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Faster replacement of diesel with electric vehicles would save EU27 over €9 billion in health costs each year

New study confirms electric vehicles are the best choice to replace diesel-fuelled road vehicles. Switching would reduce air pollution and save EU countries over € 9 billion every year in health costs from driving emissions alone.

(Brussels, Belgium - EMBARGOED UNTIL 00:01 Thursday 30 June 2022)

Commissioned by the European Public Health Alliance (EPHA), a new study looks at which replacement for diesel-fuelled vehicles would most reduce harmful nitrogen oxides (NO_x) and microscopic particles called particulate matter (PM).

"In 2030, diesel will be responsible for around three-quarters of the costs from road vehicle emissions" says report author Anco Hoen, from independent researchers CE Delft. "From all the alternatives considered, nothing will reduce harmful pollution or emissions as much as switching diesel vehicles with electric - and this remains true even when we take the air pollution from electricity production into account."

In comparison with the full-electric scenario, business-as-usual means the combined damage from pollution (NO_x, PM, CO_2, and noise) to public health, biodiversity, buildings, and agriculture would cost EU27 countries an extra €45 billion every year.
The study adds weight to the call to accelerate the transition from diesel to electric and the costs of waiting longer.

"Zero-emission vehicles save money and lives"

Road transport is one of the major sources of air pollution; it affects our health, our environment, and our businesses. Nations with older vehicles experience greater emissions and therefore greater health costs. Across EU27 countries in 2019 alone, fine particulate matter ($PM_{2.5}$) caused 307,000 premature deaths, NO_2 caused 40,400 deaths, and toxic ozone (O_3) caused 16,800 deaths[1]. Internal combustion engines are a major source of these three pollutants. In comparison, the following year a similar number of people (394,801) lost their lives to COVID-19 in the EU[2].

[1] European Environment Agency - 15 Nov 2021 https://www.eea.europa.eu/publications/air-quality-in-europe-2021/health-impacts-of-air-pollution
[2] European Centre for Disease Prevention and Control - EU27 country data for 2020 https://www.ecdc.europa.eu/en/publications-data/data-daily-new-cases-covid-19-eueea-country

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Zorana Jovanovic Andersen, Professor in Environmental Epidemiology at the University of Copenhagen, says "Air pollution from diesel emissions presents a major burden to our health, causing chronic cardiovascular and respiratory diseases, lung cancer, and worsening lung and cognitive health in our children. Zero-emission vehicles will save money and lives and improve health for Europeans: the healthiest and cheapest choice is to scrap diesel now, and go electric, as well as promote public transport, walking and cycling."

The World Health Organization (WHO) estimates that every year, exposure to air pollution causes seven million premature deaths and results in the loss of millions more healthy years of life[3]. Almost two-thirds (65%) of the costs from air pollution come from nitrogen oxide emissions (NO_x), with almost another third (32%) coming from inhalable particulate matter ($PM_{2.5}$). These pollutants will fall more quickly by transitioning faster.

"Make Europe a diesel-free continent"

The European Parliament voted on 8 June 2022 to stop the sale of new diesel and petrol road vehicles by 2035 - but today's study demonstrates the need to move faster and accelerate the transition to electric vehicles.

Due to the introduction of EU6/VI emission standards, and the gradual replacement of older vehicles, the report estimates that emissions, and therefore health costs, will reduce over the next decade. However, dangerous levels of pollution will remain, and EPHA believes the EU and member states should take a more proactive approach. Including:

- No more delays to the upcoming EU7/VII emission standards and use them to accelerate the transition to electric vehicles.
- End investment in alternative fuels and commit to zero-emission electric vehicles.
- Full and legally binding alignment of EU's air quality standards with the 2021 WHO Global Air Quality Guidelines by 2030 at the latest[4].
- Promote walking, cycling, and public transport - and if a car journey is necessary, use an electric vehicle.

EPHA's Director-General, Dr Milka Sokolović, says "Air pollution is the number one environmental health risk factor, and every diesel-powered journey adds to it. Current measures do not go far or fast enough burdening Europeans with worse health and greater costs. For a healthier and happier Europe, we must go electric and promote walking, cycling, and public transport as the norm. Let's make Europe the first diesel-free continent as soon as possible!"

[3] World Health Organization – Sep. 2021 https://apps.who.int/iris/handle/10665/345329

[4] European Public Health Alliance – 1 Oct. 2021 https://epha.org/the-new-who-global-air-quality-guidelines-we-must-tackle-air-pollution-now/

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Editors' notes:

- The report can be found here: **Fuel and drivetrain options for road transport** - *Impact on air pollution and external costs*.

- The report will be launched in an online event on 30 June 2022 10:00-11:30 CEST. The study's author and a selection of panellists, including Sara Cerdas MEP, will discuss the findings. Registration: https://epha.org/whats-the-healthiest-replacement-for-diesel/

- A study featured in The Lancet (January 2018) shows that diesel exhaust fumes from road traffic have immediate cardiovascular and respiratory impacts, as well as causing chronic diseases and long–term health damage[5]. Further information on the impact of diesel fumes can be found in EPHA's Clean Air briefing (2018).

- The damage costs used in this study consider three main endpoints of air pollution:
    1. Human health (morbidity, i.e. sickness and disease, and premature mortality modelled as a reduction in life expectancy),
    2. Ecosystem services (biodiversity and crops),
    3. Buildings and materials (man-made capital).

Total external costs from…[6]	2030 baseline (i.e. no change)	Replacing diesel with zero-emission electric vehicles
NO_x & PM_{10} air pollution (Well-to-tank)	€4bn	€3bn
NO_x & PM_{10} air pollution (Tank-to-wheel)	€14bn	€4bn
CO_2 air pollution (Well-to-tank)	€17bn	€27bn

[5] EPHA Clean Air briefing - June 2018
[6] Data from Table 18

CO_2 air pollution (Tank-to-wheel)	€54bn	€17bn
Noise	€54bn	€46bn
TOTAL	**€143bn**	**€98bn**[7]

- The report considered a range of fuel and drivetrain alternatives to diesel, including Compressed or Liquid Natural Gas (CNG/LNG), Liquid Petroleum Gas (LPG), Hydrotreated Vegetable Oil (HVO), Plug-in Hybrid Electric Vehicles (PHEV), Ethanol 85, new Euro 6/VI compliant diesel, and Fully Electric Vehicles.

External costs from direct air pollution (Tank-to-wheel NO_x & PM_{10} emissions)[8]	**Total**	**Other external costs (e.g. damage to biodiversity, buildings, agriculture, etc)**	**Health costs *(% of total)***
2030 baseline	€14bn	€1.2bn	€12.8bn (91.4%)
CNG/LNG	€9.1bn	€0.6bn	€8.5bn *(93.5%)*
LPG	€12.2bn	€0.9bn	€11.3bn *(92.2%)*
HVO	€14bn	€1.2bn	€12.8bn *(91.4%)*
PHEV	€8bn	€0.6bn	€7.4bn *(92.7%)*
E85	€10.7bn	€0.8bn	€9.9bn *(92.1%)*
Euro6/VI diesel	€9.5bn	€0.8bn	€8.7bn (91.8%)
Electricity	€3.9bn	€0.2bn	€3.7bn (94.4%)

ENDS

[7] Due to rounding totals may not always add up

[8] Data from Table 17