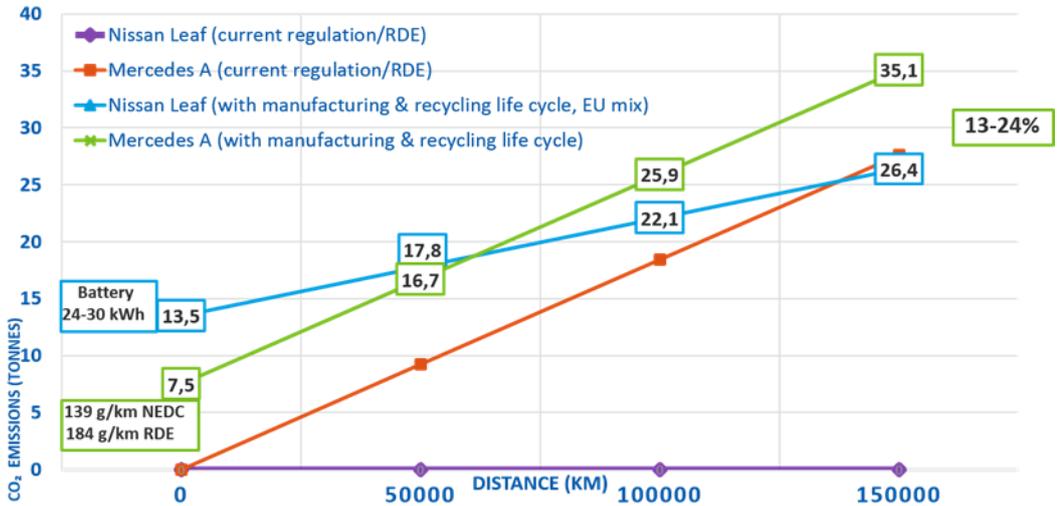
So Euro 6 has a very significant head start on changing the vehicle fleet and implementing the most cost-effective solution. It is simply unnecessary, and extremely expensive to drive the entire vehicle fleet to electrification to meet the air quality objective.

Zero-emissions vehicles don't exist

Battery electric vehicles are heavier than conventional internal combustion engines. As a result the PM-emissions due to tyre wear, road wear and resuspension are increased and about equal to a conventional ICE vehicle. In 2025, based on the continued reduction PM emission from ICE vehicles, it is expected that 90% of the PM-emission will come from non-exhaust sources whatsoever the vehicle type, and only 10% from the tailpipe.

Last but not least, EVs on life-cycle basis are not zero CO₂. Firstly, electricity is not zero emissions, but if one looks at the CO₂ emission from the vehicle manufacture, we see that the manufacture and recycling of the batteries is very high in CO₂ emission.

Figure: Life cycle GHG Impact: Nissan Leaf (EV) vs Mercedes A class (ICE)



Sources: University of Trondheim, 2012/2013/2016 and Concawe 2017

For the EVs currently on the road, the cumulative savings from manufacture, use and recycling are far lower than that predicted by the Car CO₂ test, and for many thousands of EVs, there have been no life-cycle GHG savings at all

Zero-emission vehicles don't exist.

Conclusion

FuelsEurope supports meeting targets with a technology-neutral, cost-effective approach. Electrification is a complementary technology for the future, alongside our latest and future technology Euro 6 petrol and diesel vehicles. The right vehicle and fuel policies will allow technologies to compete allowing our citizens and businesses to access transport and also meet our environmental objectives in the most cost-effective manner.

The Bellona statement that each ICE powered car would have to pay back €2371 per year is not supported by the analysis that uses data from EEA, and Aeris Europe. It uses old data from vehicles as old as 2000, and therefore cannot be used to make vehicle policy recommendations comparing fully electrified vehicles with the current and future Euro 6 vehicles

FuelsEurope, the voice of the European petroleum refining industry

FuelsEurope represents with the EU institutions the interest of 40 companies operating refineries in the EU. Members account for almost 100% of EU petroleum refining capacity and more than 75% of EU motor fuel retail sales.

FuelsEurope aims to promote economically and environmentally sustainable refining, supply and use of petroleum products in the EU, by providing input and expert advice to the EU institutions, Member State Governments and the wider community and thus contributing in a constructive and pro-active way to the development and implementation of EU policies and regulations.

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