



Energy research Centre of the Netherlands

COUNTRY REPORT the NETHERLANDS

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Bram van der Drift
Helsinki, 1 June 2010



NL DEVELOPMENTS

HOST

- Netherlands: 3 MW_{th} CFB gasifier, boiler
- Portugal: 3 MW_{th} CFB gasifier, OLGA, gas engine

BioMCN

- Now 30-40% glycerin in Natural Gas reformer, ~150 kton/y bio-methanol (~150 MW_{bio-methanol})
- Looking for options to go to 100% bio-methanol: gasification

NL DEVELOPMENTS

NUON

- 15% (energy) demolition wood direct co-firing in 250 MW_e coal-based IGCC

Essent

- ~6000 h/year, cooling remains biggest problem
- plans for second indirect co-firing system

NL DEVELOPMENTS

ECN

- tests ongoing to support basic engineering CHP-demo by HVC
- OLGA being improved: ORS (Oil Recovery System) added for oil viscosity control, additional absorber for lower temperature gasification
- MILENA tests at lab-scale at low-temperature

HVC

- basic engineering 10 MW CHP ongoing, permits granted, location selected, demolition wood

NL RENEWABLE ENERGY SUBSIDIES 2010

	total price incl. subsidy ("basisbedrag")	max. total subsidy in contract period	contract period	minimum basic energy price ⁽¹⁾ ("basisprijs")
biomass (<10 MW _e)	16.5-19.3 €/kWh ^(a)	400 M€	12 years	4.4 €/kWh
biomass (10-50 MW _e)	11.4-15.3 €/kWh ^(a)			
biomass (fat/oils, <10 MW _e)	15.1-17.6 €/kWh ^(a)			
biomass digestion (GFT: from houses)	12.9-14.9 €/kWh ^(a)			
biomass digestion (manure/co-digestion)	16.5-19.3 €/kWh ^(a)			
biomass digestion (other fuels)	15.8 €/kWh			
waste	11.4-13.7 €/kWh ^(a)	238 M€	15 years	9.0 €/kWh
biogas (waste/sewage water, landfill)	5.9 €/kWh	13 M€	12 years	4.4 €/kWh
biogas (GFT: from houses)	46.5 €/m _n ³	190 M€	12 years	14.7 €/m _n ³
biogas (manure/co-digestion)	63.5 €/m _n ³			
biogas (other)	58.3 €/m _n ³			
biogas (waste/sewage water, landfill) ⁽⁸⁾	21.8 €/m _n ³	24 M€	12 years	14.7 €/m _n ³

(a): depending on heat supply

NL DEVELOPMENTS

EDGaR: Energy Delta Gas Research

- supporting the energy transition related to the use of gases (to renewable energy)
- 42 million Euro's for R&D
- consortium
- 5 year programme
- 3 theme's:
 - monogas to multigas (incl. bioSNG)
 - future energy systems
 - changing gas markets

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