

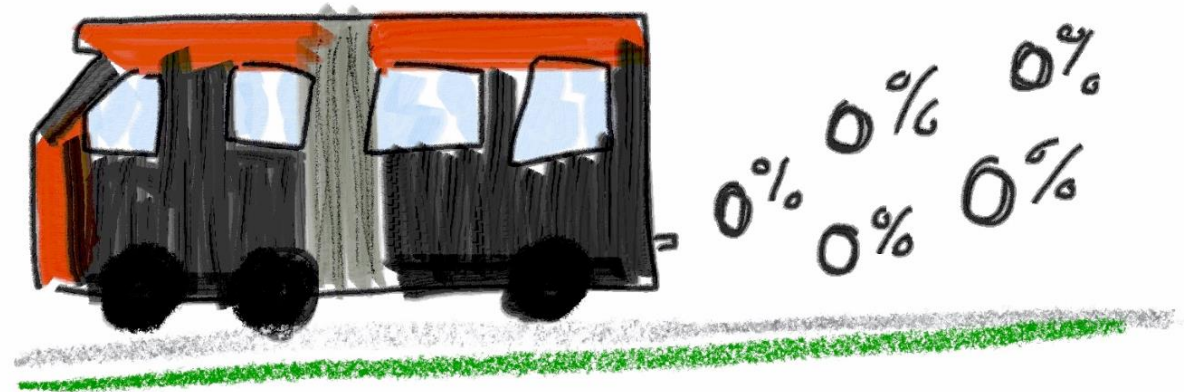
# Sustainable Public Transport in the Amsterdam Region



Gerard Hellburg – Programme Manager Zero Emission Mobility

# Outline

- Public Transport Authority Amsterdam
- Ambition & goals sustainability in the Amsterdam Region
- Financial insights
- Lessons Learned



# PTA of Amsterdam

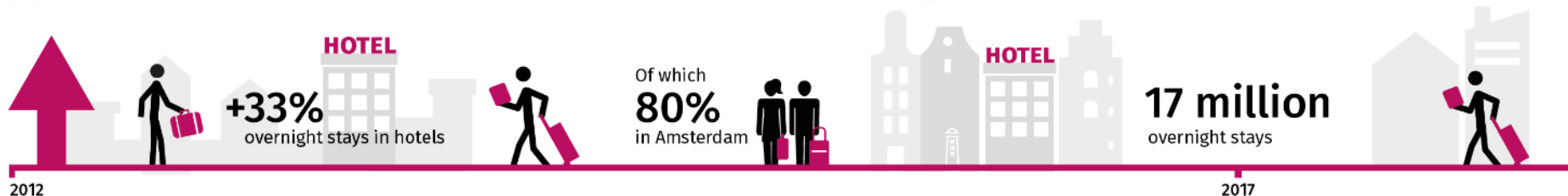
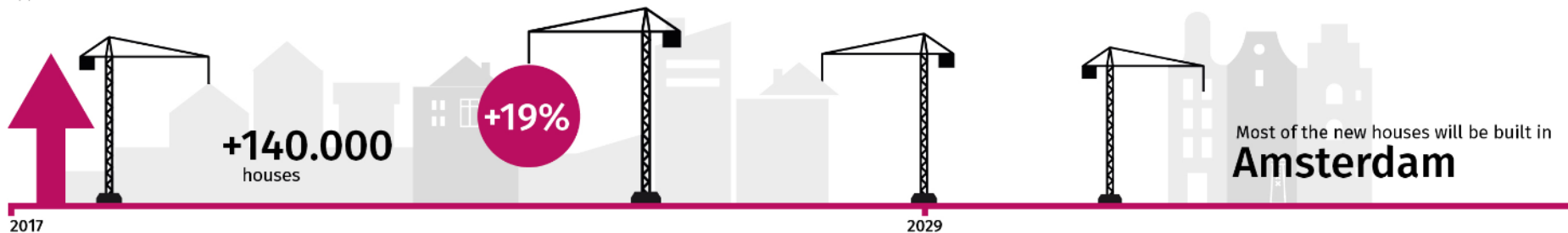
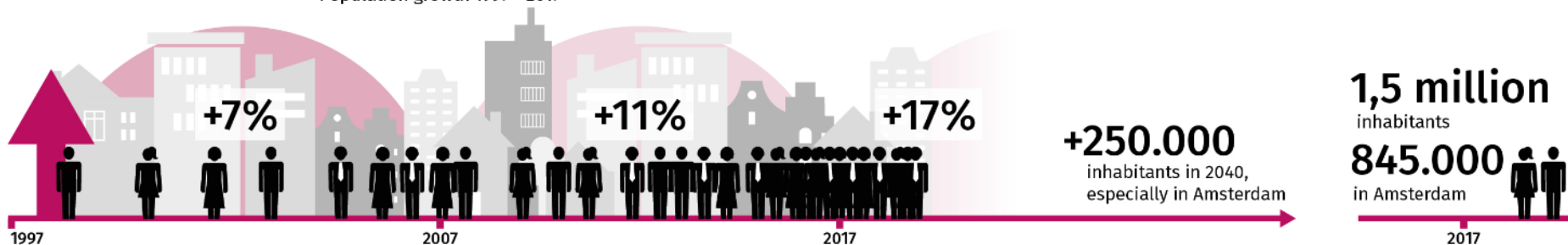


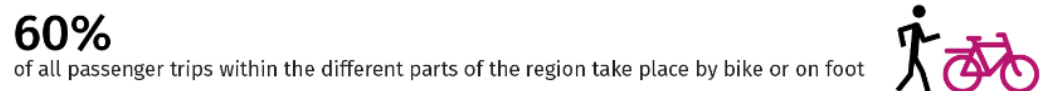
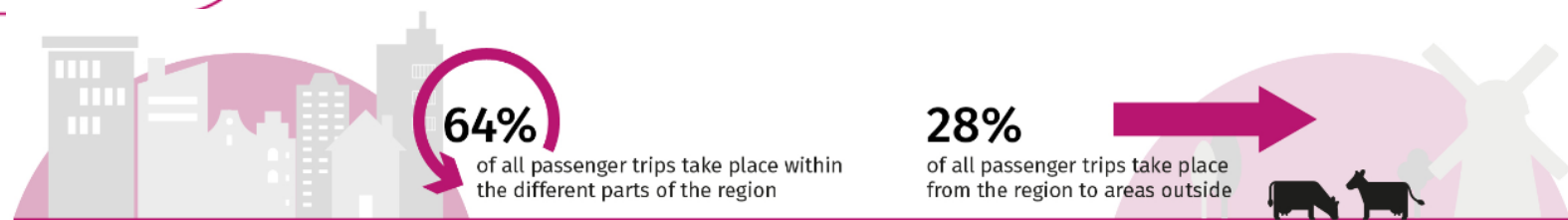


# The Public Transport Authority Amsterdam



Population growth 1997 - 2017





**NORTHERN & SOUTHERN PART OF THE REGION**

People up to 17 years travel mainly by

**bike**



People aged 18 and over tend to travel by

**car**



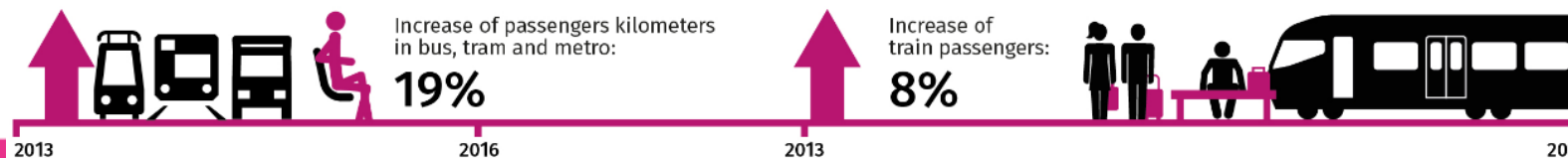
**AMSTERDAM**

People up to 17 years travel mainly

**on foot**



and by **public transport**



# Sustainability Ambition & Goals in the Amsterdam Region





## Existing policies

### Global



*The Paris Agreement, 2015*

- Keep the increase in global average temperature to well below 2°C above pre-industrial levels

### National



*Administrative Agreement on Zero Emission Bus, 2016*  
*Climate Act, 2018*

- In 2030: all regional public transport zero emission
- In 2050: 95% reduction of CO<sub>2</sub> emissions compared to 1990

### Regional



*Policy Framework Mobility Amsterdam Transport Authority*

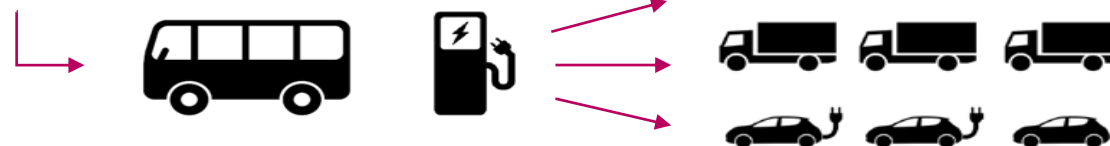
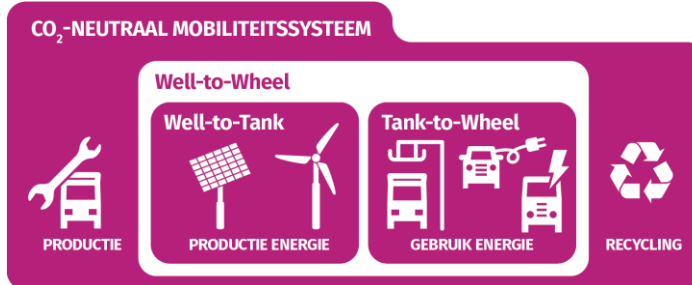
- In 2050: a CO<sub>2</sub> neutral mobility system

### Municipal



*Example: Zero Emission Public Transport Amsterdam*

- In 2025: public transport zero emission in Amsterdam

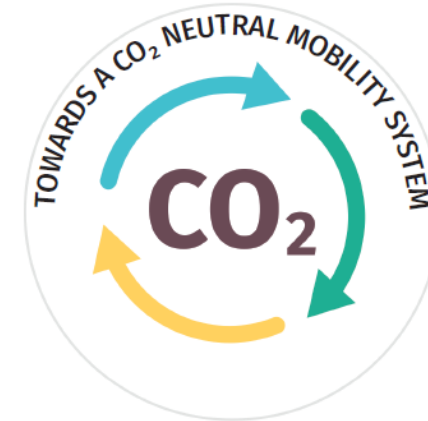


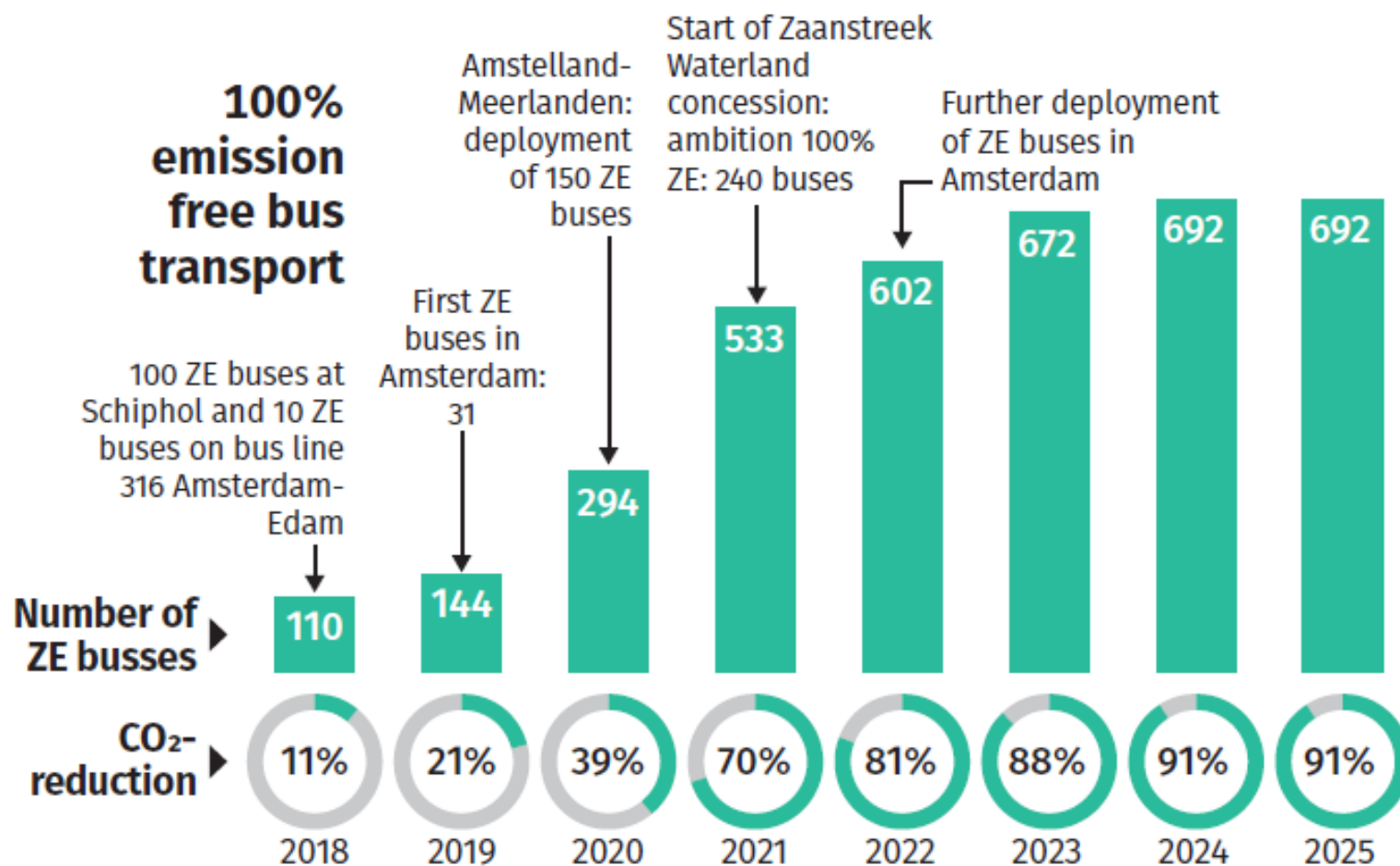




### **Ambition**

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.







### 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.

# Partners

- PTA
- Power grid company
- Municipalities & Provinces
- Public Transport Operators
- Other mobility suppliers





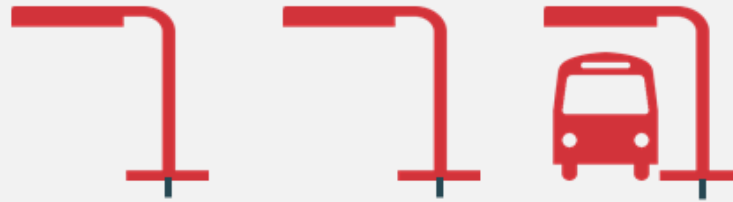
# Smart Grids

Charging location



# Smart Grids

## Charging location



E-cars

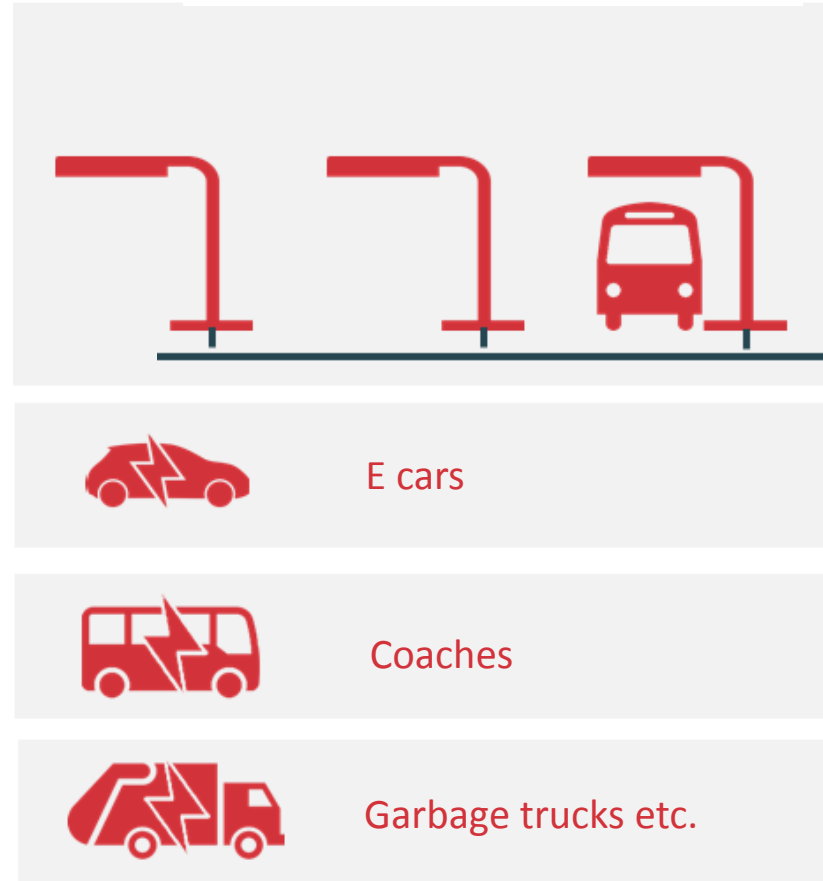


Coaches

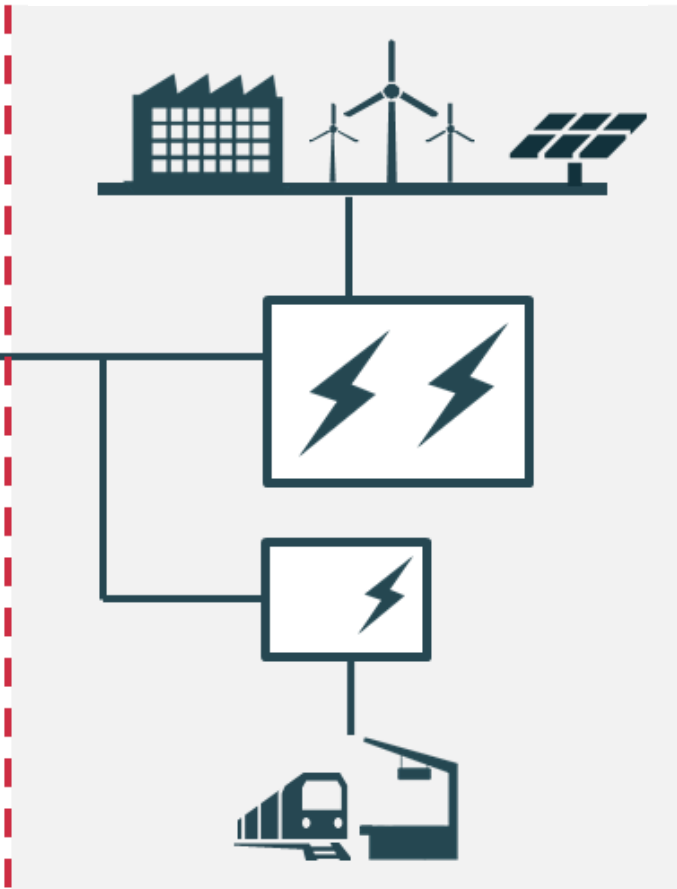


Garbage trucks etc.

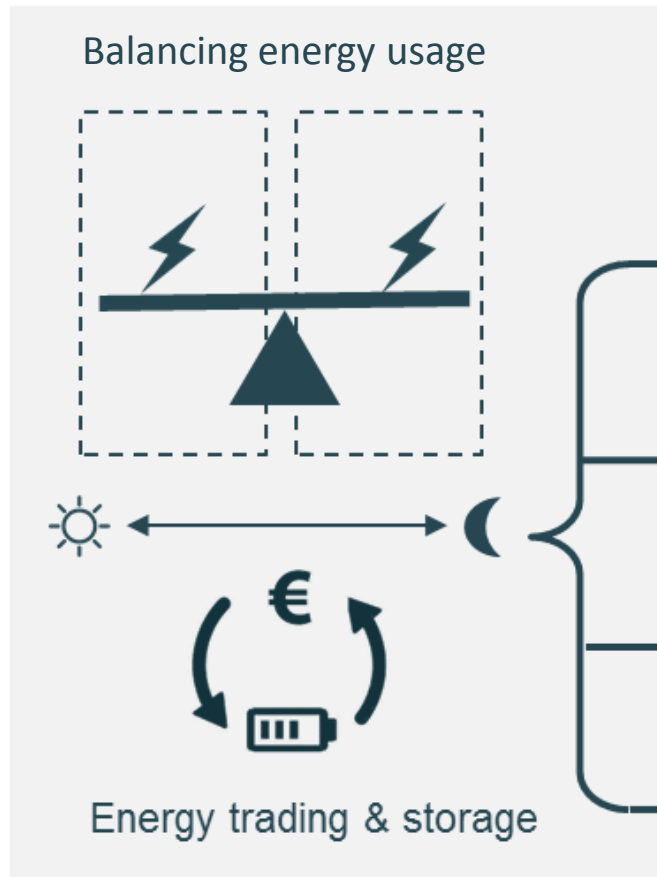
### Charging location



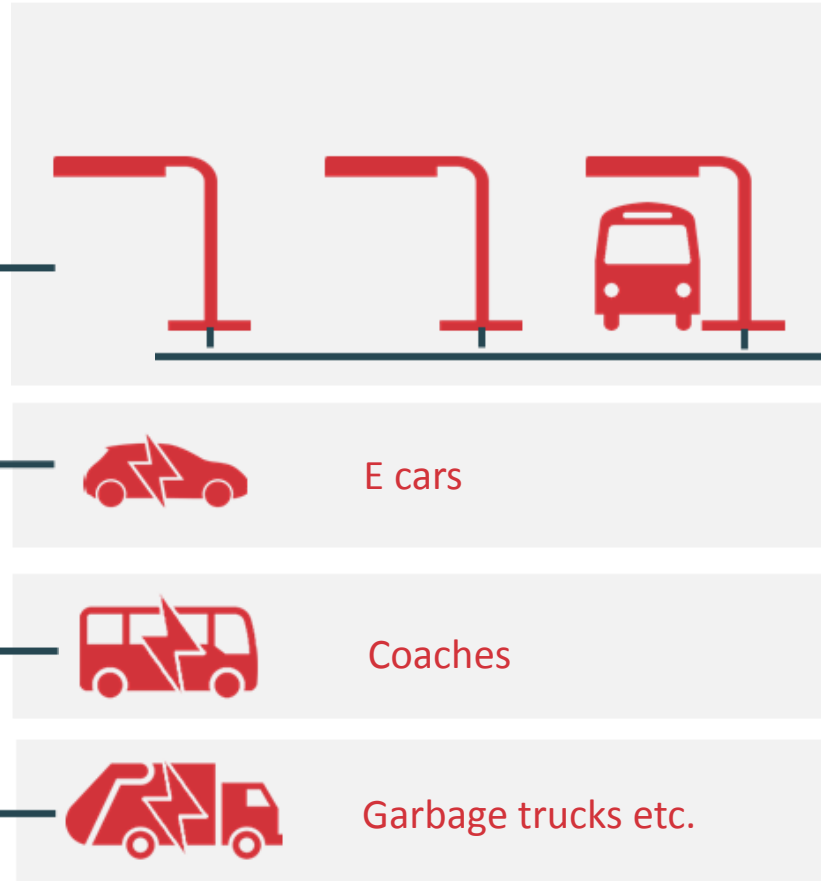
### Production & Storage



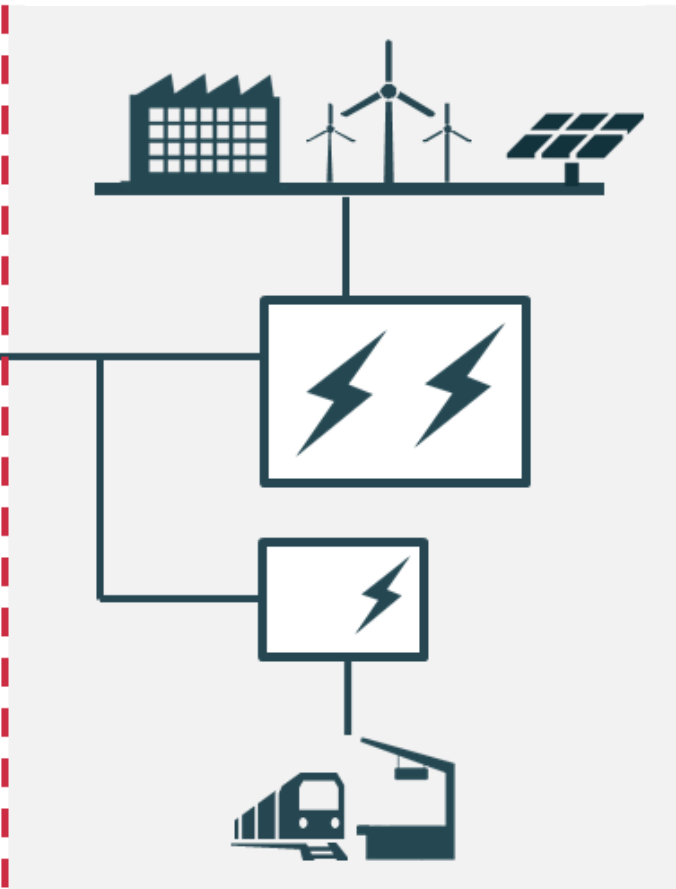
## Users energy infrastructure



## Laadlocatie:



## Production & Storage





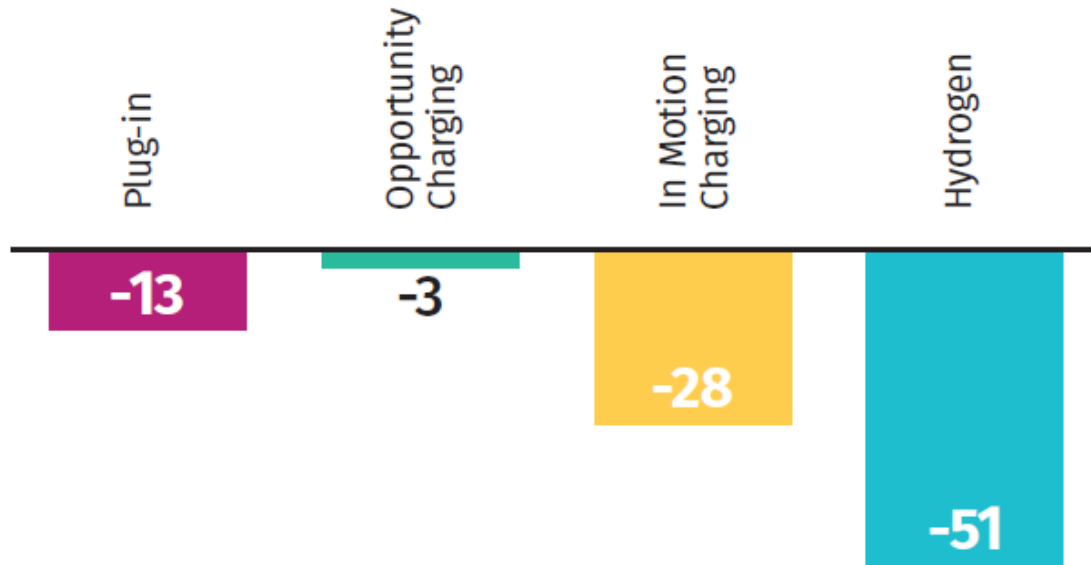
# Financial insight



# Financial Insight – TCO & SCBA

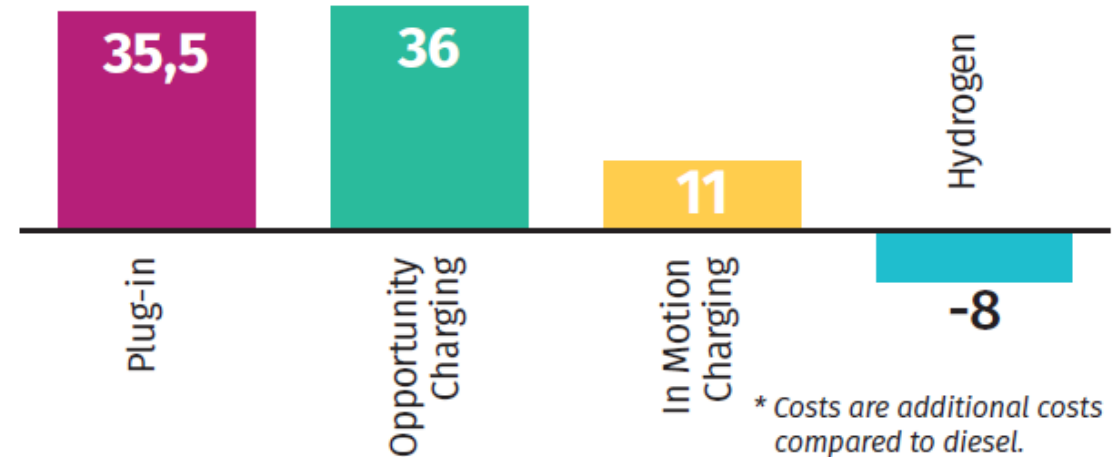
## Zero Emission is more expensive than diesel...

Additional costs\* of ZE technology in millions of euros per year



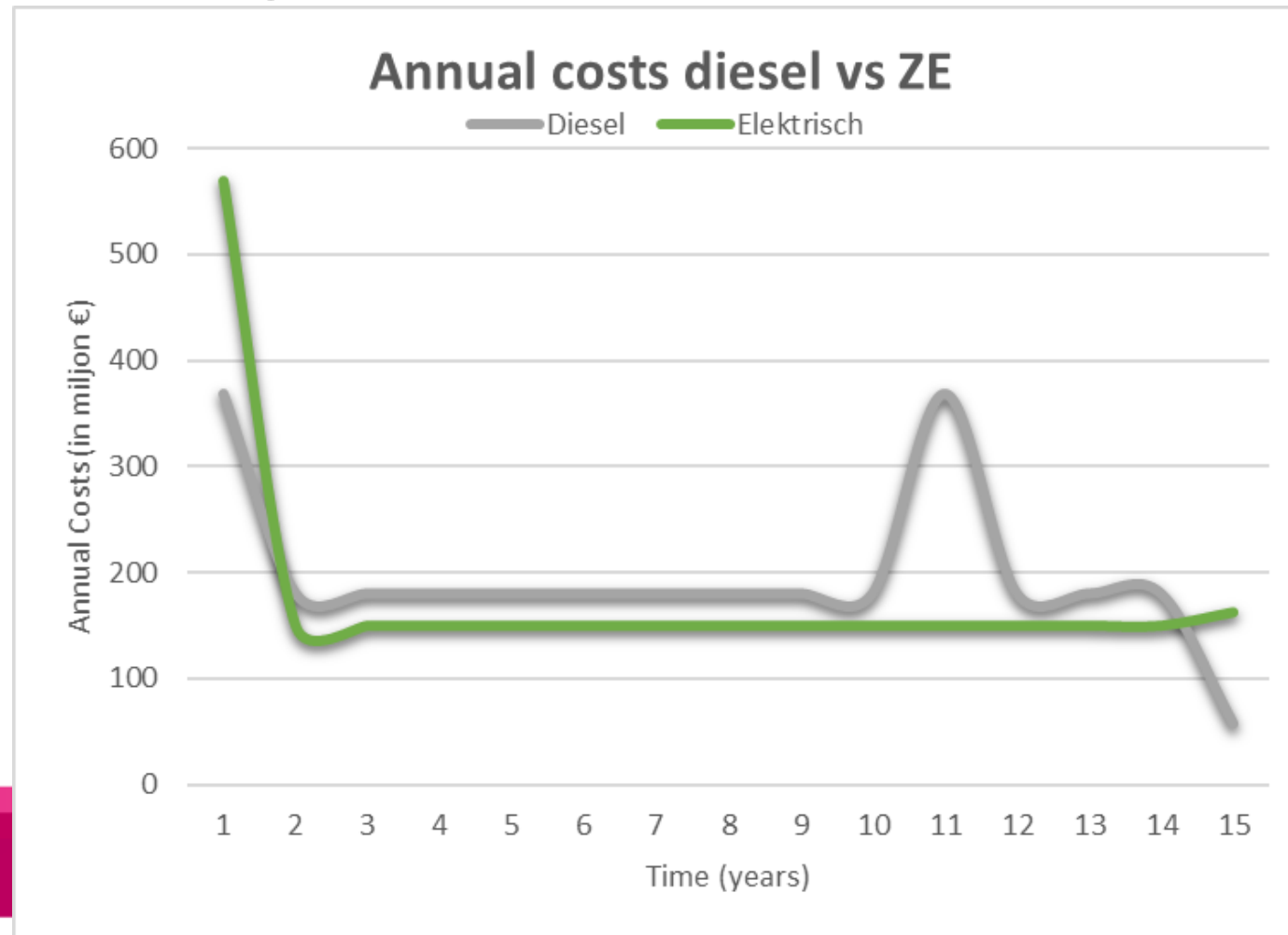
## ...yet it is socially viable

Societal benefits\* in millions of euros per year



\* Costs are additional costs compared to diesel. Improved air quality and avoided CO<sub>2</sub> emissions are examples of the benefits. In the figure they are expressed in euros.

# Financial Insight – TCO & SCBA



# Lessons Learned





# Manageable and affordable transition within 10 years

## Conditions:

- Phase transition to learn and adapt
- Operator must be able / allowed to design a route network of zero-emission buses
- Appoint possible charging locations, beware of spatial- & permit challenges
- Need for extra attention on power grid, availability & capacity
- Accept depreciation in 15-years for vehicles and charging equipment

# Know your Transition partners

- Commitment of all stakeholders
- Agreement on responsibility
- Flexibility to be able to learn
- Transparency on costs



# Questions?

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