OV-bureau Groningen Drenthe, Public Transport Authority heading for zero emission

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SUMP
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Public Transport Authority Groningen and Drenthe

- PT bus contracts:
  - €110 mln
  - Per year

- 5,600 km²

- 1.1 mln inhabitants
  - (Groningen 220,000)

- €54 mln subsidies
- €56 mln revenues

- €110 mln
- €110 mln

- Passengers:
  - 27 mln per year

- Passengerkilometers:
  - 290 mln per year

- 360 buses

- CO₂ emissions:
  - 113 grams per passengerkilometer

- 7.6
Philosophy: Invest in strong connections

2009: 2-4 p.h.

2014: longer, more frequent (4-6 p.h.)

2017: Bigger and more frequent (6-8 p.h.)

10-15% growth per year
Philosophy: Q-link BRT system: connecting region and city

Q-link | vanaf jan 2014

Q-link | vanaf 10 dec 2017
Philosophy: Park+Ride: since 1993
Philosophy: network of Hubs
Goal: Happy passengers!
Result: continuous growth and happy passengers
Towards zero emission: System approach

Free Flow bus lanes

No empty buses

Driver!

Step 1: energy efficiency
Step 2: Zero-emission bus: the future is electric
Just do it: May 2017: Battery electric city bus (2)
Just do it: Dec 2017 Q-link (BRT) – Groningen-Zuidhorn (10)
Just do it: Hydrogen bus ‘the other electric bus’

Pilot on regional bus routes
Dec 2017-dec 2022
Green hydrogen
(waste product from chlorine factory Nouryon Delfzijl)
- 150 tons CO2/year

Deze pilot is onderdeel van het Europees project HighVLOCity. Partners:
## Tender strategy GD tender dec 2019-dec 2029

### Tender requirements

<table>
<thead>
<tr>
<th>Category</th>
<th>Type/Description</th>
<th>Buses</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Qliner</strong></td>
<td>‘motorwaybus’ 600-800 km/day 60 km/h</td>
<td>70 buses</td>
<td>Stimulus CO2 reduction</td>
</tr>
<tr>
<td></td>
<td>‘BRT’ Motorway and city 400-600 km/day 35 km/h</td>
<td>80 buses</td>
<td>Full electric (Estimated 0 extra cost)</td>
</tr>
<tr>
<td><strong>Streek</strong></td>
<td>Regional bus 250-500 km/day 30km/h</td>
<td>180 buses</td>
<td>Stimulus CO2 reduction (and 22 H2 buses)</td>
</tr>
<tr>
<td></td>
<td>City bus Groningen, Assen, Emmen 18 km/h</td>
<td>30 buses</td>
<td>Full electric (Estimated 0 extra cost)</td>
</tr>
</tbody>
</table>

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*Images show buses and relevant city scenes.*

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*Ov Bureau Groningen Drenthe*
Hydrogen buses in GD-tender

Requirement:
2 hydrogenbuses
HighVLOCity keep running

Requirement:
20 hydrogen buses extra
- From dec 2020
- Depot Groningen
- H2 will be provided
  € 3,5/kg
- + € 9 mln

Seperate H2 tender by OV-bureau
Results of PT tender GD dec 2019-dec 2029

GD concession dec 2009-dec 2019
Qbuzz

- 90% CO₂ in 2020

From 2020 to 2030
Transition to all ZEB

0 % CO₂ in 2030

14 Zero emission buses (of 360)
- 10 Q-link (e)
- 2 citybuses (e)
- 2 regional buses (H2)

186 Zero emission buses (of 360)
- 59 Q-link (e)
- 45 (all) citybus (e)
- 60 regional buses (e)
- 22 regional buses (H2)
- HVO in the rest of the buses

In planning:
- 10 regional buses (H2) Emmen

Next steps (already contracted)
- Dec 2022 4 Q-link 12 (Emmen) (e)
- Dec 2023 13 Q-link 6 (Delfzijl-Gn) (e)
- Dec 2027 9 Q-link 15 (Zernike) (e)
Next step: hydrogen in taxi and other vehicles
Next step: H2 in ‘coach’ Qliner

Phase 1:
Qliner 300 (Qbuzz)

Phase 2:
Qliner 315 (Arriva)
- Coach market equals PT (and higher mileage)
- High floor, 100 km/h
- OEM’s can’t deliver (yet)
- Is retrofitting an option?
ZE can be done, don’t wait!

Shorter distances: BEV
Longer distances: BEV and Hydrogen are coming

Groningen Drenthe 2020: - 90% CO2 emissions

Bus manufacturers: step up for hydrogen and ZE coaches

Create a Hydrogen Valley, not only public transport
Come see for yourself
In Groningen!

When it comes to a night out in the Netherlands, Groningen nightlife has no equal.

-Lonely Planet