Biogas

Title	**Agricultural biogas plants—A chance for diversification of agriculture in Poland**
Author Name	Justyna Chodkowska-Miszczuk, Daniela Szymańska
Journal Name	Renewable and Sustainable Energy Reviews
Year	2013
Volume and Issue	Volume 20
Pages	514–518
Abstracts	The aim of the analysis is to present the implementation and development of agricultural biogas plants as a chance for diversification of agriculture in Poland. The main exogenous and endogenous determinants of the development of agriculture biogas plants in Poland were indicated. It is an attempt to present agricultural biogas plants in terms of their spatial distribution as well as the installed capacity and efficiency of agricultural biogas installations. Moreover, the feedstock structure for agricultural biogas production is also analysed.
Keywords	

Title	**Biogas in organic agriculture—effects on productivity, energy self-sufficiency and greenhouse gas emissions**
Author Name	Siri Pugesgaard, Jørgen E. Olesen, Uffe Jørgensen and Tommy Dalgaard
Journal Name	Renewable Agriculture and Food Systems
Year	2013
Volume and Issue	
Pages	1-14
Abstracts	Anaerobic digestion of manure and crops provides the possibility of a combined production of renewable energy and organic fertilizer on organic farms and has been suggested as an option to improve sustainability of organic agriculture. In the present study, the consequences of implementation of anaerobic digestion and biogas production were analyzed on a 1000 ha model farm with combined dairy and cash crop production, representing organic agriculture in Denmark. The effects on crop rotation, nitrogen flows and losses, yield, energy balance and greenhouse gas (GHG) emissions were evaluated for four scenarios of biogas production on the farm. Animal manure was digested for biogas production in all scenarios and was supplemented with: (1) 100 ha grass–clover for biogas, (2) 100 ha maize for biogas, (3) 200 ha grass–clover for biogas and reduced number of livestock, and (4) 200 ha grass–clover for biogas, reduced number of livestock and import of biomass from cuttings made in ungrazed meadows. These four scenarios were compared with the current situation in organic agriculture in Denmark and to a situation where slurry from conventional agriculture is no longer imported. Implementation of anaerobic digestion changed the nitrogen flows on the farm by increasing the slurry nitrogen plant availability and introducing new nitrogen sources from legume-based energy crops or meadows. The amount of nitrogen available for application as fertilizer on the farm

	increased when grass–clover was used for biogas production, but decreased when maize was used. Since part of the area was used for biogas production, the total output of foodstuffs from the farm was decreased. Effects on GHG emissions and net energy production were assessed by use of the whole-farm model Farm GHG. A positive farm energy balance was obtained for all biogas scenarios, showing that biomass production for biogas on 10% of the farm area results in an energy surplus, provided that the heat from the electricity production is utilized. The energy surplus implies a displacement of fossil fuels and thereby reduced CO2 emission from the farm. Emissions of N2O were not affected substantially by biogas production. Total emissions of methane (CH4) were slightly decreased due to a 17–48% decrease in emissions from the manure store. Net GHG emission was reduced by 35–85% compared with the current situation in organic agriculture. It was concluded that production of biogas on organic farms holds the possibility for the farms to achieve a positive energy balance, provide self-sufficiency with organic fertilizer nitrogen, and reduce GHG emissions.
Keywords	

Title	**Swedish resource potential from residues and energy crops to enhance biogas generation**
Author Name	Tomas Lönnqvist, Semida Silveira, Alessandro Sanches-Pereira
Journal Name	Renewable and Sustainable Energy Reviews
Year	2013
Volume and Issue	Volume 21
Pages	298–314
Abstracts	This paper verifies the plausibility of existing assessments of the biogas potential in Sweden and whether a target of 1.1 TWh of biogas for transport, as per defined by Swedish authorities, can be met within the next ten years. We estimate that the Swedish resource potential for biogas generation from residues and energy crops amounts to 8.86 TWh in the midterm, equivalent to around 9% of the current domestic transport energy consumption. A large share of this potential remains unrealized and there is uncertainty regarding the existing resource potential, especially concerning energy crops. Nevertheless, the remaining biogas potential can make an important contribution to meet targets of an increased share of renewables in transport. The study concludes that not only it is possible to meet the increased demand expected for gas in transport until 2020 but the existing potential could justify more ambitious goals than presently set by Swedish authorities.
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Title	**Potential Study of Electricity Generation 1000 MW with Biogas in Thailand**
Author Name	Supawat Vivanpatarakij, Weerin Wangjiraniran, Raksanai Nidhiritdhikrai, Dawan Wiwattanadat
Journal Name	Advanced Materials Research
Year	2012
Volume and Issue	Volumes 622 - 623
Pages	1209-1212

Abstracts	Thailand, electricity production form biogas has been interested for replacement nuclear and fossil power plants. Status of electricity production from biogas is 155 MWe, and more potential of current capacity is 380 MWe. Additional, energy crops have a potential for another source of biogas. For this study, electricity production to 1000 MW was determined. Napier grass was considered, high growth rate and high production yield. Napier grass 190,000 acre can produce 1000 MW electricity and economic analysis of electricity production 1 MW was studied, these results show that biogas for electricity 1MW power plant project is not economic under current condition in Thailand.
Keywords	