Netherlands Enterprise Agency

The Dutch Experience of Greening the Gas Grid

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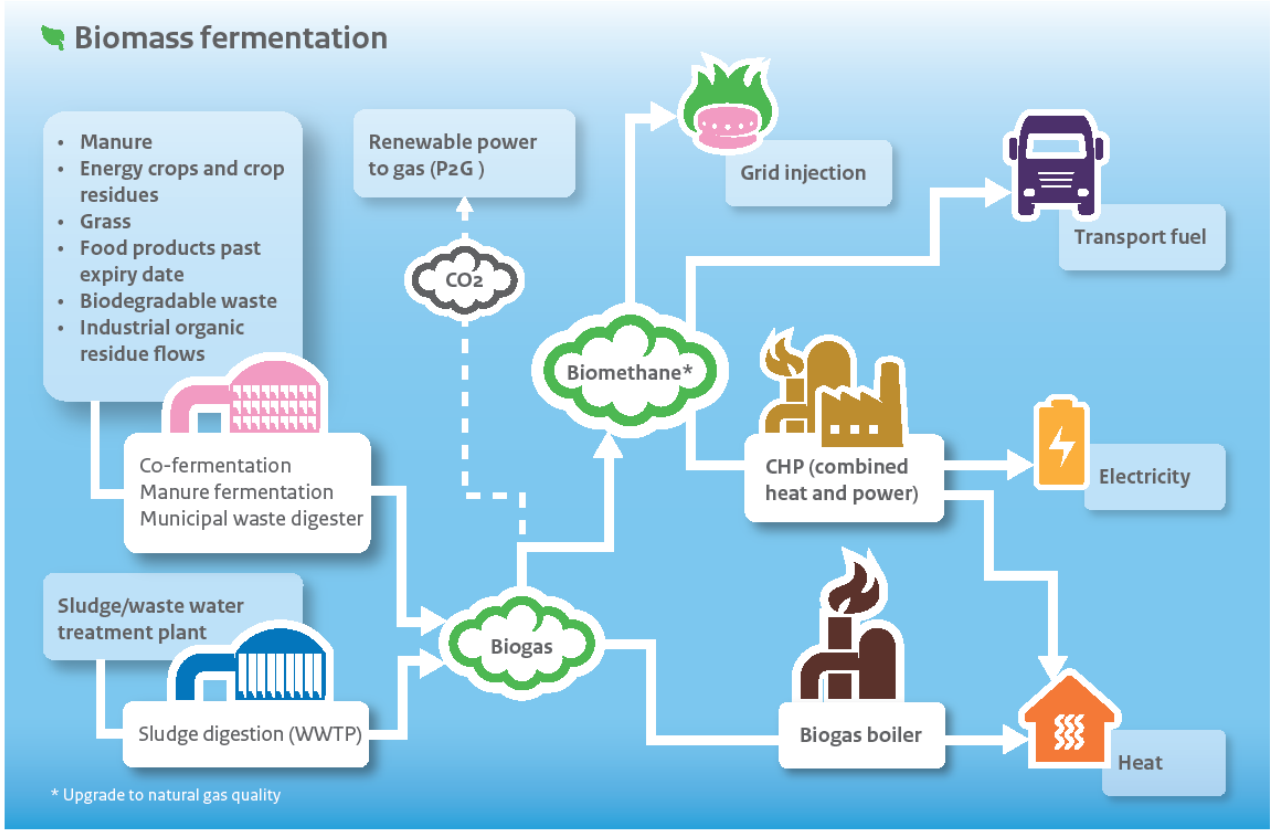
Content

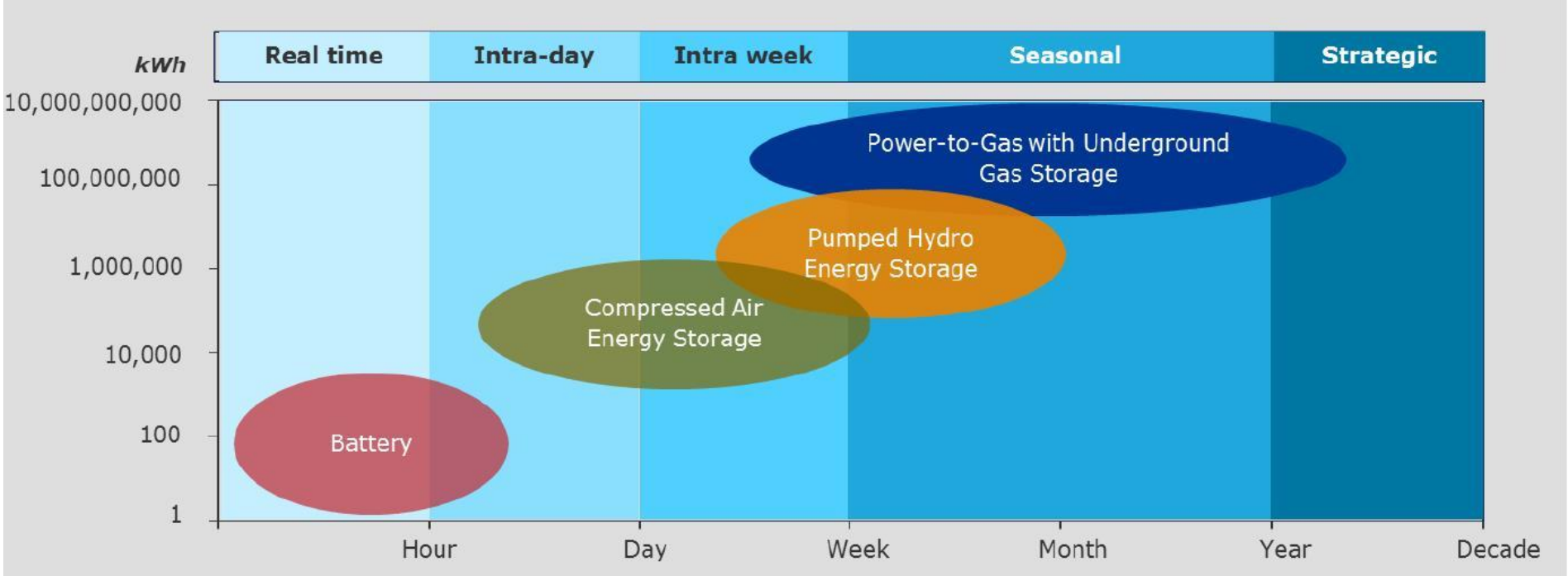
- Different functions of biomethane in an advanced energy system
- Examples of development and approach of biomethane
- Technical barriers and solutions in grid injection

Biomethane:
a multi purpose renewable energy carrier



www.rvo.nl/bio-energie

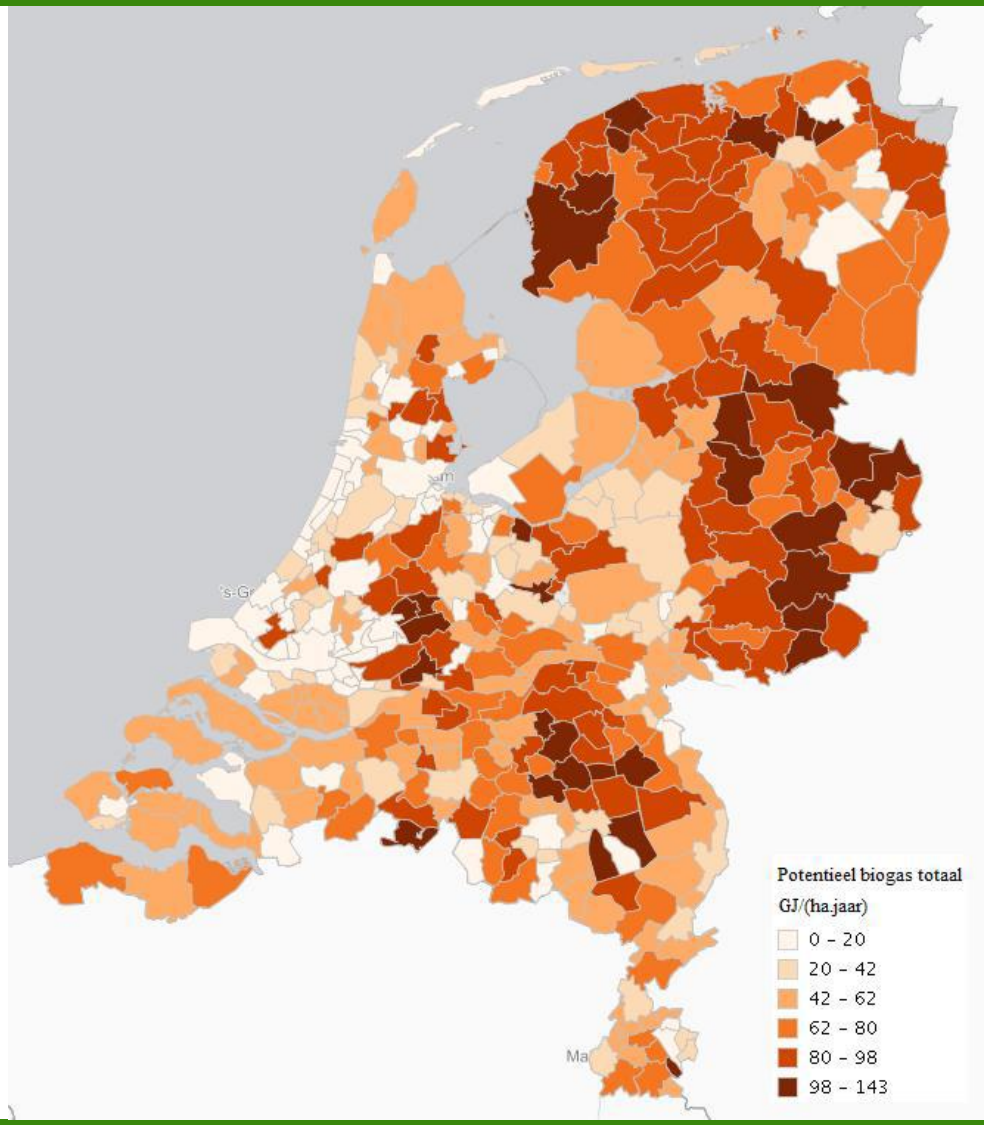
Advantage in an overall energy system is the storage capacity of gaseous energycarriers



Potential of biogas per region in NL

Biomethaneprojects in operation(April 2018)
- N=37
- Injection capacity:
  19.222 Nm3/h
  154 Miljon Nm3/y

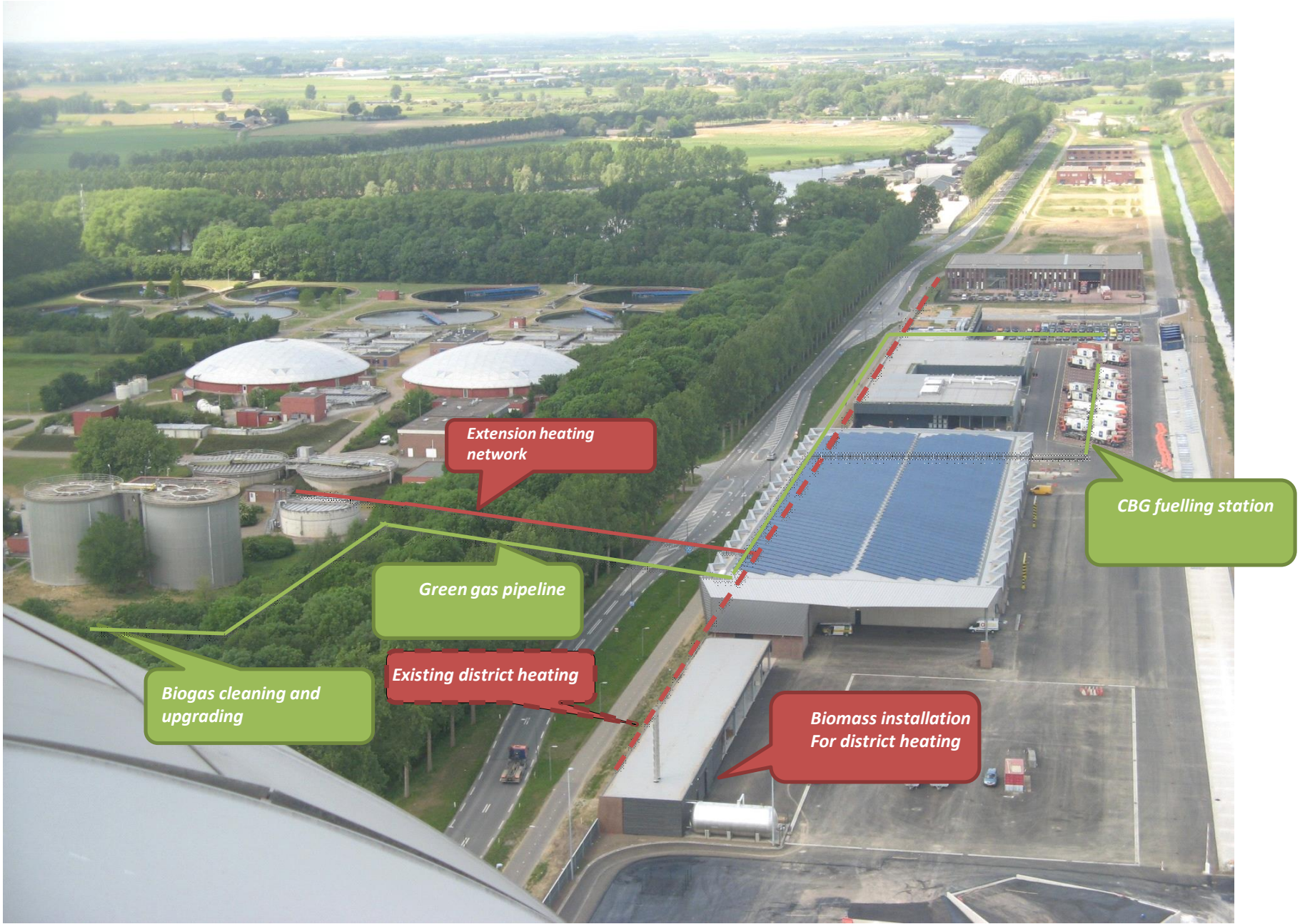
Commissioned projects
(not yet in operation)
- N=55
- Injection capacity:
  29.025 Nm3/h;
  232 Miljon Nm3/y



Pentair Haffmans

Overview cooperation with “Afvalstoffendienst “

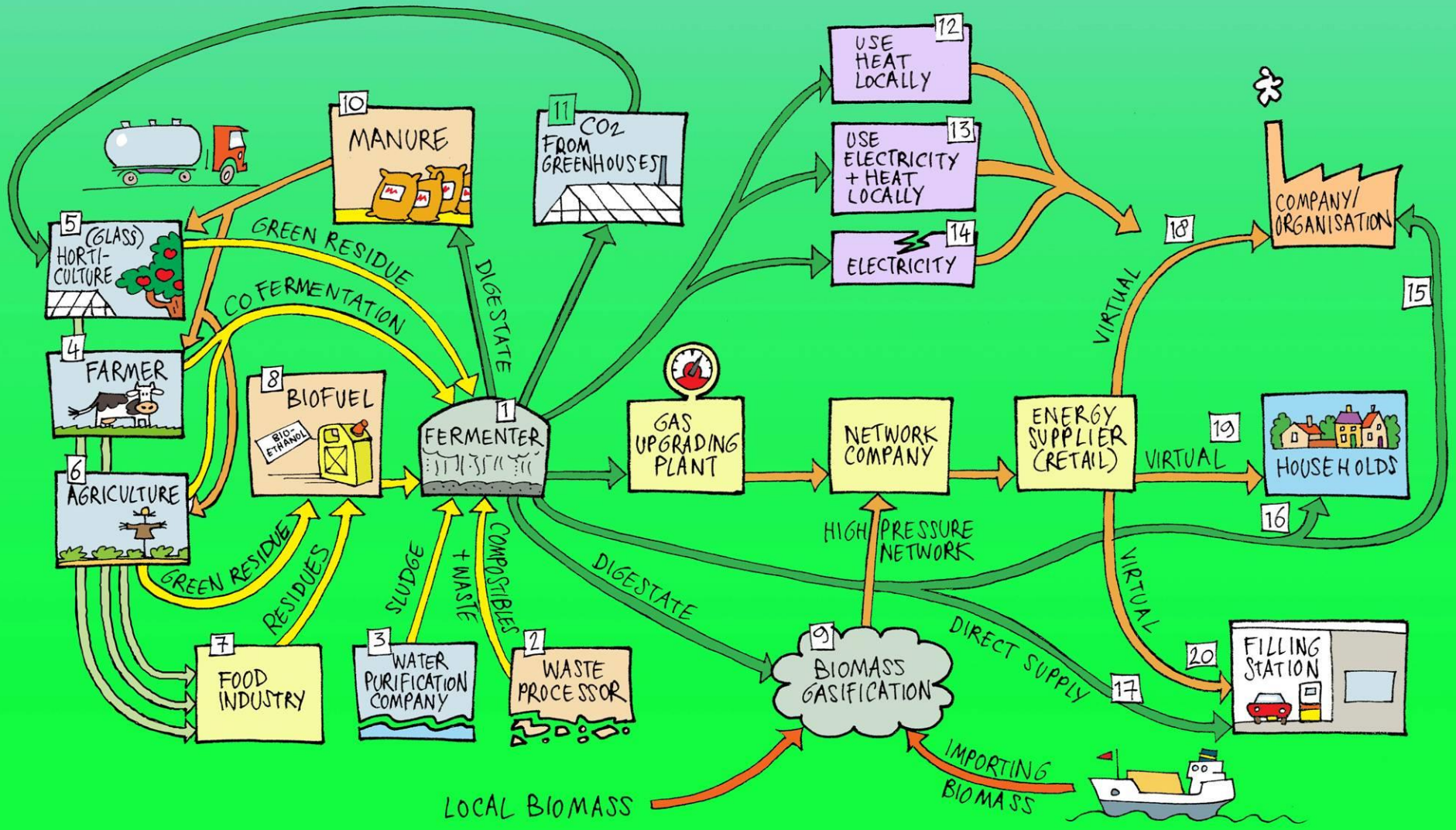
(part of the municipality of ‘s-Hertogenbosch) *Picture taken from local wind mill*



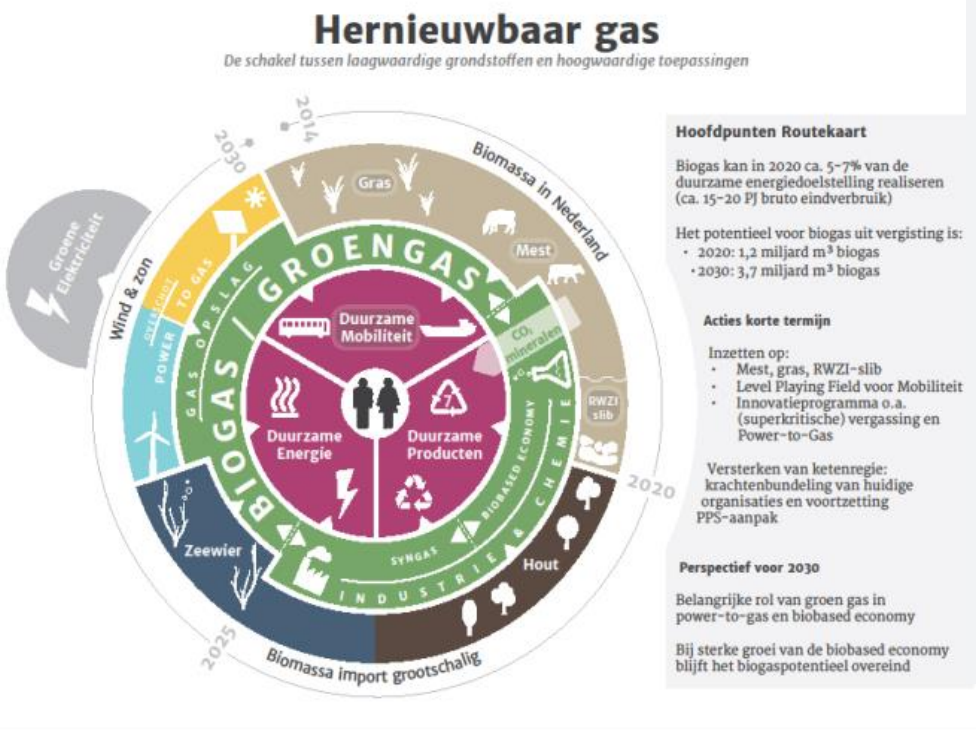
THE GREEN GAS CHAIN

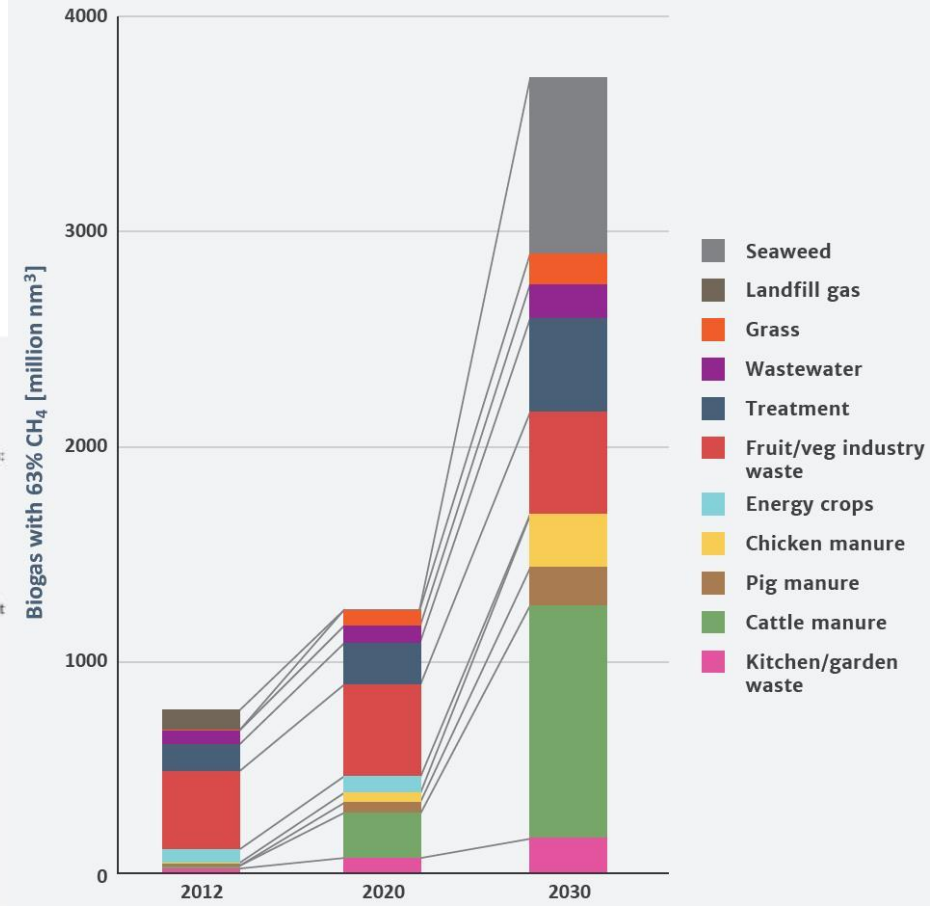
20 ROUTES TO GREEN GAS

GREEN GAS WORKING GROUP / NEW GAS PLATFORM

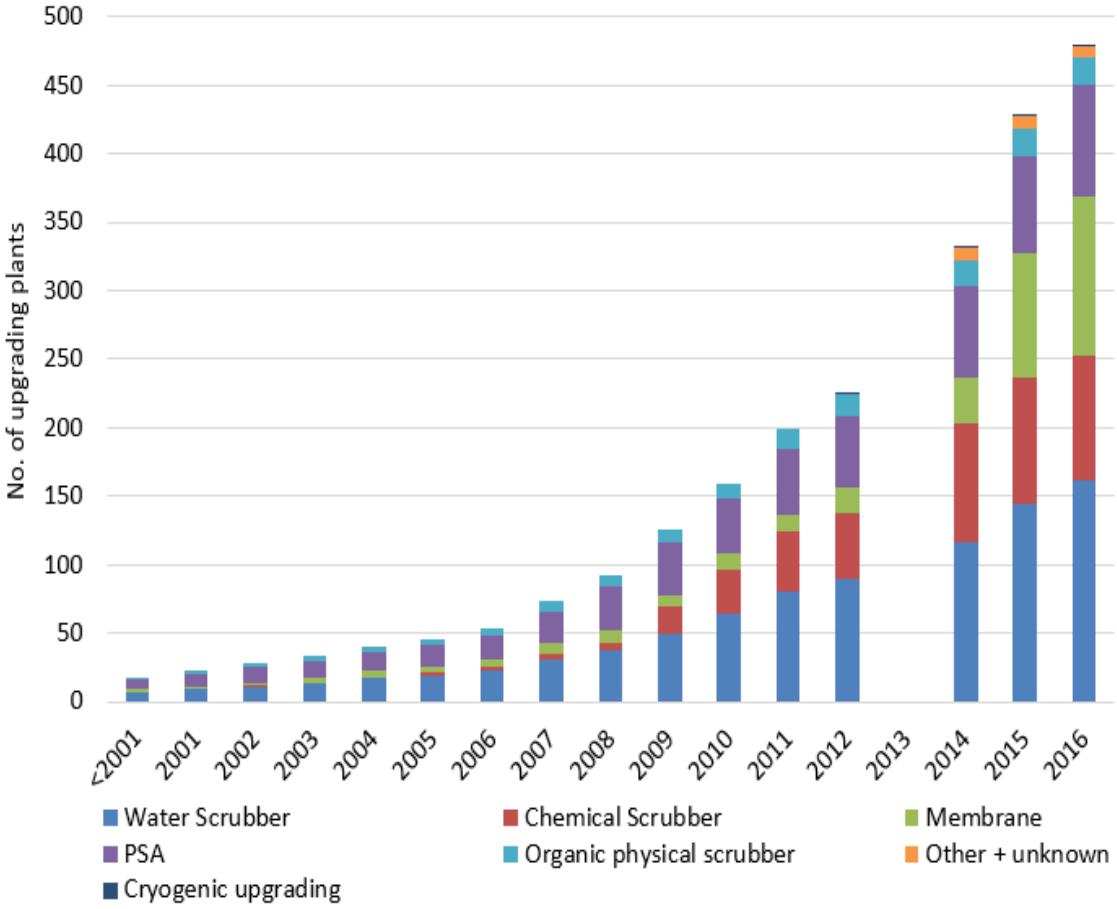


Roadmap with indication of biogaspotential in the Netherlands

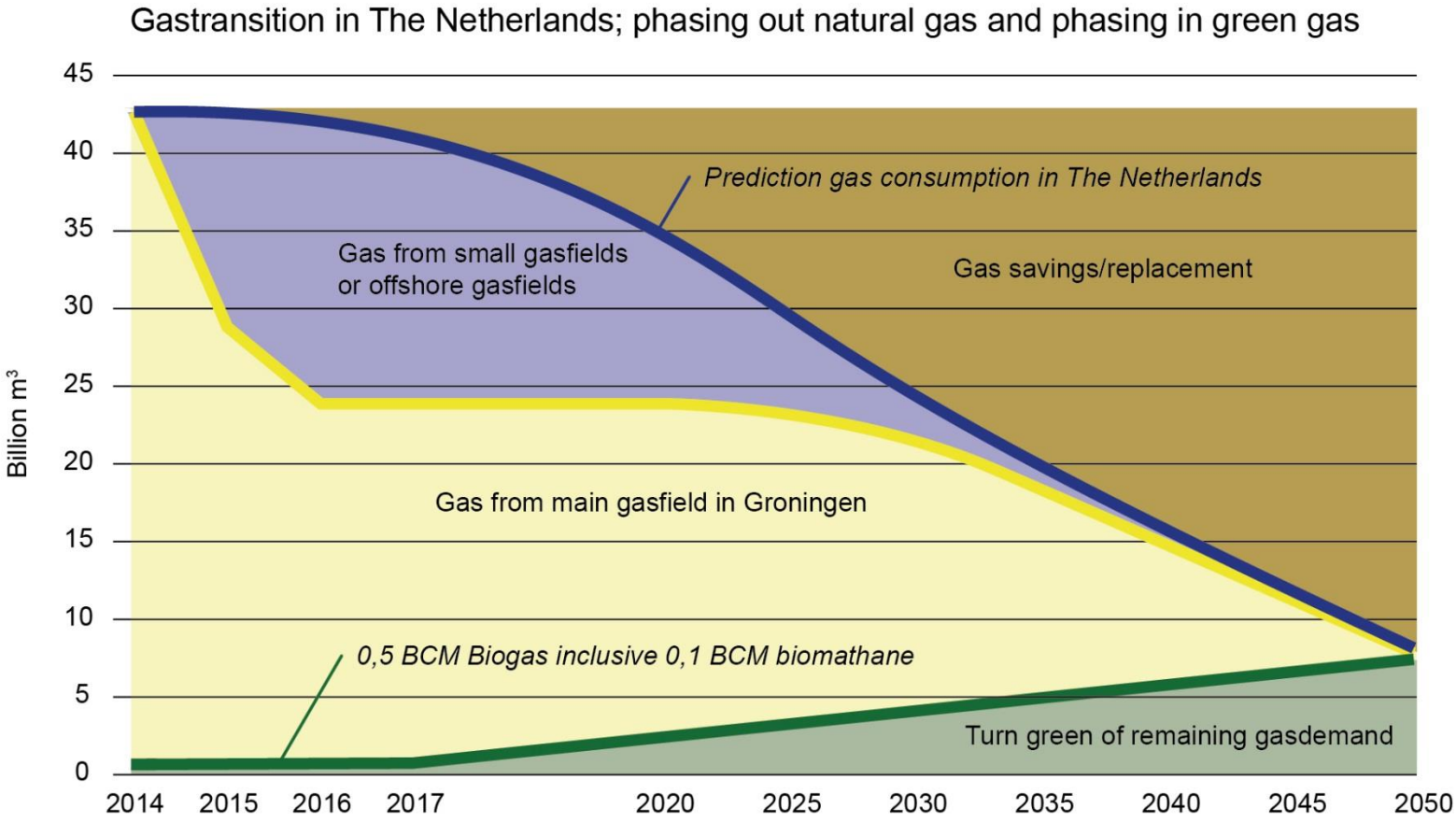




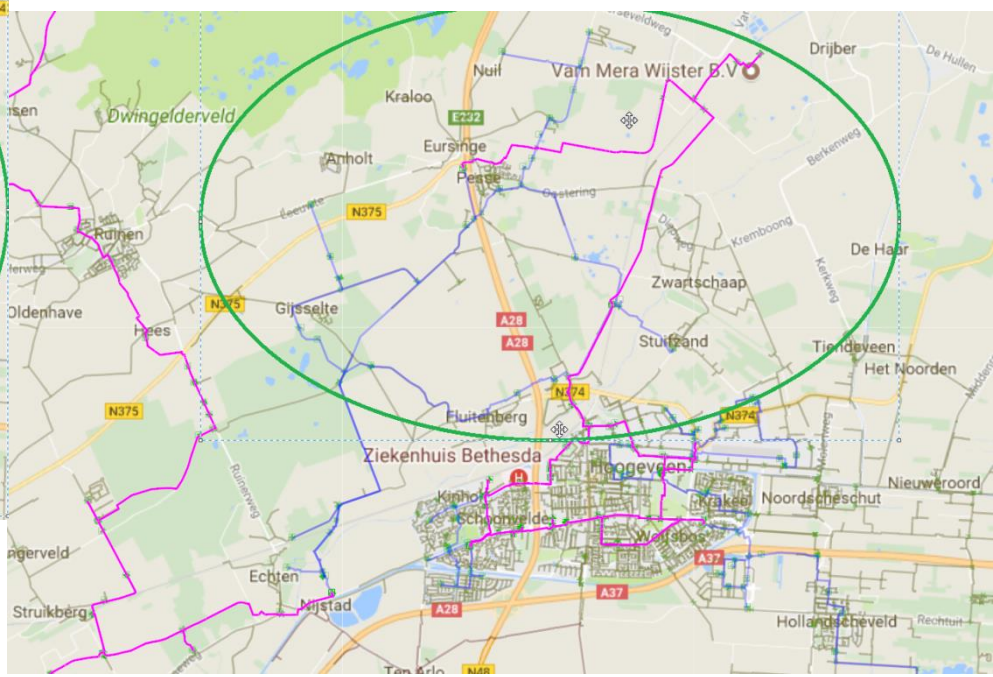
International development of biomethane projects during the past years



Challenges in the gastransition in the NL

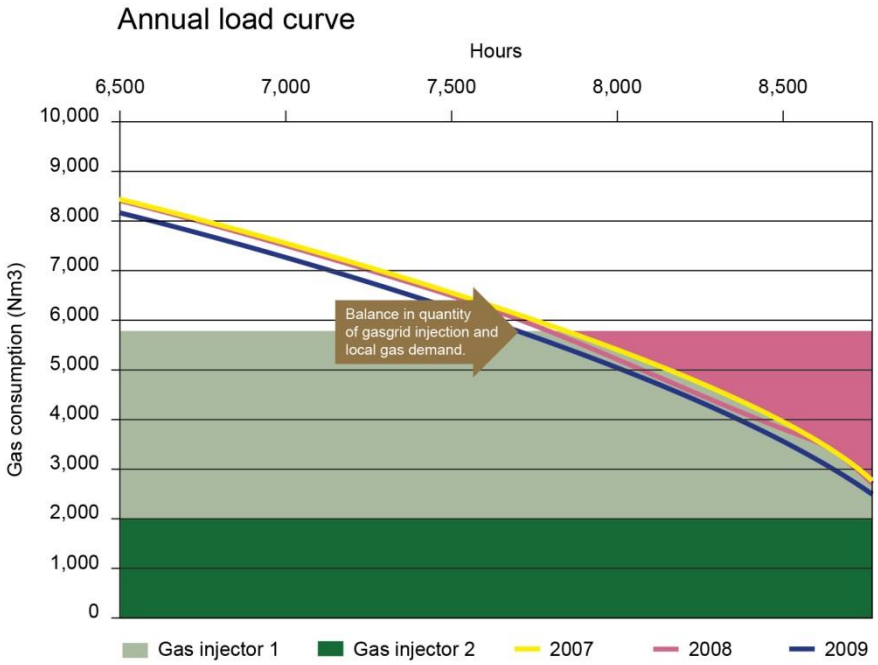


Differences in gridinjection during summer/winter season

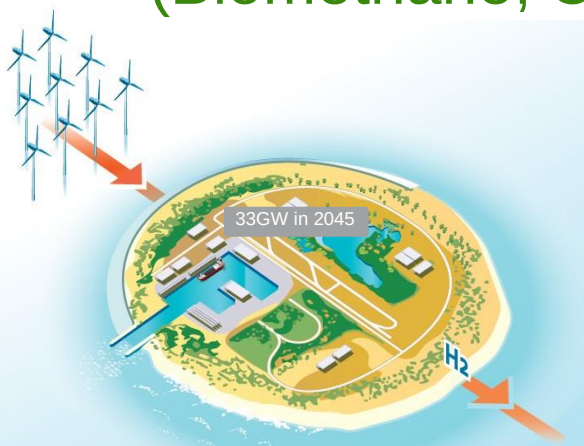


Several Strategies for Gas Grid Injection; Different innovative approaches in cooperation with several grid operators; Basic challenge is: biomethane production capacity doesn't meet gas demand

- Direct injection (limited because of gas demand)
- Development biogas/green gas hubs
- Injection with recompression in gas grid to higher pressure part of grid
- Development of dedicated biogas grids with replacement of standard gas boilers
- Pressure regulation in distribution grid in combination with creation of storage capacity in distribution grid.(www.sg3.nl)

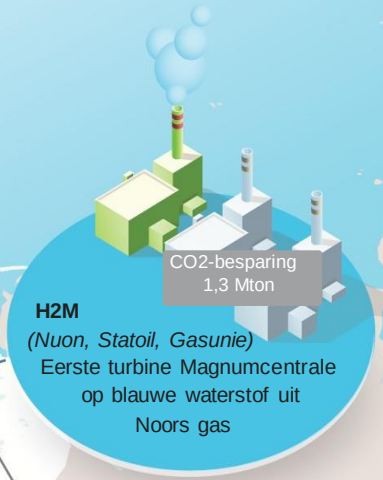


Contribution Gasunie in projects (Biomethane, CCS and H2)

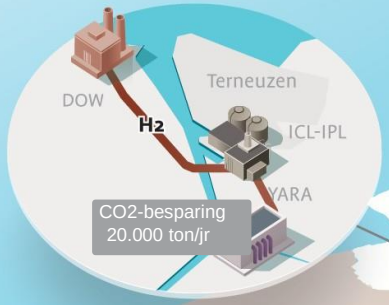


North Sea Wind Power Hub
(Tennet, Energienet, Gasunie, Havenbedrijf Rotterdam)
Waterstofproductie op zee uit stroom van windmolenparken

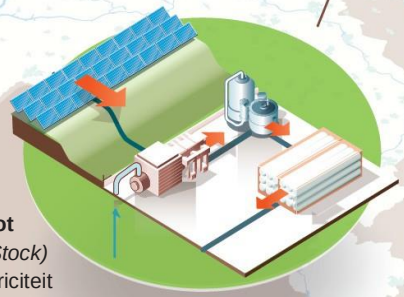
20 MW vergasser
(SCW systems, Gasunie)
Omzetten biomassa naar gas, dat toegevoegd wordt aan het aardgasnet



H2M
(Nuon, Statoil, Gasunie)
Eerste turbine Magnumcentrale op blauwe waterstof uit Noors gas



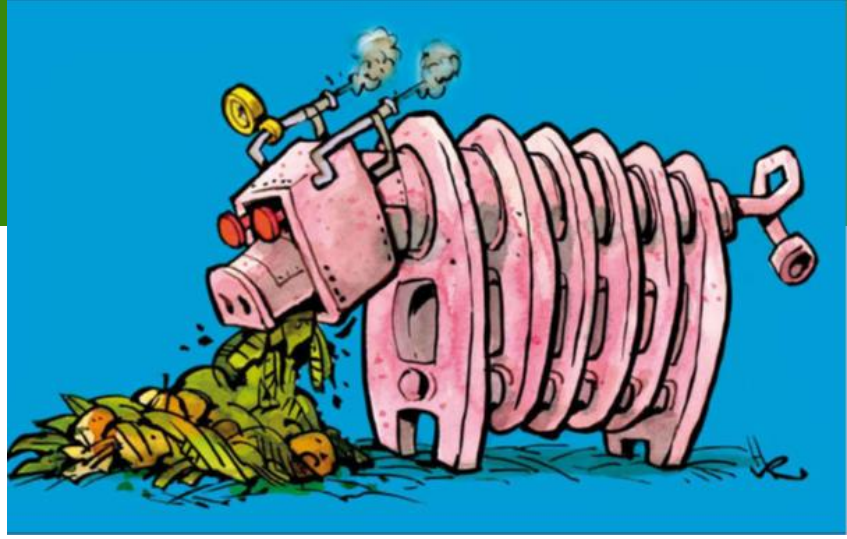
Waterstofleiding Zeeland
(Dow, Yara, Gasunie)
Bestaande aardgasleiding omgezet naar waterstof voor de industrie



HyStock 1MW pilot
(Gasunie, EnergyStock)
Zet duurzameelektriciteit om in waterstof voor transport en industrie

20MW elektrolyzer
(Akzo, Gasunie)
Omzetting duurzame elektriciteit in waterstof voor vergroening industrie.

Gasunie Verkenning 2050, uitgave 2018



Futher Information

www.iea-biogas.net

www.biogaspartner.com

http://www.rvo.nl/onderwerpen/duurzaam-ondernemen/duurzame-energie-opwekken/bio-energie/vergisting-en-vergassing

www.greengasgrids.com