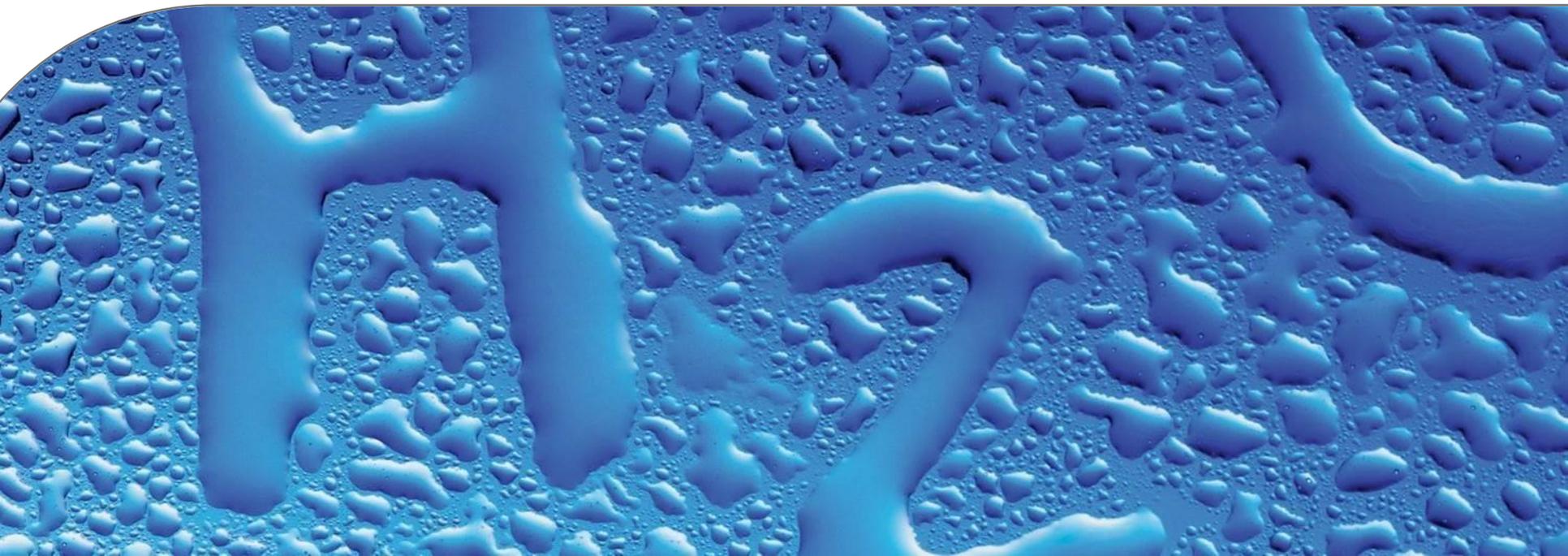


Turning a hydrogen economy into reality

Ulco Vermeulen

*Member of the Executive Board and Director Participations & Business
Development Gasunie*

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Energy from and for everyone



Mission



Gasunie is a European infrastructure company. We serve the public interest, offer our customers integrated transport and infrastructure services and maintain the highest safety and business standards.

We focus on value creation, both short-term and long-term, for our shareholder(s), other stakeholders and our environment.

How we see the future



We believe
in a sustainable future
with a balanced energy mix
and an enduring role for gas
coming from different sources.

We believe
that we serve our customers
best when we introduce
innovative solutions
for improving energy
infrastructure.

Someday...

”Yes, my friends, I believe that water will one day be employed as fuel, that hydrogen and oxygen which constitute it, used singly or together, will furnish an inexhaustible source of heat and light, of an intensity of which coal is not capable.”

*Jules Verne, The Mysterious Island,
1874*



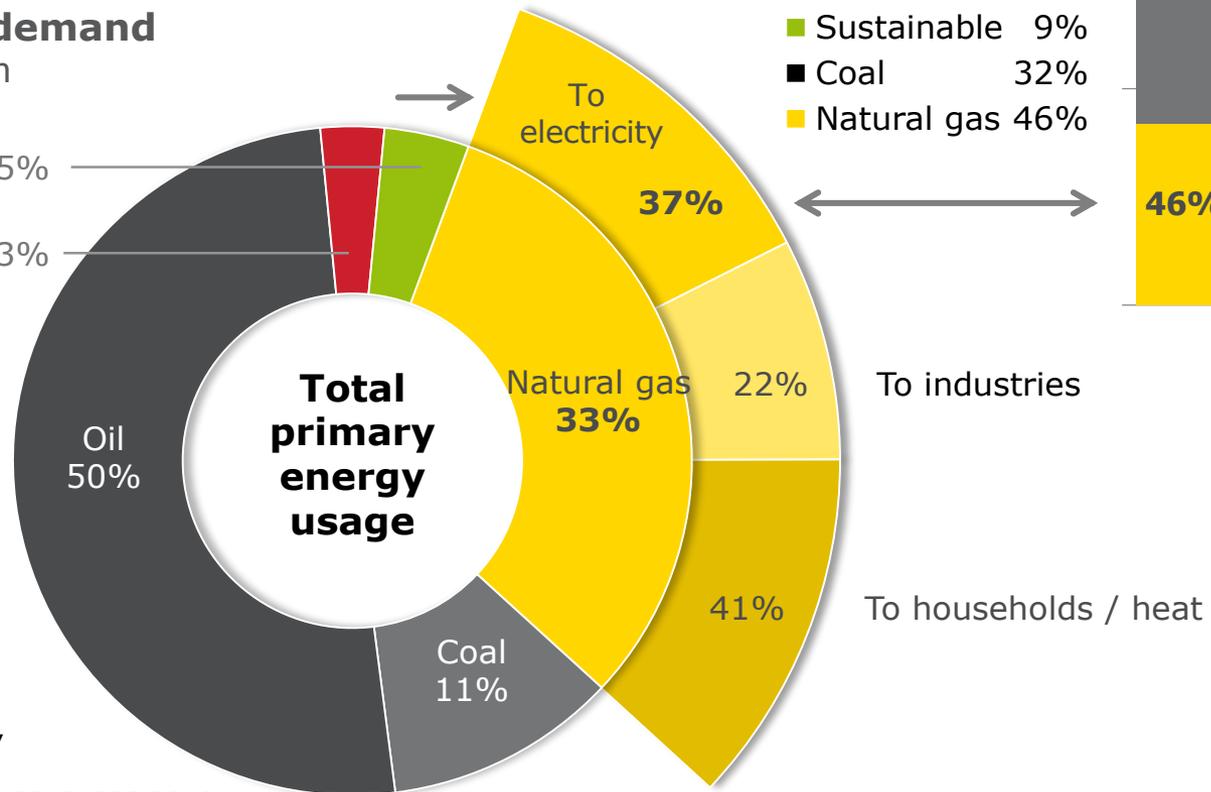
Energy in the Netherlands (2016)

Total gas demand
appr. 41 bcm

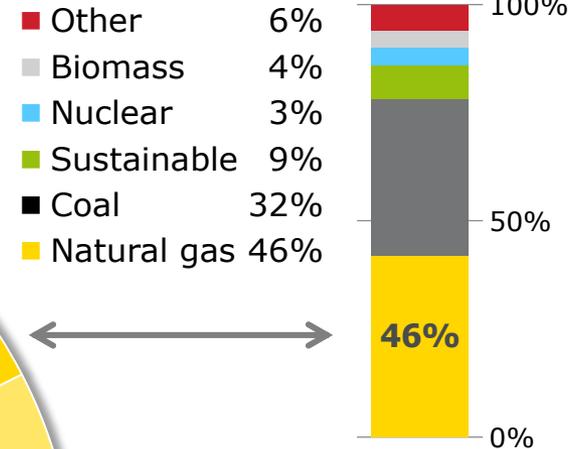
Waste
Biomass } 5%
Heat
Nuclear
Hydro
Sustainable* } 3%

Geothermic, wind,
solar and tidal

Source: IHS CERA 2016, CBS 2016



Electricity production



Gas is a cost effective storage medium



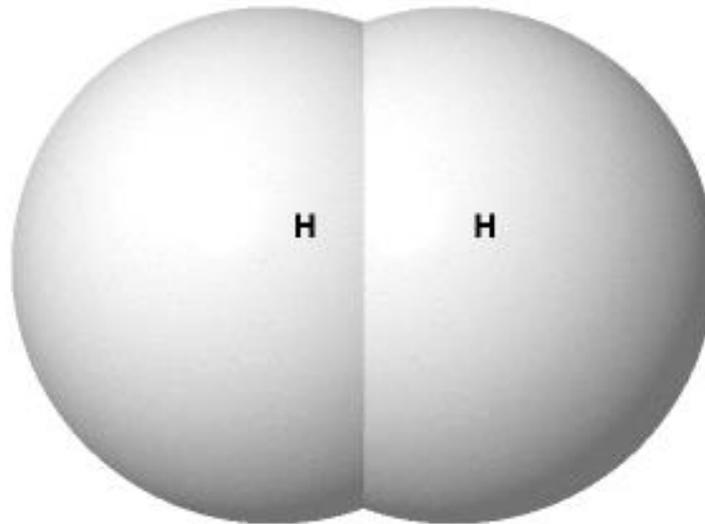
- 1 Energy Stock salt cavern
 - =
 - 1 mln m³
 - =
 - 6,100 tonnes H₂
 - =
 - 240,000 MWh
 - =
 - 17 mln Tesla Power Walls
 - =
 - approx. €100 bln



Gas is cost effective energy transport medium

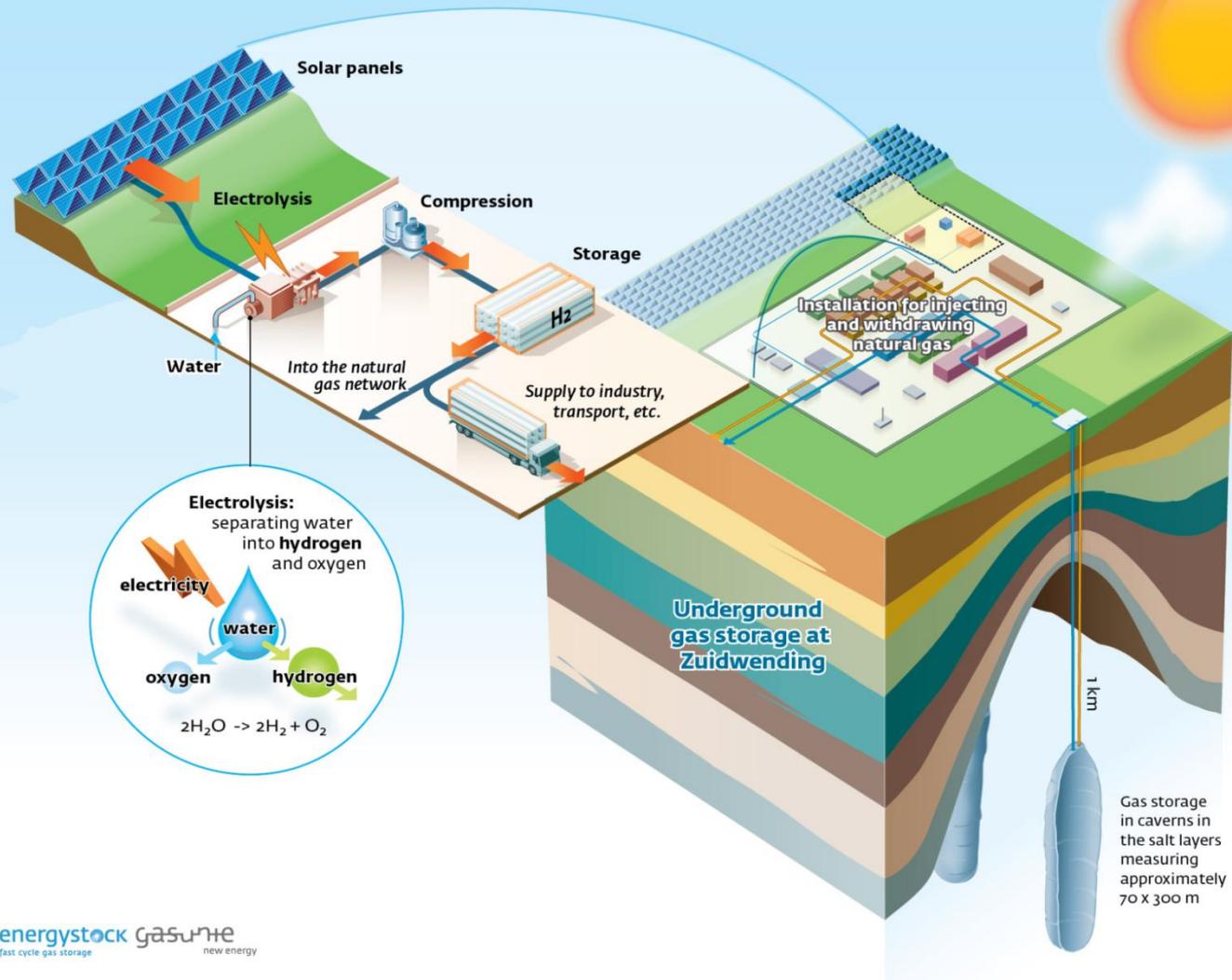
	Cable (BritNed)	Pipeline (BBL)
Capacity	1 GW	15 GW
Cost of construction	€ 500 mln	€ 500 mln
Volume (year)	8 TWh	120 TWh

The 'Paris' challenge: energy transition needs power... and (green) molecules

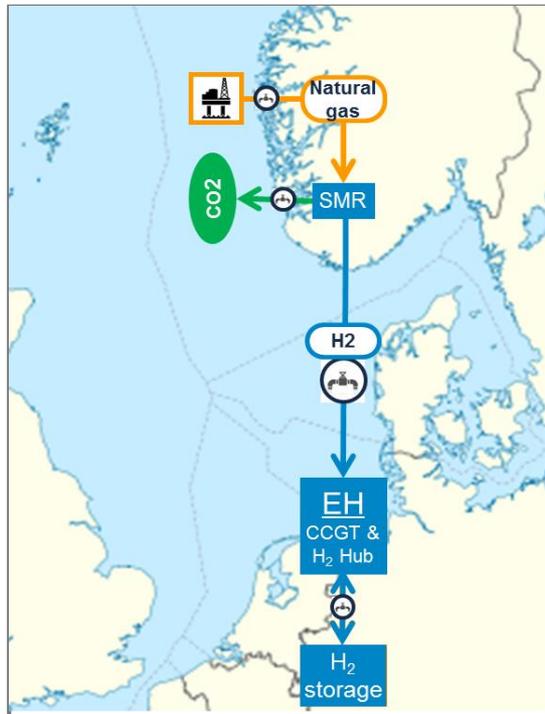


HyStock pilot project

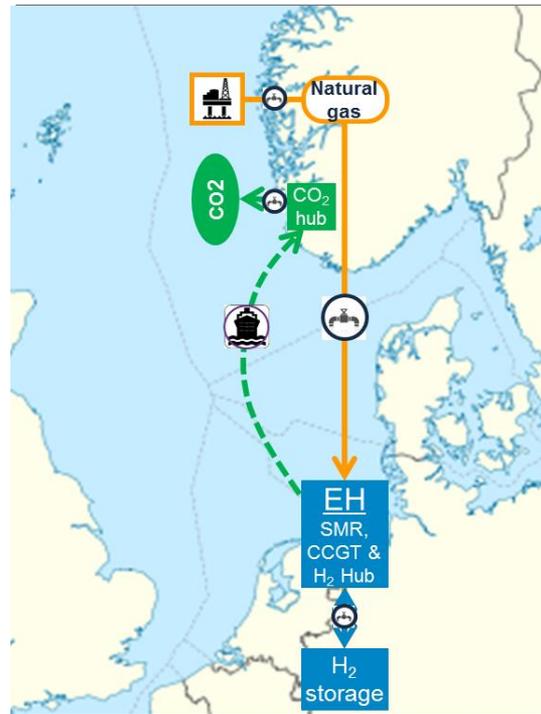
Hydrogen produced with solar energy stored in the natural gas buffer



Refit Nuon Magnum power plant from natural gas to hydrogen



Option 1:
H2 production in
Norway



Option 2:
H2 production in NL



Option 3:
NH3 production in
Norway

EH: Eemshaven;
CCGT = Magnum power plant;
SMR = steam methane reforming plant to split natural gas into hydrogen and CO2;
HB = Haber Bosch process to convert hydrogen into ammonia



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Hydrogen

- Enables large scale wind power production and distribution
- Offers sustainable solutions in 'difficult' markets
- Connects best of two worlds

