



ETIP SNET

EUROPEAN SMART  
TECHNOLOGY AND NETWORKS FOR  
INNOVATION AND ENERGY  
PLATFORM TRANSITION

# Reliable, economic and efficient smart grid system

FutureGas

PLAN.  
INNOVATE.  
ENGAGE.

# Short presentation of the project

## FutureGas



Period: 2016-2020  
[www.futuregas.dk](http://www.futuregas.dk)

Budget: 2.5 mio. EUR



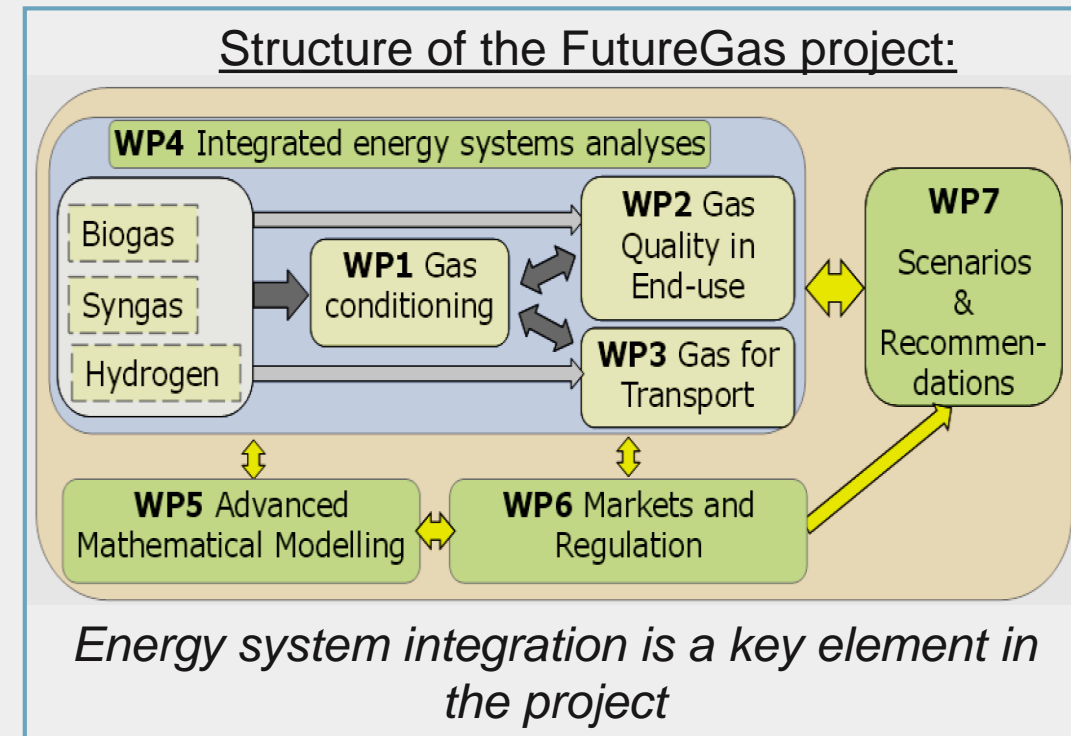
The aim of the FutureGas project is twofold:

- 1) *In an energy system context to facilitate the integration of the gas system with the power system, the district heating system and the transportation sector taking into account possible synergies*
- 2) *To facilitate a cost-efficient uptake of renewable gases, hereby in the longer term substituting natural gas and fossil fuels*

# Key exploitable results addressing energy system integration

## Key results:

- Renewable gas technologies can play a prominent role in future Danish energy systems
- Producing gas for end-use demands
- To produce liquid fuels
- Energy system integration is key in the future
- Electrification
- Efficient utilisation of excess heat
- Flexible operation of PtX
- The gas transmission infrastructure is sufficient, also in the future
- Regulation is essential for promoting energy system integration



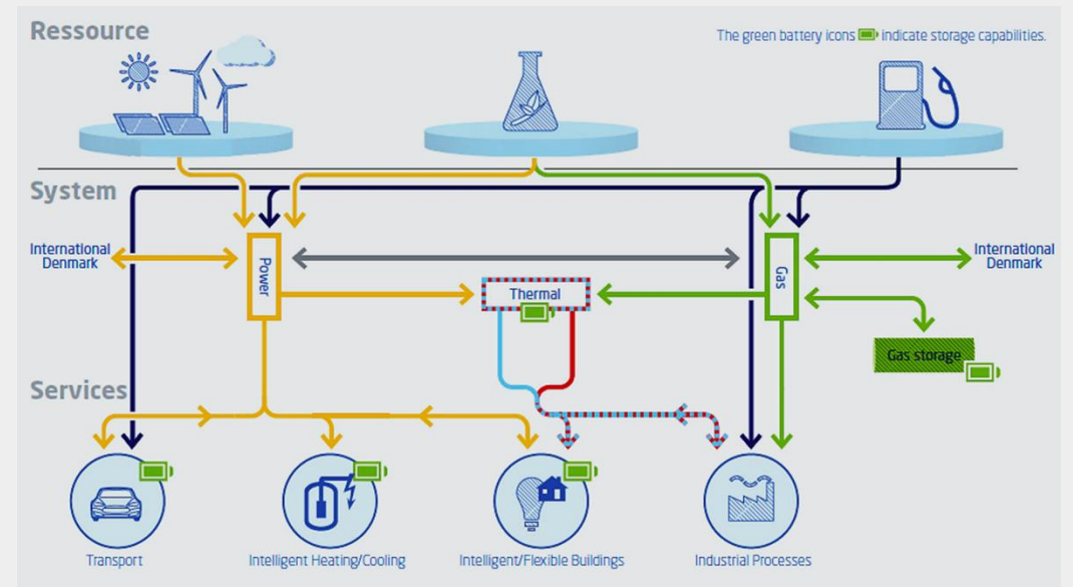
# Key exploitable results addressing energy system integration

Added value of the results, Quantifiable benefits, and Final beneficiary of the results

- Modelling frameworks developed in this project are open source, public available, and are developed in order to be applicable for other countries.
- This project provides future cost-efficient pathways for the Danish energy transition towards a sustainable future, with a detailed representation of the gas system as an integrated part of the future energy system, which is used to support stakeholders and policymakers in strategic decision making.
- Example: Modelling frameworks and results will be used in the national gas strategy
- Example: Results support decision making in the Danish gas and energy sector

# Lessons learned and barriers to innovation deployment

- Sector coupling is important
- Renewable gas can play a role in the energy transition, but mainly by converting gas to liquid fuels
- Role of PtX depends on:
  - climate targets
  - available biomass that is characterized as being sustainable
  - other flexibility measures
  - well-functioning markets
  - future electricity prices
  - and a proper and coherent regulatory framework



# Deployment prospects of the most promising solutions

- Results are used by the Danish Energy Authority and the power and gas TSO for gas strategy development.
- Model development is open source and will, for example, be used in a new EU project called “SuperP2G”



# Needs for future R&I activities coming out of the project (if any !)

- Further research and **demonstration** projects are needed
- Power-to-gas research
- Power-to-X research in general
- General modelling frameworks are developed for a national scale, but can, and will, be applied for other countries through inter-regional cooperation



# Extra: White paper on energy sector interfaces - status

- The white paper addresses the potential benefits of energy sector coupling: PtH, PtG, PtX, and EV's
- Very “hot” topic, to be carefully evaluated
- Work in progress:
  - Coordinated by DTU
  - International collaboration between leading researchers, industry and institutions in the field of energy sector coupling



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