

# **A Developers Perspective in Developing an Anaerobic Digestion Project**

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agriAD Ltd**

# agriAD Ltd



*“agriAD is seeking to establish a network of individual 500kW AD plants across NI in partnership with landowners and farmers”.*

- agriAD is aiming to develop c.10MW of AD capacity across NI over 5 years.
- Plans to roll-out c.20 farm-scale AD plants through individual SPVs.
- agriAD is seeking to develop on-farm AD plants along with Site Partners.
- Each project will be developed and operated as a Newco SPV.
- Heads of Terms signed with a London based equity funder.
- The project will be 100% equity funded, with security taken against the project.
- Working with a German AD technology provider, on a preferred supplier basis.
- The AD technology provider is listed on the Frankfurt Stock Exchange and has constructed more than 500 plants and has over 250MW`s of electrical generation capacity in their home market.
- Funder has already funded the construction of 4 plants with the technology provider in England and Scotland.
- Strong advisory team to support agriAD and their partners.

- Winner of several nationally recognised awards for research and marketing.
  - Winner of Northern Ireland KTP award. Research carried out on agricultural feedstock for AD in Northern Ireland is now a KTP case study, one of only 250 case studies published by the Technology Strategy Board.
  - Part of successful research tender to WRAP and SBRI program for Driving Innovation in AD – Optimisation. The purpose of this national SBRI Programme is ***“to develop technology enabled solutions addressing the need for process optimisation in the UK anaerobic digestion sector”***.



Material change for  
a better environment



Government challenges.  
Ideas from business.  
Innovative solutions.

- Winner of the Chartered Institute of Marketing Excellence Award 2011 in the category for Alternative Energy and Other Green Technologies.



The Chartered  
Institute of Marketing

**CIM Ireland Marketing Excellence Awards 2011 Winners;  
Alternative Energy & Other Green Technologies Category**

# Drumnahare Biogas Ltd – Phase 1

- DBL Phase 1 will be the first commercial scale AD plant developed by agriAD – on a farm owned by agriAD’s own shareholders.
- The Drumnahare facility will act as a commercial scale reference plant for the further roll-out of plants across NI.



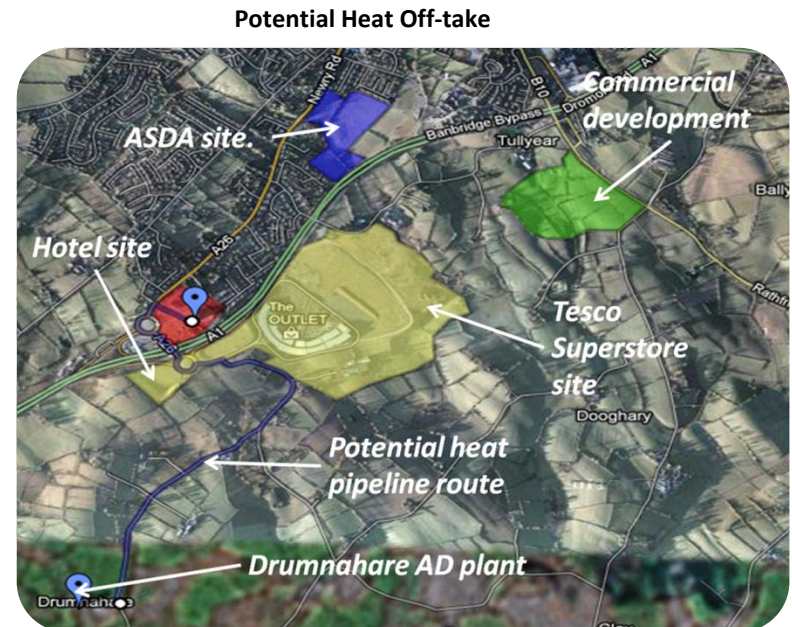
CGI showing proposed biogas plant and existing farm yard



- DBL Phase 1 scheduled to be operational Sept 2013.
- 100% of feedstock secured within Cromie family landholdings.

## Drumnahare Biogas Ltd - Phase II

- agriAD has already secured planning permission for Phase II of Drumnahare AD.
- 700kW extension to take the Drumnahare plant up to 1.2MW (co-located).
- Incremental infrastructure of additional 700kW CHP engine and digestion tank – shares existing site infrastructure and feedstock storage.
- Incremental capital expenditure < £2m.
- Will require the SPV to contract with surrounding farmers / farmland for feedstock supply.
- New grid connection capable of supporting increased capacity with limited incremental capex.
- Opportunity to transport heat to a number of major heat users nearby.
- Also consideration of upgrading biogas to biomethane.



# Drumnahare Biogas Ltd - Phase I

Site now cleared



# Our experiences of developing AD



- 2004; Commissioned KPMG to carry out a study on the opportunity for on-farm AD in NI.
- 2005; Evaluation of fixed membrane anaerobic digesters. Study and conference trip to USA .
- 2007
  - April; start to develop AD project on home farm.
  - May; first visit to Germany to research AD technology providers.
- 2008
  - Aug: become INI client company.
  - Sept; planning permission submitted for dry fermentation AD plant.
  - Oct; first meeting with DARD.
- 2009,
  - Feb; unsuccessful application to NI Rural Development Program for funding .
  - Feb; first meeting with DETI.
  - March; approved for KTP research project into available feedstocks in NI.
  - April; Planning permission approved for 1.2MW dry fermentation AD plant.
  - July; meeting with DARD Minister Michelle Gildernew.
  - Aug; meeting with DETI Minister Arlene Foster.
  - Sept; submitted response to DETI Strategic Energy Framework.
  - Dec; submitted response to DETI NI Renewable Obligation Certificate Consultation.
  - Dec; visited Germany to review technological improvements in on-farm wet AD systems.

## Our experiences of developing AD

### ■ 2010

- Jan; received indicative grid connection offer from NIE, £600k.
- Jan; meet with NI Utility Regulator to discuss high grid connection costs.
- Feb; approved for NIE SMART award.
- Feb; meet with senior DETI officials re 2 NIROC's for AD.
- Mar; approved as first DARD AD Supply Chain Development Group.
- May; submitted justification to DETI for uplift of support for AD from 2 NIROC's to 4 NIROC's.
- Nov; approved for Biomass Processing Challenge Fund.
- Dec; amended existing planning permission from dry AD system to a wet system.

### ■ 2011

- Jan; New planning application for wet AD system.
- Apr; Financial advisor appointed.
- May; Legal team prepare Heads of Terms for an EPC contract for the provision of an AD project.
- May – July; Heads of Terms negotiations with 5no AD technology providers.
- Aug; Preferred AD technology provider selected.
- Sept – Dec; Bank debt funding negotiations.

### ■ 2012

- Mar; Heads of Terms signed with London based equity funder.
- April to present; Contract negotiations and Project deployment.



# Newco AD Project



- Conceived as a 500kW on-farm AD plant.
- Operated as a Newco SPV.
- 500kW is the preferred size as it benefits from economies of scale, is of a more standardised design and will be the more common model roll-out across NI.

## Newco AD Summary

Area	Comment
Plant Location	Site Partner
Plant Contractor	Nominated AD technology provider
Civil Contractor	Local NI contractor, 2020
Plant Size	500kW
Feedstock Supply	Site Partner
Plant Operation	Site Partner
Plant Performance	Warranty provided by AD technology provider
Equity Partner Investment	100%
Technology Cost	~£1.5m
Total Project Cost	~£2.5m
PPA	XXXXXXXXXXXX
Residue Off-take	Site Partner
Operational Support	AD technology provider (7 year contract)
Management Services	agriAD Ltd

Project Timings	Target Date
Planning Verified	Month 1
Grid Connection Offer	Month 3
Financial Close	Month 4
Commencement of plant construction	Month 4
Plant hand over (9mth build, 1mth com)	Month 14

- Funding security is held against the project.
- After five years equity funder is bought out using “cheaper” bank debt funding.

## Conclusions from our experiences

- agriAD are aggregating AD projects; significant benefits when compared to progressing on a stand-alone basis:
- **Funding;** not available on a stand-alone basis;
  - agriAD have signed a Heads of Terms with a London based equity funder,
  - Funder will fund agriAD's roll out of partner projects.
- **Technology;** working with a German AD technology provider, on a preferred purchaser basis.
- **Contracts;** full suite of contracts, offering significant time and cost efficiencies to potential partners;
  - Strong advisory team to support agriAD and their partners,
  - Benefit of agriAD experience of having already been through the entire development/financing process,
  - Benefit of contractual terms which have been negotiated on the basis of multiple plants:
    - Power Purchase Agreement,
    - Technology security package & price,
    - Funding terms.
- **Operational support;** agriAD will provide dedicated centralised support to all plants in the network including ;
  - Plant operation, legal responsibilities and regulatory compliance,
  - Feedstock pooling,
  - Maintenance and support services,
  - Research knowledge sharing into feedstock and AD process optimisation.