

Introduction to Anaerobic Digestion



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Anaerobic Digestion (AD)

- What Is AD?
- Why do AD?
- Who can do it?
- Where can you do it?
- When to do it?



Renewable Energy Opportunities



Renewable Energy Opportunities



What is Anaerobic Digestion?



Wet AD / Dry AD / Mesophylic / Thermophylic / Micro AD

Break Crops



Manure



Farm v's Waste



Waste





Feed System



Digester



Combined Heat
and Power Unit &
Control Room



Or gas grid connection



Electricity



Heat



Digestate – Solid and Liquid

Why AD?

- Electrical Sales
- Feed In Tariff
 - 250kW/hr or less 14p
 - 250-500kW/hr 13p
 - 500kW/hr or more 9.4p
- Reduce Energy Costs
- Improve Business
- Environmental Impact
 - A 250kw plant reduces CO₂ e by 2400 tonnes per year
- Marketing

Why AD?

- Using Waste Heat
- Renewable Heat Incentive
Opened 28th November
- Waste Heat
capped at 200kW th
- Gas Grid Injection
6.8p/kW/hr th



Why AD?

- Fertiliser Benefits
 - Nutrition
 - Availability

- Waste
 - Solving Waste Handling issues



Why AD?

Example for a 370kW plant

IRR

18.6%

Payback

5.3 years

Cost per kW/hr

£4300

EBITDA £301,000

EBITDA / CAPEX

18.9%



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For 30 days, test Camels in your "V-Zone" (V for Throat, T for Taste).

Who can do AD?

Farm Size and Structure

- Livestock
- Arable
- Waste
- Rotation

– **Plant size**



Who can do AD?

Finance

- Deal Breaker

Due Diligence

- Feedstock
- Technology Selection
- Overall responsibility



Who can do AD?

Feedstock

- Selection
- Gas Yield
- Analysis

Grass silage

1ha = 1.8kW/hr e

Maize silage

1ha = 2.2kW/hr e

Poultry manure

40t = 2.2kW/hr e



Who can do AD?



NOT



Operational Skills

- Training
- Management
- Dedication



Where to do AD?

- Permitting – which permit?
- Planning
- Grid Connection
 - Electrical
 - Gas



– **Location**

Where to do AD?

Logistics

- Feedstock
- Digestate
- 24hr operation

When to do AD?

What we need is!



When to do AD?

What we get is!



When to do AD?

- Feed In Tariff
- Renewable Heat Incentive
- Department Energy & Climate Change

Anaerobic Digestion

Why, Who, Where, When?

Sign on the back of a Septic Tank Emptying Lorry:

“Caution - This Truck is full of Political Promises”



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