



# WBA Market Report: Global Potential of Biogas

## Outline

### Background:

This report sketches the bigger picture global potential of biogas in terms of energy generation, nutrient circulation and greenhouse gas mitigation. It gives a brief overview of the current status of the industry and the yet untapped potential for growth.

### Audience:

Intended audience is policymakers and Intergovernmental Organisations with a view to raise the profile of the biogas industry and raise awareness on its contribution to the climate change agenda.

### Scope:

Executive Summary: Outline of the key findings of the report

The report would be structured into 6-7 chapters (about 30-40 pages):

1. Overview of the status of biogas sector to date
  - What is AD, feedstocks and how does it work
  - Global overview of deployment and growth: Number of plants, energy generation
  - Benefits:
    - GHG Abatement,
    - Energy Generation,
    - Nutrient Circulation
  - Descriptions and photos of AD plants and injection facilities, case studies
2. Food Waste and Loss
  - Introduction
  - Global estimates of food waste and loss
  - How it is currently treated around the world and its impacts: landfilling, health and sanitation
  - Food waste hierarchy
  - Assumptions made on reduction, redistribution and collection of food waste and loss
  - Biogas production that can be achieved
  - Energy generation and utilisation as electricity, biomethane/heat or vehicle fuel
  - GHG abatement potential from
    - diversion from landfills
    - avoided fertiliser production
    - substituting energy generation and fossil fuel use
  - Nutrient circulation as digestate
  - How the industry could scale up and over what time period
3. Sewage
  - Introduction
  - Global estimates of sewage generation
  - How it is currently treated around the world and its impacts: Water quality, health and sanitation
  - Assumptions on collection and treatment



- Biogas production that can be achieved
  - Energy generation and utilisation as electricity, biomethane/heat or vehicle fuel
  - GHG abatement potential
    - Incineration
    - Avoided fertiliser production
    - Substituting energy generation and fossil fuel use
  - Nutrient circulation as digestate
  - How the industry could scale up and over what period of time
4. Livestock manure
- Introduction
  - Global estimates of livestock, housing and manure generation
  - How it is currently treated around the world and its impacts: Dried and burnt, storage and application to land, dropped while grazing
  - Assumptions on collection and treatment
  - Biogas production that can be achieved
  - Energy generation and utilisation as electricity, biomethane/heat or vehicle fuel
  - GHG abatement potential
    - Avoided emissions from manure management
    - Avoided fertiliser production
    - Substituting energy generation and fossil fuel use
  - Nutrient circulation as digestate
  - How the industry could scale up and over what period of time
5. Crop residues
- Introduction
  - Global estimates of primary crops and residues: wheat, rice, maize, rye, barley, oats, rapeseed
  - How it is currently used around the world and its impacts: burning, animal bedding
  - Assumptions on collection and treatment
  - Biogas production that can be achieved
  - Energy generation and utilisation as electricity, biomethane/heat or vehicle fuel
  - GHG abatement potential
    - Avoided emissions from burning
    - Avoided fertiliser production
    - Substituting energy generation and fossil fuel use
  - Nutrient circulation as digestate
  - How the industry could scale up and over what period of time
6. Energy crops
- Introduction
  - Global estimates of primary energy crops and residues: maize silage, grass silage, sugar beets, sunflower
  - How it is currently used around the world and its impacts: land use change, sustainability criteria, food vs fuel
  - Assumptions on collection and treatment
  - Biogas production that can be achieved
  - Energy generation and utilisation as electricity, biomethane/heat or vehicle fuel



- GHG abatement potential
    - Avoided fertiliser production
    - Substituting energy generation and fossil fuel use
  - Nutrient circulation as digestate
  - How the industry could scale up and over what period of time
7. Global estimates
- GHG abatement, Energy generation, Nutrient circulation
  - Discussion on how biogas fits in the global context and what it can achieve.