

Comparison of the organic waste management systems in the Danish-German border region using life cycle assessment (LCA) - DTU Orbit (08/11/2017)

Comparison of the organic waste management systems in the Danish-German border region using life cycle assessment (LCA)

This study assessed the management of the organic household waste in the Danish-German border region and points out major differences between the systems and their potential effects on the environment using life cycle assessment (LCA). The treatment of organic waste from households in the Danish-German border region is very different on each side of the border; the Danish region only uses incineration for the treatment of organic household waste while the German region includes combined biogas production and composting, mechanical and biological treatment (MBT) and incineration. Data on all parts of the organic waste treatment was collected including waste composition data and data from treatment facilities and their respective energy systems. Based on that the organic waste management systems in the border region were modelled using the EASETECH waste management LCA-model. The main output is a life cycle assessment showing large differences in the environmental performance of the two different regions with the Danish region performing better in 10 out of 14 impact categories. Furthermore, the importance of the substituted district heating systems was investigated showing an impact up to 34% of the entire system for one impact category and showing large difference between each heating system substituted, e.g. in "Global Warming" the impact was from -16 to -1.1 milli person equivalent/tonne treated waste from substitution of centralised hard coal and decentralised natural gas, respectively.

General information

State: Published

Organisations: Department of Environmental Engineering, Residual Resource Engineering

Authors: Jensen, M. B. (Intern), Møller, J. (Intern), Scheutz, C. (Intern)

Number of pages: 14

Pages: 491-504

Publication date: 2016

Main Research Area: Technical/natural sciences

Publication information

Journal: Waste Management

Volume: 49

ISSN (Print): 0956-053X

Ratings:

BFI (2017): BFI-level 2

Web of Science (2017): Indexed yes

BFI (2016): BFI-level 2

Scopus rating (2016): CiteScore 4 SJR 1.354 SNIP 2.044

Web of Science (2016): Indexed yes

BFI (2015): BFI-level 2

Scopus rating (2015): SJR 1.739 SNIP 2.256 CiteScore 4.33

Web of Science (2015): Indexed yes

BFI (2014): BFI-level 2

Scopus rating (2014): SJR 1.777 SNIP 2.482 CiteScore 3.43

Web of Science (2014): Indexed yes

BFI (2013): BFI-level 1

Scopus rating (2013): SJR 1.822 SNIP 2.435 CiteScore 3.39

ISI indexed (2013): ISI indexed yes

Web of Science (2013): Indexed yes

BFI (2012): BFI-level 1

Scopus rating (2012): SJR 1.611 SNIP 2.184 CiteScore 2.91

ISI indexed (2012): ISI indexed yes

Web of Science (2012): Indexed yes

BFI (2011): BFI-level 1

Scopus rating (2011): SJR 1.698 SNIP 2.085 CiteScore 2.99

ISI indexed (2011): ISI indexed yes

Web of Science (2011): Indexed yes

BFI (2010): BFI-level 1

Scopus rating (2010): SJR 1.555 SNIP 1.78

Web of Science (2010): Indexed yes

BFI (2009): BFI-level 1

Scopus rating (2009): SJR 1.502 SNIP 1.899

Web of Science (2009): Indexed yes

BFI (2008): BFI-level 2

Scopus rating (2008): SJR 1.378 SNIP 2.13

Web of Science (2008): Indexed yes

Scopus rating (2007): SJR 1.035 SNIP 1.767

Web of Science (2007): Indexed yes

Scopus rating (2006): SJR 1.046 SNIP 1.749

Web of Science (2006): Indexed yes

Scopus rating (2005): SJR 1.059 SNIP 1.65

Scopus rating (2004): SJR 1.289 SNIP 1.939

Web of Science (2004): Indexed yes

Scopus rating (2003): SJR 0.847 SNIP 1.269

Web of Science (2003): Indexed yes

Scopus rating (2002): SJR 0.561 SNIP 0.874

Scopus rating (2001): SJR 0.456 SNIP 0.696

Web of Science (2001): Indexed yes

Scopus rating (2000): SJR 0.271 SNIP 0.451

Scopus rating (1999): SJR 0.262 SNIP 0.479

Original language: English

Biogas, District heating, Incineration, LCA, Marginal heat, Organic household waste, Environmental management, Global warming, Heating, Heating equipment, Life cycle, Waste incineration, Waste treatment, Wastes, Biogas production, Biological treatment, District heating system, Environmental performance, Life Cycle Assessment (LCA), Organic household wastes, Potential effects, Waste composition, Waste management

DOIs:

10.1016/j.wasman.2016.01.035

Source: FindIt

Source-ID: 277382228

Publication: Research - peer-review › Journal article – Annual report year: 2016