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# COUNTRY REPORT

## April 2013 Denmark

**16-19 April 2013**  
**Bern, Switzerland**

## Biogas plants in Denmark



- **22 Centralised biogas plants (CAD)**
- **60 Farm biogas plants**
- 53 new biogas projects in 2013, of which:**

**19 projects received government grants in 2012  
(a total of 268 mil.DKK)**

- **10 CAD projects** (*including up-grading existing plants at Filskov and Thorsø*)
- **4 projects of organic farm biogas plants**
- **5 projects of conventional farm biogas plants**

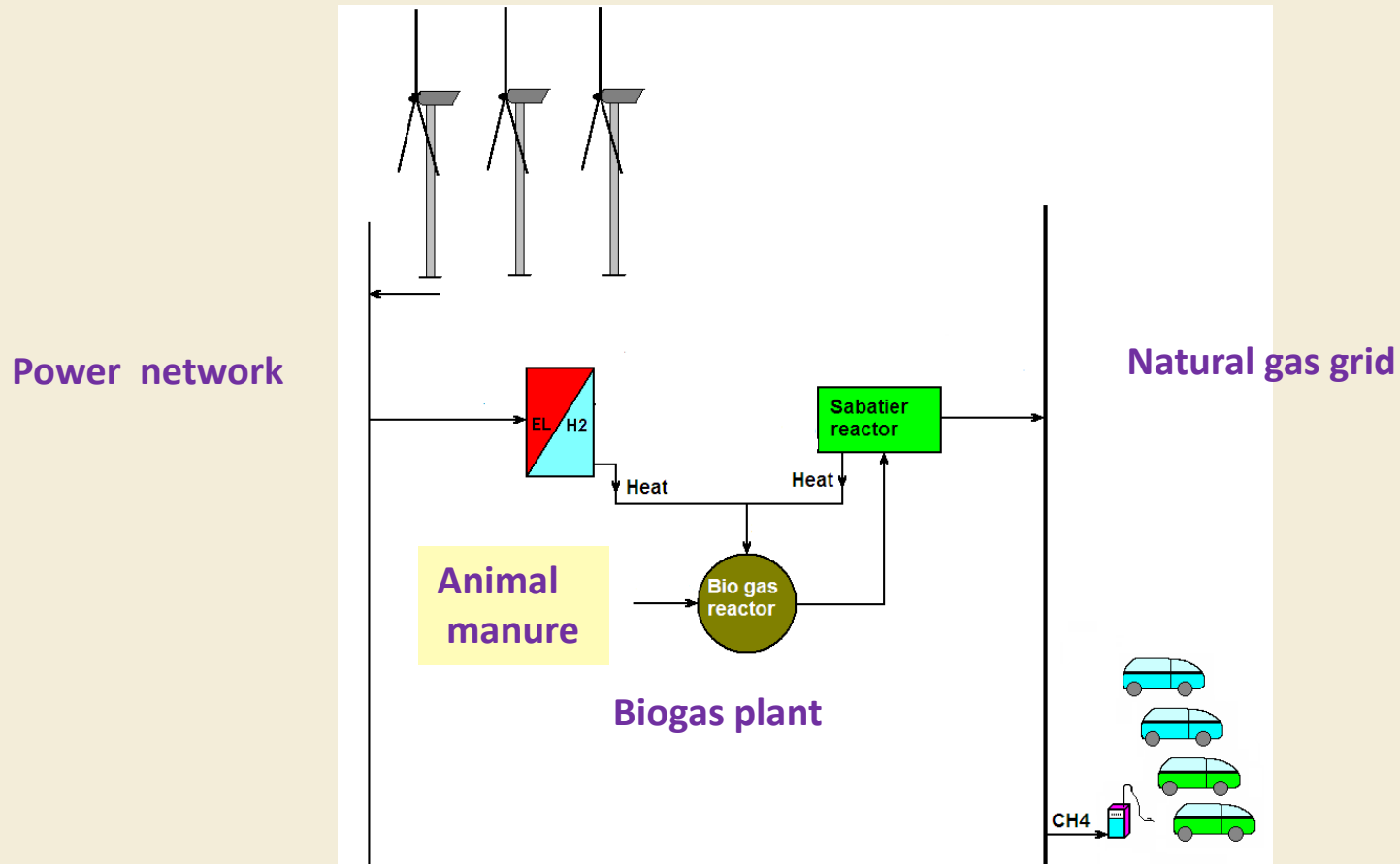
# The role of biogas in the Danish society

- Stabilization of wind power dominated energy - Security of supply
- Efficient and cost reduction of greenhouse gases
- Environmental Effects (aquatic environment, smell)
- Recycling of nutrients
- Cleaner transport (CO2, health, noise)
- Creation of jobs
- Exports of technology and food



# Wind energy to the gas grid

Principle diagram (Hansen, 2013)



# A possible scenario for the use of biogas as vehicle fuel in Denmark

(Ea Energianalyse)

**Estimated fuel saving up to 1 bill. DKK /year by 2035**

- Hot topic for the Danish energy and transport sector
- Many actors involved (state, regions, municipalities, transport providers, automakers and energy companies).
- Much lobby and a strong focus on gas; many conferences and much debate.
- Need for tests to provide facts and data.
- A network is under way in cooperation with TINV, DEA and the Traffic Authority.

## **Main barriers:**

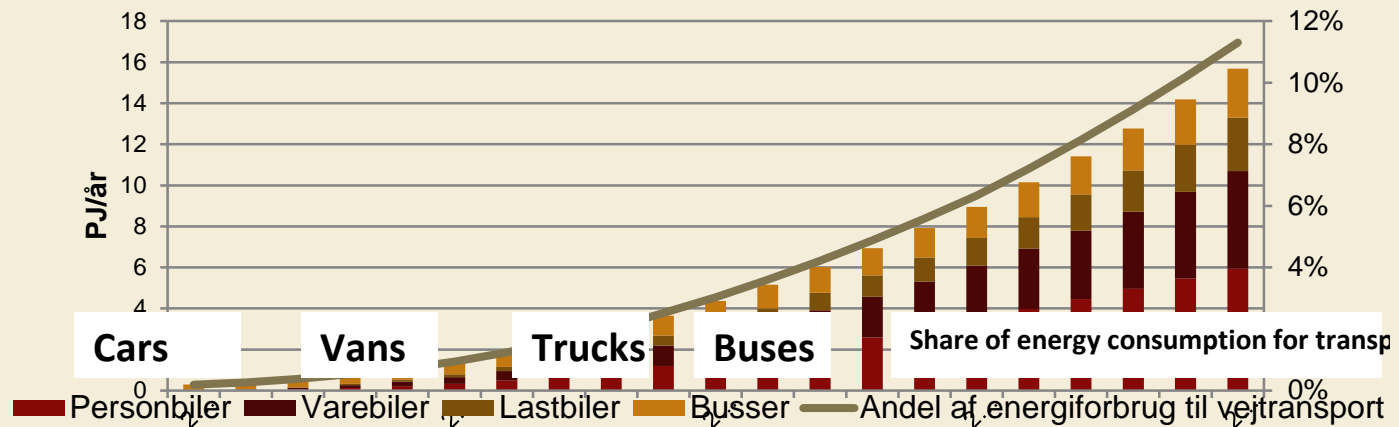
- Low economic gain due switching to the new technology
- Expensive investments in infrastructure
- More expensive vehicles and relatively few models
- Uncertainty concerning the real vehicle performance, durability, used car prices, etc., thus difficult to take political decisions
- Green value of biogas/CO<sub>2</sub> gains difficult to calculate

## **What should be done:**

- Need to have combined focused efforts, not only on infrastructure
- Possible combinations of demonstration support for fleet vehicles, tax reductions etc

# A possible scenario for the use of gas /biogas as vehicle fuel in Denmark (Ea Energianalyse)

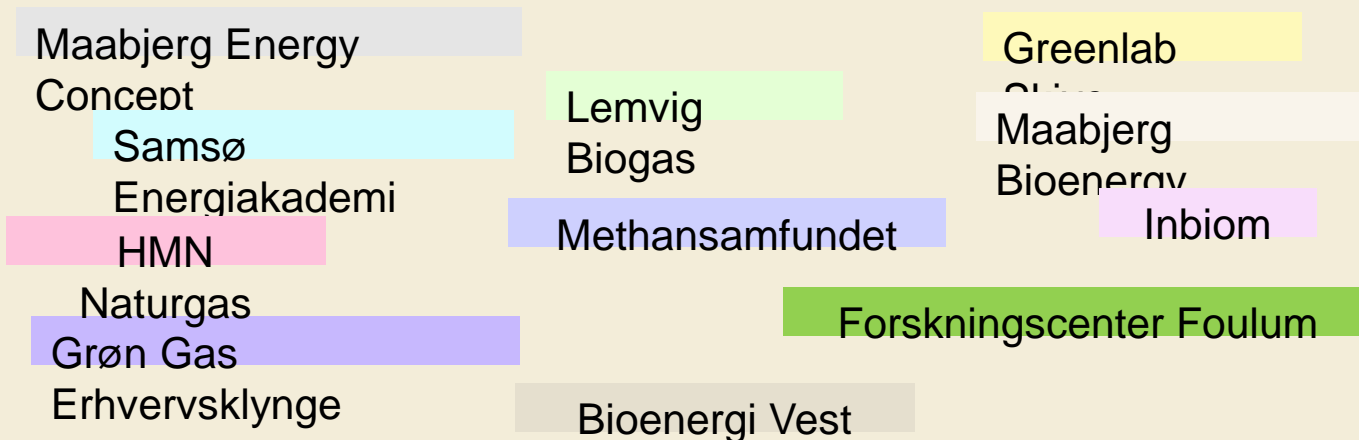
*The scenario assumes that biogas represents 40% of the gas used for transport in 2035 (6.5 PJ of biogas).*



	Cars		Vans		Trucks		Buses	
	Number 1000 pcs	%	Number 1000 pcs	%	Number 1000 pcs	%	Number 1000 pcs	%
<b>2020</b>	9	-	4	1%	0,2	0,6%	0,7	10%
<b>2035</b>	199	7%	71	10%	4.6	11%	3,2	40%

# Biogas and "green transport" in the Middle Jutland Region

- Reduction of CO2 emissions is the main aim of the future of transport
- It requires alternative fuels
- Natural gas and GTL are not the solution for the long-term
- Biogas (and landfill gas) are the best alternatives to reduce emissions of CO2
- Methane emissions must be limited



Several projects in the pipeline

# Holstebro Municipality will have biogas city buses

- Total fleet of 9 buses
- Operator investment 25 mil. DKK
- Costs for tanks 5.9 mil. DKK



- The required volume of gas bus operations comes from natural gas network in the form of biogas is upgraded to natural gas quality - renewable gas - from Maabjerg BioEnergy.
- Documentation done by Energinet.dk 's certification system.
- Vestforsyning will be responsible for the construction and operation of the service station

## Next step

- New city bus network - roadmaps developed April-June 2013
- Preparation of tender
- Questions in the contract negotiations - political decisions
- Result of contract negotiations - responsibilities and the need for facilities
- Preparation of project - involving operator
- Construction phase for supply, service stations and tank farms
- The project is in operation (June 2014)



# Biogas for transport - project in Fredericia Municipality



- Establishment of a filling station in connection with the existing biogas
- Testing the use of biogas as vehicle fuel in city buses

**Budget: 5 mil.DKK**



## Status:

- Licensing Round closed
- Operator chosen
- Buses will come into operation during autumn 2013