

*Zero Emission in Public
Transport in the Netherlands
North-Brabant 2015-2025*

Maarten Post

Province North Brabant



*Brabant
Europe's
heart of smart
solutions*

Introduction 1

Challenges:

- Pollution, vibrations and noise (city centres)
- Reduced budgets PT

Ambitions:

- Zero emissions in public transport in 2025
- Stimulate the regional economy
- Maintain service – in line with demand
- Serving cities, travellers and residents

The larger programme & scheme

Programme:

Electric Mobility and Smart Grids

Integrating Scheme:

Smart & Green Mobility

Brabant on the move

2015-2019 Administrative Agreement

Brabant Energy Agreement: Basis to focus on accelerating a green and sustainable Brabant

Accelerate the proces of making the Brabant economy green and sustainable

Work on a transportsystem that makes efficient use of raw materials, is environmental-friendly, safe and offers high-speed connections

Space to Experiment:
Living Labs



System Innovation

- ‘Old’: trains, trams, trolleybuses
- ‘New’: battery & fuel cell buses
- Tested technologies, adequate results
- System transition towards ZE
- Innovation curve
- Overcome valley of death

North-Brabant Roadmap



Energy transition in Noord-Brabant's bus transport

Stimulate promising cluster electric mobility and smart grids

Why invest in zero emissions bus transport?

Brabant transports:

The provincial government is responsible for public bus transport.

As of 2025, it wants 100% clean bus transport at a societally acceptable price. To learn and innovate, the provincial government has started these pilots with various sustainable energy technologies.



Brabant innovates:

Brabant is a living lab, we create space to experiment to enable breakthroughs in the strong knowledge cluster for smart and green mobility.



Brabant goes green:

With the Brabants Energieakkoord [Brabant Energy Accord] we intend to focus our efforts on accelerating the greening and increased sustainability of Brabant's economy.



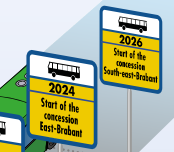
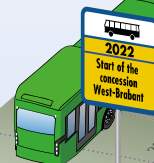
Living lab smart public transport

The Brabant Development Agency [Brabantse Ontwikkelingsmaatschappij] (BOM) and The Zero Emissions Bus Transport Foundation [Stichting Zero Emmissie Busvervoer] involve the business community in the development of pilots.

2019 Scaling-up

The provincial government wants to greatly increase the number of zero emissions buses utilised in Brabant's cities.

East-Brabant from 11 to 34 buses.
West-Brabant from 0 to 24 buses.



2025
Zero emissions bus transport in Brabant.

2022 and thereafter:

Tender for fully zero emissions fleet.

2015 – 2018
Zero emissions bus transport: 3 pilots

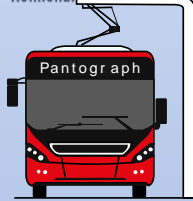
Pilot 's-Hertogenbosch

In 2015, pilots will start with fully electric buses. We will thereby trial both conductive and inductive charging technologies. The pilots were developed in cooperation with Arriva, VDL, Bluekens, Proov and the Municipality of 's-Hertogenbosch.



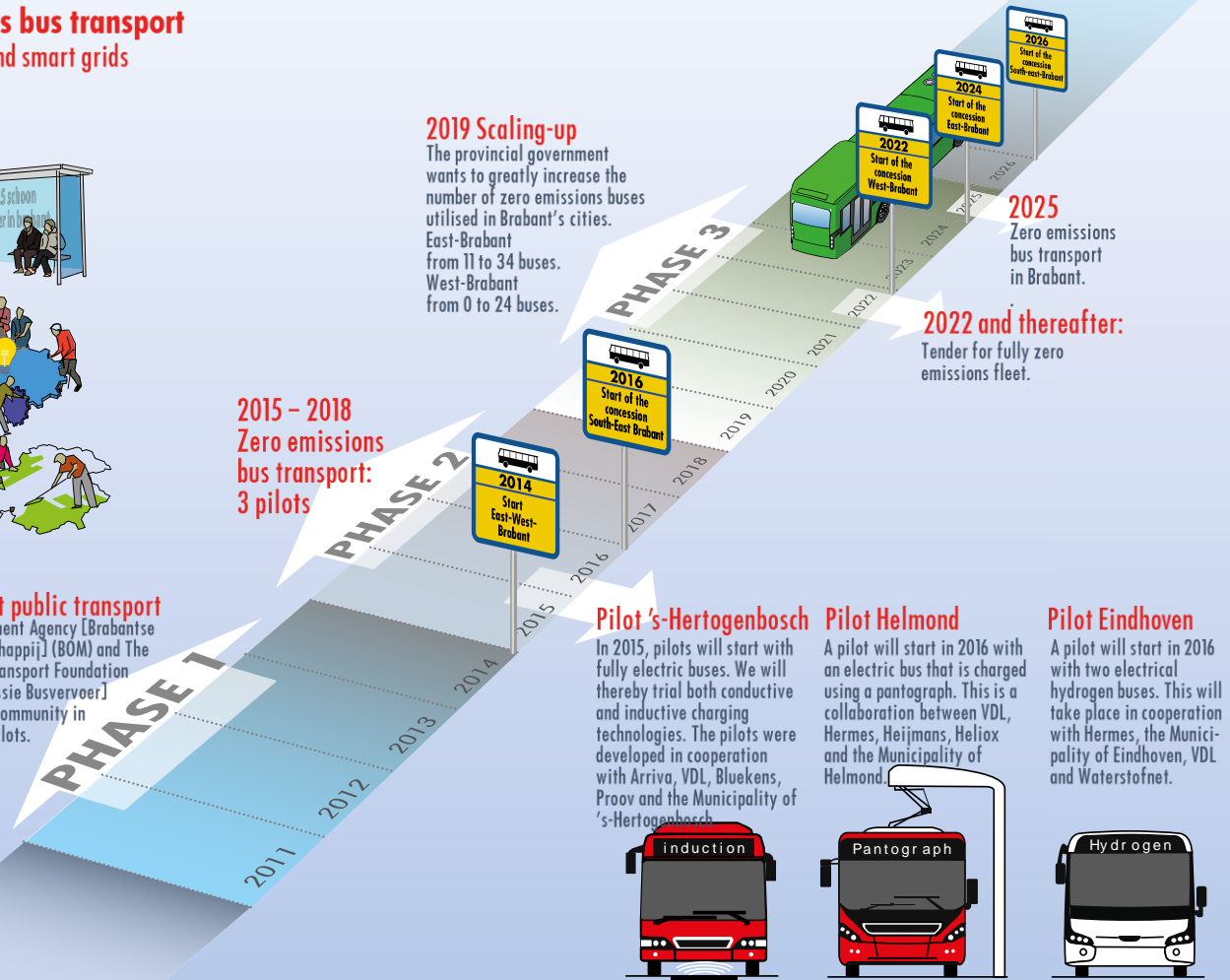
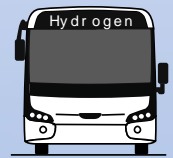
Pilot Helmond

A pilot will start in 2016 with an electric bus that is charged using a pantograph. This is a collaboration between VDL, Hermes, Heijmans, HeliOX and the Municipality of Helmond.



Pilot Eindhoven

A pilot will start in 2016 with two electrical hydrogen buses. This will take place in cooperation with Hermes, the Municipality of Eindhoven, VDL and Waterstofnet.



Proposed nationwide roadmap

- Common goals (14 PTAs and the ministry): new buses 2025 ZE, buses use renewable energy in 2025
- Regional PT minimises WTW emissions per passenger km
- Organise joint governance and implementation with all stakeholders
- Joint agenda: knowledge sharing, financing, bus fleet

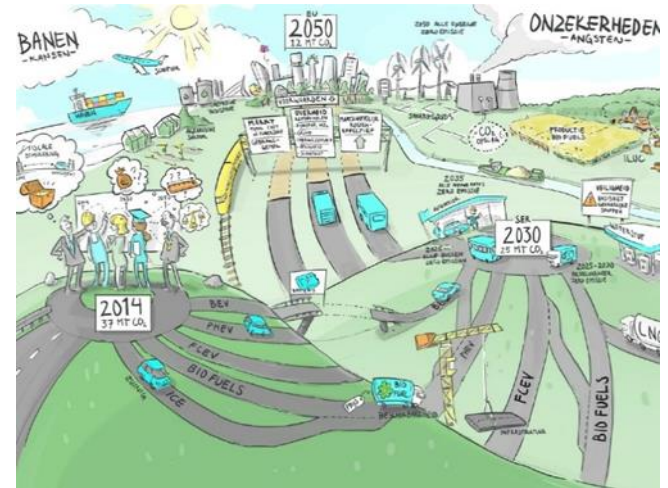
Dutch stakeholders

- **Policymaking:** Ministry of Infrastructure & Environment
- **PTA's:** Provinces & Metropolitan areas
- **PTO's:** Arriva, Veolia, Connexxion, Hermes, Qbuzz, Syntus
- **OEM's bus:** VDL, Ebusco, BYD....
- **OEM's SME's Infrastructure:** Heliox, ABB...
- **Grid Owner's:** Enexis, Alliander,
- **Energy supplier's:** Essent, NUON, ...
- **Service Provider's:** Allego, Fastned,....
- **Accelerator, Mediator, Project management, TCO developer:**
Foundation ZEB
- **Regional Development Agency:** BOM



Tools

- Policies ('Fuel vision with guts'; political back-up TCO model)
- European Funding (EIB, Interreg, FCHJU, Juncker)
- European legislation (smart use)
- Procurements (joint)
- Regional Funding
 - SMEs by Development Agencies
 - Early development risks



Results

- ZE in (new) contracts: Schiermonnikoog, Schiphol, North-Brabant, Limburg, North-Holland, Utrecht (pilots and scaling up)
- Different techniques/TCO modelling
- Advanced incentives in new procurements
- Political awareness (national and regional)
- Actual investments made/planned
- Stakeholders develop new roles
- Business case E-bus nearly competitive with diesel

Lessons learned

- Step by step procurement
- Guided phased transition
- Stakeholder cooperation
- Risks have to be managed

Challenges

- Joint procurement, scaling-up, reducing prices
- Chain and inter-governmental cooperation
- Finding right pace for the transition
- Enabling SMEs to enter ecosystem
- Cross-border cooperation for roll-out

I would like to thank you and Polis for this opportunity to present Brabant to you.



For further information:

<http://www.brabant.nl/subsites/elektrisch-busvervoer.aspx>

<http://www.zero-emissiebusvervoer.nl/>

