Opportunities to reduce health and climate impacts from the freight in Argentina

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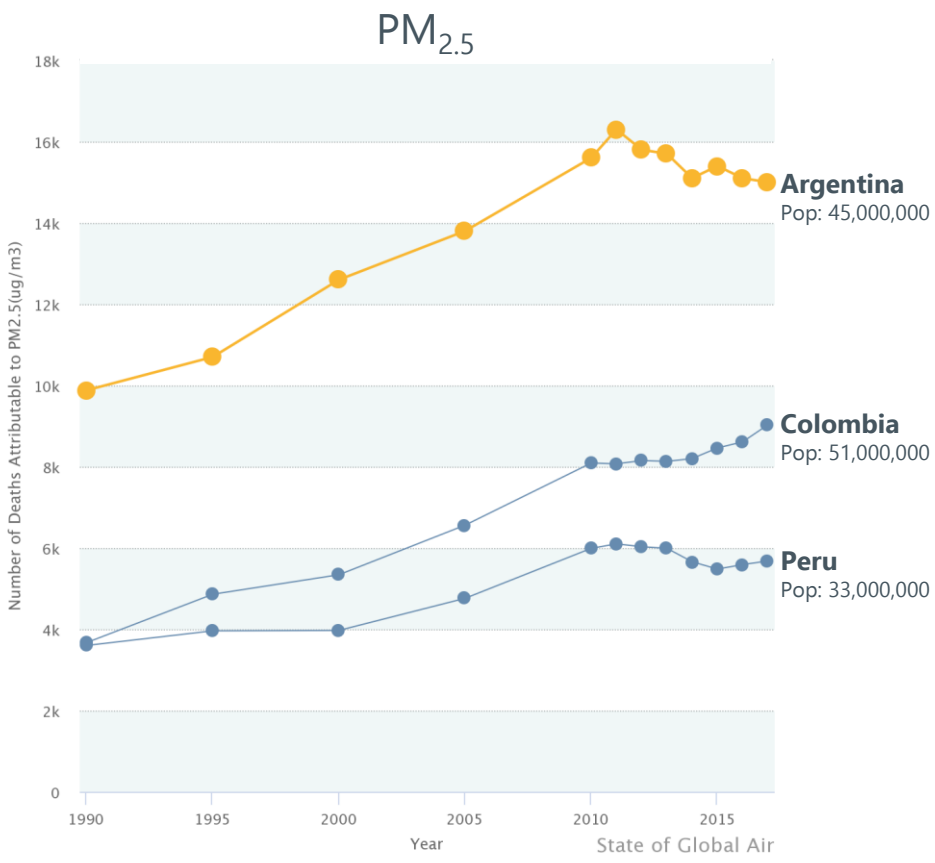
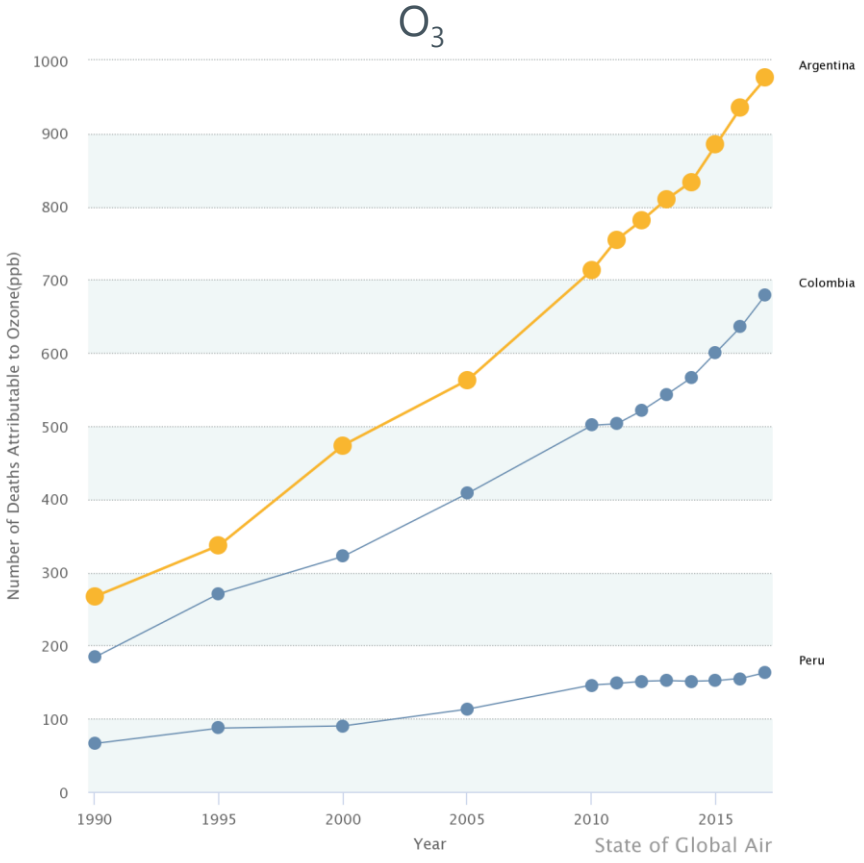
Disproportionate health impacts in Argentina

Premature mortality attributable annually to ambient $PM_{2.5}$ and ozone





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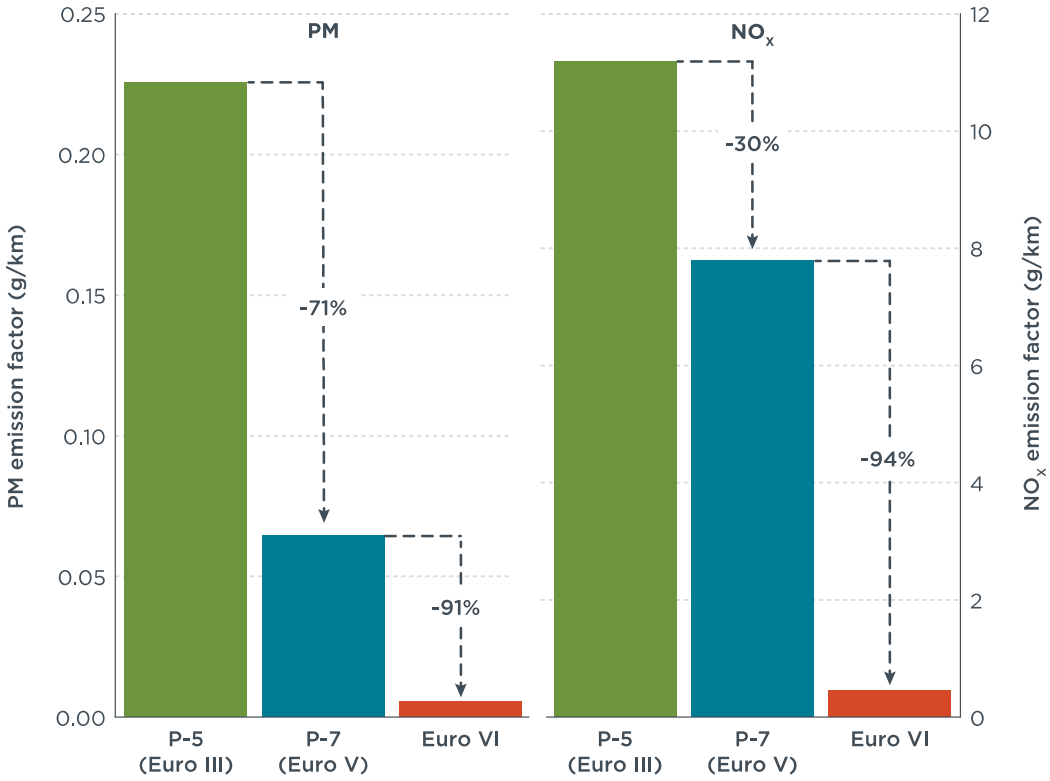
UN World Population Prospects, 2019

Freight sector: benefits of Euro VI



www.scania.com/group/en/wp-content/uploads/sites/2/2017/09/scania-icct-buses.pdf

Euro VI Euro V

Dallmann, 2019
HBEFA, 2017

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Euro VI Regional Alignment

Euro VI-equivalent standards are the next logical step for Argentina and will align it with other leading countries in South America

Colombia has committed to enforcing Euro VI-equivalent standards for all new HDVs in 2023

Peru is working towards adoption of Euro VI standards for implementation in 2023

Santiago has required Euro VI standards for all new bus purchases since 2019

Brazil's P-8 (Euro VI-equivalent) standards apply to new models on January 1, 2022 and all new HDV sales and registrations on January 1, 2023

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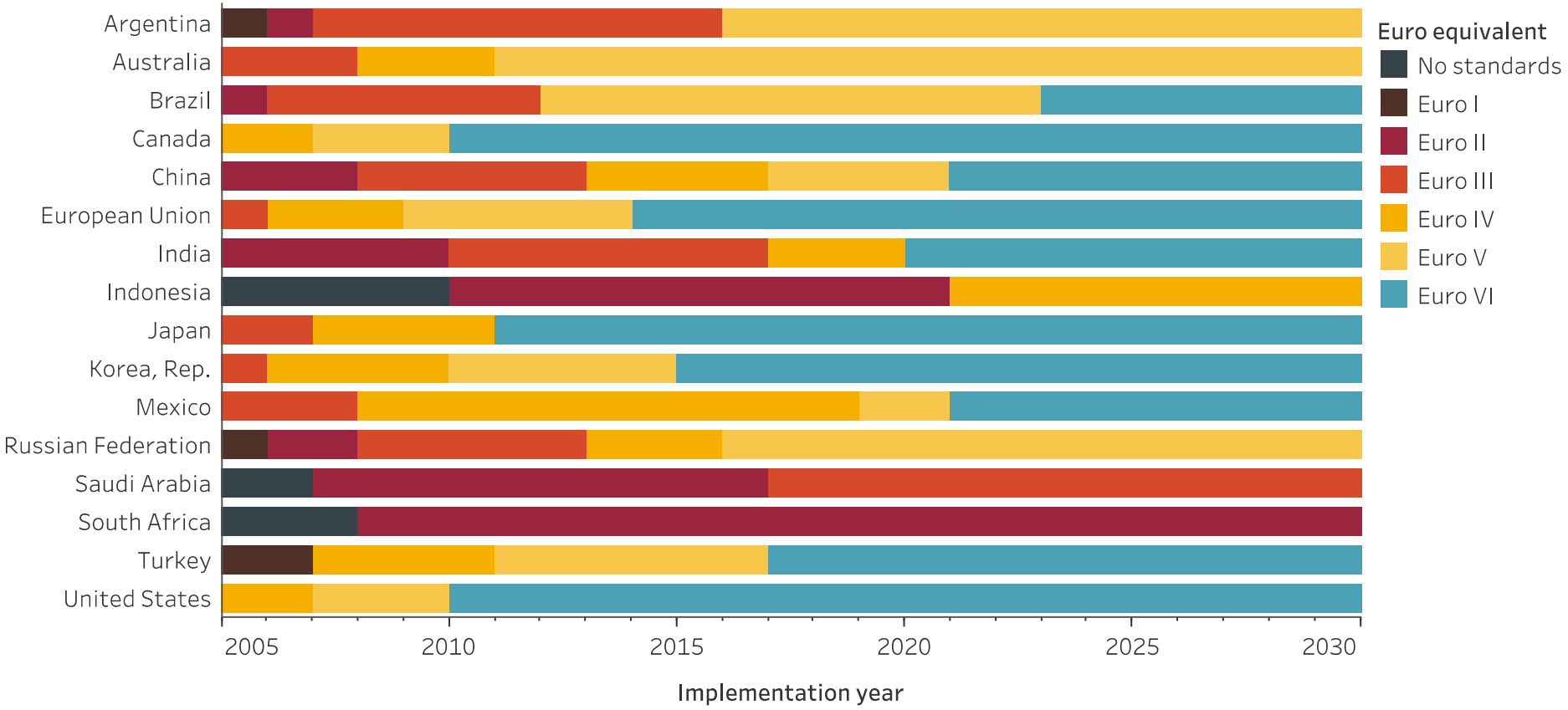
Miller & Posada, 2019
Miller & Jin, 2019

By 2023, 70%+ of HDV sales globally will meet Euro VI standards.



Argentina is ready to follow the international best practice of setting strict new emissions standards for HDVs

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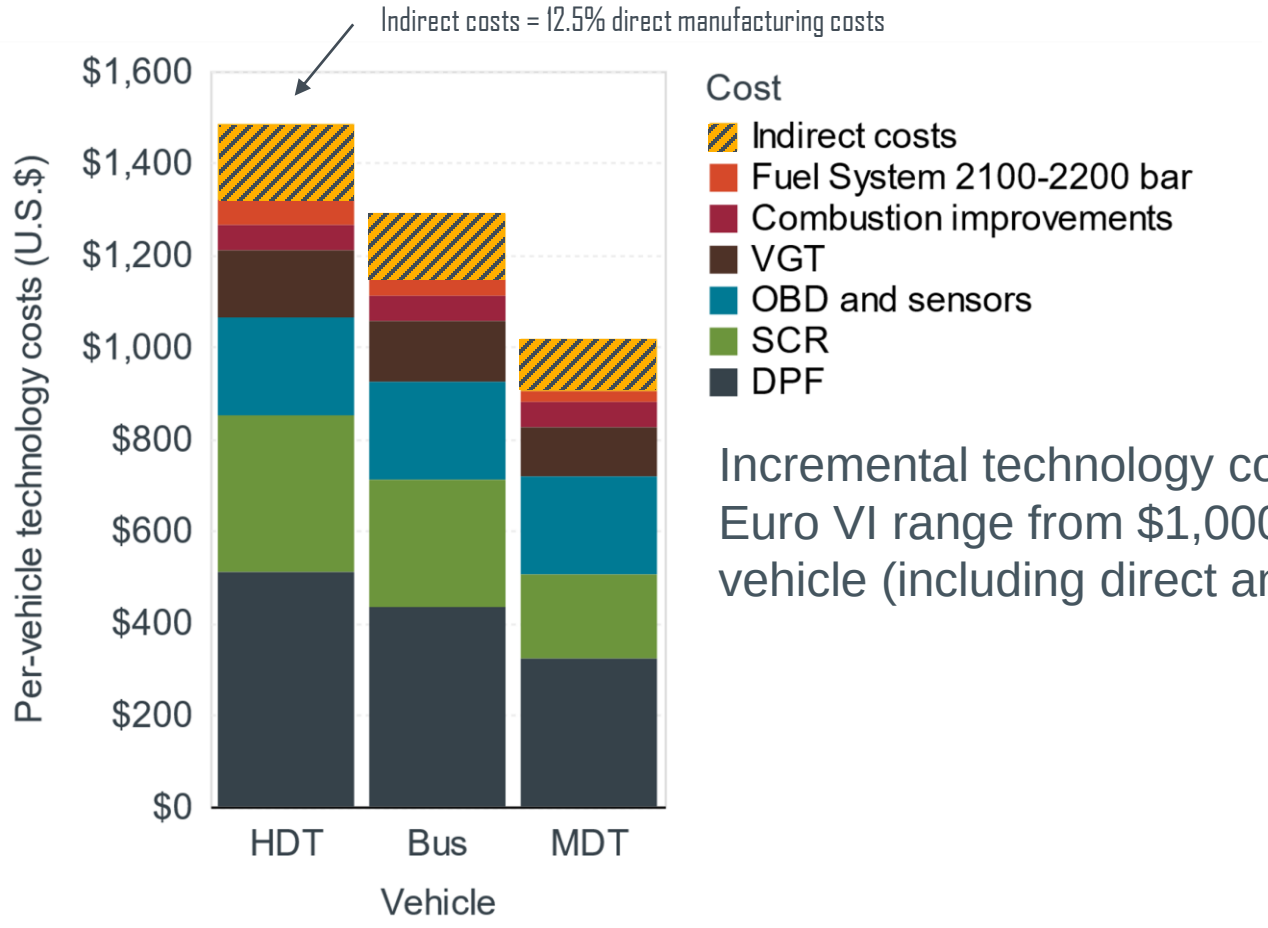
Technology costs



Incremental technology costs from Euro V to Euro VI range from $1,000–$1,500 per vehicle (including direct and indirect costs).

VGT = Variable-geometry turbocharger
OBD = On-board diagnostics
SCR = Selective catalytic reduction
DPF = Diesel particulate filter

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Euro VI lowers fuel consumption

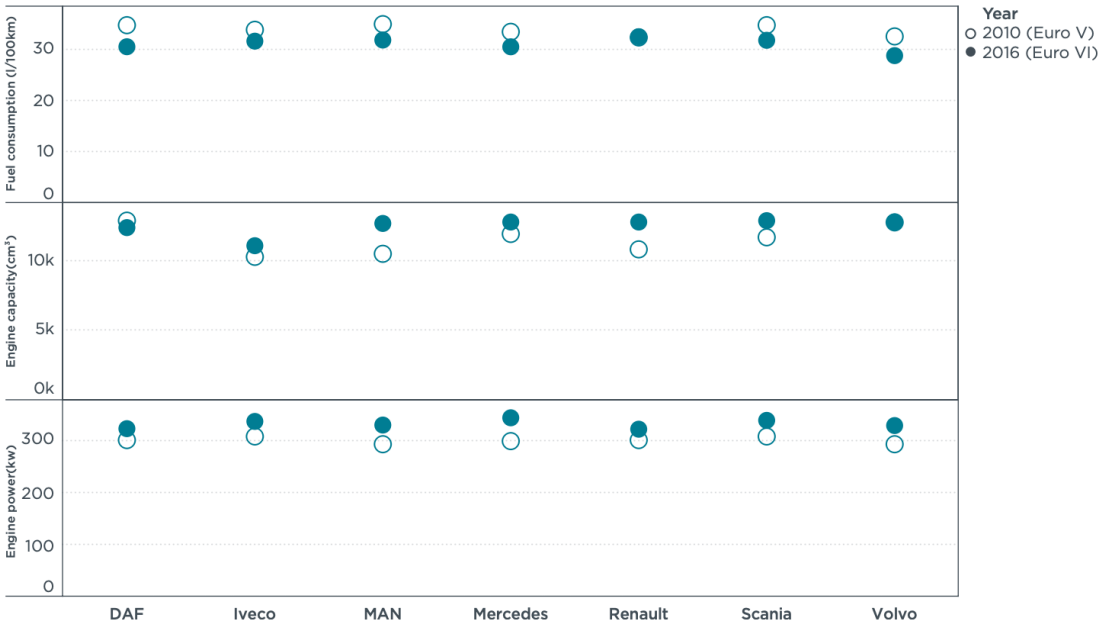


Figure 9. *Trans Aktuell*/Fehrenkötter long-term testing results for Euro V and Euro VI vehicles.

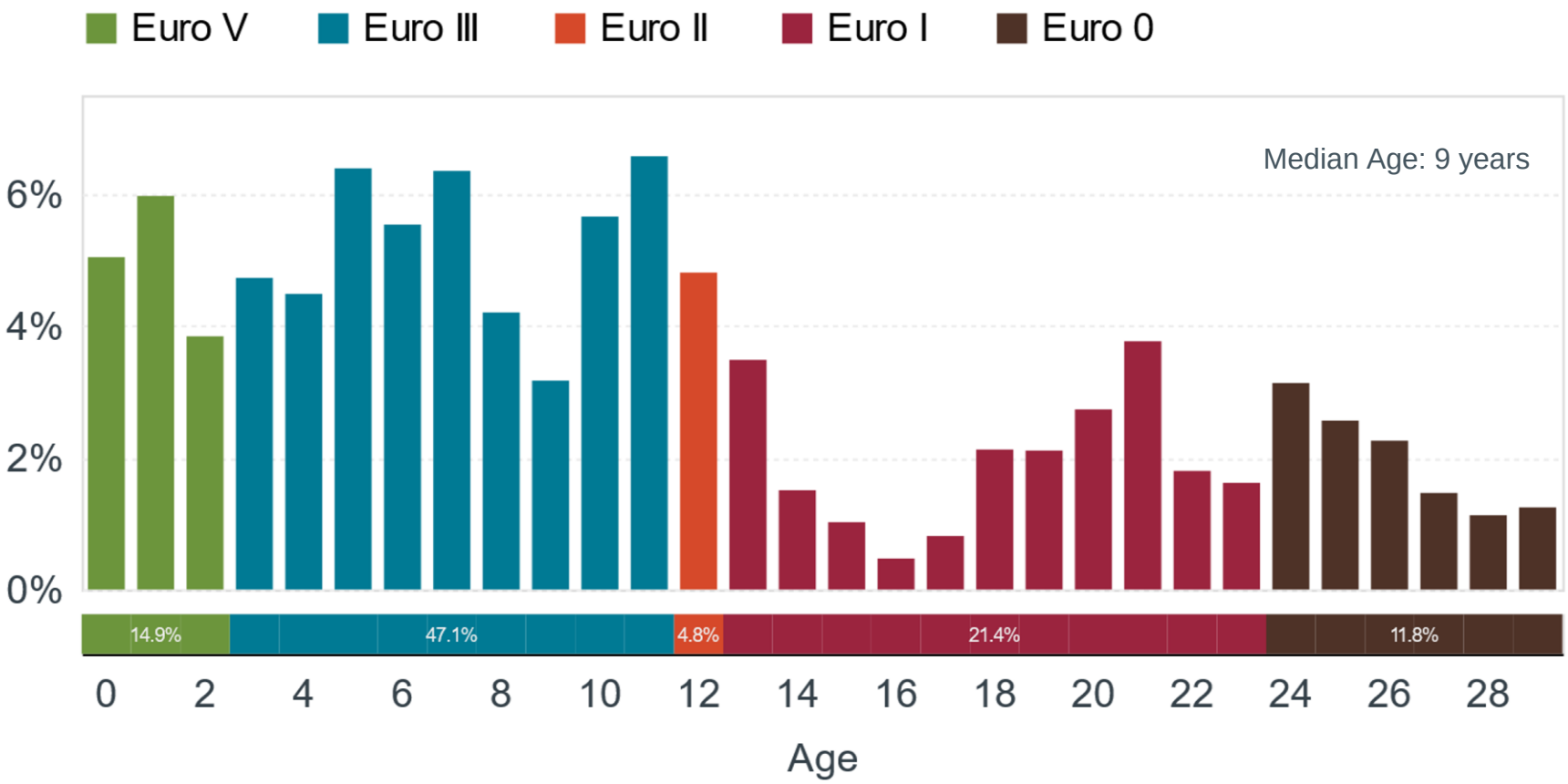
Even with very slight reduction in fuel consumption, there will be a relatively rapid payback.

- For a 2% benefit, there will be a payback in less than 3 years with 10-year savings of $3,000.
- For a 5% reduction, there will be a payback in about a year. With 10-year savings of ~$10,000

Source: https://theicct.org/sites/default/files/publications/Soot-free-HD-Diesel-engines_06082020.pdf

Baseline Fleet in Argentina

Heavy-duty vehicles by age and emission standard



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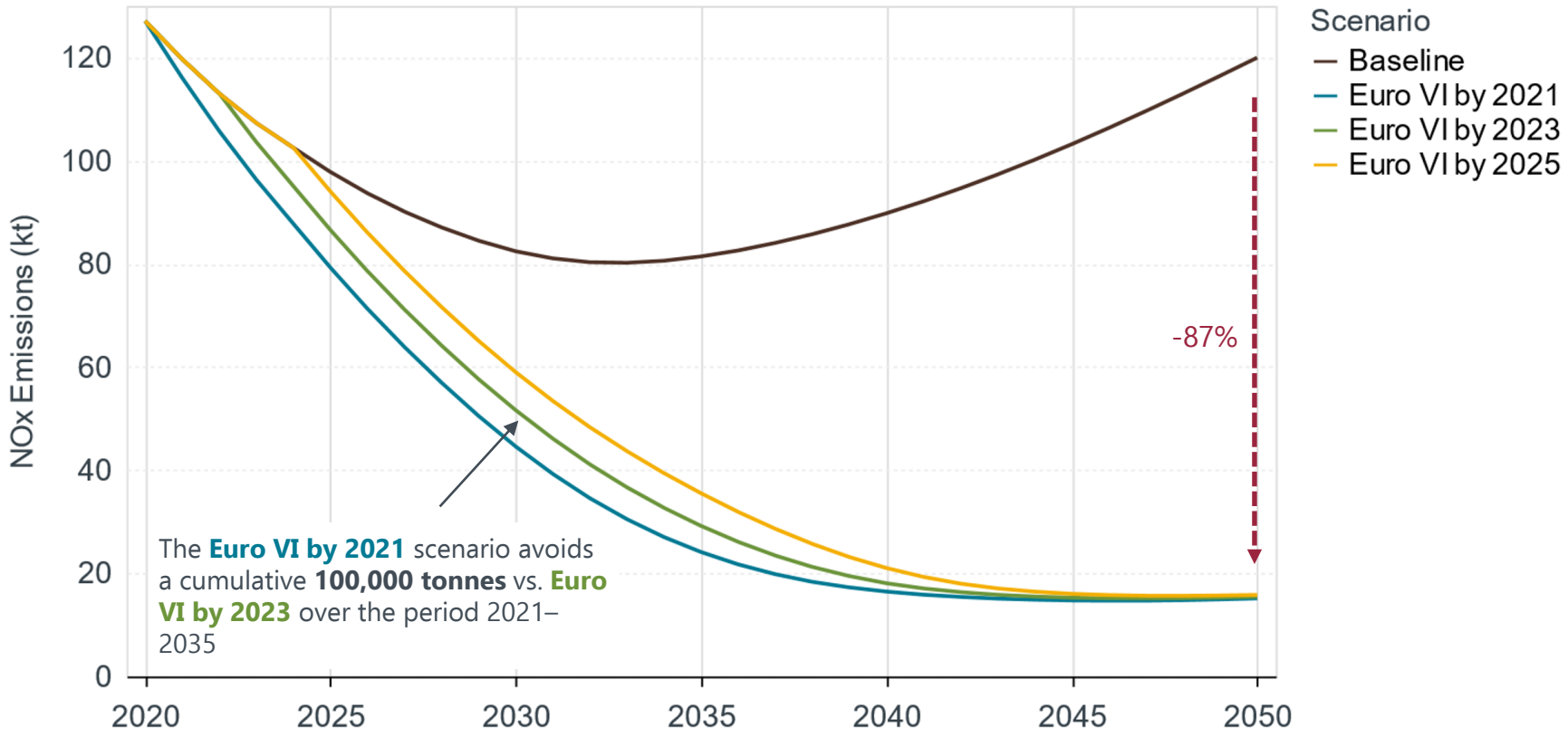
Promotive, 2019

NO_X emissions reductions

Projected NO_X emissions from heavy-duty vehicles by scenario, 2020–2050



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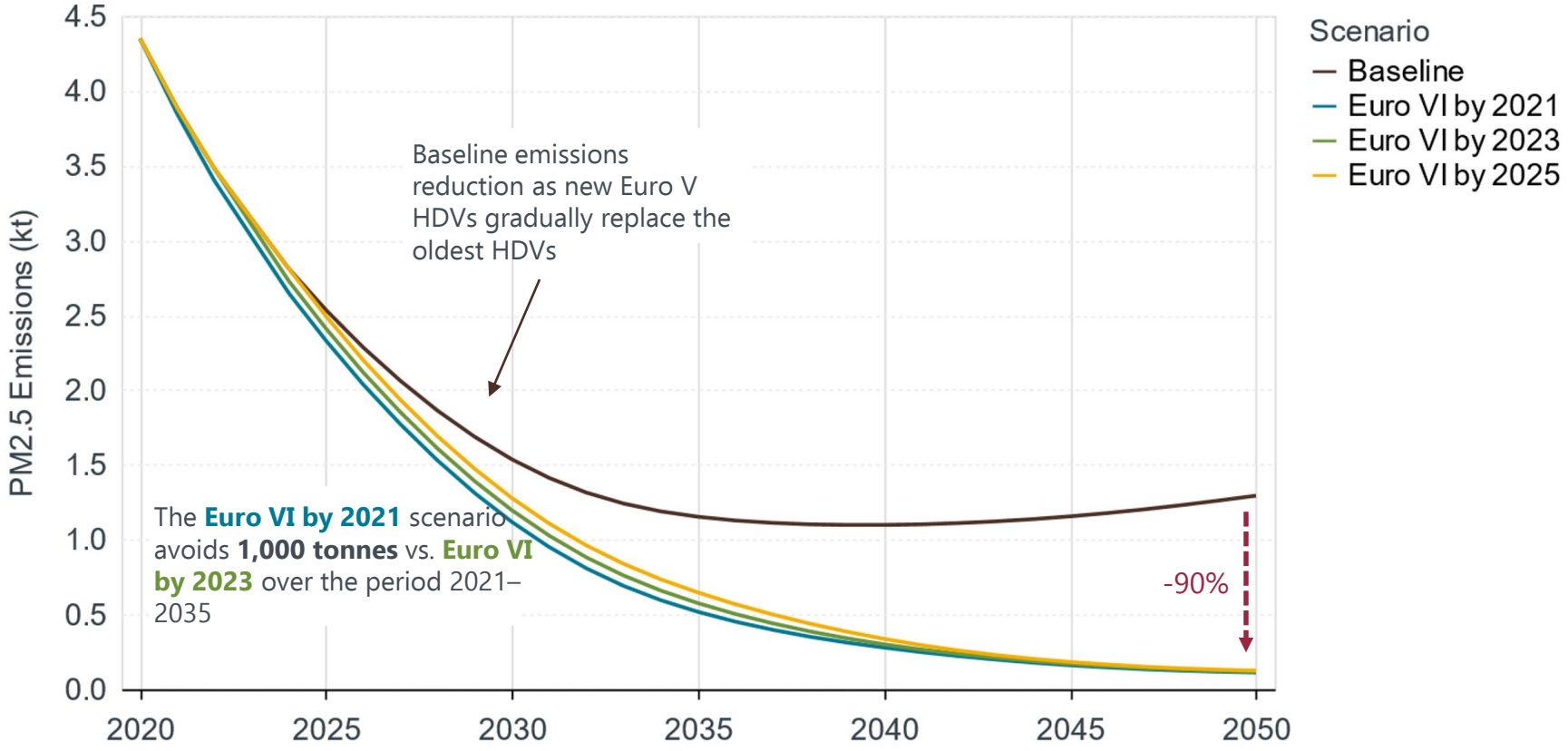
$PM_{2.5}$ emissions reductions

An estimated of 97% of BC emissions would be reduced compared to the baseline scenario by 2050



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Health benefits

Compared to a baseline of Euro V, implementing Euro VI in 2023 would avoid an estimated 1,950 (836–2,870) premature deaths and 51,300 (22,000–75,600) years of life lost from 2023–2050.

The following health outcomes are not captured:

- Ozone-related premature deaths
- NO_2 impacts on asthma incidence among children and asthma emergency department visits
- Potential impacts on the incidence of chronic kidney disease, preterm birth and other birth outcomes, and cognitive decline

Other factors that could cause health benefits to be underestimated:

- Resolution is too coarse to capture near-roadway gradients
- Potential changes in population size, demographics, population density, and baseline rates of air pollution related diseases are not considered

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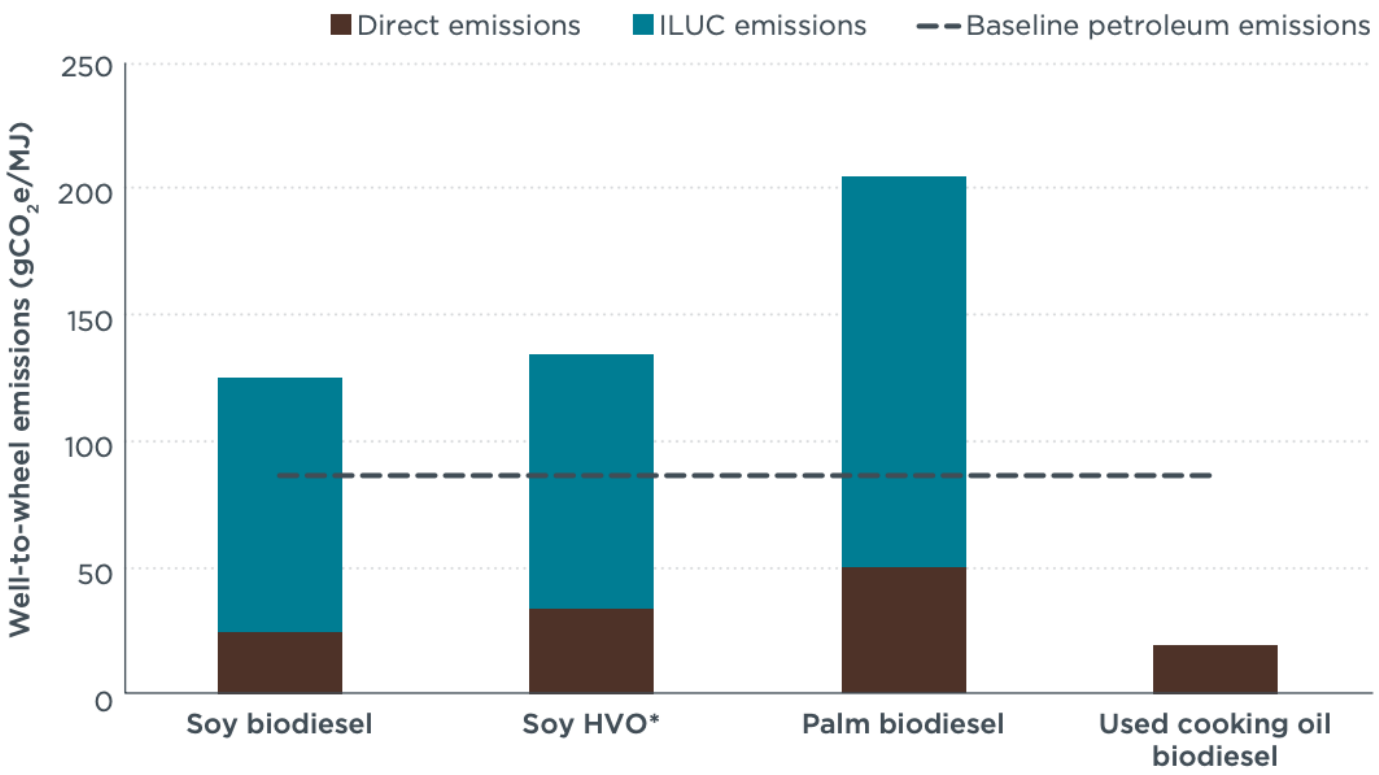
Source: https://theicct.org/sites/default/files/publications/ArgentinaCBA-vehiculos-pesados-ES.pdf

Plant-based fuels may not offer GHG benefits



Source: https://theicct.org/publications/biofuel-expansion-Brazil

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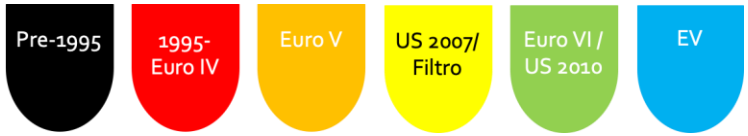
Complementary actions

- Improved access to clean fuels
  - Eliminate the price premium of Grade 3 diesel
  - Move nationwide supply to exclusively Grade 3 diesel
- Accelerated fleet renewal
  - Labeling of in-use vehicles



  - Enabling vehicle restrictions by time of day, area, or over time
- Electrification
  - Fleet mandates, programs and/or incentives for urban delivery fleets (and buses), where electrification lowers the total cost of ownership
- Scrappage programs
  - During COVID-19, much-needed support while there is little work for independent operators and gets the oldest vehicles and most polluting vehicles off the road
- Driver training
  - Teaching drivers to reduce fuel consumption, along with the benefits of new technologies

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