

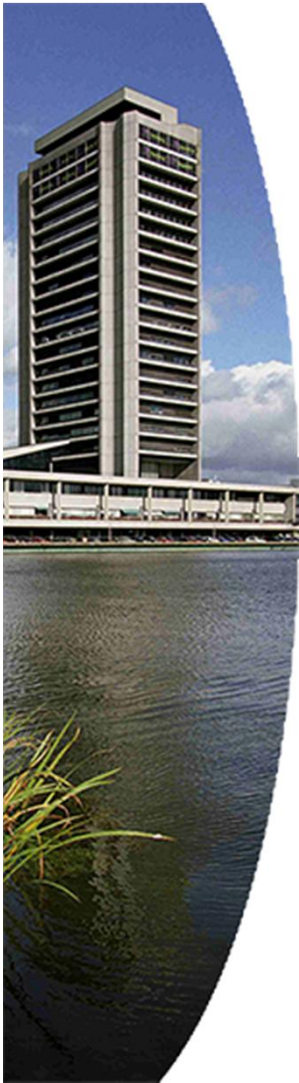


# Zero Emission in Public Transport in the Netherlands / North-Brabant

**Provincie Noord-Brabant**

Provincie Noord-Brabant





# Introduction 1

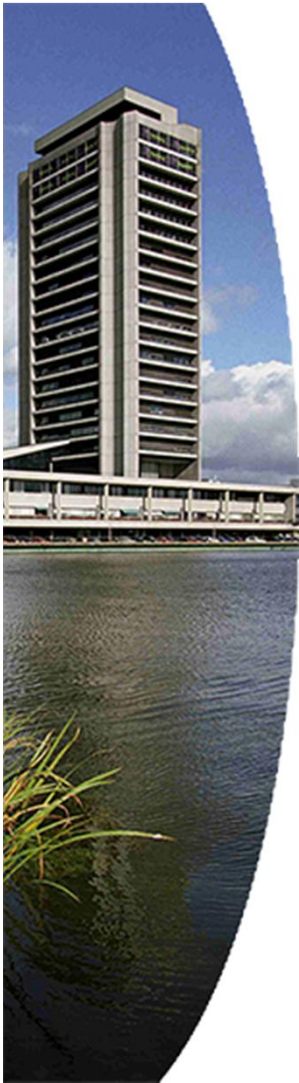
## Challenges:

- Pollution, vibrations and noise (City centers)
- Reduced budgets PT

## Ambitions:

- Zero emission in 2025
- Stimulating regional economy
- Maintaining service – according to demand
- Serving cities, travellers and residents





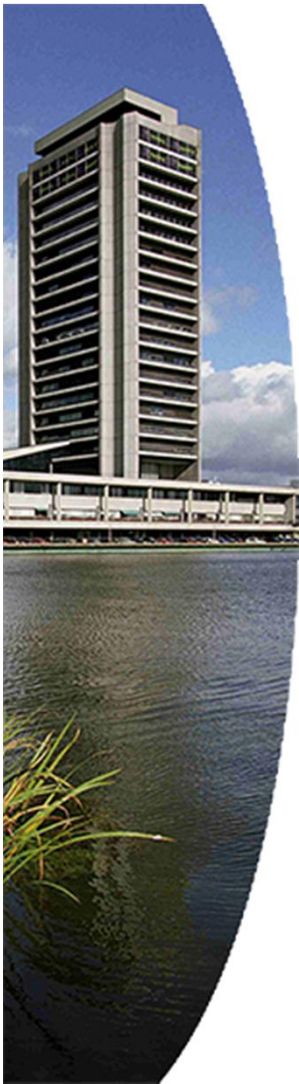
## Introduction 2

In coöperation with Foundation Zero Emission Bustraffic

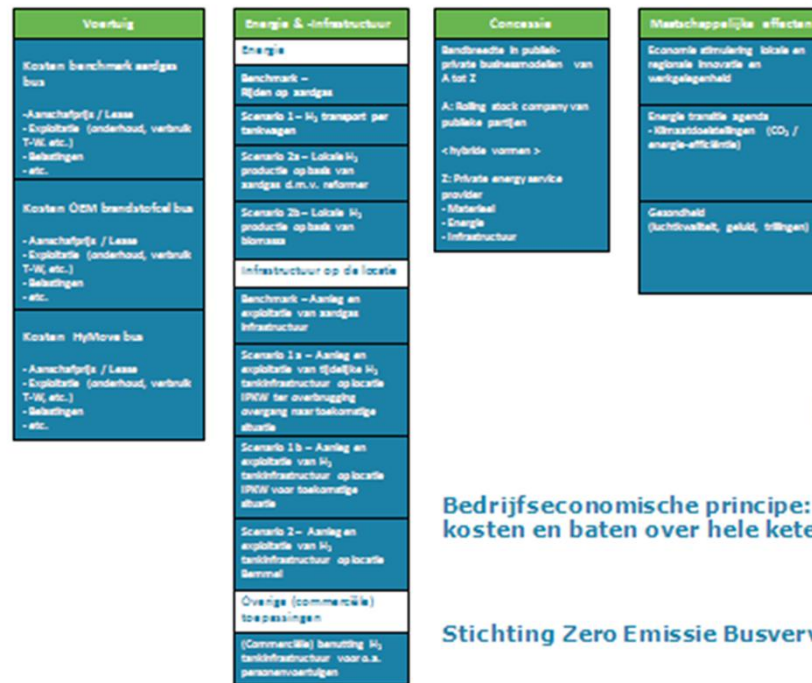
Means

- ELENA-grant
- Pilots on technics (E-Busz, Fuelcell, 220Xpress, IPT)
- Procurement
- TCO-models





# Modelling Total Costs of Ownership & Operations (TCO)



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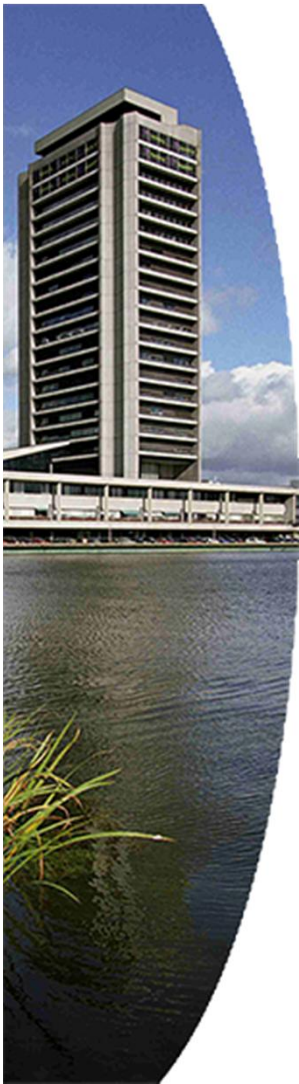
1. Vehicle
2. Energy & infrastructure
3. Procurement/concession
4. Social cost-benefits

Bedrijfseconomische principe: kosten en baten over hele keten

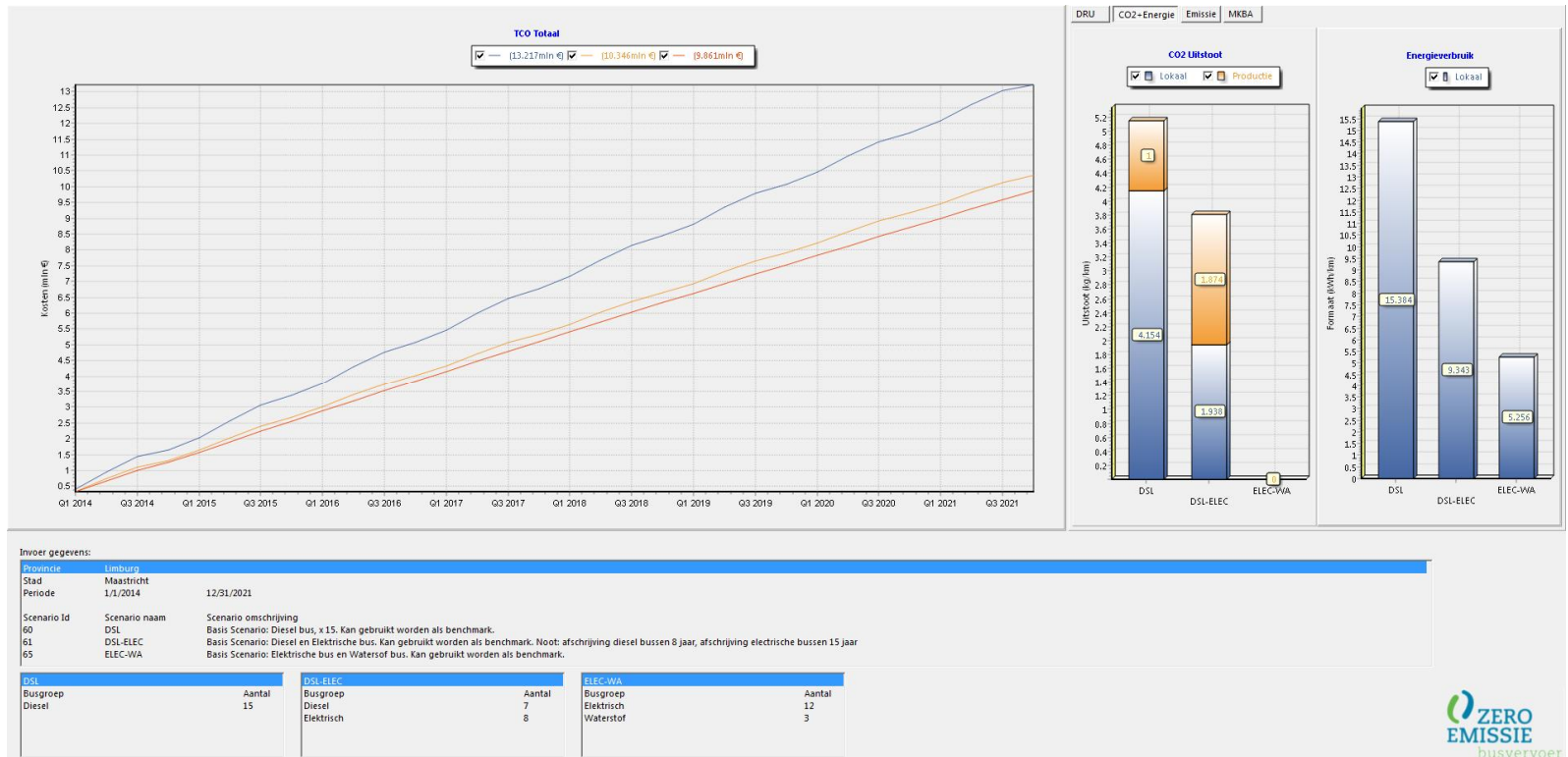
Stichting Zero Emissie Busvervoer

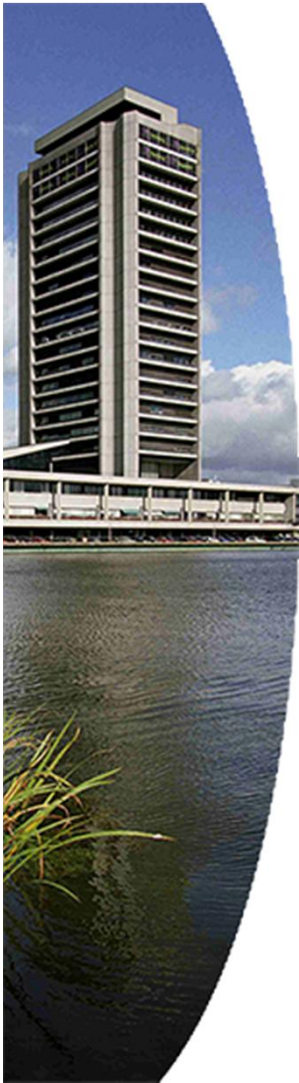






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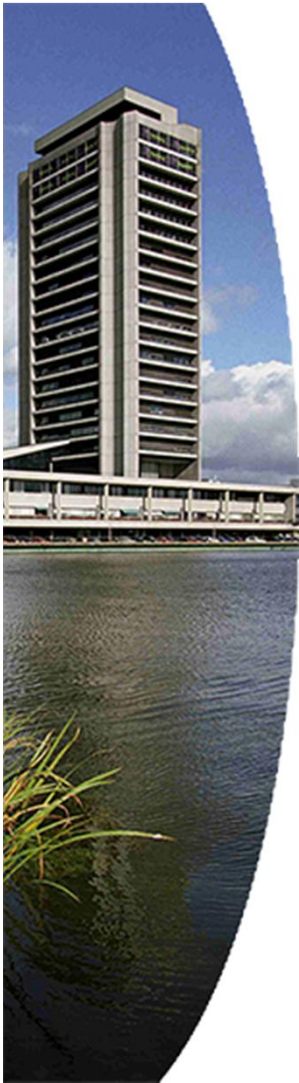


# Procurement of P-T-Services in North-Brabant

Incorporation zero emission goals

- Ambitious options (fleet of completely e-buses)
- Market consultation (risks: costs, certainty of bids)
- Real expectations

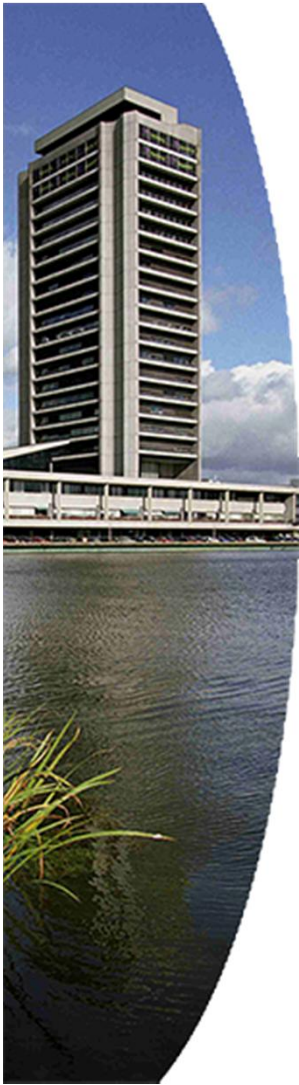




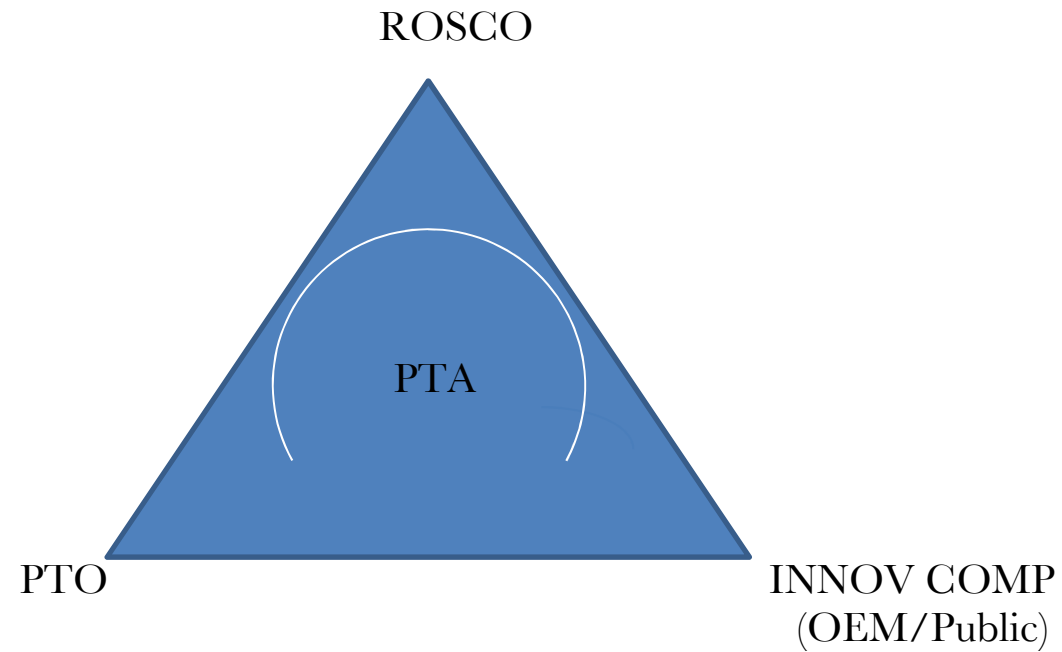
## Procurement of P-T-Services in North-Brabant

- No completely new fleet at start
- Procurement points for zero-emission e-buses at the start of the contract
- Points for a clear vision on the zero emission transition
- Use pilotbuses mandatory
- Coöperation transition mandatory
- PTA accountable extra budgets pilots

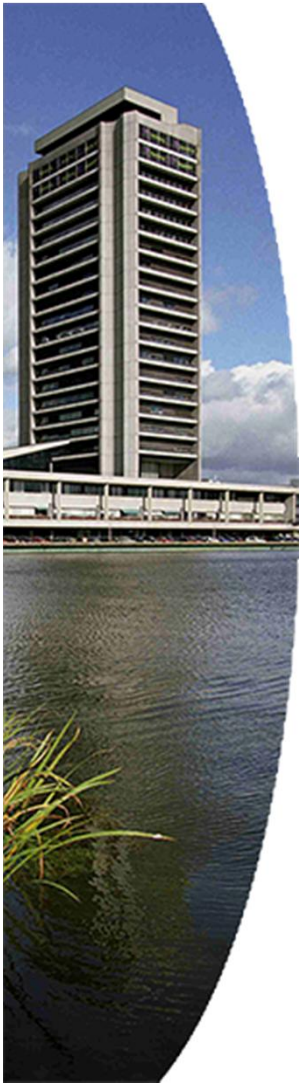




## PTA's as Launching Customer: Pilots in current contracts



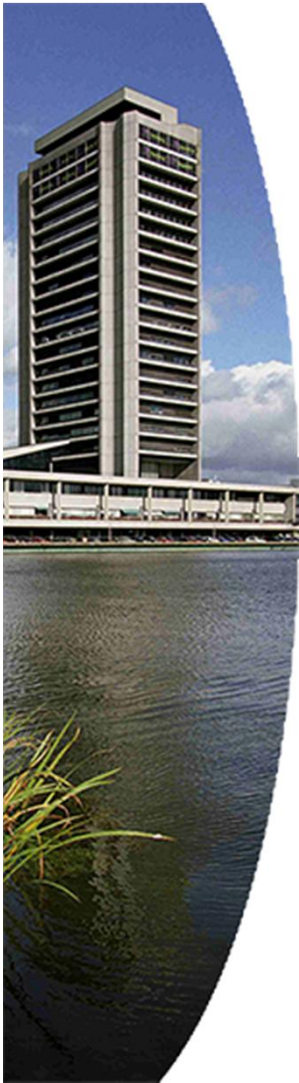




## Results Nationwide-North-Brabant

- Technical pilots (Ebusz- Fuelcell A'dam, 220Xpress, IPT)
- Contract (Schiermonnikoog 6, Schiphol 35, Utrecht 3, PNB ? – dec 2013)
- Start ups (North-Brabant, SRE, Arnhem-Nijmegen, Limburg, upcoming procurements)
- Instruments (models: TCO-ZEB, Green Cockpit; Cleantechfund: InnoBV)





## Lessons Learned

- Involvement of transitionmanager at start procurement
- Riskmanagement important (TCO as tool)
- Pilots & procurement do not match easily
- PTA's can operate as launching customer
- Combining economic & sustainability goals is challenging & demanding
- Range important factor introducing e-busses (efficient operations)

