

IEA Bioenergy Task 37- Energy from Biogas

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Task 37 - Mitgliedsländer

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|---------|---------|-----------------|----------------|
| Austria | France | Norway | United Kingdom |
| Brazil | Germany | Sweden | |
| Denmark | Ireland | Switzerland | |
| Finland | Korea | The Netherlands | |

Vertreter Österreichs:

Günther Bochmann
Bernhard Drosig

IEA Task Meeting – Australien, Nov 2016



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Australia Bioenergy Conference – Session des IEA Task 37



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- Biogas in the circular economy, Clare Lukehurst, UK
- The role of biogas In supporting intermittent renewable electricity, Jerry Murphy, Ireland
- IEA Bioenergy - Task 37: Knowledge sharing opportunities for Australia during the 2016-2018 triennium, Bernadette McCabe, AUS
- Biomethane Market Potential - Opportunities and challenges ahead, Mattias Svensson, Sweden
- Monitoring and process control of biogas plants, Günther Bochmann, IFA Tulln - BOKU University, Tulln, Austria
- Resource recovery via distributed biogas production, Saija Rasi, Natural Resources Institute Finland

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Sustainable biogas production in municipal wastewater treatment plants

Nathalie Bachmann

SUMMARY

This report deals with anaerobic digestion (AD) of sewage sludge, an energy- and nutrient-rich by-product of wastewater treatment plants (WWTP). The objective is to promote sustainable practices and technology, focussing on energy efficiency of biogas production and utilisation. An overview of the AD process in WWTP is given, along with standard energy performances, nutrient recycling and different process options and their impacts. It is not intended as a detailed technical guideline for project management.

The report is aimed at energy policy and decision makers as well as WWTP operators and was produced by IEA Bioenergy Task 37, an expert working group that addresses challenges related to the economic and environmental sustainability of biogas production and utilisation.



Exploring the viability of small scale anaerobic digesters in livestock farming

Clare Lukehurst
Angela Bywater

SUMMARY

This report explores the viability of small scale anaerobic digestion for livestock farming where there is a need to deal with animal manure and slurry in a manner that minimises the emission of greenhouse gases. Dairy farming for example is dominated by small herds of animals, the slurry from which must be managed efficiently for the farm and to maintain high standards of health in a cost effective manner. AD is an acknowledged technology for farming operations that affords a high standard of manure management, the production of high quality biofertiliser and also the possibility of generating energy for own use as well as export.

The report is aimed at energy policy and decision makers as well as WWTP operators and was produced by IEA Bioenergy Task 37, an expert working group that addresses challenges related to the economic and environmental sustainability of biogas production and utilisation.





A perspective on algal biogas

Jerry D MURPHY
Bernhard DROSG
Eoin ALLEN
Jacqueline JERNEY
Ao XIA
Christiane HERRMANN



SUMMARY

Algae are suggested as a biomass source with significant growth rates, which may be cultivated in the ocean (seaweed) or on marginal land (microalgae). Biogas is suggested as a beneficial route to sustainable energy, however the scientific literature on algal biogas is relatively sparse. This report comprises a review of the literature and provides a state of the art in algal biogas and is aimed at an audience of academics and energy policy makers. It was produced by IEA Bioenergy Task 37 which addresses the challenges related to the economic and environmental sustainability of biogas production and utilisation.



Nutrient Recovery by Biogas Digestate Processing

Bernhard Drosch
Werner Fuchs
Teodorita Al Seadi
Michael Madsen
Bernd Linke



SUMMARY

This report reviews various approaches for processing of biogas plant digestate for the purpose of nutrient recovery. It covers both established and emerging technologies and assesses technical performance and where possible economics. Techniques for nutrient recovery from digestate are developing rapidly and aim to improve nutrient management in agriculture and in waste treatment systems.

The report is aimed at biogas plant developers and operators as well as agriculture policy makers and was produced by IEA Bioenergy Task 37. IEA Bioenergy Task 37 addresses challenges related to the economic and environmental sustainability of biogas production and utilisation.

IEA Bioenergy Task 37

Country Reports Summary 2015

This publication contains a compilation of summaries of country reports from members of IEA Bioenergy Task 37 (Energy from Biogas). The individual country reports include information on the number of biogas plants in operation, biogas production data, how the biogas is utilised, the number of biogas upgrading plants, the number of vehicles using biomethane as fuel, the number of biomethane filling stations, details of financial support schemes in each country and some information on national biogas projects and production facilities. The publication is an annual update and is valid for information collected in 2015.

<http://www.iea-biogas.net/>



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BIOGAS IN SOCIETY
A Case Story from
IEA BIOENERGY TASK 37
“Energy from Biogas”



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**SOLRØD BIOGAS –
CIRCULAR ECONOMY**

PUBLISHED: DECEMBER 2015



**RINGKØBING-SKJERN, DENMARK –
DECENTRALISED BIOGAS NETWORK MODEL**

PUBLISHED: MAY 2015



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BIOGAS IN SOCIETY
A Case Story from
IEA BIOENERGY TASK 37
“Energy from Biogas”

**REVAQ CERTIFIED WASTEWATER
TREATMENT PLANTS IN SWEDEN
FOR IMPROVED QUALITY OF
RECYCLED DIGESTATE NUTRIENTS**

TOPIC: Food Waste Digestion Systems



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- Food waste as a global challenge
- Collection systems
- Digestion systems
- End use of gas and digestate
- Case Studies

→ Fokus auf Abfälle aus Haushalt und Gewerbe (keine Nebenprodukte aus industrieller Verarbeitung)

TOPIC: Grid injection and greening of the gas grid



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- Introduction: Rationale for biomethane as an energy carrier
- Grid Injection: Challenges and solutions
- Gas Quality Issues
- The Gas Grid and the role of renewable gas in integrated energy systems in 2050
- Best practices from several countries.

TOPIC - International approaches to sustainable anaerobic digestion



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- Cost effective biogas technology
- Target: NGOs, development co-operation, industries and institutions
- parameters of sustainable biogas systems including for:
 - feedstocks
 - Technology
 - Biogas utilization
 - By-products
 - socio-economics

TOPIC - The role of anaerobic digestion and biogas in the circular economy



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- Anaerobic digestion and biogas are more than renewable energy systems and fuels.
- Biogas is a multi-process system including for:
 - waste treatment
 - environmental improvement
 - renewable energy production
 - biofertiliser production
- Biogas is an incredibly flexible end product having applications in renewable electricity, heat and transport fuel.

TOPIC - Veracity and Applicability of biomethane potential assay results



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- Influence of inoculum
- Substrate/inoculum ratio
- ...

TOPIC – Biomethane as transport fuel



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- Engine technology: current and future
- Light Duty Vehicles
- Best Practice on how to establish biomethane market.

IEA Bioenergy Inter-Task Strategic Project – State of Technology Review - Algae Bioenergy



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This report was led by Task 39. Jerry Murphy and Bernhard Drosch have contributed to this report. It has gone through a number of iterations and is more or less complete. It has gone through a number of internal IEA Bioenergy reviews. It is now in external review. This report will be hosted on our website on completion.

Verwaltungs- und Abwicklungsfragen



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bioenergy2020+



IEA RESEARCH COOPERATION

IEA Bioenergy

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