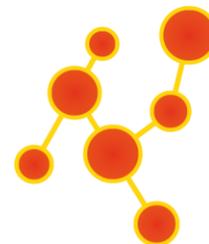


Hydrogen

The gold medallist on system integration

Jörg Gigler (& Marcel Weeda)

PowerWeb Conference
June 20, 2018



TKI NIEUW GAS
Topsector Energie

Objectives of the Roadmap

On request of the Ministry of Economic Affairs and Climate a hydrogen roadmap was made.

Objectives:

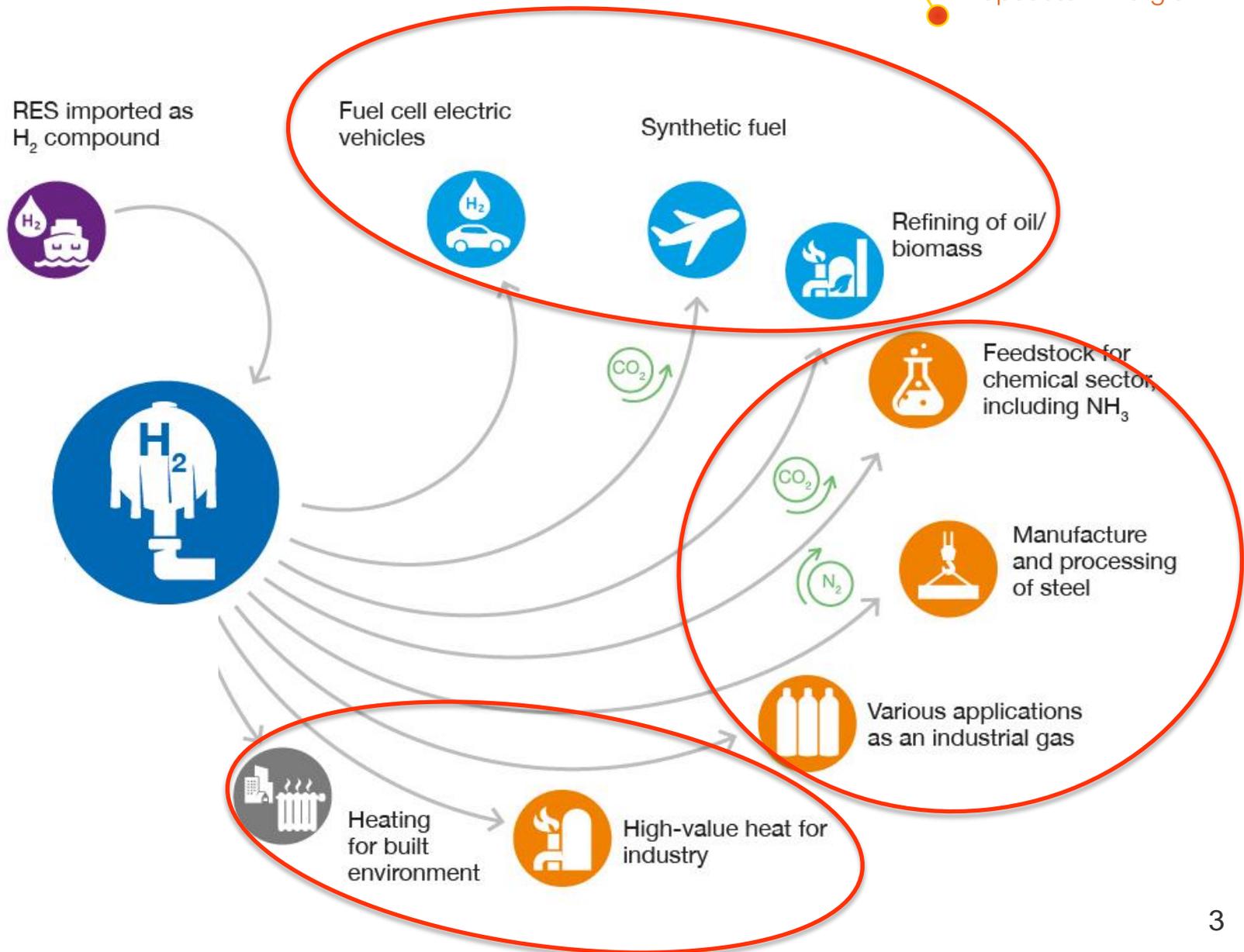
- Indicate the potential of hydrogen in a sustainable energy system in 2050
- Give an overview of actors and activities on hydrogen in the Netherlands
- Advise what steps should be taken and which activities are necessary to realise the potential of hydrogen

Approach:

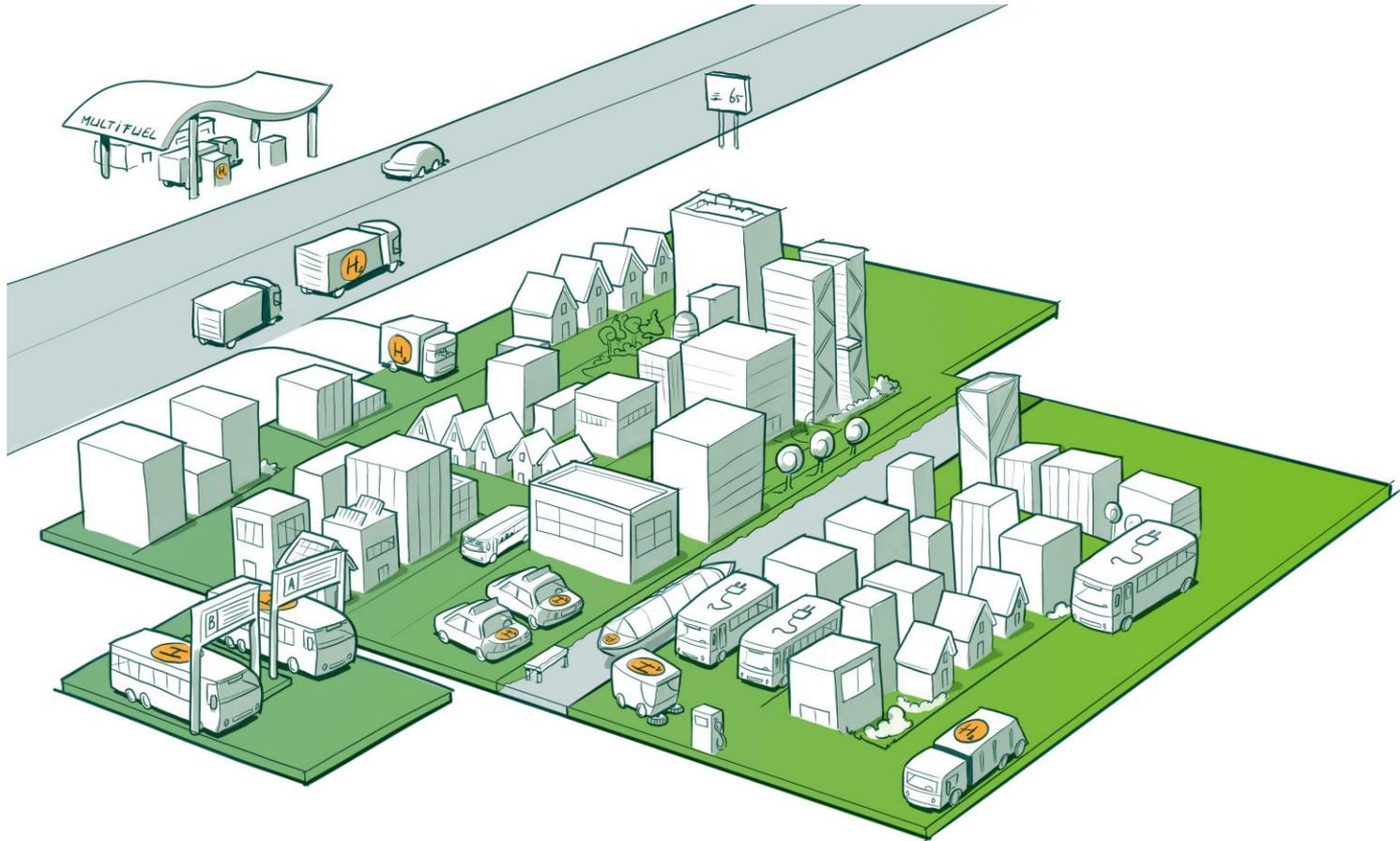
- f2f meetings, workshops, documents



Markets for hydrogen



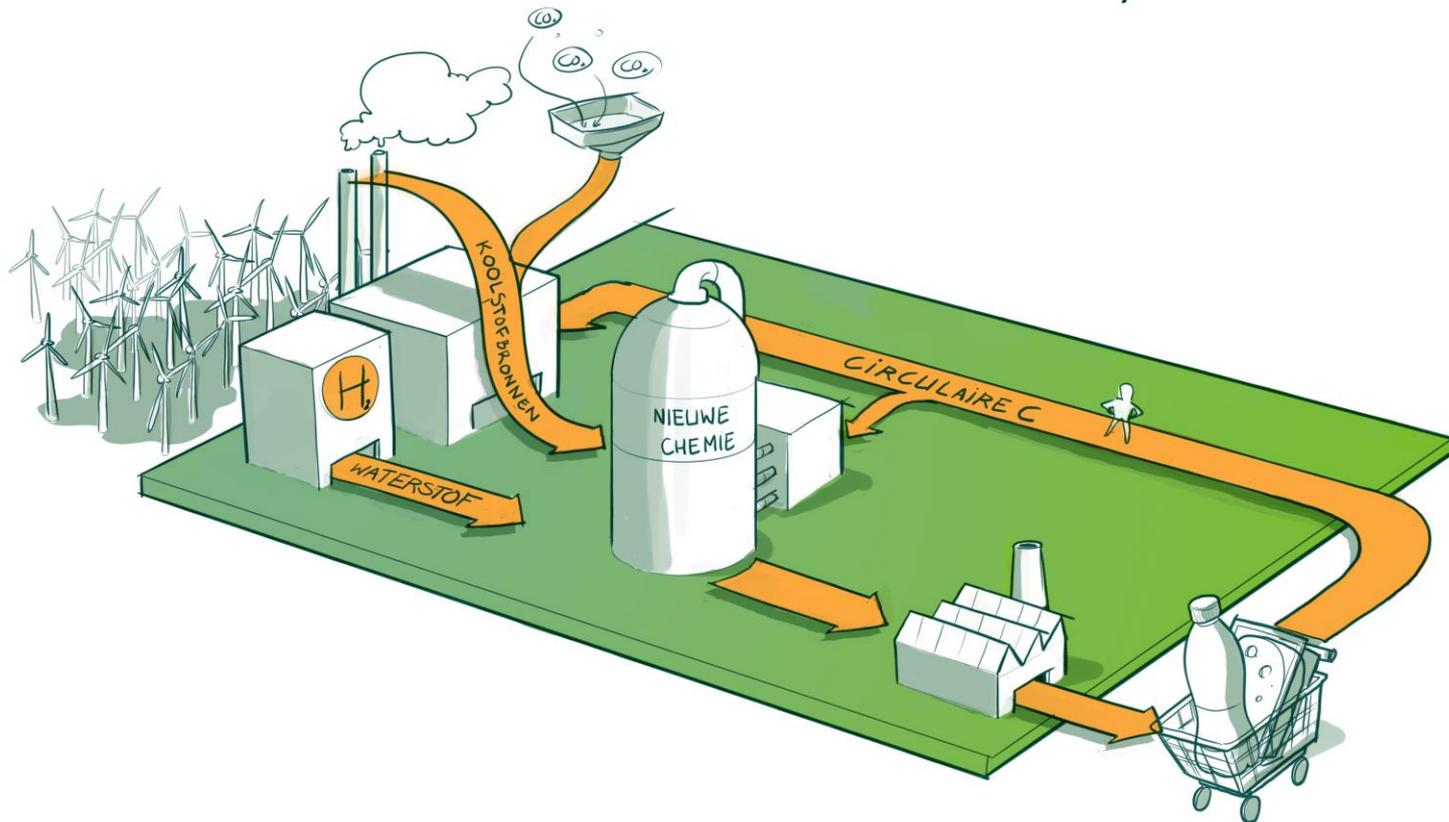
Clean transport in and around cities: Public transport, taxis, carbage trucks, sweepers, boats, ...



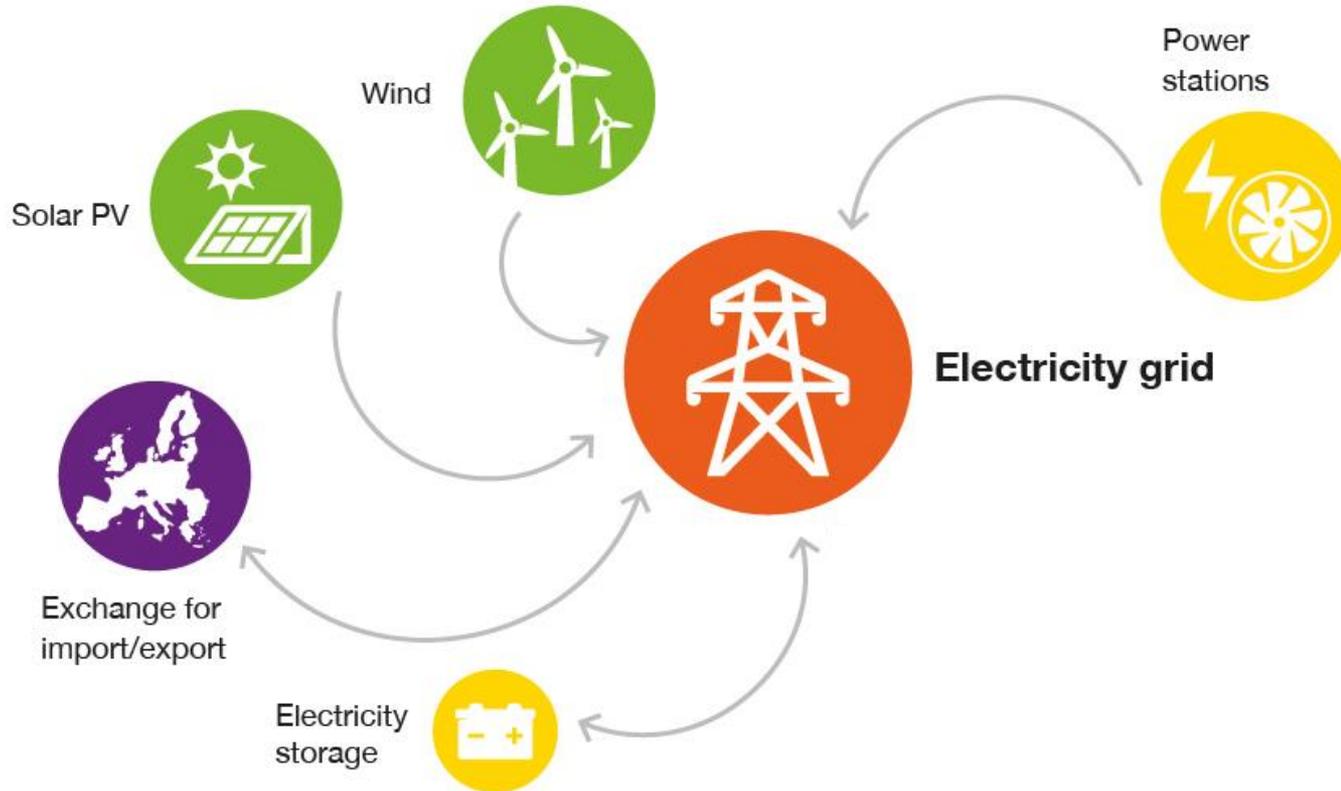
Schone waterstofdiensten rond de stad

Green hydrogen and climate neutral carbon: green chemicals

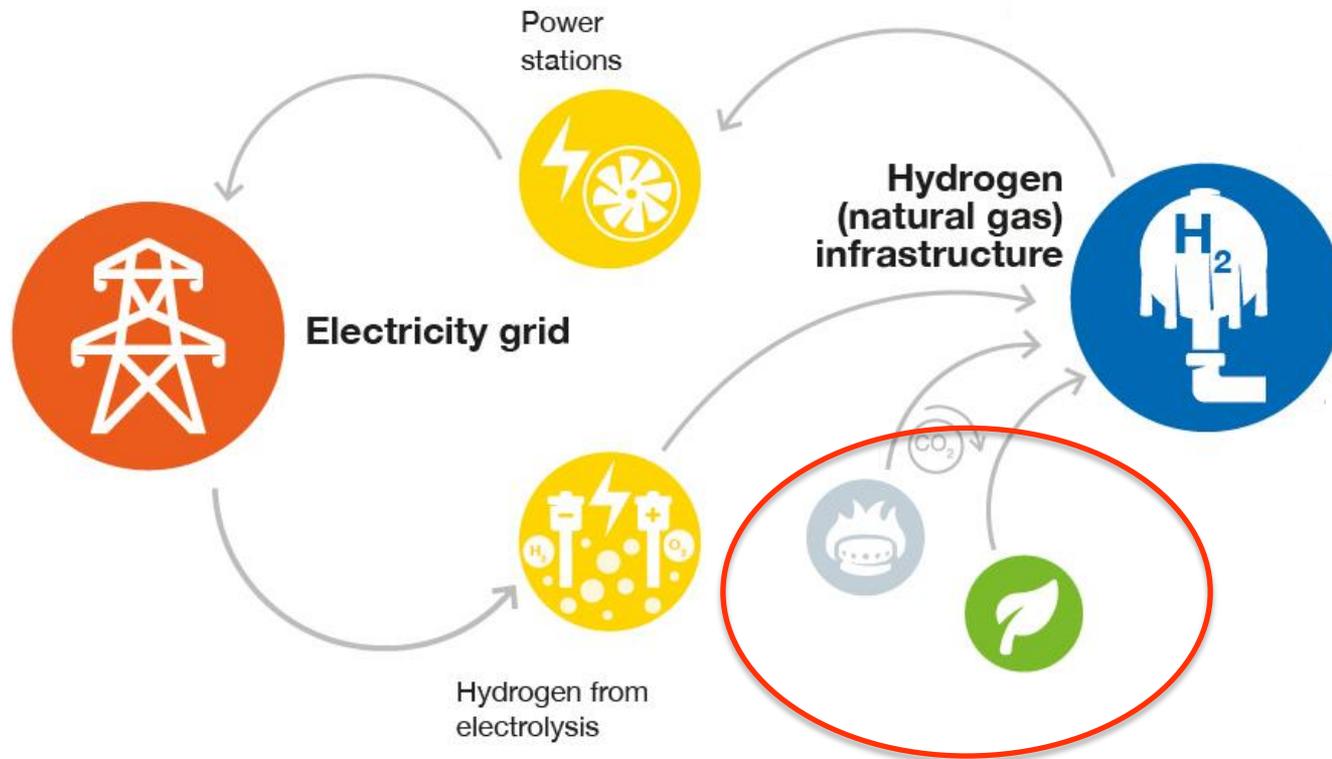
Kool-waterstof symbiose



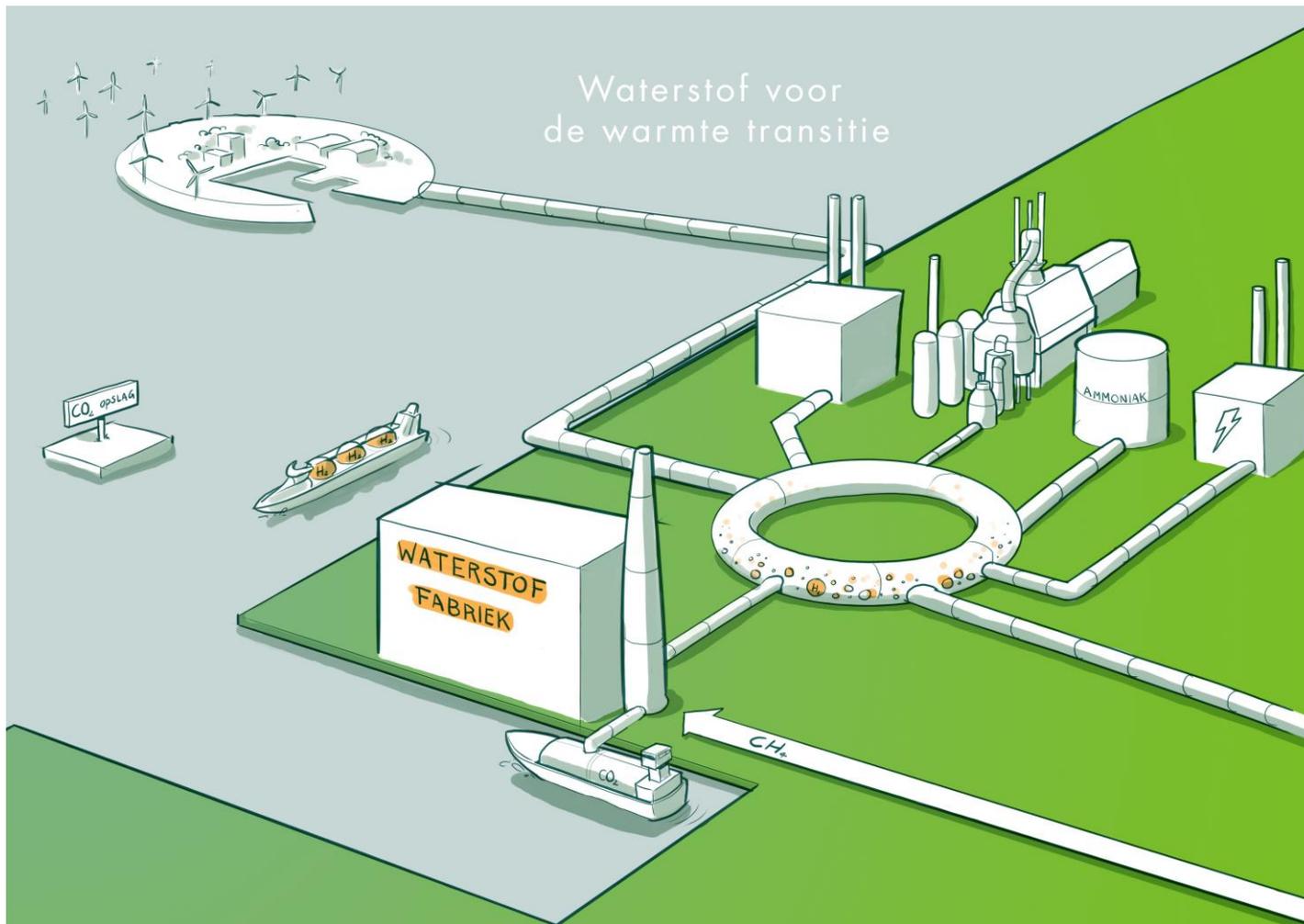
Hydrogen production



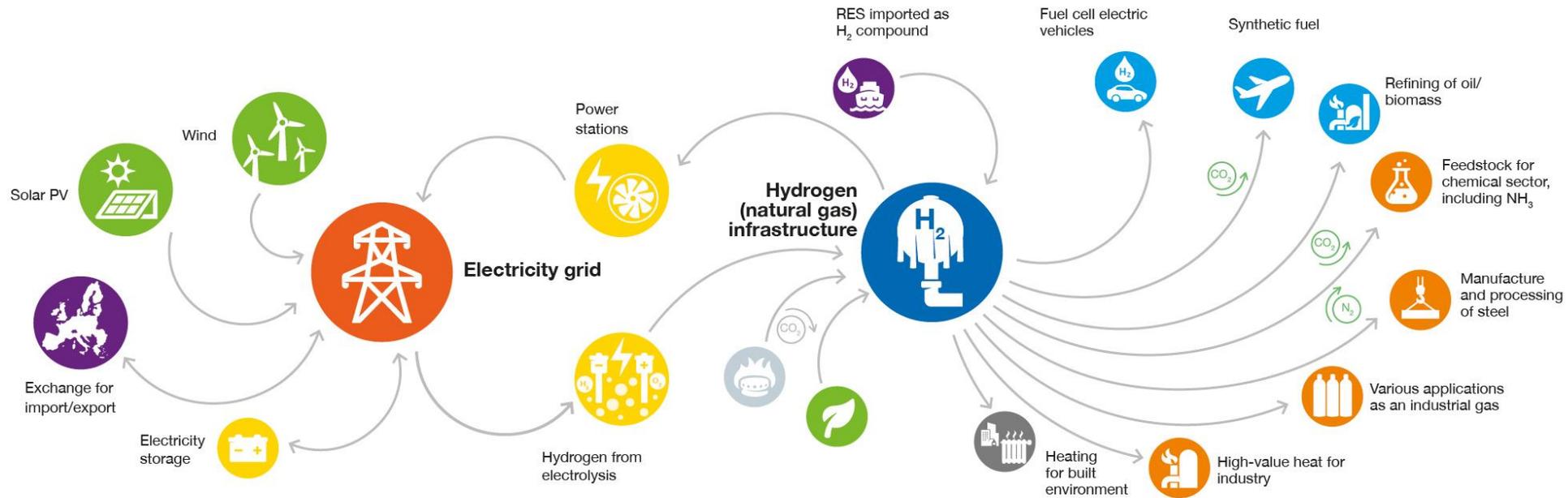
Production and utilisation of hydrogen



Centralised H₂ production with CCS: decarbonising CH₄ with adapted infrastructure and decentralised utilisation



It's the system, stupid!





However, important (innovation) challenges *to mention a few...*

- 1. Cost price reduction and technology improvement** to reduce the cost of hydrogen

Components and systems

- 2. Green electricity** for green hydrogen

More, more, more

- 3. Support for CCS** to produce blue hydrogen

it is possible, but is it accepted?

- 4. Financial support**

To bridge the gap with fossil fuel based alternatives

- 5. Institutional conditions** need to be tackled

Rules and regulations, safety, public support etc

‘Hydrogen Transition Programme’

1. Integral plan and vision for hydrogen
(next 3-5 yrs, towards 2050)

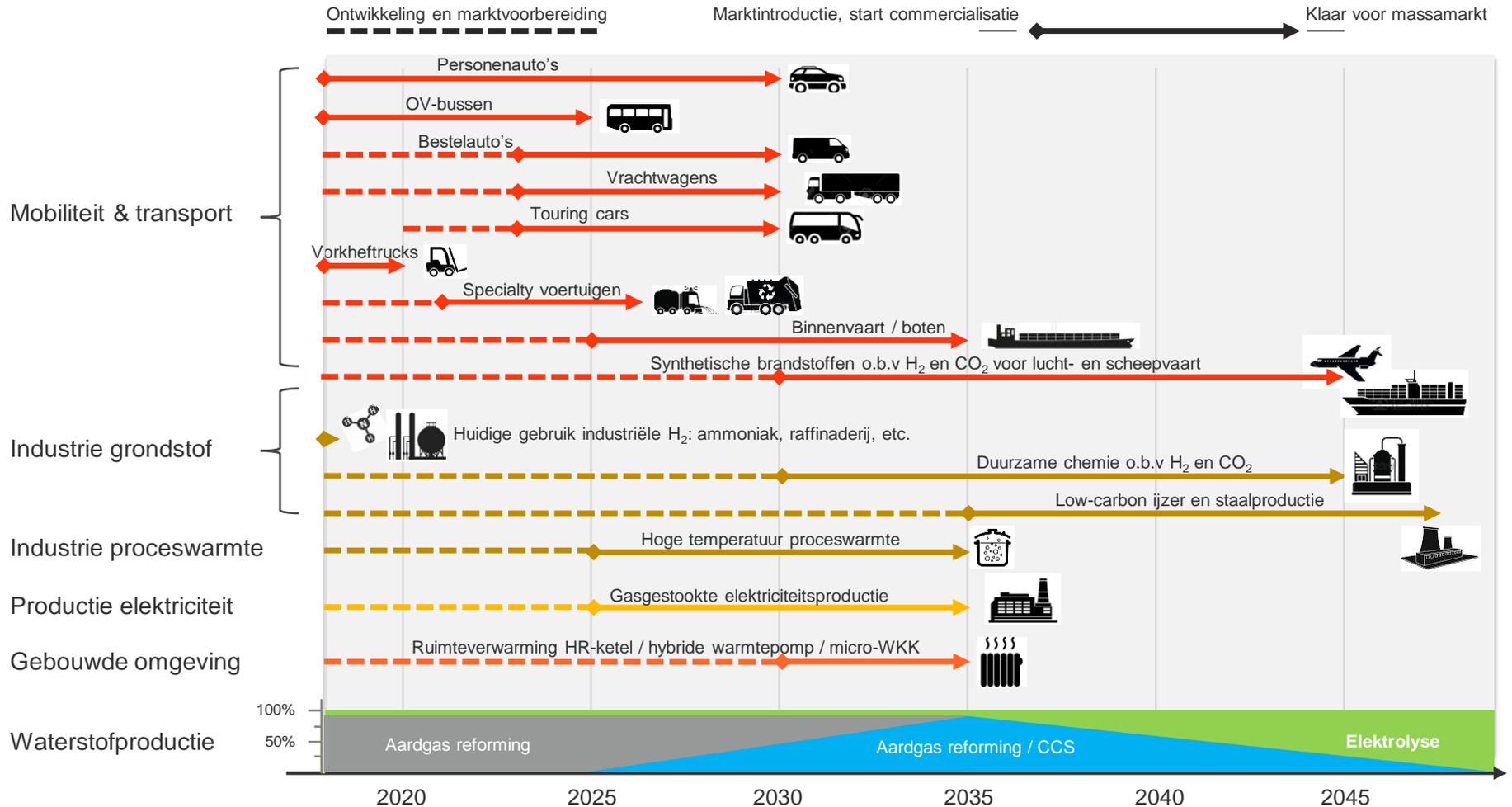
2. Hydrogen pilots en demos
(starting now)

3. R&D for hydrogen
(fundamental and practical, fitting Dutch strengths)

Coordination and facilitation of hydrogen
(next 5 yrs)

Indicative roadmap

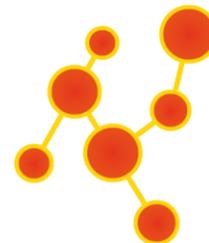
Where are we and what is our direction?



Thank you for your attention

Hydrogen Roadmap can be downloaded at:

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



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