



Energy research Centre of the Netherlands

COUNTRY REPORT the NETHERLANDS

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Karlsruhe, 13 May 2009



NATIONAL POLICIES and DEVELOPMENTS

subsidy scheme since 1 April 2009

	total price incl. subsidy ("basisbedrag")	max. total subsidy in contract period	contract period	minimum basic energy price ⁽¹⁾ ("basisprijs")
biomass (10-50 MW)	11.5-15.6 €/kWh ⁽²⁾	550 M€	12 years	4.4 €/kWh
biomass digestion (GFT ⁽³⁾)	12.9-14.9 €/kWh ⁽²⁾			
biomass co-digestion and combustion (<10 MW)	15.2-17.7 €/kWh ⁽⁴⁾			
biomass digestion (other fuels)	15.8 €/kWh			
waste	11.7-14.0 €/kWh ⁽⁵⁾	158 M€	15 years	9.2 €/kWh ⁽⁶⁾
biogas (waste/sewage water, landfill)	5.9 €/kWh	7 M€	15 years	4.4 €/kWh
biogas (GFT ⁽³⁾)	46.5 €/m _n ³	180 M€	12 years	14.7 €/m _n ³
biogas (manure, other)	58.3 €/m _n ³			
biogas (waste/sewage water, landfill) ⁽⁷⁾	21.8 €/m _n ³			

(1): the SDE subsidy will compensate the difference between the total costs (second column) and the actual relevant price having a minimum value as given in the last column; the minimum energy price is 2/3 of the expected long-term price; this creates low risk for the plant owner and at the same time creates financial control for the government. Plant owners may insure the risk of lower market price than mentioned in last column.

(2): depending on heat production, range 0-2 MJ heat / kWh electricity

(3): GFT is the Dutch abbreviation for green waste from households, including garden waste

(4): depending on heat production, range 0-4 MJ heat / kWh electricity

(5): depending on energy efficiency (range 22% to 31%) being power plus 2/3 of heat, weighted monthly efficiency

(6): relative high energy price (or low subsidy) due to fact that approx. half of the power is produced from non-biogenic fuels (in the Netherlands, 48% of incinerated municipal solid waste is biogenic)

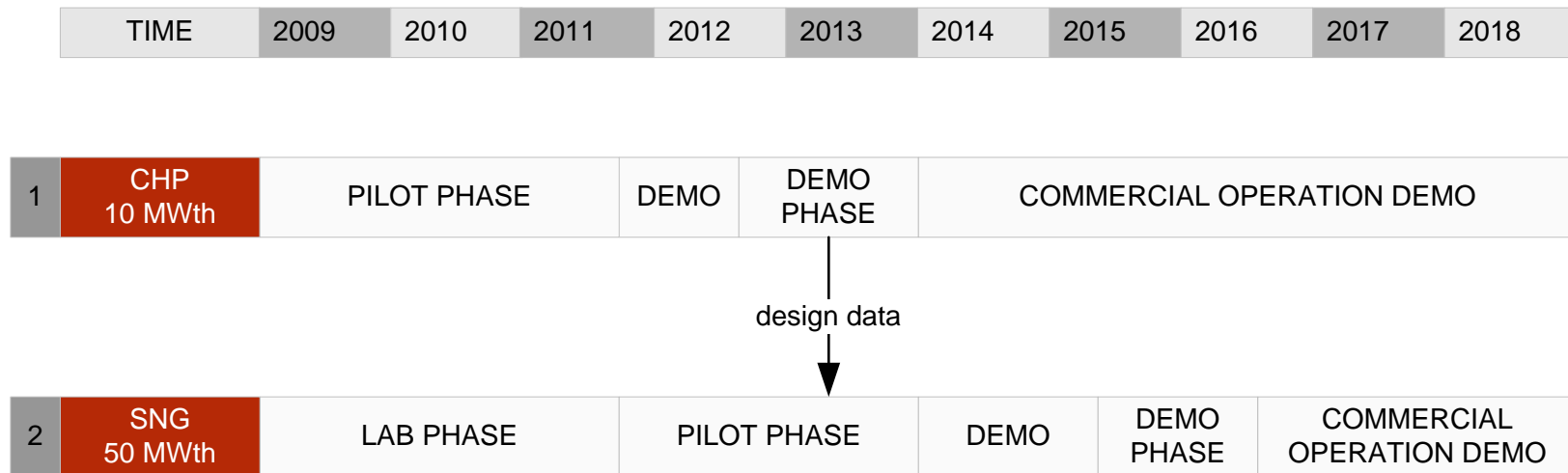
(7): gas price is lower than market price, SDE is like an insurance in this category

BIOMASS GASIFICATION IN THE NETHERLANDS

- Essent: 85 MW_{th} CFB-gasifier (~30 MW_e), demolition wood, 5% indirect co-firing in coal boiler
- NUON: ~85 MW_{th} (~35 MW_e), demolition wood, 15% direct co-gasification in coal-IGCC, Shell technology
- HoSt: 3 MW_{th} CFB-gasifier, chicken manure, heat and 0.25 MW_e (boiler/steam)
- BioMCN: 200 kton/y bio-methanol (180 MW_{MeOH} or 5 PJ/y) from glycerin, 50% “co-gasification” in natural gas reformer, glycerin distillation pre-treatment, start-up end May 2009
- Dahlman: OLGA sold to Portuguese customer, HoSt supplies CFB gasifier, chicken manure, ~1 MW_e start-up end-2009
- HVC: co-operation with ECN on CHP- and SNG-technology based on MILENA and OLGA

HVC

ECN technology, biomass-to-SNG with 70%

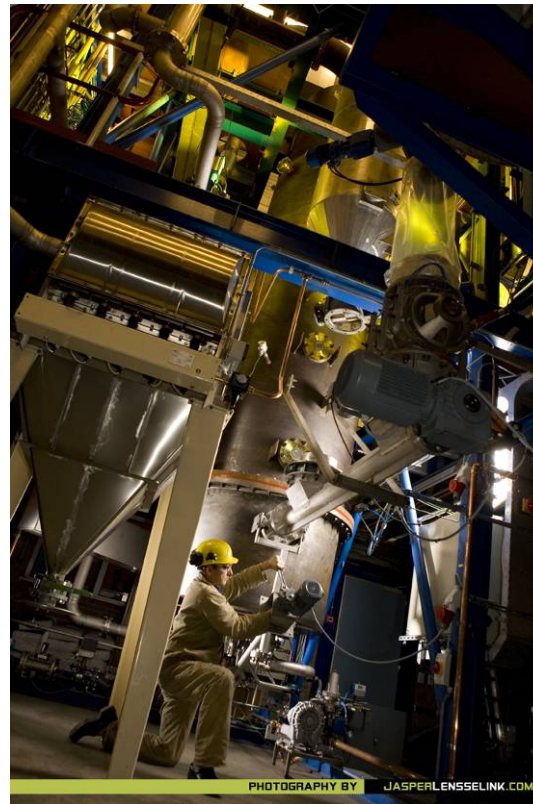


MILENA

gasification technology



25 kW



800 kW

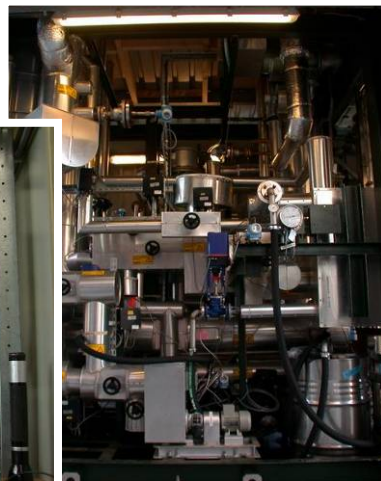
OLGA

tar removal

DAHLMAN
FILTER TECHNOLOGY



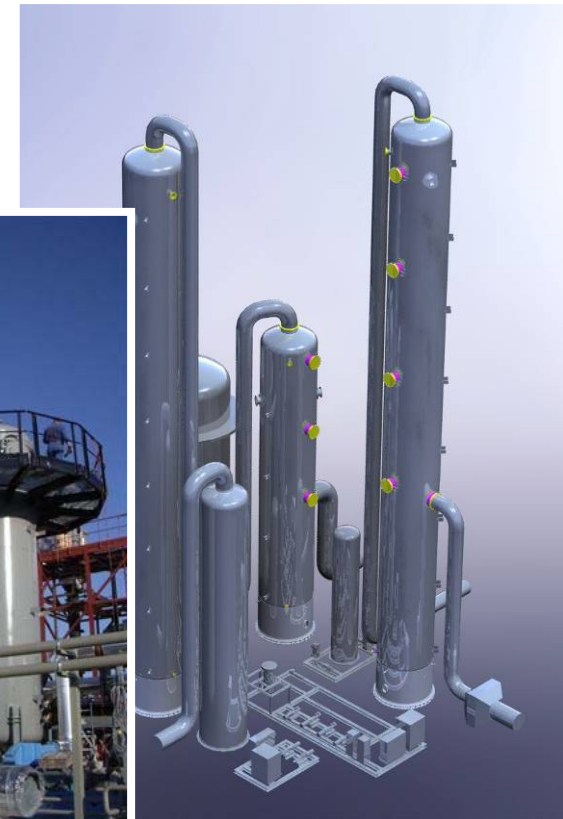
2 m³/h



200 m³/h



2 000 m³/h



25 000 m³/h

MORE INFORMATION

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publications: www.ecn.nl/publications

composition database: www.phyllis.nl

tar dew point calculator: www.thersites.nl

IEA bioenergy/gasification: www.ieatask33.org

Milena indirect gasifier: www.milenatechnology.com

OLGA: www.olgatechnology.com / www.renewableenergy.nl

SNG: www.bioSNG.com and www.bioCNG.com