

# Hydrogen in the Northern Netherlands – the Groningen story



Hydrogen Transport Economy  
for the North Sea Region

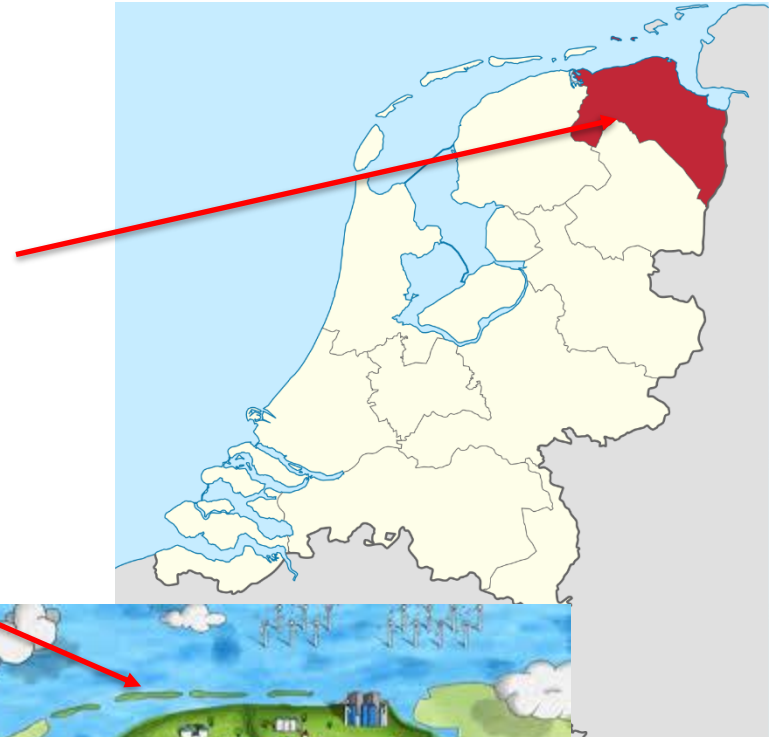


Interreg   
North-West Europe  
HECTOR  
European Regional Development Fund



# City of Groningen

- 230.000 citizens
- Capital city of province of Groningen
- Energy transition: from gas to green energy
- Part of the hydrogen valley



## Goal of Groningen

- Energy neutral in 2035
  - emission free inner city in 2025:
    - Equipment & vehicles are diesel driven. Action was needed



## How did we start in November 2014?

- Start with most complex issue
- Start with known vehicle
- Focus on main item: engine
- Get to know the stakeholders and work together
- Analysis of effects H2
- Market research
- Final decision in February 2015



## How to proceed?

Cooperation with national and European projects for sharing knowledge and finances





## Examples

cars: Hyundai ix35







vans:

- Streetscooter
- Renault Kangoo



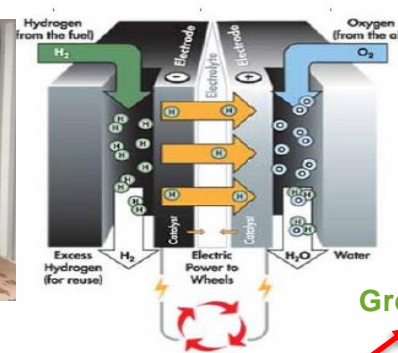
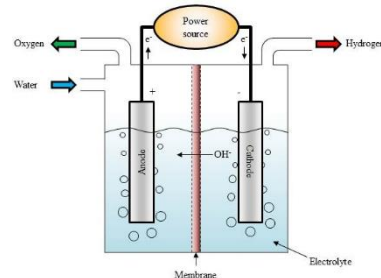
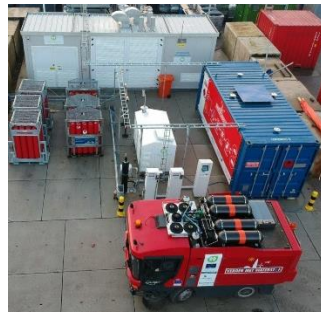


## hydrogen refuse trucks

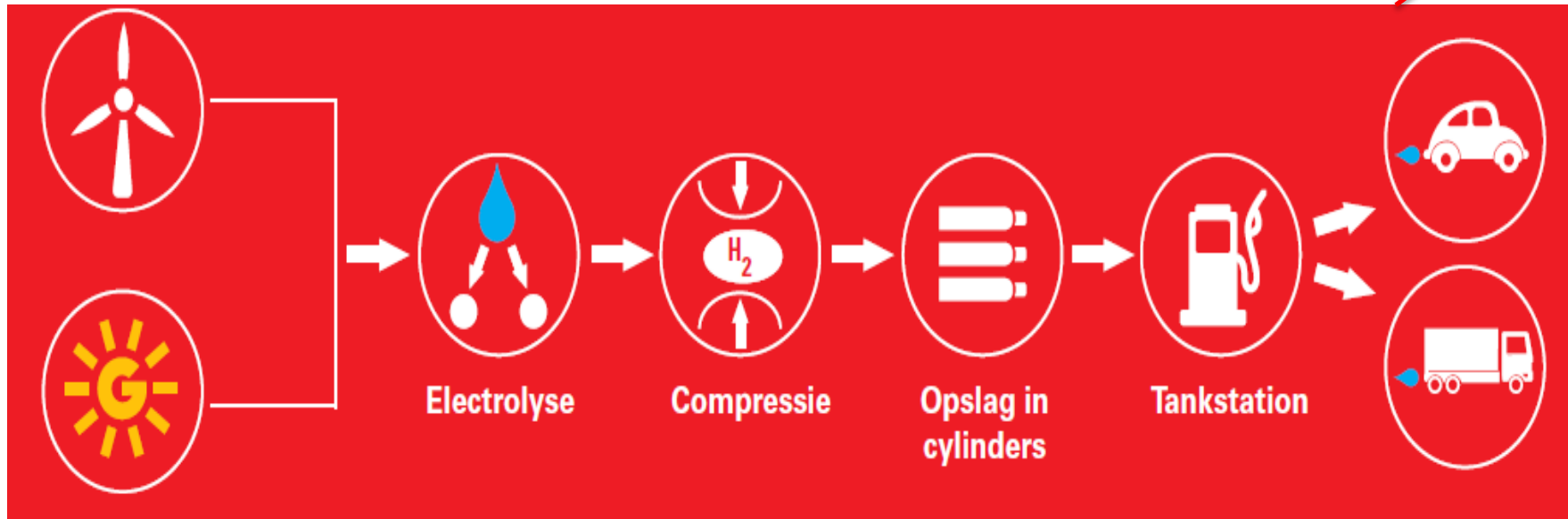


# Production, storage & distribution

Green electricity



Green hydrogen



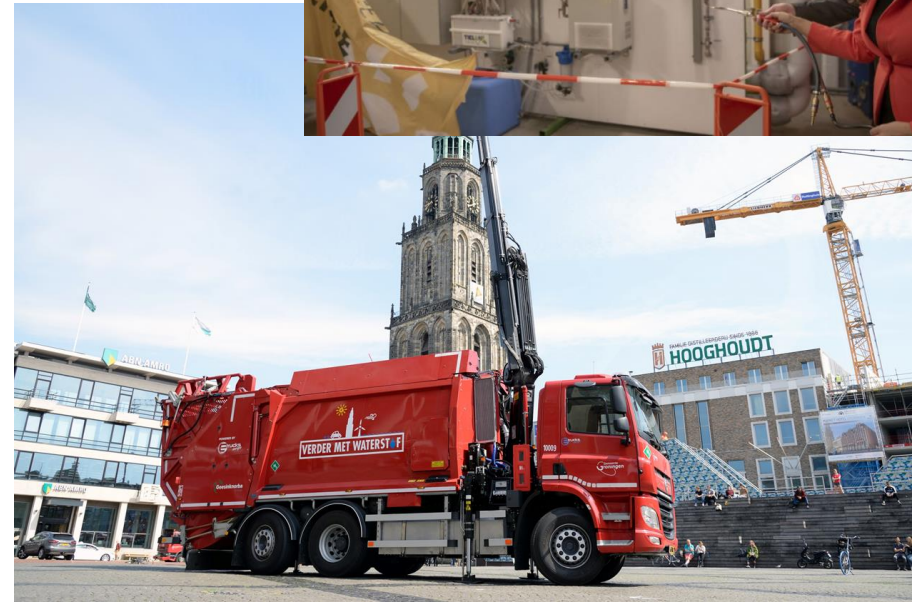
## Legacy of HyTrEc2

- Groningen positioned as the hydrogen valley of Europe
- Close cooperations with partners in Europe, resulting in new consortia
- Boost for hydrogen economy in the North of the Netherlands



## Status at the moment

- 64 vehicles and machines emission free
    - Electric & hydrogen
  - 250 equipment items emission free
    - Electric
  - Refilling station (public) & refilling station municipality
  - Pilot with H2 boiler
- 
- At the end of 2023 in total:
    - **31 vehicles on hydrogen:**
      - 12 refuse trucks
      - 12 hydrogen vans
      - 5 passenger cars
      - 1 hydrogen cargobike
      - 1 side carrier



## Lessons learned

- Innovation is managing expectations
- It's a new technique: teething problems
- Acceptance of staff and citizens is needed
- Right training is needed
- Cooperate with local security services for safety + safety updates in depot/workshop
- Invest in refilling stations (chicken – egg story)
  
- Conclusion: hydrogen **as one of the** solutions to an emission free inner city





**VERDER MET WATERST****F**

Thank you for your attention

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