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Topsector Energie

# Insights into the development of hydrogen in the Netherlands

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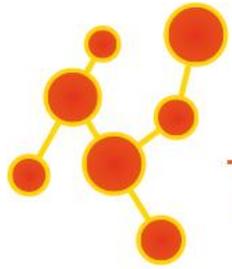
*Presentation at webinar "Hydrogen – Driver of the Estonian (green) Future"*



# Contents: key success factors for hydrogen

1. Supportive government (policy)
2. Ambitious companies (markets and products)
3. Excellent innovation community (R&D)
4. Interested and enthusiastic public





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# 1. Supportive Government

*Dutch and European  
government supporting  
hydrogen*



# Important policy and innovation milestones for hydrogen

## Dutch milestones:

- June 2019: **Climate Agreement** (-49% in 2030, carbon neutral in 2050)
- January 2020: Release of **Innovation Roadmap** for hydrogen ('Hydrogen for the Energy Transition')
- March 2020: Release of **Government Strategy** on hydrogen

## European milestones:

- European **Green Deal** (New EC)
- **Economic Recovery Plan** (Covid-19)
- European **Hydrogen Strategy** (6 GW 2024, 40+40 GW in 2030)



# Government Strategy on Hydrogen: Policy Agenda

## 1. Legislation & regulation

*Infrastructure, role of network operators, certification, safety*

## 2. Cost reduction & scaling up green hydrogen

*Support schemes, linking hydrogen - offshore wind, blending*

## 3. Sustainability of end use

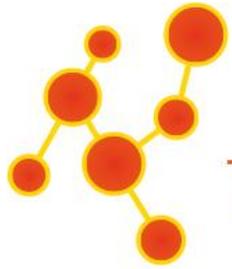
*Ports and industry clusters, mobility, built environment, electricity sector, agriculture*

## 4. Supporting and flanking policy

*International strategy, regional policy, research and innovation*

→ National Hydrogen Programme (2021 / 2022)





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## 2. Ambitious Companies

*Nearly everyone joins the race  
and > 125 projects*



# Five industry clusters (and many other hotspots)

- Many companies involved
- All sectors: industry, mobility, housing, electricity production
- Value chain oriented: production, import, export, infrastructure, storage, utilisation



# Some project examples

20 MW Electrolyser



H2 storage in caverns



Hydrogen valley



20 hydrogen buses

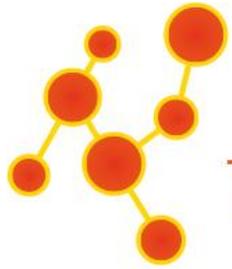


H2 in houses



Hydrogen trucks

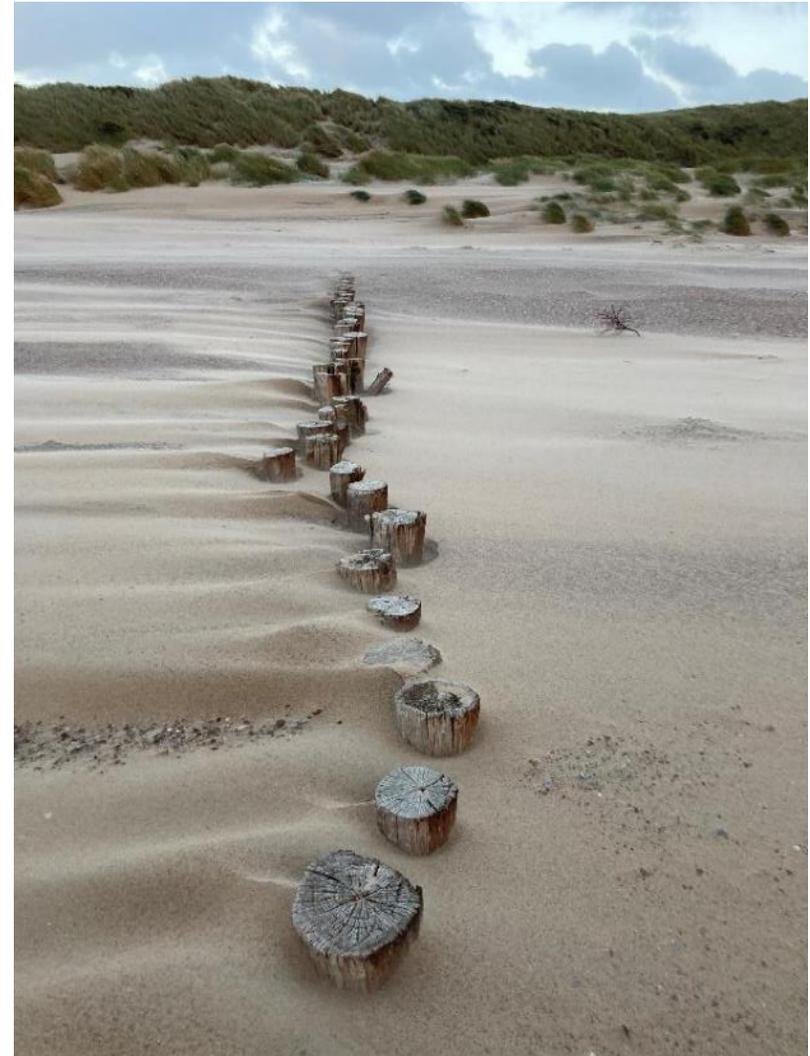




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### 3. Hydrogen Innovation Roadmap

*Stepping stones to make  
hydrogen part of daily life*



# Innovation Roadmap for Hydrogen: background

## Outlines of a Hydrogen Roadmap: 2018

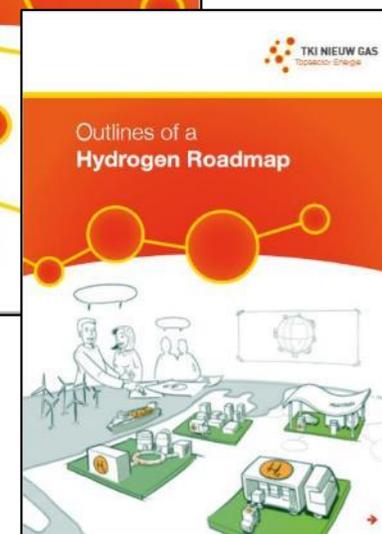
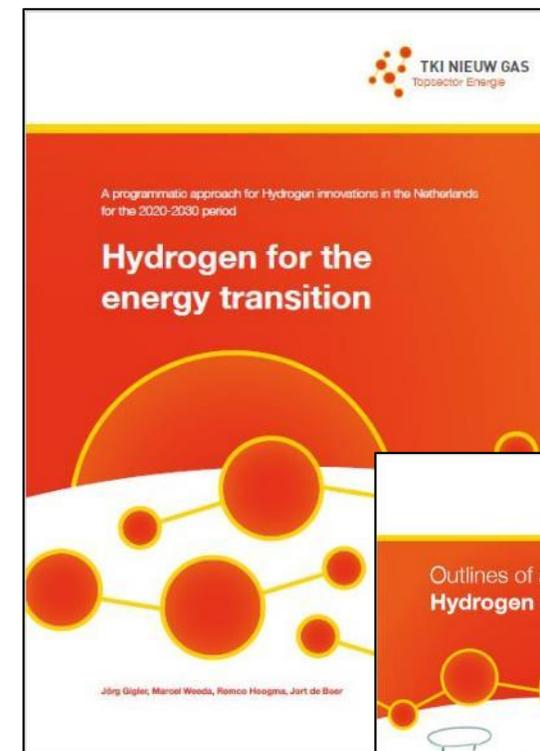
*informative document on hydrogen, sketching innovation needs*

## Hydrogen for the Energy Transition: 2020

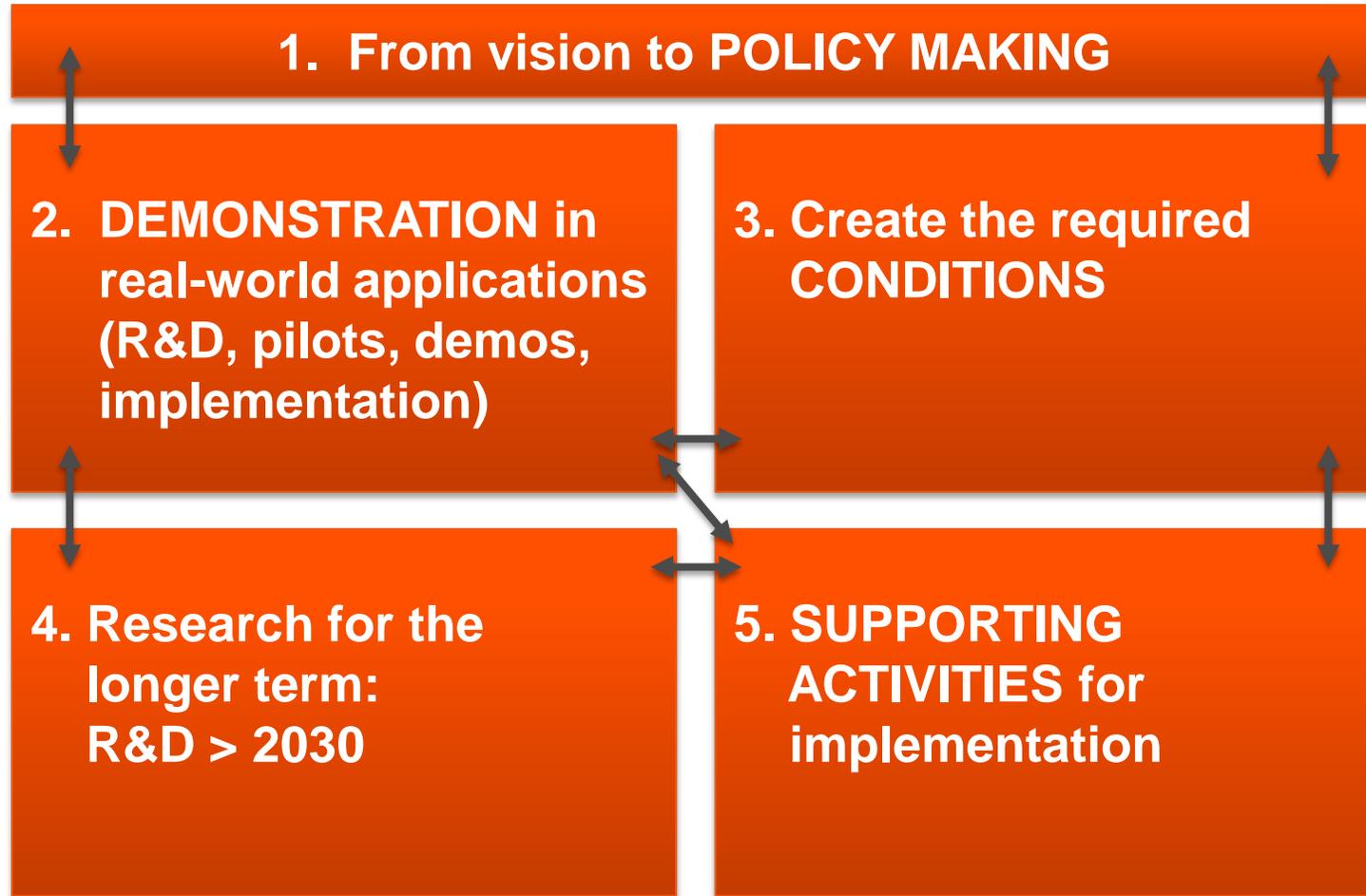
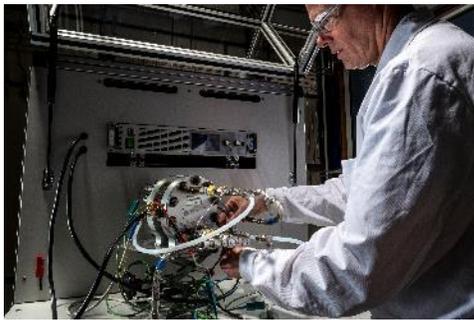
*describes innovation strategy for the Netherlands*

## Process:

*Timeline of about 1 year, many stakeholder discussions, ample opportunities to provide input*



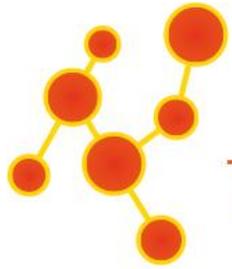
# Innovation Roadmap for Hydrogen



Legislation, finance infrastructure, safety, standards, quality issues

Industry, workforce, education, training, communication, acceptance





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**4. Interested and  
enthusiastic public**  
*Show people what hydrogen is:  
demos demos demos!*



## Summary: embrace hydrogen!

- Climate: hydrogen is necessary to achieve our 2050 targets
- Economy: hydrogen offers great opportunities for business and regions
- Governments: widespread support in and from Europe
- International collaboration: no country can do this on their own
- Employment and education: hydrogen offers great opportunities for everyone
- Finance: global investment opportunities

***It is vital to join now to be in the front seat of these developments!***



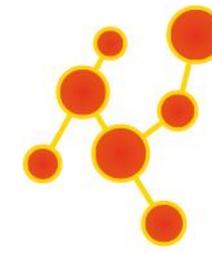
# Positioning of the Netherlands in NW Europe

- Offshore potential for wind
- North Sea infrastructure
- Ports & infrastructure
- Industry Clusters
- Connections to NW Europe
- ...

EUROPEAN UNION



Thank you  
for your attention!



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Downloads:

- Government Strategy on Hydrogen

<https://www.topsectorenergie.nl/sites/default/files/uploads/TKI%20Gas/nieuws/Hydrogen-Strategy-TheNetherlands.pdf>

- Hydrogen for the Energy Transition – Innovation strategy (2020)

[https://www.topsectorenergie.nl/sites/default/files/uploads/TKI%20Gas/publicaties/7017-TSE%20Programmatiese%20Aanpak%20Waterstof\\_EN-web.pdf](https://www.topsectorenergie.nl/sites/default/files/uploads/TKI%20Gas/publicaties/7017-TSE%20Programmatiese%20Aanpak%20Waterstof_EN-web.pdf)

- Overview of 99 Dutch Hydrogen Projects (projects and plans) – being update now, new version available end of April 2021

<https://www.topsectorenergie.nl/sites/default/files/uploads/TKI%20Gas/Overview%20Hydrogen%20projects%20in%20the%20Netherlands%20versie%202021%20augustus%202020.pdf>

- Outlines of a Hydrogen Roadmap (2018)

<https://www.topsectorenergie.nl/sites/default/files/uploads/TKI%20Gas/publicaties/20180514%20Roadmap%20Hydrogen%20TKI%20Nieuw%20Gas%20May%202018.pdf>

