CLUSTER “POWER TO GAS”

AGENTSCHAP INNOVEREN & ONDERNEMEN
POWERTOGAS Industry Cluster Flanders
Samen voor sterk innoveren

AGENDA

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10.00-10.20: Introduction & Presentation new cluster members
10.20-10.40: Cluster news & Status Hyflow *(WaterstofNet)*
10.40-11.25: Hydrogen in an existing natural gas pipeline, which aspects to deal with? *(Alfons Krom- Gasunie, NL)*
11.25-11.45: Status "Hyoffwind: Industrial scale power-to-gas connected to offshore wind energy *(Nicolas Gielis, Fluxys)*
11.45-12.15: OCAS-Applied R&D related to Hydrogen *(Steven Keyzer, OCAS)*
12.15-12.45: Visiting Tour OCAS
12.45-13.30: Sandwich lunch

CLUSTER NEWS

- New cluster partners :

FARYS

remeha

NIKE

pom Limburg economisch versnellen

CMB

NIPPON GASES The Gas Professionals

CLUSTER NEWS & HYFLOW

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- Results questionnaire
- Legislation-advocacy activities
- Coming events
- Hyflow

For an up-to-date version of all our partners, scan this code:

RESULTS QUESTIONNAIRE (1)

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TOPIC	Responses	Proposal
3-monthly meeting	• Can be longer with more **(external) speakers** • Wish for **more technical info**, info about **activities partners**, content of **projects** • Suggestion to add **interactive sessions** in working groups	Add **2/year** an **afternoon session:** • Technical topics • Project presentations • Smaller interactive sub-sessions • Start in Dec. 4 PtG meeting
Newsletters	• Info about **worldwide** projects - products - studies • News from **cluster members**	• Send **4/year** a newsletter • Breaking news (ad hoc)
Working groups	• Policy group is efficient • Wish for working groups on **business cases** and **technology**	• Continue Policy group • Decide on relevant WG in first afternoon session

RESULTS QUESTIONNAIRE (2)

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TOPIC	Responses	Proposal
Steering group	• Several candidates have applied	• Establish steering group; **2x year** meeting
Congres/ visit PtG project	• Interest for 1 congres/year • Interest in 1 visit/year of EU PtG project	• 1 congres/year • Plan visit **Groningen Jan-Feb 2020?**
Other remarks	• More **profiling** needed towards policy makers • More time needed for **informal contacts** between partners	• Policy team • Afternoon sessions + project visit

Other suggestions can still be sent!

LEGISLATION – ADVOCACY TEAM

Done 2019:

- **REDII implementation in Belgium** (policy paper; April 2019)
- **Memorandum on hydrogen** (May 2019)
- **National Energy & Climate Plan** (Recommendations July 2019)

Running:

- **Preparation of visit(s) to administration/cabinets**
  on H2 plan for FL/(B)

EVENTS

- **WaterstofRegio conference** **November, 14**
  @ Den Bosch, Provinciehuis
  Free entrance for cluster members

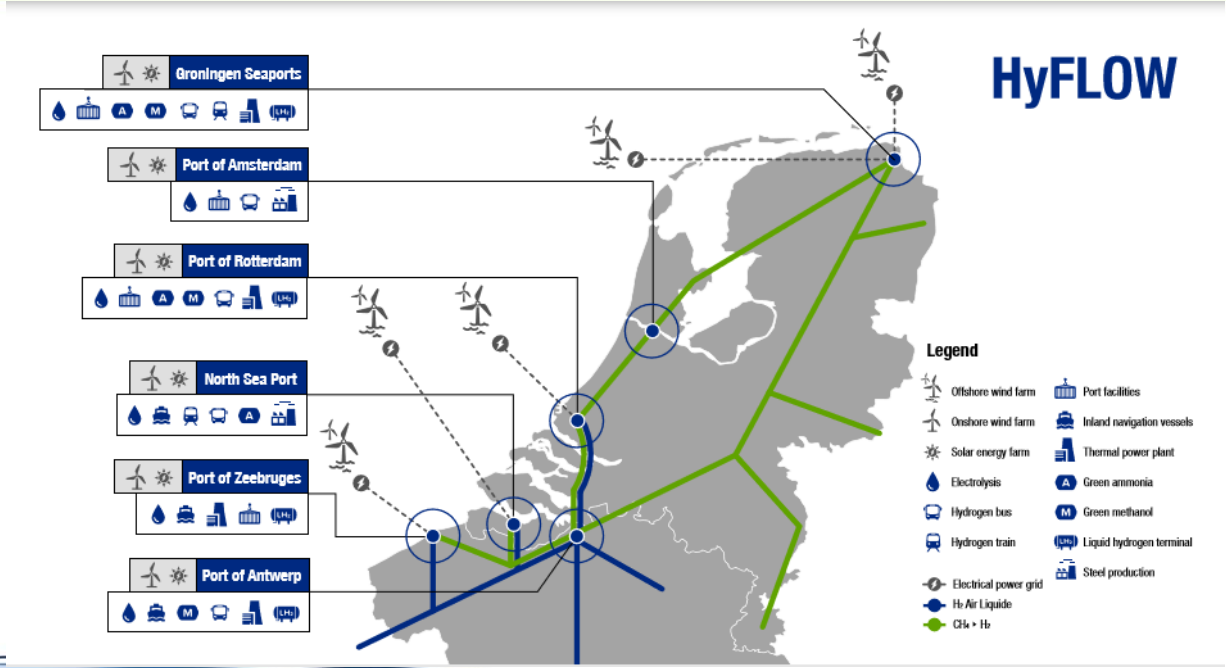
- **Workshop vergunningen tankstations** VL/NL, **November 25**
  @ Helmond automotive campus

- **Next PtG meeting** Including afternoon sessions, **Dec 3**
  @ Plastic Omnium Brussels (tbc)

HyFLOW

*"creating the **flow** of **hy**drogen between **Fl**anders – The Netherlands (**Low** Lands), facilitated by the ports"*

WaterstofNet



Why?

1. Ports are based on fossil fuels now (import, refineries, feedstock, chemicals,…..)

   what will be the business for the ports in 2030 – 2040 – 2050 with declining fossil fuels

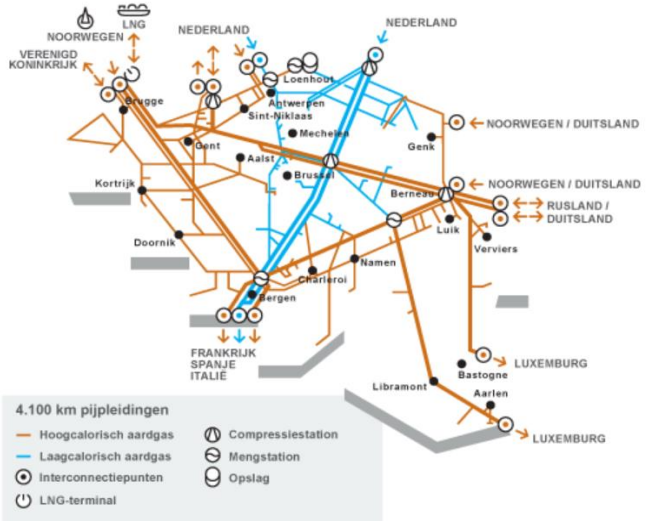
2. A dense infrastructure for natural gas is now one of the backbones of the energy supply

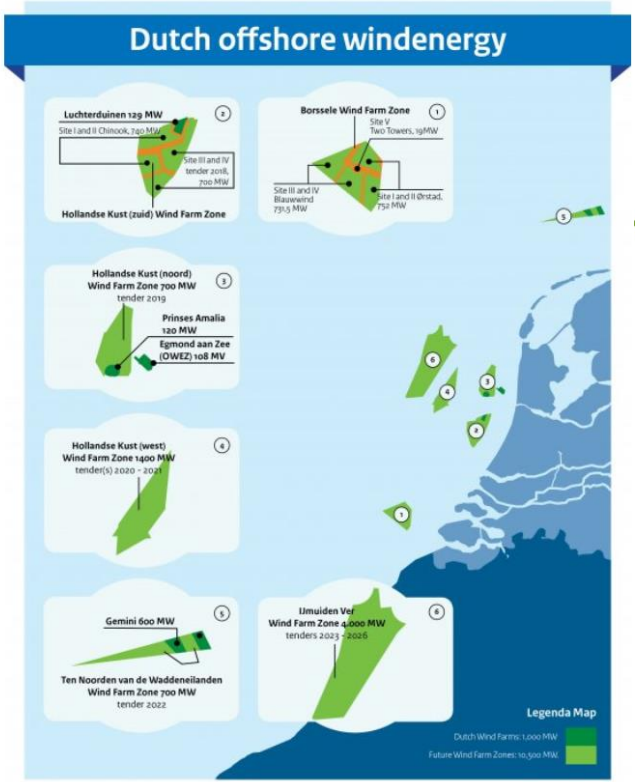
   what will be the business for the gas-infrastructure in 2030 – 2040 – 2050 with declining natural gas

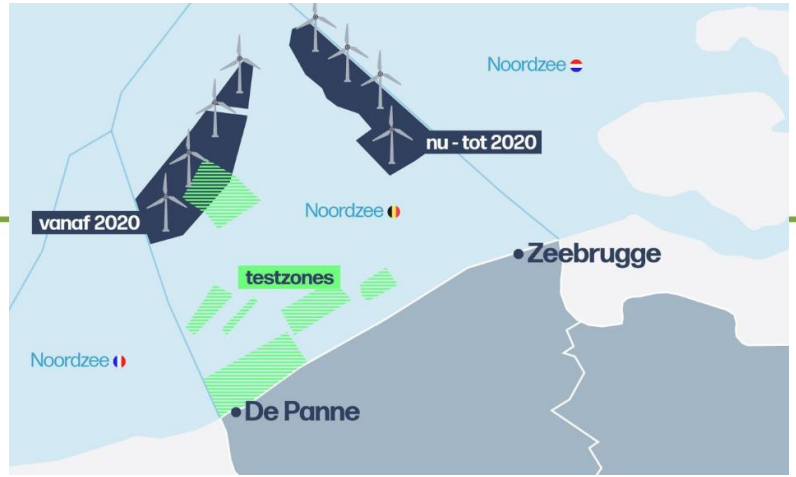
3. Offshore wind is just starting as a source of energy

   how can we incorporate large amounts of offshore wind /hydrogen in 2030 – 2040 – 2050 ?

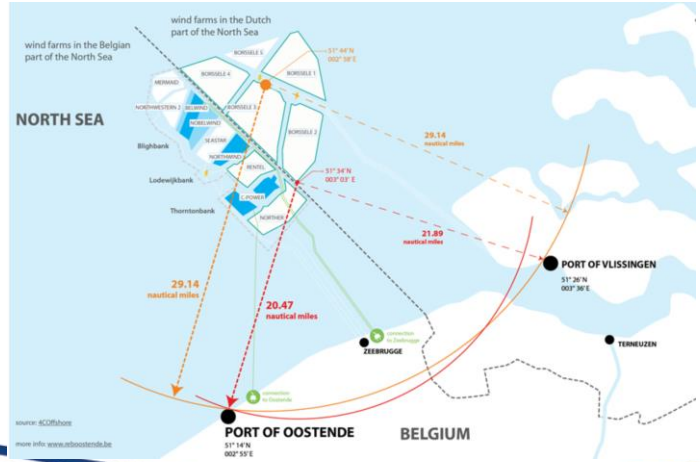
WaterstofNet

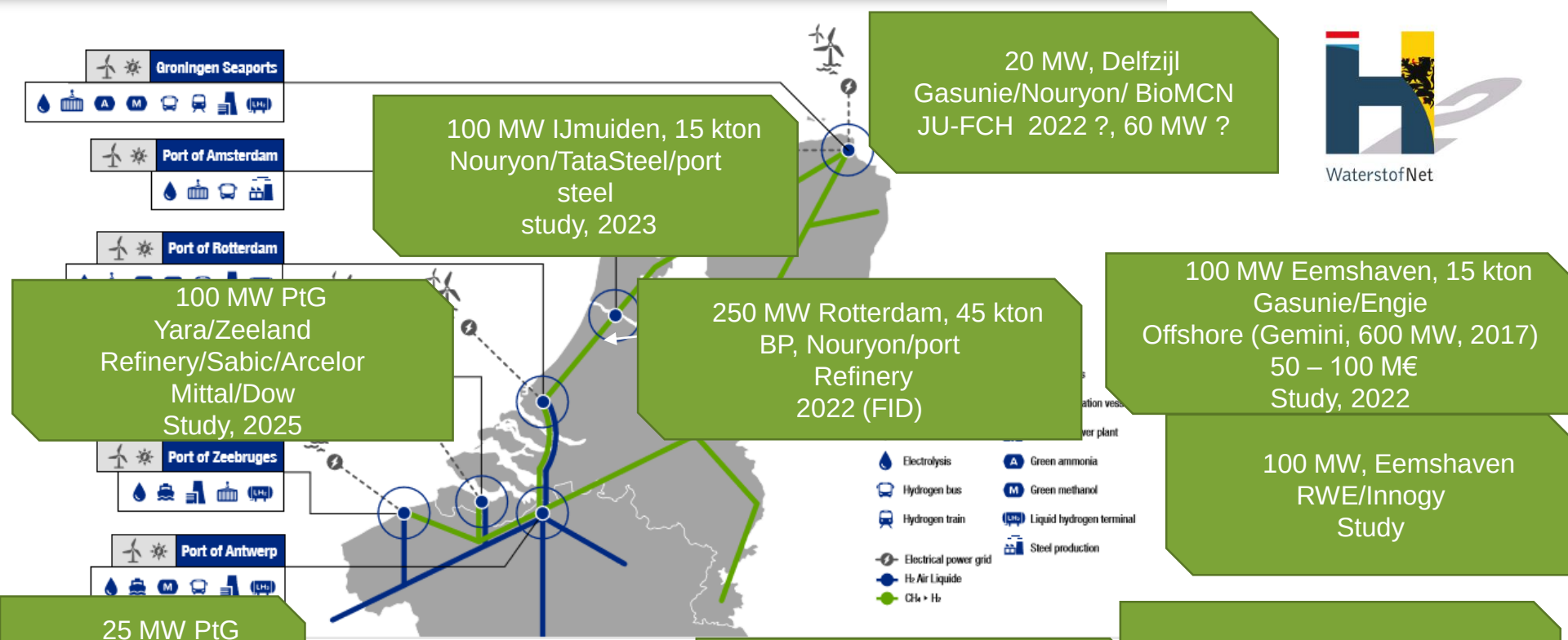






WaterstofNet





20 MW, Delfzijl
Gasunie/Nouryon/ BioMCN
JU-FCH 2022 ?, 60 MW ?

100 MW IJmuiden, 15 kton
Nouryon/TataSteel/port steel
study, 2023

100 MW PtG
Yara/Zeeland Refinery/Sabic/Arcelor Mittal/Dow
Study, 2025

250 MW Rotterdam, 45 kton
BP, Nouryon/port Refinery
2022 (FID)

100 MW Eemshaven, 15 kton
Gasunie/Engie
Offshore (Gemini, 600 MW, 2017)
50 – 100 M€
Study, 2022

100 MW, Eemshaven
RWE/Innogy
Study

25 MW PtG
Colruyt/Eoly /Parkwind/Fluxys
Study HyOFF, 2022

50 MW/350 MW PtG

10 MW PtG
Engie/Oiltanking/Indaver/VMH/Helm-Proman/port
Methanol

Total : 700 MW

200 – 1000 M€

WaterstofNet

A possible IPCEI on Hydrogen

Christian WEINBERGER,
Senior Adviser – Advanced Industrial Technologies
European Commission
DG Internal Market, Industry, Entrepreneurship & SMEs

What are IPCEI projects about?

WaterstofNet

- **Contribution to Union objective(s)** and significant impact on competitiveness, sustainability, or value creation across the EU
- Project involving **more than one Member State**
- **Positive spillover effects** on internal market/Union society; benefits not limited to participating Member States & companies
- **Co-financing** by the beneficiary
- In case of R&D&I, projects must be of a **major innovative nature** or of important added value in the light of the state of the art in the sector
- First industrial deployment covered where it allows for the **development of a new product** with high R&D&I content or of an **fundamentally innovative production process**

Hydrogen on the list of IPCEI

- Hydrogen is an environment- and climate-friendly (zero-emmission) energy carrier
- Produced from RES it has the potential to essentially replace fossile-based energy
- It suffers from a supply/demand deadlock which effectively hinders cost reductions by economies of scale
- Once Green Hydrogen becomes available in big quantities at lower cost a lot of applications in mobility, industry and energy sector would suddenly become economically viable
- For many of the required technologies specialized and qualified manufacturers can be found in Europe but the above deadlock blocks the required scale-up
- On the other hand, many MSs are struggling to achieve the agreed emmission reduction targets in sectors which could be decarbonised with Hydrogen

Draft recommendations

- **EU Strategy:** Develop a joint European wide vision and (integrated, concerted) masterplan/roadmap for a future European Hydrogen Economy
- **Continuous RDI** to prepare the first industrial deployment and industrialization of next generation hydrogen technologies and systems.
- **Build up a sustainable industrial ecosystem:** Strengthen a skilled workforce as backbone, industrialize key components, create a more mature supply chain, scale-up technologies for multiple-businesses, and create a circular economy.
- **Ensure public awareness and acceptance**: inform market players and consumers on positive potentials, demonstrate feasibility & ensure maximum safety for European citizens and create competitive advantage through standardisation
- Set up **supporting regulative measures** and establish a clear regulatory framework (environmental, permitting, etc.) for a hydrogen economy to evolve.
- Build on existing **grids/pipelines** for hydrogen distribution.
- All **transport** technologies have to be applied in industrial scale to evaluate their feasibility and economics. Push forward large-scale hydrogen storage.

Political objectives

- Climate based initiative – Massive support to the EU emission reduction objectives
- Broad Initiative – cover as many MS as possible
- Combined Initiative – Integrate IPCEI + Climate Innovation + Structural Funds + CEF + EU Invest
- Integarted Initiative - spillover effects for the whole EU economy/society
- Leveraged Initiative – Create Momentum to promote the further utilization of the technology

Advantages of an IPCEI (compared to other State aid rules)

- The existence of the **market failure** affecting the project can be presumed
  - Under normal R&D&I aid rules, this needs to be proven for larger projects
- The project can be aided up to 100% of the funding gap on the basis of a large set of **eligible costs**
  - Under normal regional aid and R&D&I aid rules, there are upper limits and the closer to the markets, the lower the caps
- Costs of **first industrial deployment** (i.e. between pilot line and until start of mass production) are considered eligible
  - Under normal R&D&I aid rules, this is not possible. Under regional aid rules, aid is only allowed for investment in assisted regions

Good practices

- ✓ Openness for all Member States to be able to participate
- ✓ Involvement of the Commission in designing the IPCEI(s)
- ✓ Selection of participating companies via open calls
- ✓ Intense cooperation/joint work streams between Member States & vital role for coordinating MS
- ✓ Thorough preparation of all documents by the Member States
- ✓ Member States accurate screening of all company documents
- ✓ High Level Meetings to set the timing and keep the pace
- ✓ Early meetings with participating companies, always in presence of Member States
- ✓ If many participants: template documents are useful (Microelectronics templates will be improved to facilitate/quicken scrutiny and process)
- ✓ The approach in every IPCEI is case specific – different technologies

Background

- The notion of "Important Project of Common European Interest" is laid down in Art. 107(3)(b) TFEU as part of the State aid rules
- In 2014, the Commission revived this clause by adopting a dedicated Communication laying out the conditions for its application. COM(2014)188/02
- Until now, it has been used for 1 infrastructure project decision (Fehmarn Belt fixed rail-road link between Denmark and Germany) and for 1 integrated R&D project (Microelectronics, Germany, UK, France and Italy)

Scope and Justification

- Hydrogen will be needed with respect to sustainability (climate goals), societal goals (health) and competitiveness
- Hydrogen will only be generated at scale and at competitive prices if there are customers with voluminous demand (production/transport/usage go hand in hand)
- Supchapters / Pillars allow a multiple start on the basis of a framework agreement
- Existing achievements in innovation via e.g. the FCH JU can be used
- Even TRL 8 projects need process innovation for mass application
- Investments in infrastructure (e.g. dual use of H2 pipelines) are an added value for the EU making the usage of hydrogen affordable

Update IPCEI

- 12 September 2019 — Preparatory meeting (for conference projects)
- 9 October 2019 — Hydrogen 4 Climate Action conference
- November 2019 — Official info to all MS to start call for EoI
- 1 Q 2020 — Preparation of the IPCEI request
- April 2020 — Official request
- October 2020 — IPCEI approval