



IEA Bioenergy Task 37

IEA Bioenergy Task 37 Energy from Biogas

An Overview

David Baxter



IEA Bioenergy



International Energy Agency (IEA)

Founded in response to 1973/4 oil crisis by OECD

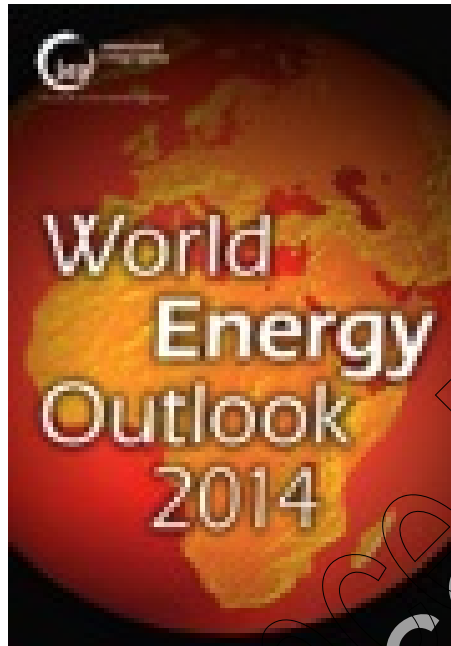
28 Member Countries

Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Republic of Korea, Luxembourg, The Netherlands, New Zealand, Norway (*participates in the Agency under a special Agreement since 1974*), Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States

4 Main Focus Areas

Energy security
Economic development
Environmental awareness
Engagement worldwide

<http://www.iea.org/>



<http://www.iea.org/>



Set up in 1978 by IEA

Member Countries

Australia

Austria

Belgium

Brazil

Canada

Croatia

Denmark

European Commission

Finland

France

Germany

Ireland

Italy

Japan

Korea

Netherlands

New Zealand

Norway

South Africa

Sweden

Switzerland

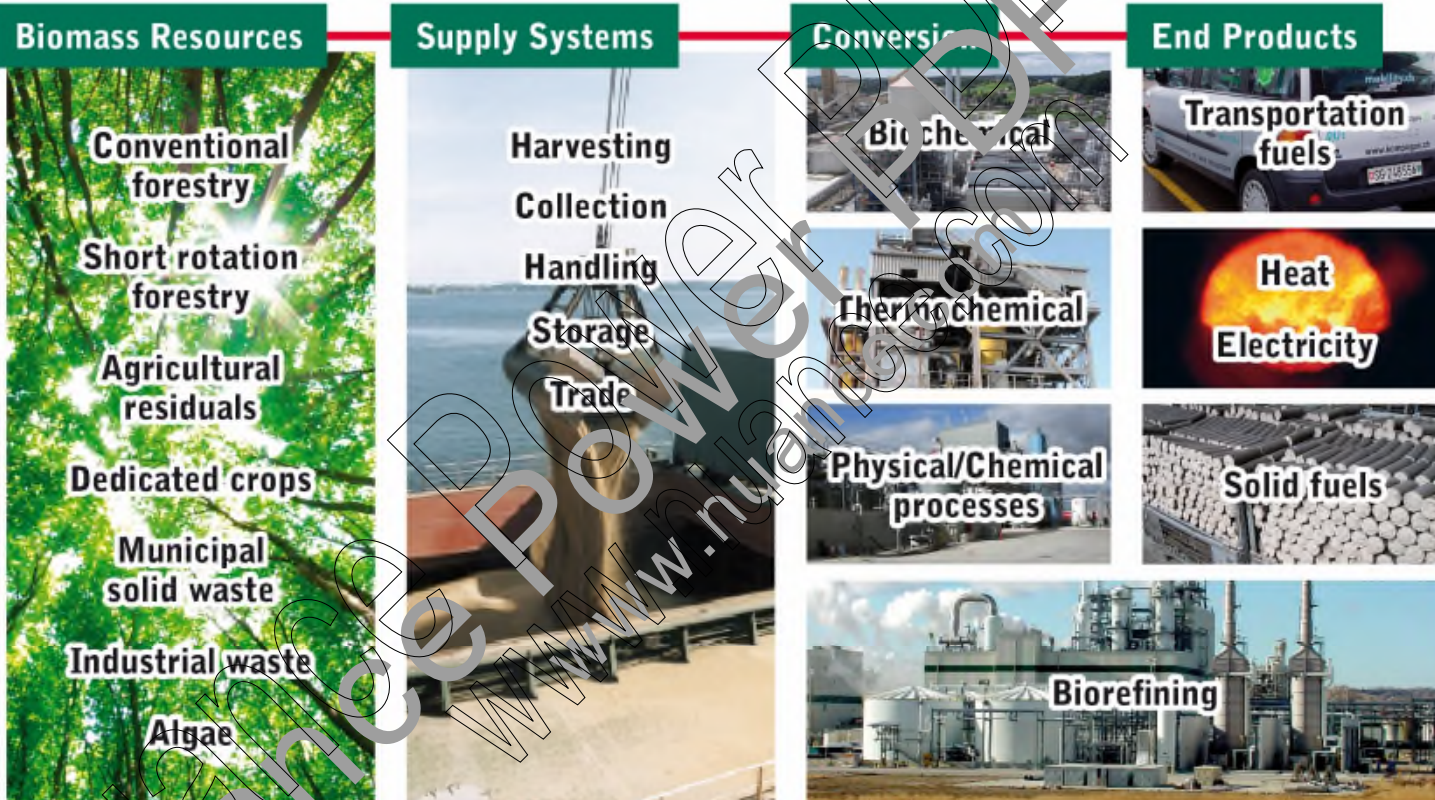
United Kingdom

USA

<http://www.ieabioenergy.com/>

IEA Bioenergy

Scope of Bioenergy RD&D



Integrating research themes across the value chain: biorefineries, environmental and economic sustainability, system studies, fuel standards, greenhouse gas balances, life cycle analysis, barriers to deployment, management decision support systems, health and safety standards

<http://www.ieabioenergy.com/>

The logo features a horizontal banner with a background of brown, dried leaves. A blue rectangular box is centered on the banner, containing the text "IEA Bioenergy" in white, serif font.

IEA Bioenergy

IEA Bioenergy presently has 10 Tasks

Task 32: Biomass Combustion and Co-Firing

Task 33: Thermal Gasification of Biomass

Task 34: Pyrolysis of Biomass

Task 36: Integrating Energy Recovery into Solid Waste Management

Task 37: Energy from Biogas

Task 38: Climate Change Impacts of Biomass and Bioenergy Systems

Task 39: Commercialisation of Conventional and Advanced Liquid Biofuels from Biomass

Task 40: Sustainable Bioenergy Markets and International Trade: Securing Supply and Demand

Task 42: Biorefineries: Sustainable Processing of Biomass into a Spectrum of Marketable, Biobased Products and Bioenergy

Task 43: Biomass Feedstocks for Energy Markets



IEA Bioenergy Task 37

Member countries participating in Task 37

Australia

Austria

Brazil

Denmark

European Commission

Finland

France

Germany

Ireland

Korea

Netherlands

Norway

Sweden

Switzerland

United Kingdom

Bernadette McCabe

Bernard Drosy / Günther Bochmann

Cicero Jayme Bley

Tendorita Al-Seadi

David Saxter (Task Leader)

Jukka Rintala

Olivier Théobald / Guillaume Bastide

Bernd Linke

Jerry Murphy

Ho Kang

Mathieu Dumont

Roald Sørheim

Mattias Svensson

Nathalie Bachmann

Charles Banks / Clare Lukehurst



IEA Bioenergy Task 37

Task 37
Work Programme 2013-2015





IEA Bioenergy Task 37

Scope of Task 37 Studies

- **Agricultural slurries, crops & crop residues**
 - **Organic fraction of municipal solid waste**
 - **Waste water treatment/sewage sludge**
- ↓
- **Heat, electricity generation & CHP**
 - **Up-grading to biomethane - Injection into grid/compression for vehicle fuel**



IEA Bioenergy Task 37

Work in progress

1. Pre-treatments of feedstocks (published 02-2014)
2. AD process monitoring techniques (published 12-2013)
3. Source separation of food waste (published 11-2013)
4. Biogas for grid balancing/P2G (published 12-2014)
5. Economics of small-scale biogas production (2015)
6. Digestate up-grading techniques (2015)
7. AD of algae (2015)
8. Emissions monitoring and control (2015)
9. AD of sewage sludge (2015)
10. Success Stories (successful biogas implementation)
11. Country Reports (published 01-2015)



IEA Bioenergy Task 37

Publications

Biogas upgrading technologies – developments and innovations

Anneli PETERSSON
Arthur WELINGER

Utilisation of digestate from biogas plants as biofertiliser

Clare T. LUKEHURST
Peter FROST
Teodorita AL SEADI

Biogas from Crop Digestion

Jerry MURPHY
Rudolf BRAUN
Peter WEILAND
Arthur WELINGER

Quality management of digestate from biogas plants used as fertiliser

Teodorita AL SEADI
Clare LUKEHURST

Web Address: www.iea-biogas.net



IEA Bioenergy Task 37

Publications



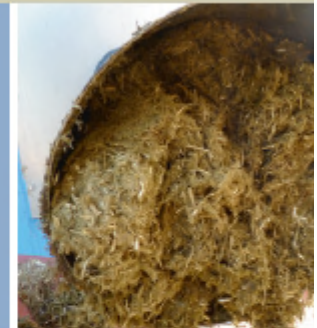
Process monitoring
in biogas plants

Bernhard DROSG



Pretreatment of feedstock for
enhanced biogas production

Lucy F.R. MONTGOMERY
Günther BOCHMANN



Source separation of MSW

An overview of the source separation and separate collection of the digestible fraction of household waste, and of other similar wastes from municipalities aimed to be used as feedstock for anaerobic digestion in biogas plants

Tecnorita Al Seadi
Nia Owen
Hanna Hellström
Ho Kang

A perspective on the potential role of biogas in smart energy grids

Tobias PERSSON, Jerry MURPHY,
Anna-Karin JANNASCH, Eoin AHERN,
Jan LIEBETRAU, Marcus TROMMLER,
Jeferson TOYAMA

SUMMARY

This report documents the potential role of biogas in smart energy grids. Biogas systems can facilitate increased proportions of variable renewable electricity on the electricity grid through use of two different technologies:

- Demand driven biogas systems which increase production of electricity from biogas facilities at times of high demand for electricity, or store biogas temporarily at times of low electricity demand.
- Power to gas systems when demand for electricity is less than supply of electricity to the electricity grid, allowing conversion of surplus electricity to gas.

The report is aimed at an audience of energy developers, energy policy makers and academics and was produced by IEA Bioenergy Task 37. Task 37 is a part of IEA Bioenergy, which is one of the 42 Implementation Agreements within IEA. IEA Bioenergy Task 37 addresses the challenges



Web Address: www.iea-biogas.net

**NON-GRID BIOMETHANE TRANSPORTATION IN SWEDEN
AND THE DEVELOPMENT OF THE LIQUEFIED BIOGAS MARKET**

PUBLISHED: SEPTEMBER 2014

**BIO-ENERGY IN FAMILY FARMING
A NEW SUSTAINABLE PERSPECTIVE FOR THE
RURAL SECTOR IN BRAZIL**

PUBLISHED: SEPTEMBER 2013

**MORE THAN 10 YEARS PRODUCTION OF
FOSSIL FREE AUTOMOTIVE FUEL AND
CERTIFIED DIGESTATE FROM FOOD WASTE
VERA PARK IN HELSINGBORG, SWEDEN**

PUBLISHED: OCTOBER 2014

**PIONEERING BIOGAS FARMING
IN CENTRAL FINLAND**

**FARM SCALE BIOGAS PLANT PRODUCES VEHICLE FUEL, HEAT,
ELECTRICITY AND BIO-FERTILIZER**

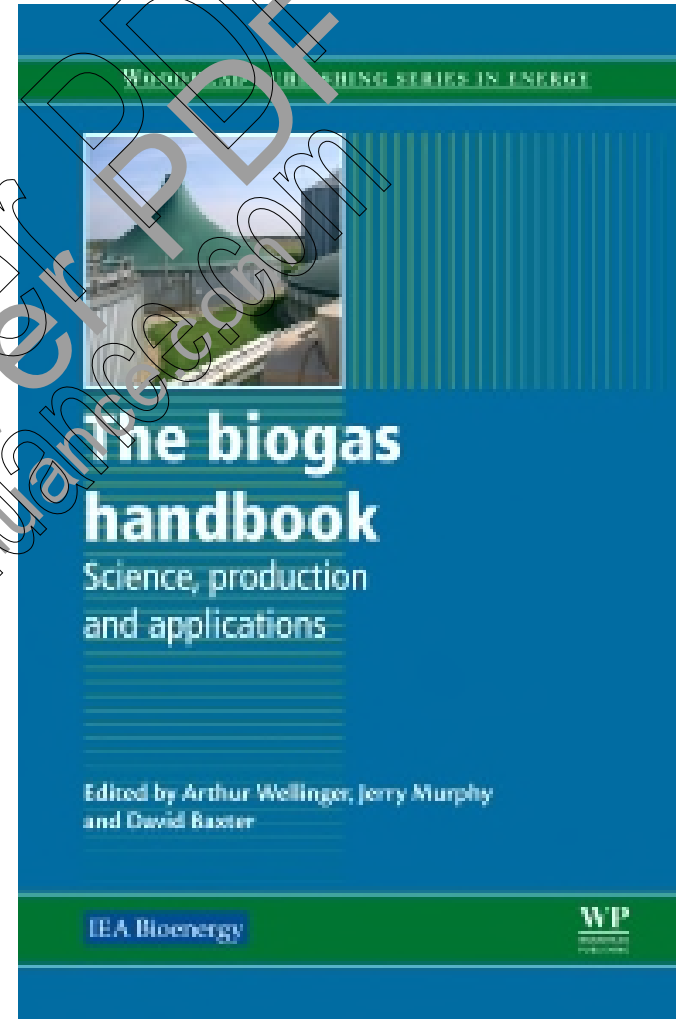


IEA Bioenergy Task 37

The Biogas Handbook Science, production And applications

2013

http://store.elsevier.com/product.jsp?locale=en_US&isbn=9780057094988





www.iea-biogas.net



IEA Bioenergy