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The Netherlands Perspective on Clean Hydrogen

Fifth IEF-KAPSARC Thought Leaders' Roundtable Session III

28 February 2019

Riyadh

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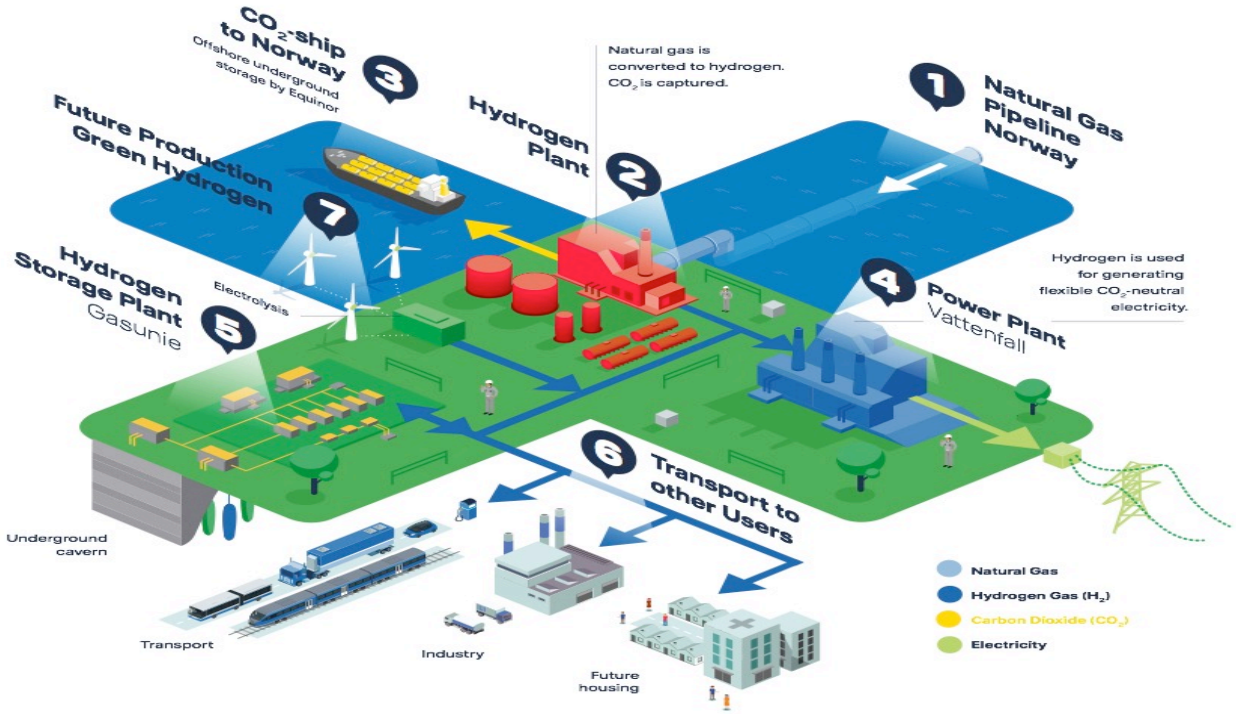
The H2M project:
Towards a clean and sustainable Dutch hydrogen economy

In order to live up the ambitions of the Paris Climate Agreement, Vattenfall, Equinor and Gasunie have formed a consortium to explore the large-scale production and off-take of CO_2-neutral hydrogen in the Northern Netherlands and to establish a clean hydrogen value chain that paves the way for a sustainable hydrogen economy. This 'H2M'-project has the potential to reduce Dutch CO_2 emissions with 2 million tons per year from 2024 onwards.



Why hydrogen?

Hydrogen is reliable and clean, and its use is the most cost-effective way to decarbonize. It does not require new technology and can make use of existing infrastructure. It can be used to generate flexible CO_2-neutral electricity. And in addition, it can be used in many other applications such as transport and industry.

The Benefits of the H2M project

- CO_2-emission reduction of 2 million tons per year from 2024 onwards.
- Efficient and reliable energy system through the realisation of CO_2-free flexible power generation
- Enabler for hydrogen infrastructure and storage – realisation in time for green hydrogen

1 october 2018

VATTENFALL gasunie equinor

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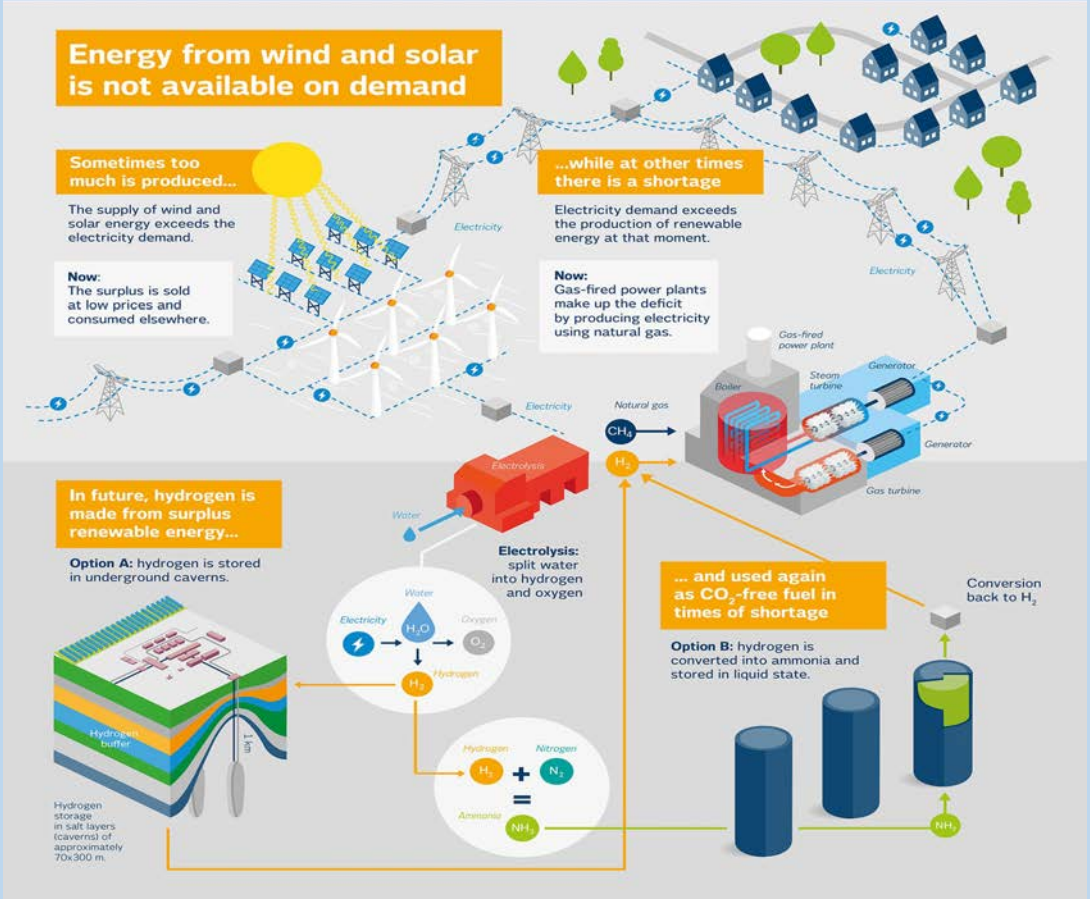
VATTENFALL

A POWER PLANT AS A SUPER-BATTERY

Vattenfall has the ambition to use gas-fired power plants as storage facilities for renewable energy and provide flexible CO_2-free electricity. The energy company aims to do so by producing hydrogen from renewable energy whenever there is a surplus. This hydrogen can be converted into ammonia as a carrier that is easy to store on a long-term basis. But the hydrogen can also be stored in underground caverns. Hydrogen can then be used as CO_2-free fuel in gas-fired power plants at times when there is a shortage of renewable energy.



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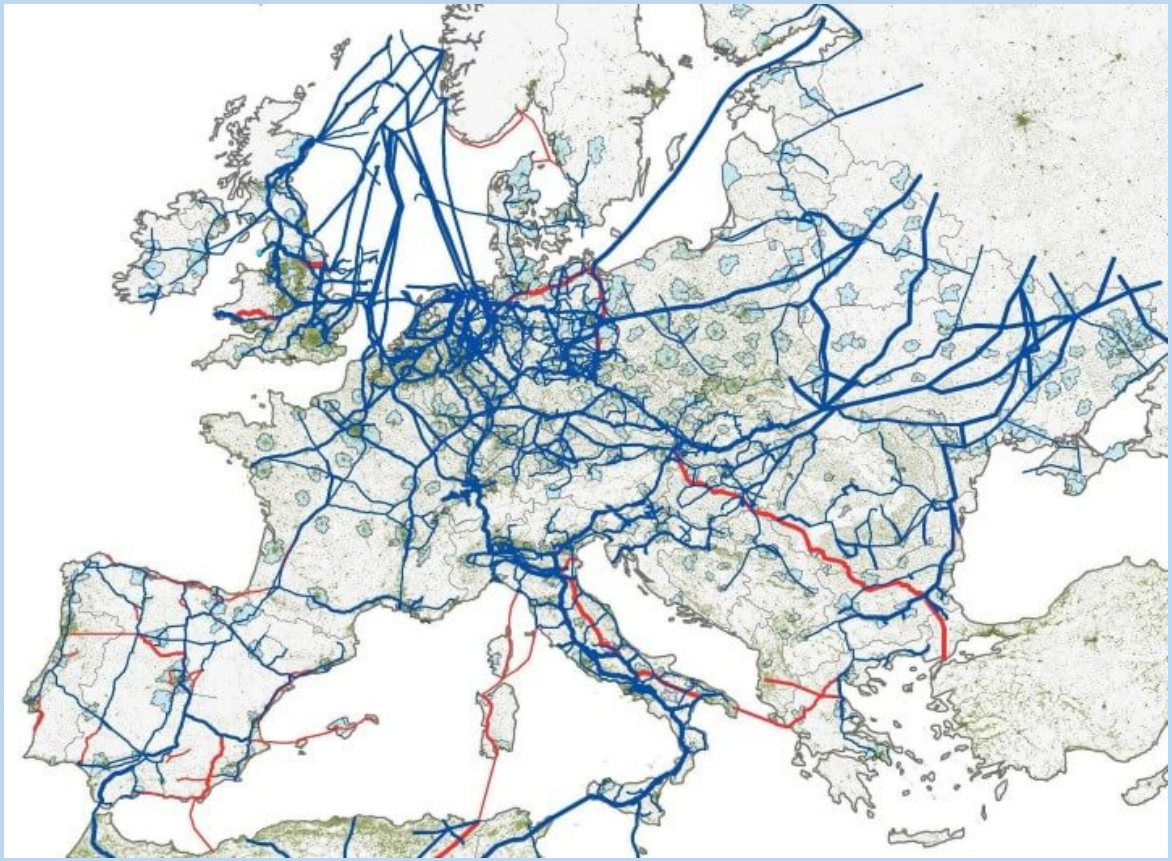
European Gas Infrastructure



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European Hydrogen Infrastructure

- Unlock the offshore-onshore wind resources in North Europe
- Unlock the solar and wind resources in South Europe
- Unlock the solar and wind resources in Northern Africa

- Connect to large scale hydrogen storage, e.g. salt caverns

- Supply chemical, petrochemical and steel plants
- Supply electricity balancing plants
- Supply hydrogen fueling infrastructure
- Supply regional hydrogen distribution grids

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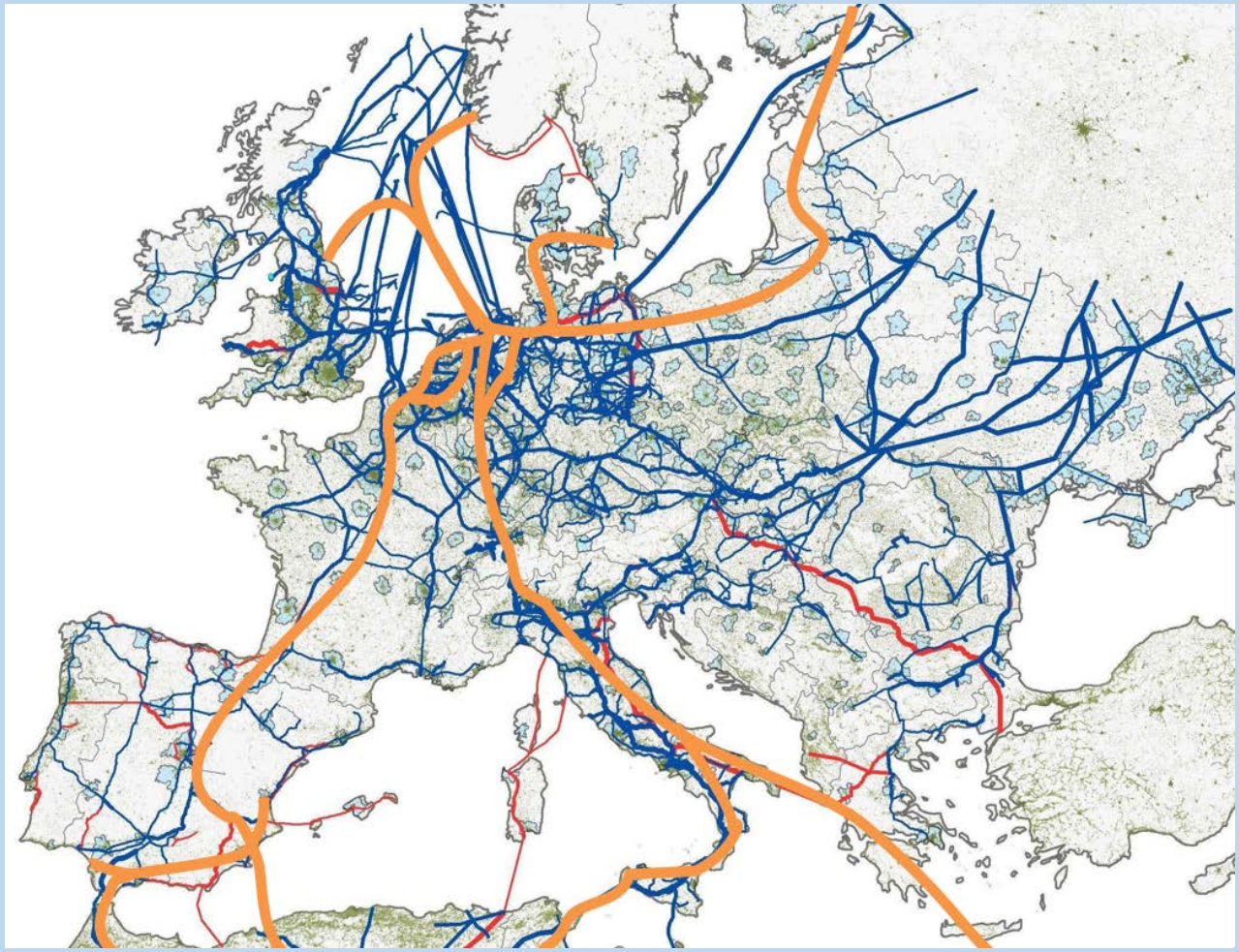
European Hydrogen Backbone



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