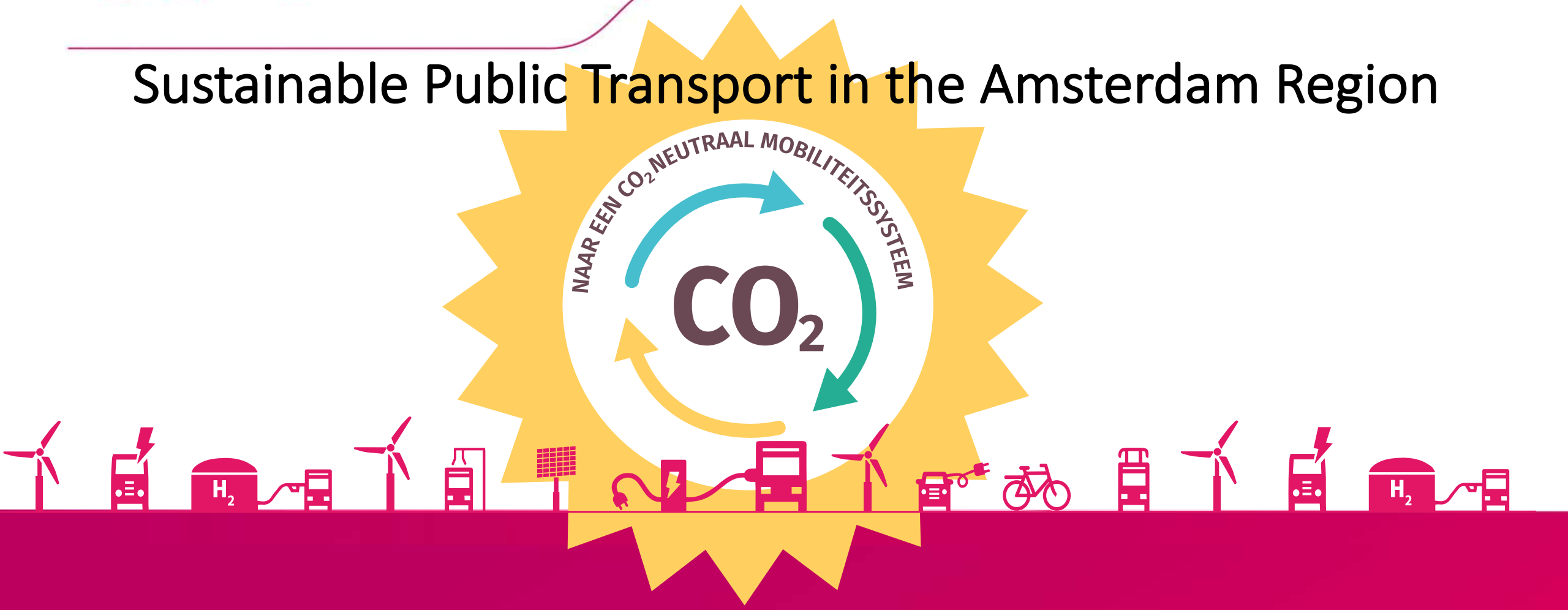
Vervoerregio Amsterdam

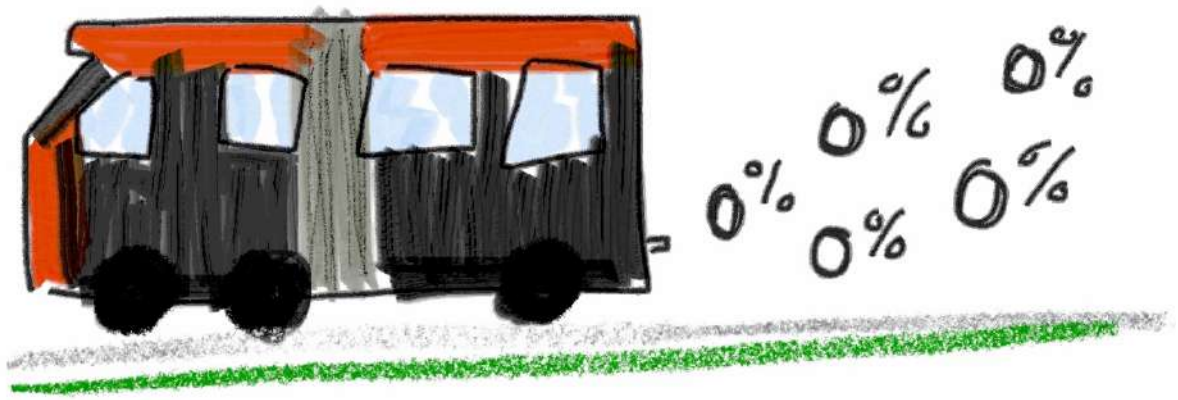
Sustainable Public Transport in the Amsterdam Region



Gerard Hellburg – Program Manager Zero Emission Mobility

Outline

- Transport Authority Amsterdam
- Ambition & goals: Sustainability in the Amsterdam Region
- Financial insights
- Lessons Learned



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Transport Authority Amsterdam

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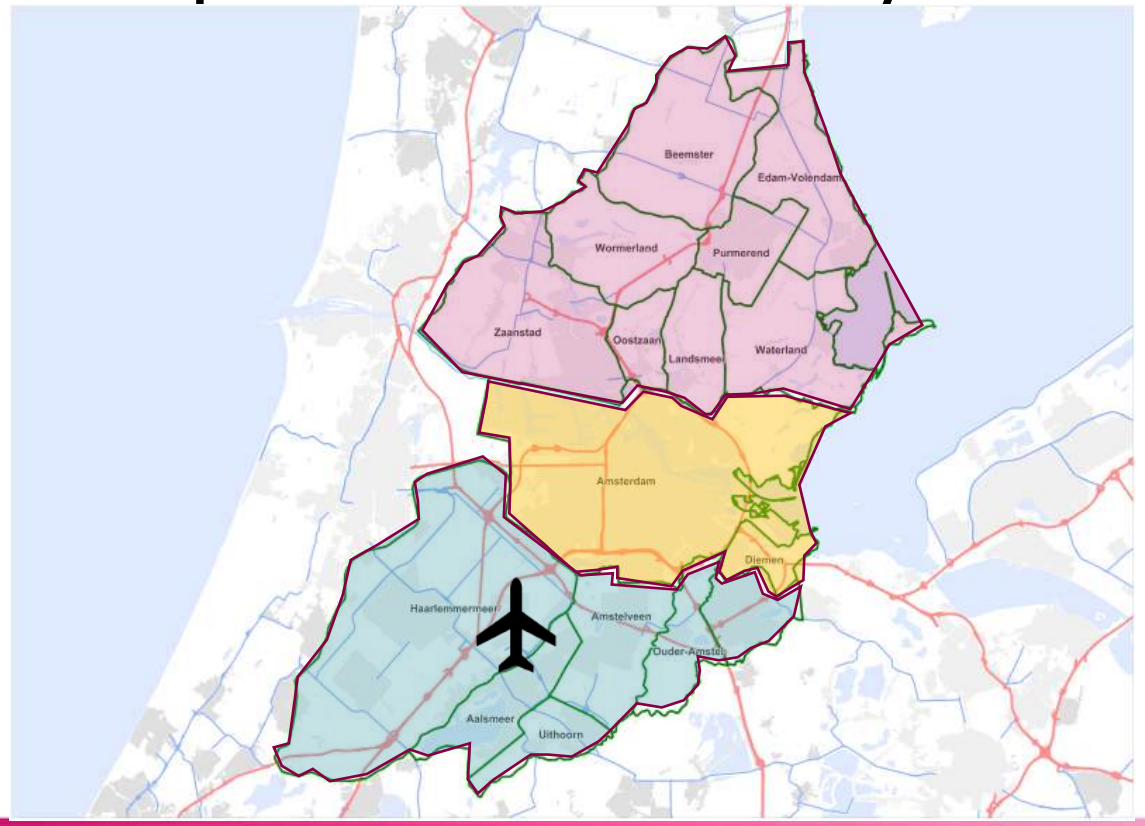
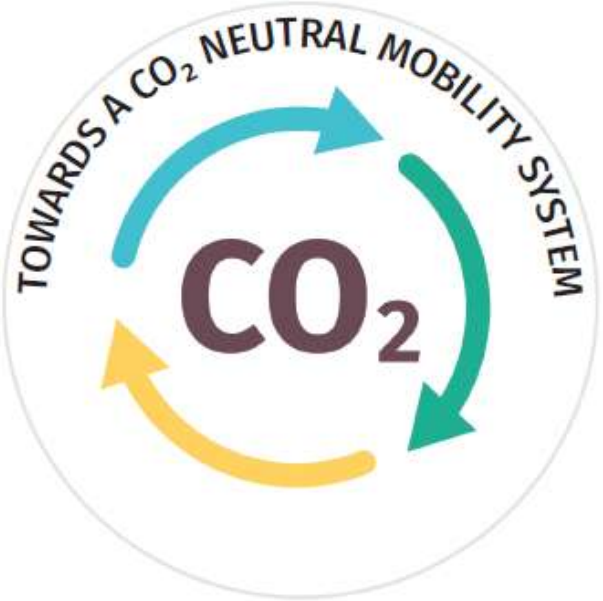


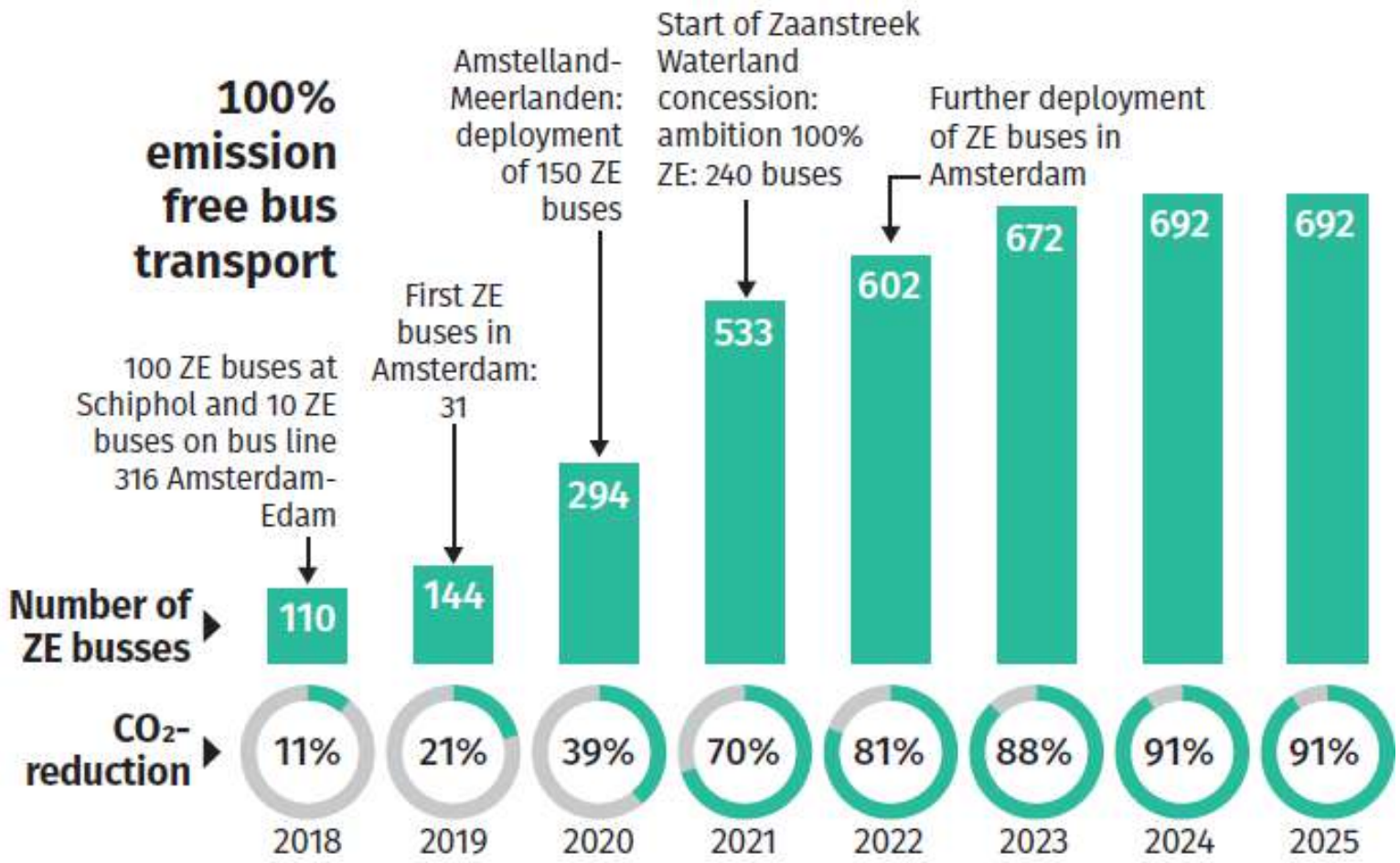
Sustainability: Ambition & Goals in the Amsterdam Region



Vervoerregio Amsterdam

Ambition

The Transport Authority Amsterdam (Vervoerregio) aims for cleaner and quieter public transport for its residents and travellers. With the transition to zero emission public transportation we contribute to the global climate goals. That is why from 2025 all new buses in the Amsterdam Metropolitan Region will be emission free. In 2030 this applies to all buses. Additionally, in 2030 all buses will be charged with electricity derived from 100% renewable energy sources.



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Preferred technology

For the coming years the Vervoerregio foresees that OC, IMC and plug-in are the most promising techniques. Together with our partners we will investigate per sub-network whether OC, IMC or plug-in is technically, financially and spatially the most feasible option, before making a definitive choice.

<80.000 km/year

80.000 <> 130.000 km/year

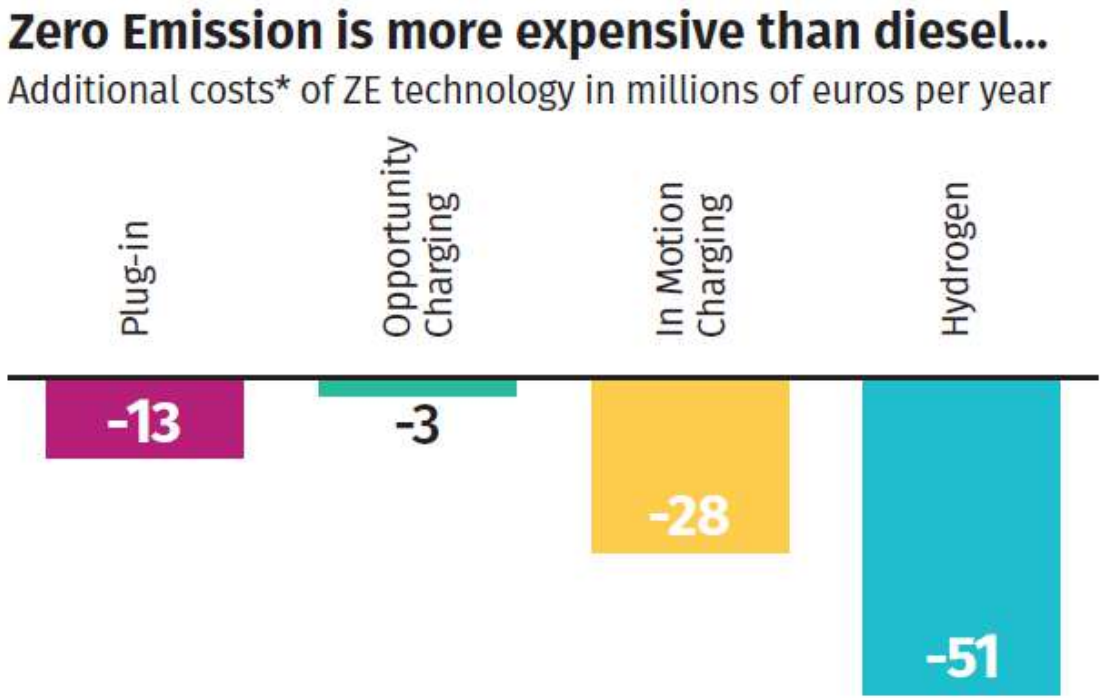
>130.000 km/year

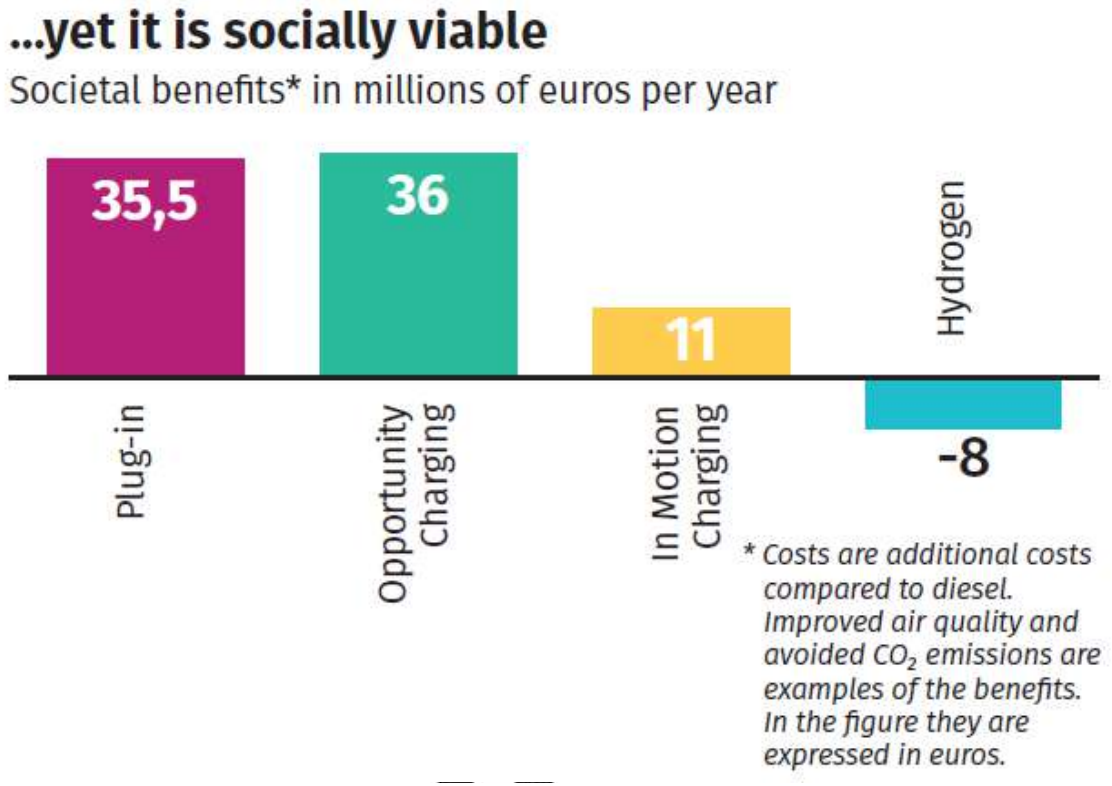
Power grid and the public space

Plug-in, OC and IMC have significant consequences for the power grid. A bus depot with 100 plug-in buses approximately consumes 15 megawatt hours in one night. On a yearly basis, this is comparable to the annual consumption of almost 3000 single-person households. Additionally, public space is required for the (fast) charging infrastructure of OC buses and for overhead lines for IMC buses.

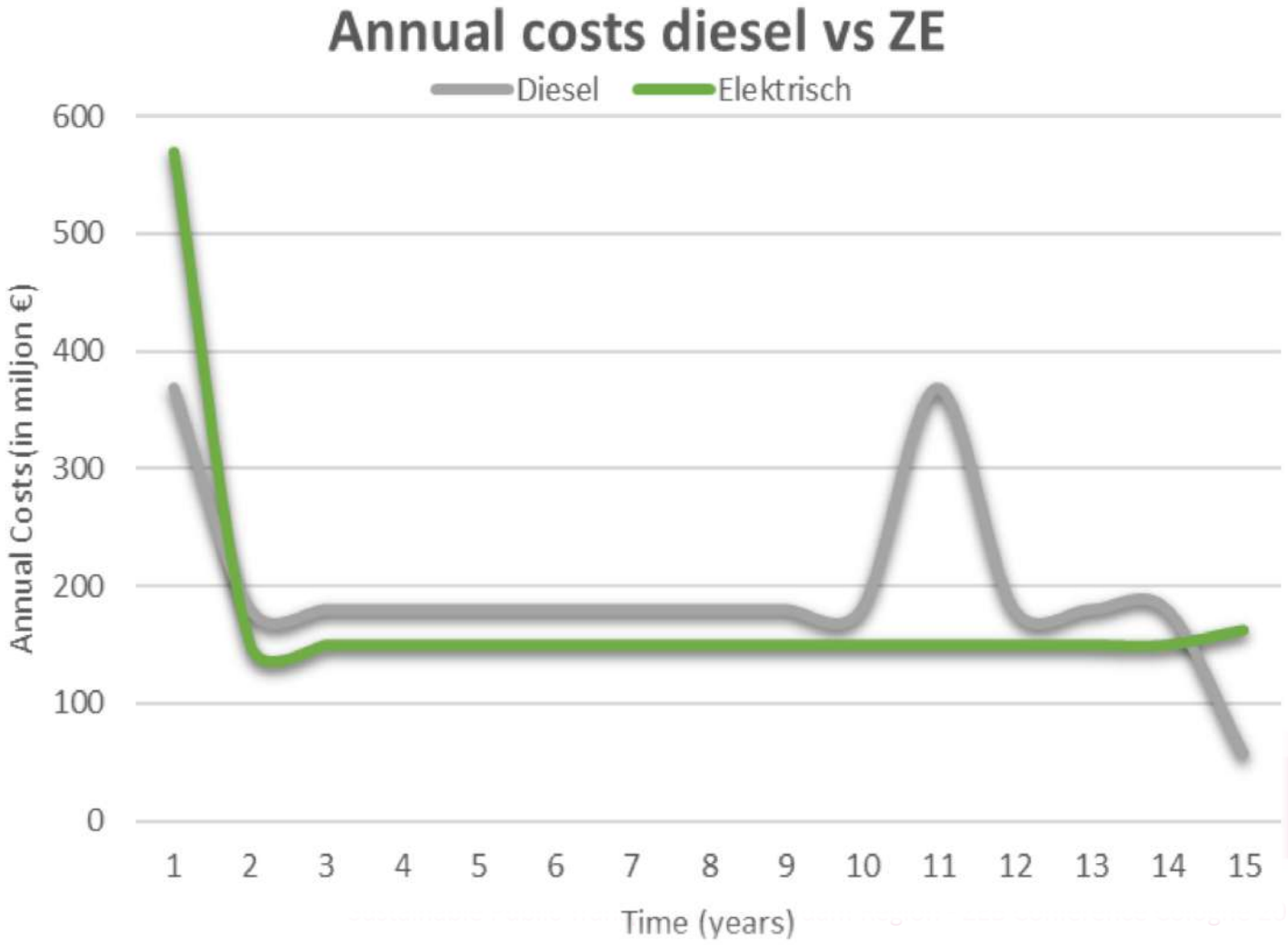
Financial insights

Financial Insight – TCO & SCBA





Financial Insight – TCO & SCBA



Financial aspects	€
bus: 18m OC	650.000
bus: 12 m OC	500.000
battery	60-80.000
fast chargers	250.000
construction/fast charger	160.000
additional drivers	4%
additional busses	4%
depot chargers	45.000
power connection 2 mVA	223.000
power connection 5 mVA	500.000

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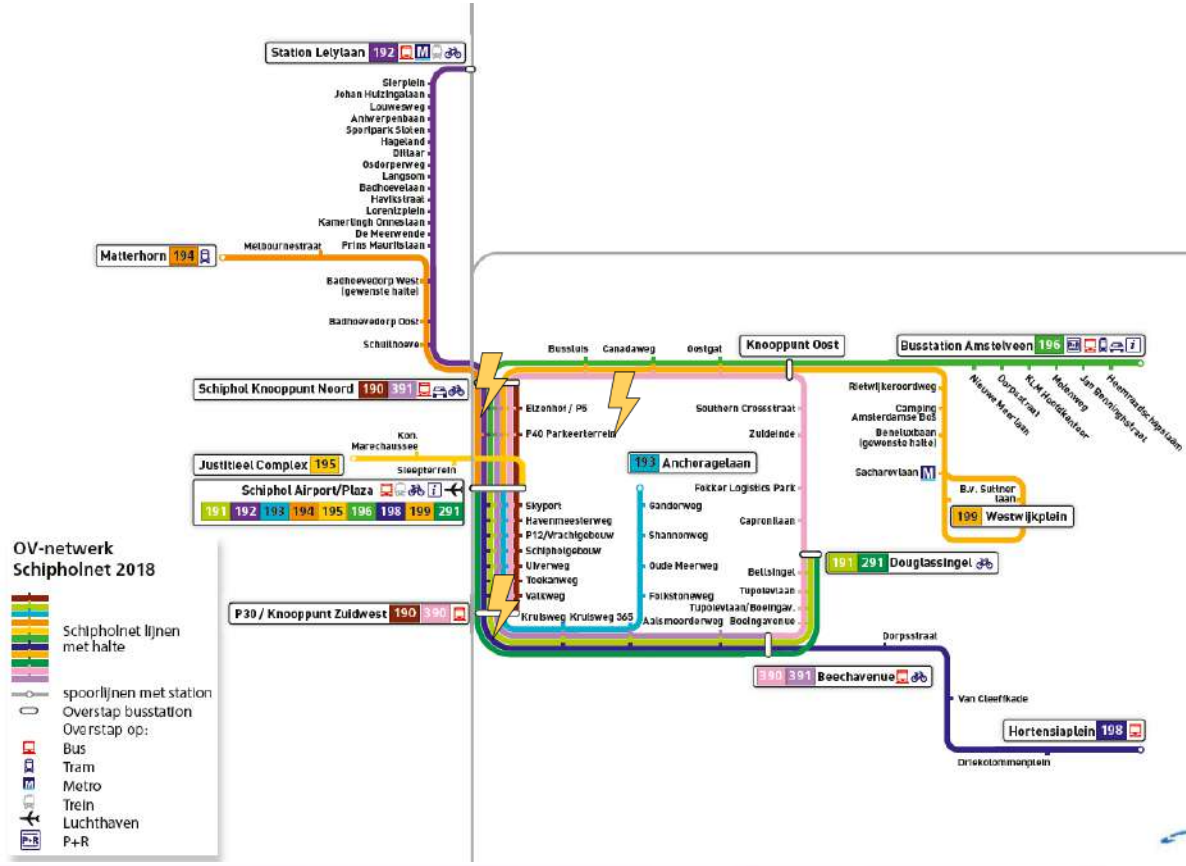
Lessons Learned

Tendering & implementing: Amstelland – Meerlanden

- Conducted a business case for Zero Emission
  - Developed a network
  - Appointed charging locations
  - Prepared power grid
  - Prepared depot for Zero Emission

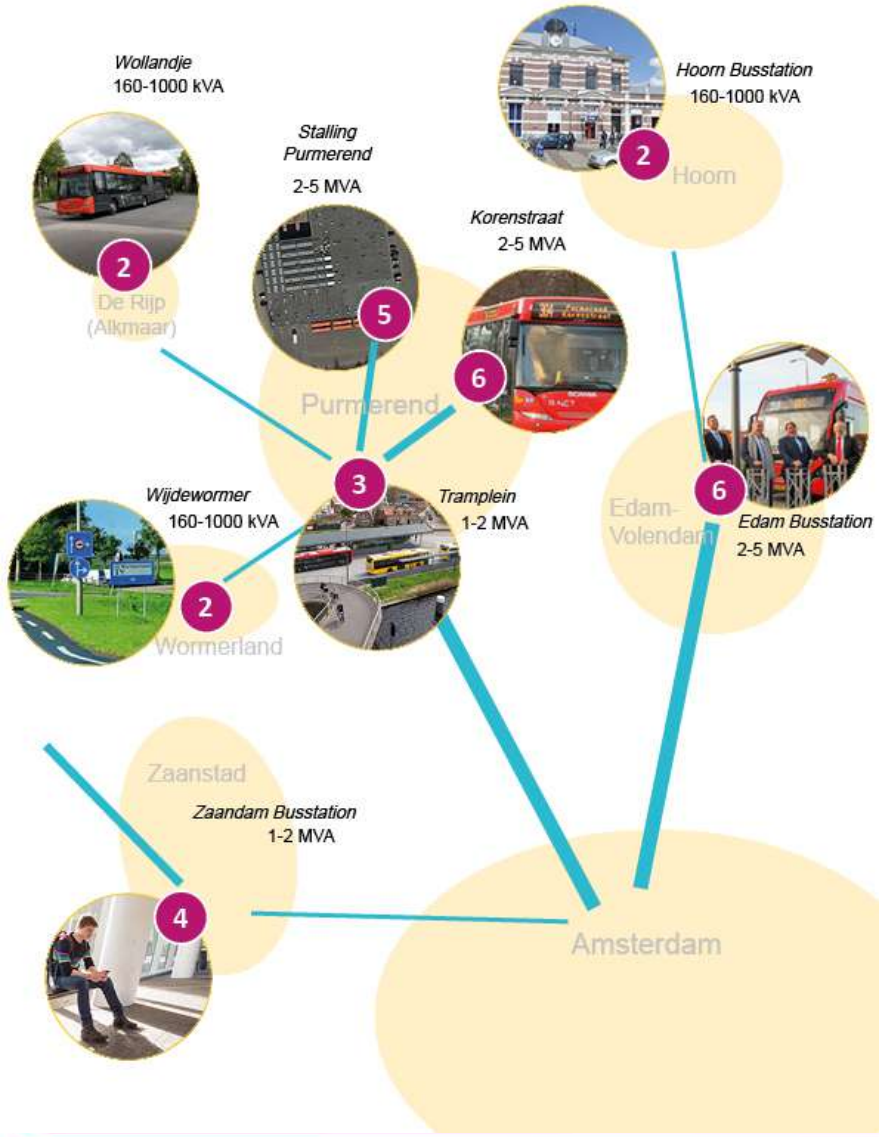


Tendering & implementing: Amstelland – Meerlanden

- Concession started 10 december 2017
- 100 ZE busses introduced on 1 april 2018
- Reliability higher than diesels (!)

Tendering Zaanstreek – Waterland
(240 busses, starting dec 2021)

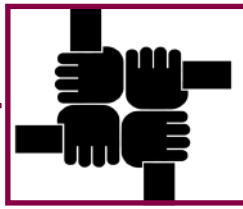
- Developed a ZE network (2018)
- Conducted TCO & buca (2019)
- Preparing charging locations (2019)



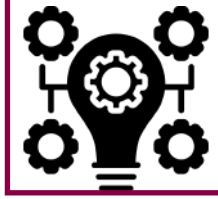
What did we learn?

Involve power grid company in planning to ensure availability & capacity (24 months prior)

Develop a proof of concept network and appoint possible charging locations, to minimize spatial- & permit challenges (24 months prior)



Phase transition to learn and adapt



Operator must be able / allowed to design a route network of zero-emission buses

Questions?

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