

Biogrid

An affordable alternative for a sustainable future

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IGRC 2014, Copenhagen

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Increase of biomethane production is too slow

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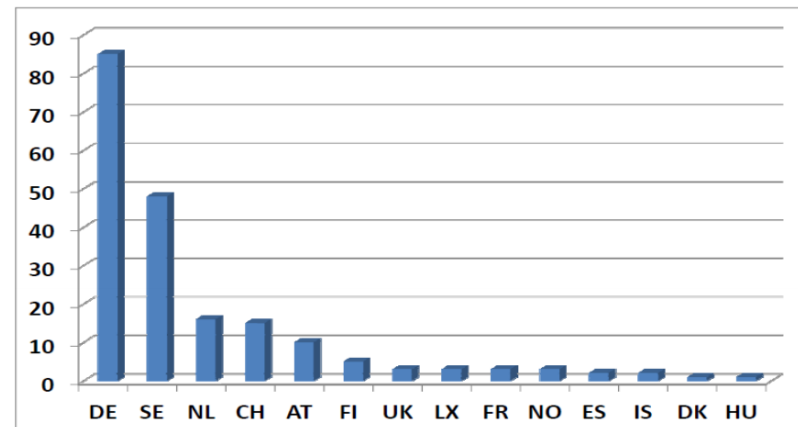
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Dr. Attila Kovaks (Eur. Biogas Ass.)¹:

In 2011: ~ 200 upgrading units

In 2013: ~ 230 upgrading units

Number of biogas upgrading units – end 2011



Quelle: Fraunhofer IWES, EBA



But the Netherlands alone needs already about 100 projects a year to reach its renewable energy goals (7 % NG substitution)

¹ The present status and future projects of the European biogas/biomethane industry; 23 January 2014, Montichiari

Natural gas composition in Europe – a complex puzzle



CEN/TC 238 – “... , Categories of appliances” : EN 437

- Natural gases in three categories: H, L and E
- But also E+, N, R and LL
- And appliances that can be used for town gases or buthane/propane.

Country code	I _{2H}	I _{2L}	I _{2E}	I _{2E+}	I _{2N}	I _{2R} ^a
AT	x					
BE				x	x	
BG						
CH	x					
CY						
CZ	x					X
DE			x		x ^a c	X ^c
DK	x					
EE	x					X
ES	x				x ^a	X
FI	x					
FR	x ^b	x ^b		x	x ^a	X ^c
GB	x					X
GR	x				x ^a	X
HU	x ^c					
IE	x					
IS (?)						
IT	x					X
LT	x					
LU (?)			x			
LV	x					
MT						
NL	x ^b	x				
NO	x					X
PL			x			
PT	x				x ^a	X
RO	x	x ^c	x			
SE	x					
SI	x				x ^a	x
SK	x					x

CEN/PC 408 – “Standards for biomethane”

- Including automotive

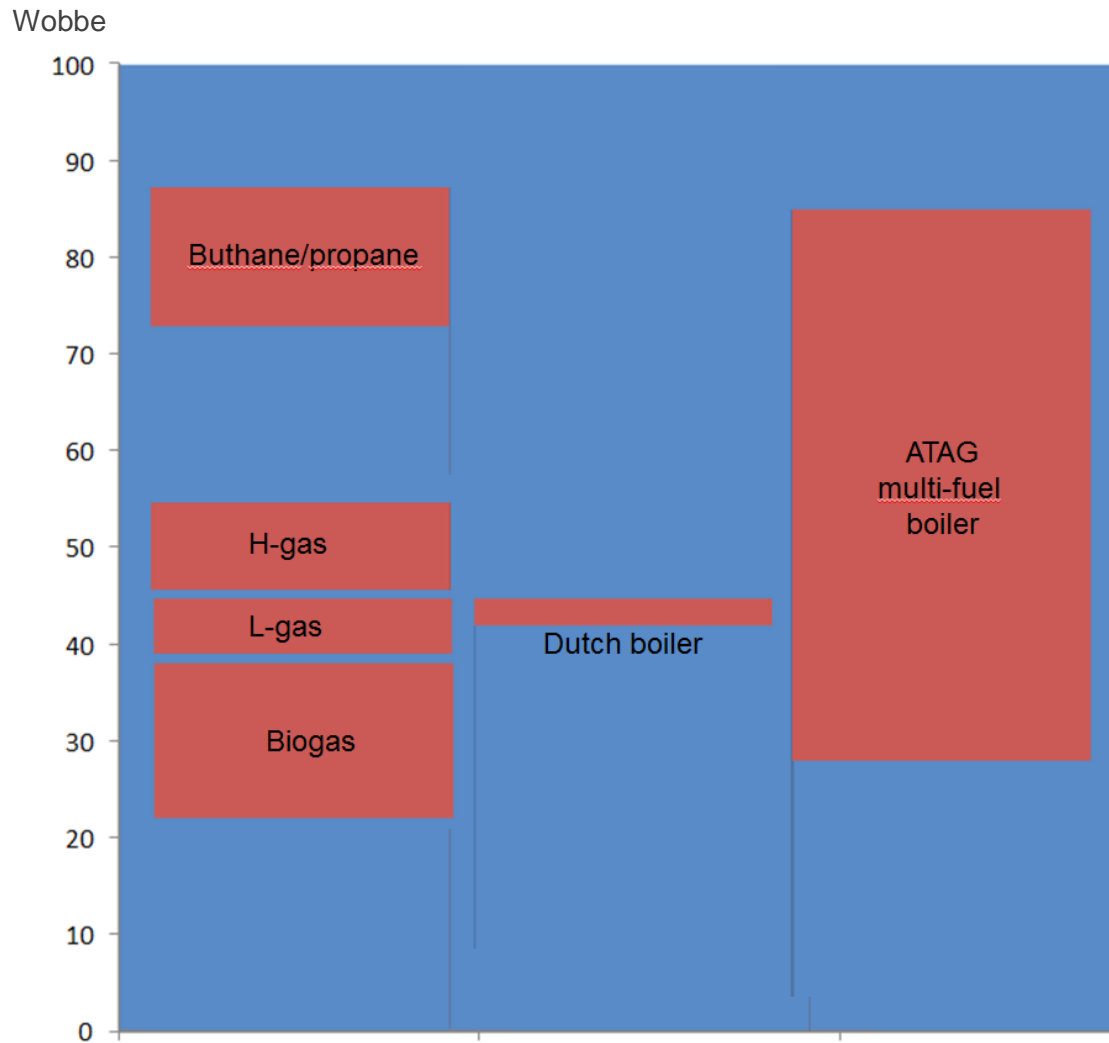
Country code	II _{12H}	II _{22H} ^a	II _{22L}	II _{22E} ^a	II _{22E+} ^a	II _{22N} ^a	II _{22R} ^a	II _{22E+} ^a	II _{22E+} ^a	II _{22E+} ^a	II _{22E+} ^a
AT		x		x							
BE									x ^a		x
BG											
CH		x	x	x							
CY		x	x								
CZ		x	x	x			X				
DE							X	x			
DK	x	x									
EE		x					X				
ES			x ^c	x			X				
FI		x									
FR				x ^b		x ^b	X		x ^a	x	x
GB			x	x							
GR		x	x	x			X				
HU											
IE			x	x							
IS											
IT	x	x	x	x			X				
LT		x	x	x							
LU											
LV											
MT											
NL					x	x					
NO		x					X				
PL								x			
PT			x	x			X				
RO		x		x	x	x		x			
SE	x	x									
SI		x	x	x			x				
SK		x	x	x							

Allow varying composition!

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The solution: Biogrid

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- Mixing or alternating Biogas and Natural gas
- No upgrading necessary, only basic cleaning

Business case

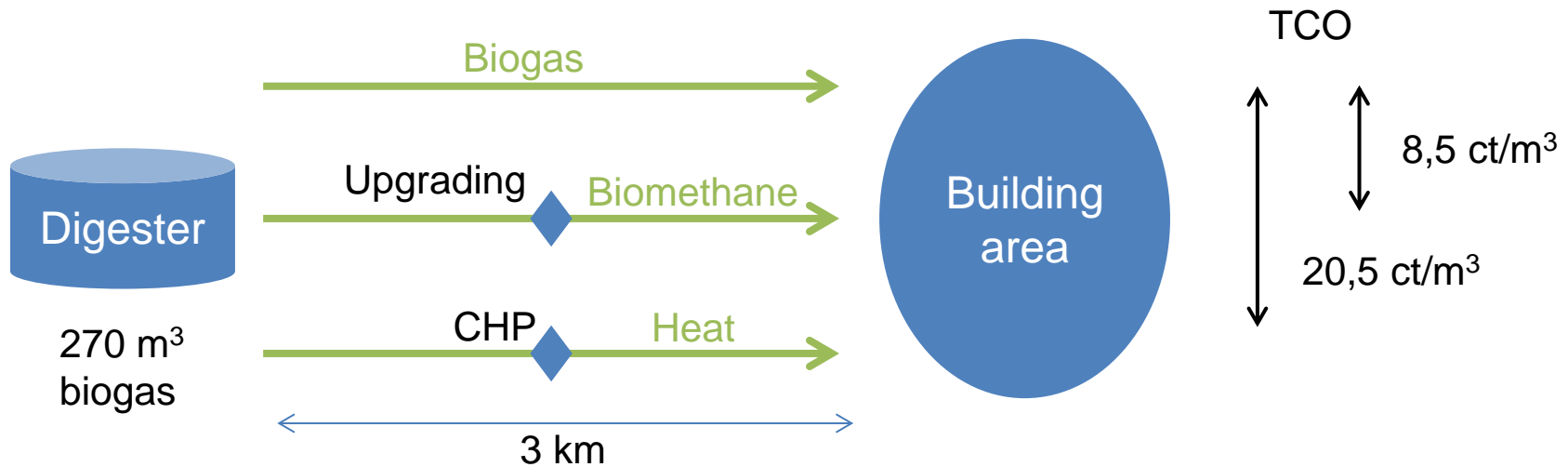


- Production costs and consumer price



No or low taxes ? Subsidies?

- Transportation costs



Testing in practice

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- Eerbeek: Sewage sludge from a paper factory



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Testing in practice

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- Haaften: Community building



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Main lessons



- Biogas is heavier, smells different and contains H_2S ;
→ Wear CH_4 and H_2S detection devices
- Use infra-red sensors to measure the composition and determine the calorific value;
 - methane measurement for biogas only
 - multi-purpose measurement for mixtures with natural gas

Outlook

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- Biogrid meets the Building Directive;
- Biogrid helps reducing CO₂ emission;
- Biogrid uses existing infrastructure for a smooth transition;
- Biogrid helps local sustainable development.



- Further development of wide-band appliances is necessary, also for industrial use;
- Comptability needs to be put down in regulation;
- Code of Practices needed.

