

Transition towards Zero Emission Mobility

In Metropolitan Area Amsterdam

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1 Transport Authority of Amsterdam

Transport Authority of Amsterdam

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Amsterdam Region contains 4 Public Transport Concessions

1. Amsterdam City (Bus, tram and Metro) – directly awarded to GVB
2. Zaanstreek (Bus by Connexxion) – public tender
3. Waterland (Bus by EBS) – public tender
4. Amstelland Meerlanden (Bus, including Schiphol Area – 24/7 by Connexxion) – public tender



Transport Authority of Amsterdam

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Region 1.514.163

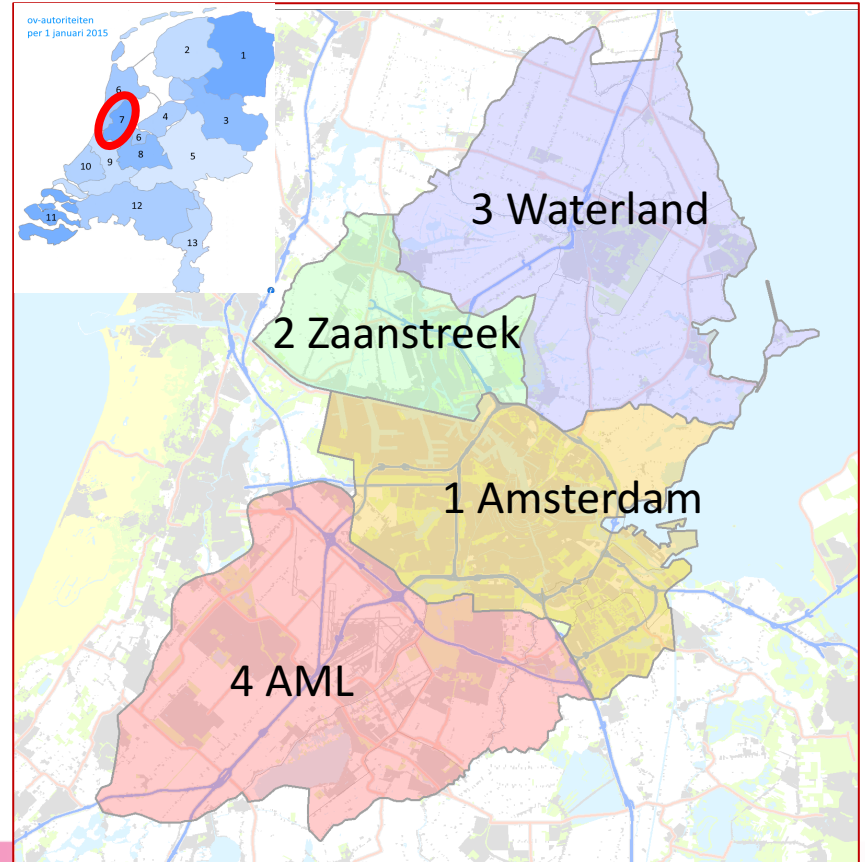
City of Amsterdam 844.952



7.200.000 tourists a
year



929.410 jobs



2 Call for sustainability in NL

2015: call for sustainable public transport

- Many parties had single technique perspective
- Often without clear and transparent calculations
- We needed a decision about goals and approach, based on:
 - Current insights into experiences and effects
 - Costs and benefits of technologies and fuels
 - Possible integration of future technologies

Result: different options for ZEB



Plug in



Battery



Trolley (with or without battery)



Hydrogen



CNG



Biodiesel

3 Shift to ZEB in AML



1 Customer journey central



2 High Quality



3 Stimulate growth



4 Flexibility



5 Contribute to policy goals such as accessibility



6 Financially appropriate



Public tender AML

- Requirement for zero-emission for PT at the Greater Schiphol Airport Area
- Investments done by Schiphol of loading equipment
- Investments are based on a Business Case conducted by PTA
- Proposed by ZE-appropriate transport lines
- Award criteria for reducing CO₂ and NO_x per year over the entire concession period



0,1 %



0,4 %



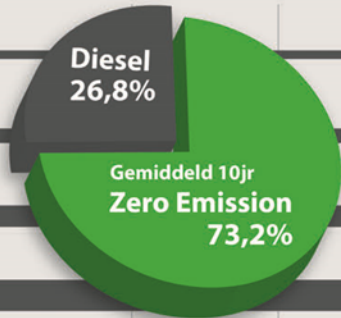
2,0 %



3,3 %



6,4 %



0,1 %

0,4 %

1,9 %

3,1 %

6,2 %

28,2 %

30,5 %



8,9 %

15,5 %

41,7 %

17,9 %

17,3 %

16,1 %

100%

100%

Charging busses

- 21 fast chargers of 450 kW (opportunity charging)
- 43 chargers 60kW (overnight charging)
- 8 fast chargers on the route (Schiphol North and P30)
- Charging stations for pod cars



4 Transition towards ZEM for the Metropolitan Area

Trends that affect ZEM

1. 15 april 2016 Bestuursakkoord ZEB: Administrative Agreement ZE Regional Public Transport by Bus. Strong commitment of all the PTA's in NL to focus on ZE.
2. Smart Mobility: new perspective on mobility. Calls for well thought strategic charging infrastructure.
3. Charging infrastructure demands: Exchangeability and strategically located

Resulted in a need for a broader perspective on ZE

Transition towards ZEM

- Commitment of all stakeholders
- Transparency on costs
- Responsibility about agreements
- Flexibility to be able to learn
- Manageable and affordable transition



...Ambitions Ambitions...

- 2025 all new busses ZE
- 2025 100% usage if renewable energy
- 2030 all busses ZE
- Exchangeable and affordable charging infrastructure system
- Creating synergy with other transport modals: E-hub

5 Challenges in realization

We like a good challenge... so:

- Balance between efficiency within concession and investment requirements
- Local regulations: e.g. tunnel safety
- Awareness on costs of ZE
- Designing a strategic regional (fast) loading system
- Commitment on roles, responsibility and costs
- Keeping up with state of the art development