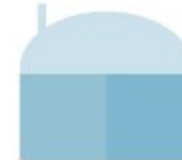


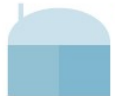
# JLEN

John Laing Environmental Assets Group Limited



JLEN Investor Session  
Anaerobic Digestion

June 19th 2018



# Opening Remarks

- JLEN is an ‘Environmental Infrastructure Fund’
  - Diversified portfolio
  - Inflation linkage
  - Long term, predictable cashflows
  - Stable regulatory frameworks

- Current AD investments include:

**Vulcan**

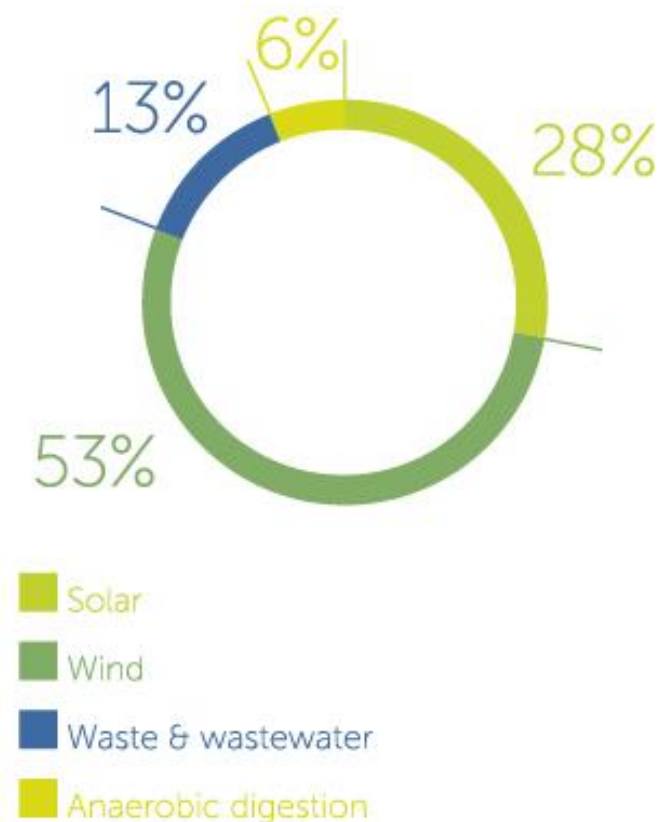


**Icknield**



- Further asset acquisitions currently pursued at various stages in AD and other bioenergy sectors

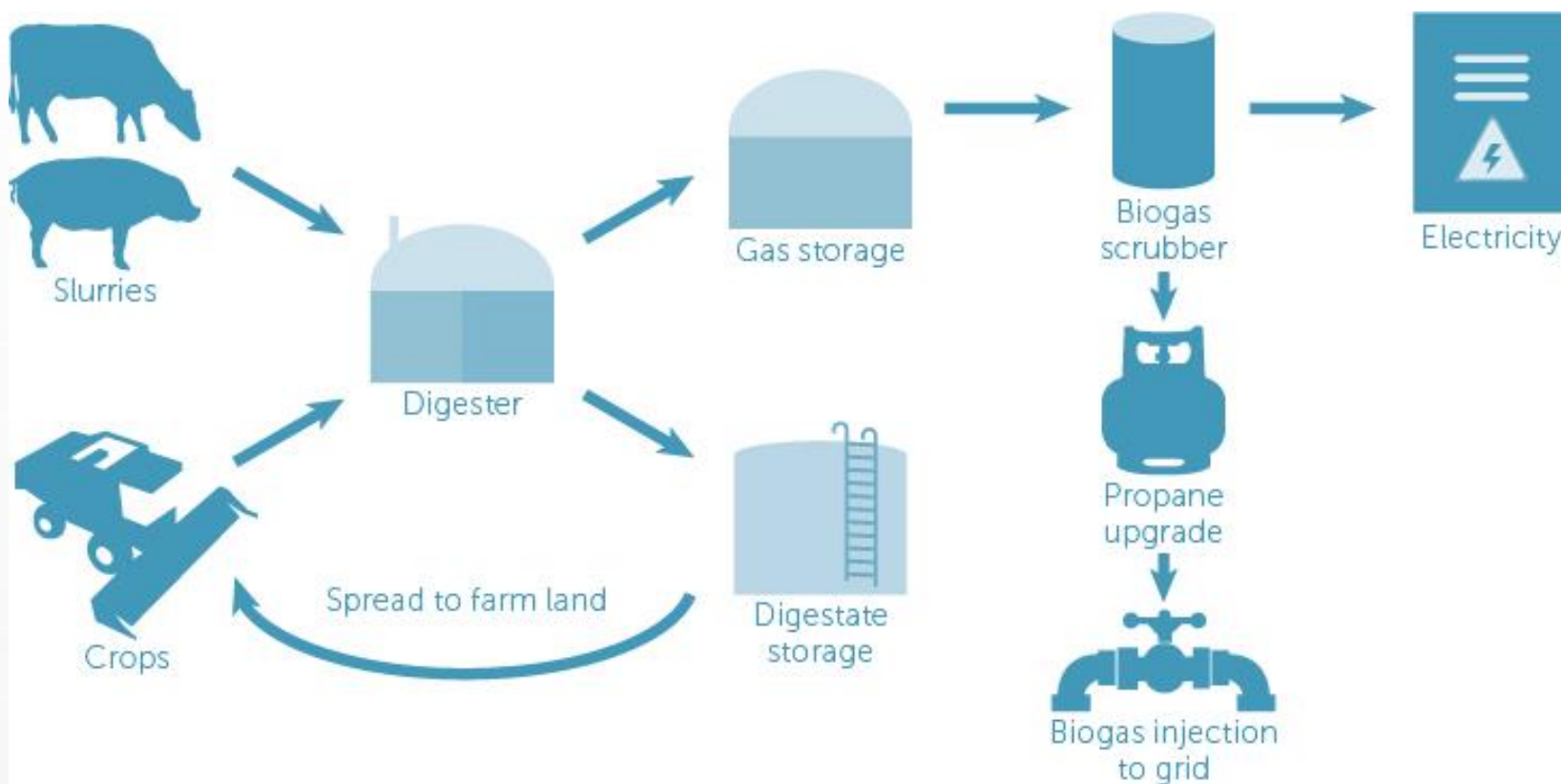
Portfolio value split by sector



Data source: JLCM

## AD Process Overview

### What is Anaerobic Digestion (AD)?

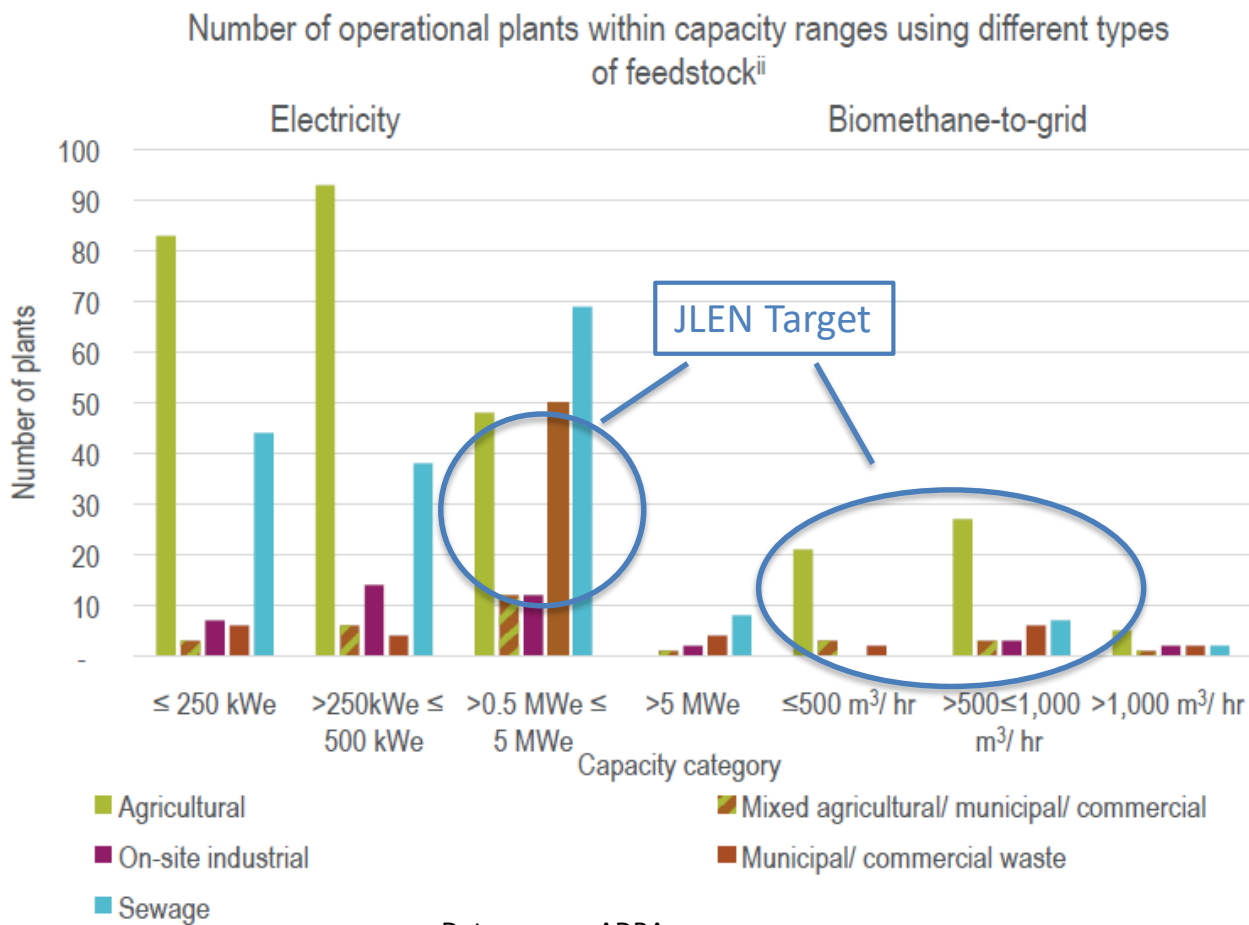


AD is the natural breakdown of organic matter to release biogas and water. The biogas can be harnessed to make electricity, heat, gas and fuel. What remains, the digestate, is a biofertiliser that can be used on land.



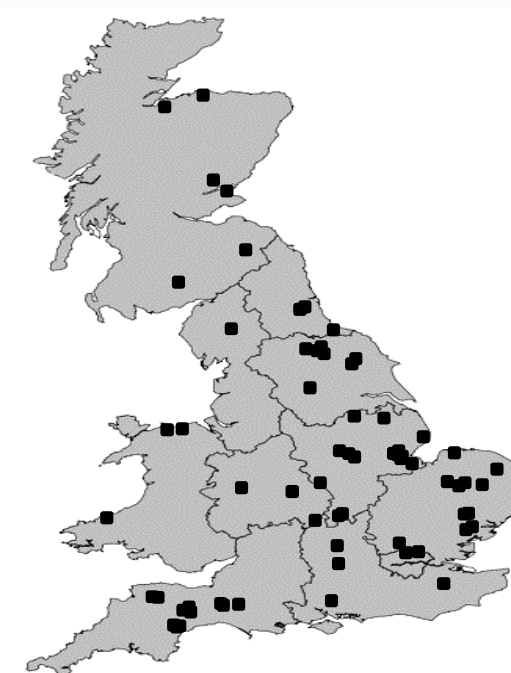


# AD Market Overview

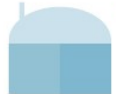


Data source: ADBA

- Over 400 agricultural and 85 food waste plants in the UK
- Early plants now able to display operational track record and benefit from high initial tariffs
- Around £2bn of assets built
- Construction financed mainly by EIS & VCT funds – at least 60 to 80 plants due for refinance in next 3 years







# Investment Attractions

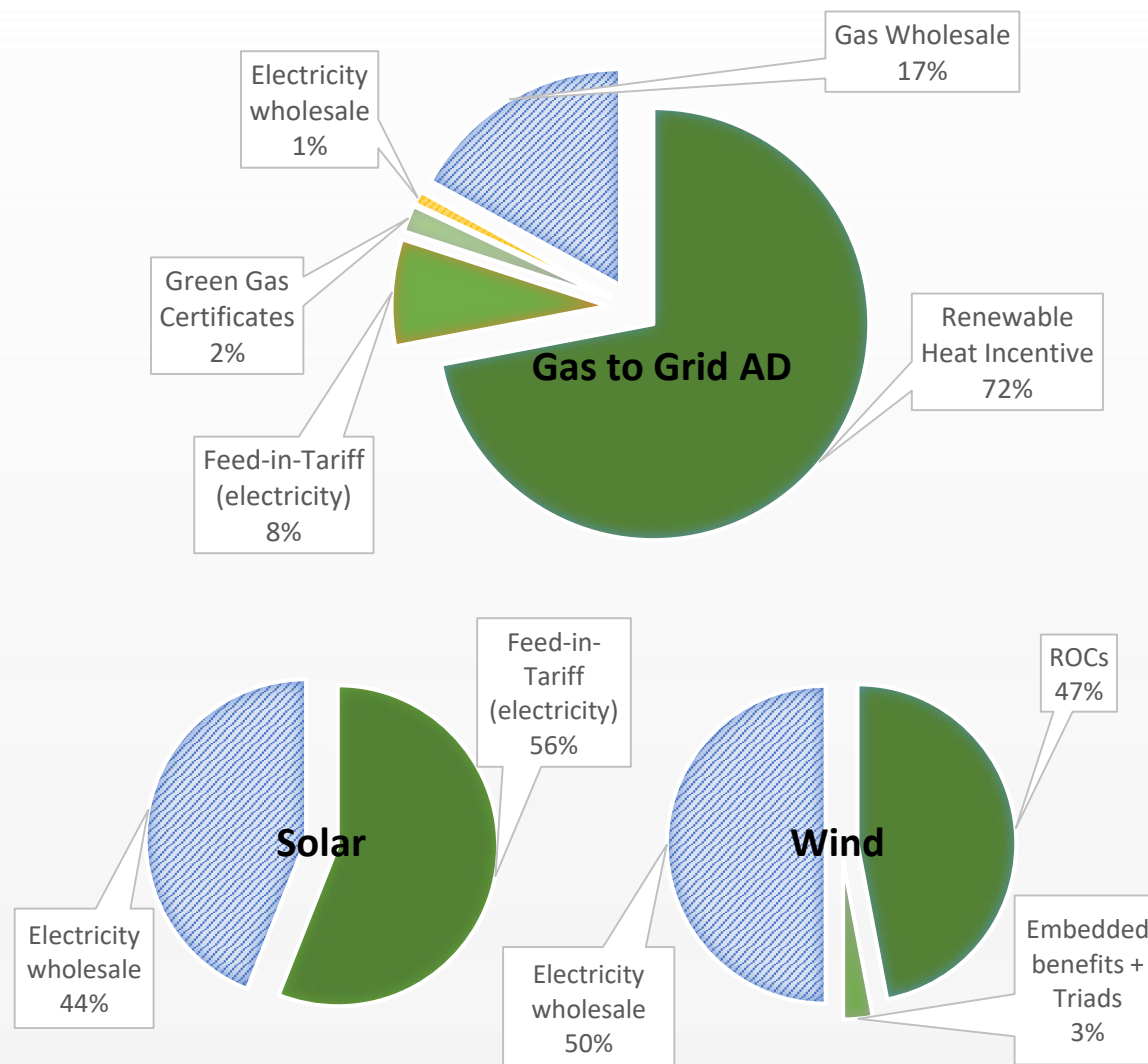
## Sector Attraction

- ✓ Low technology risk
- ✓ Subsidy support through FITs, ROCs, RHI.
- ✓ RPI linked cashflows
- ✓ Low exposure to merchant price (gas/electricity)
- ✓ Higher returns than wind or solar
- ✓ Limited competition
- ✓ Value Enhancements

## Renewable Heat Incentive (non-domestic)

- Fixed income per kWh to generators of renewable heat, biogas and bio methane
- Quarterly payments over 20 years
- Indexed at RPI (pre-April 16; CPI post)
- Grandfathering rules protect original tariffs

Example of revenue splits

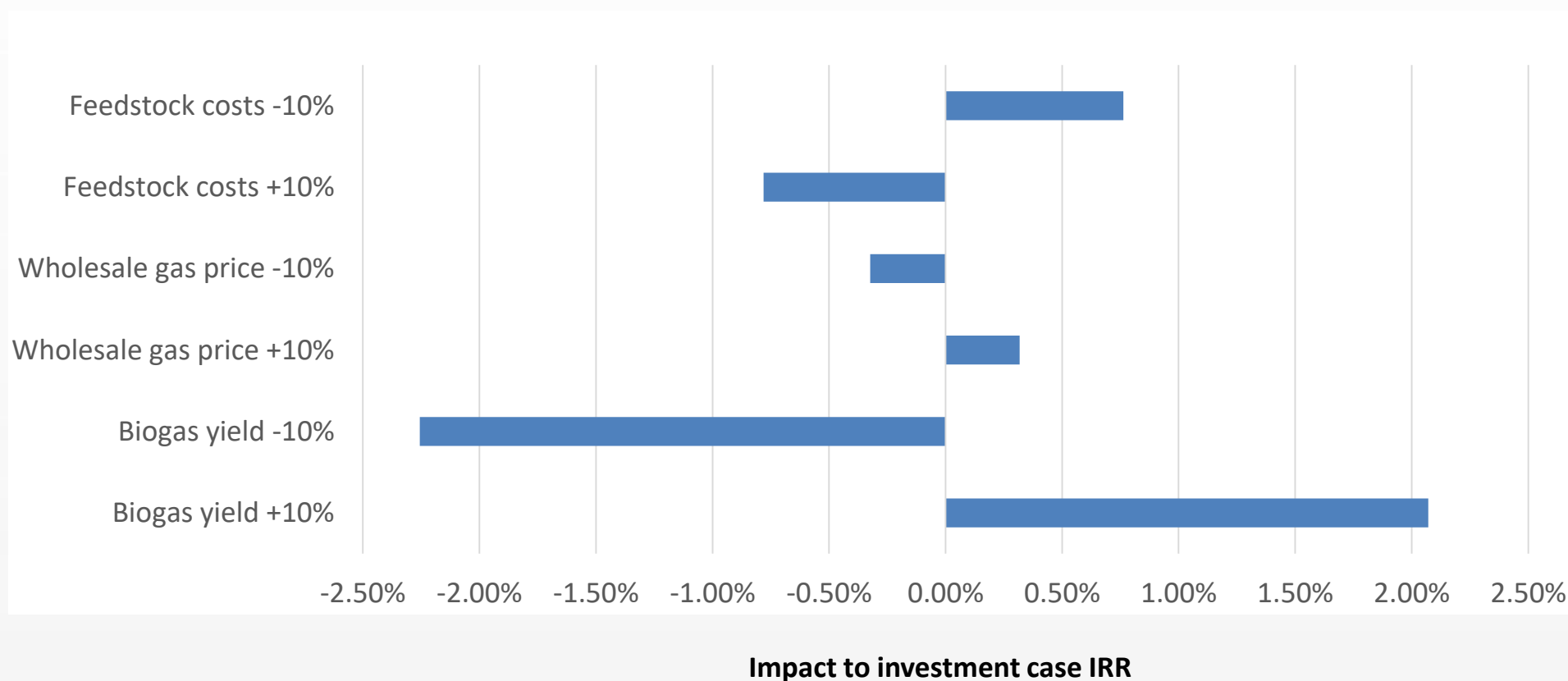


Data source: JLCM



# Investment Attractions

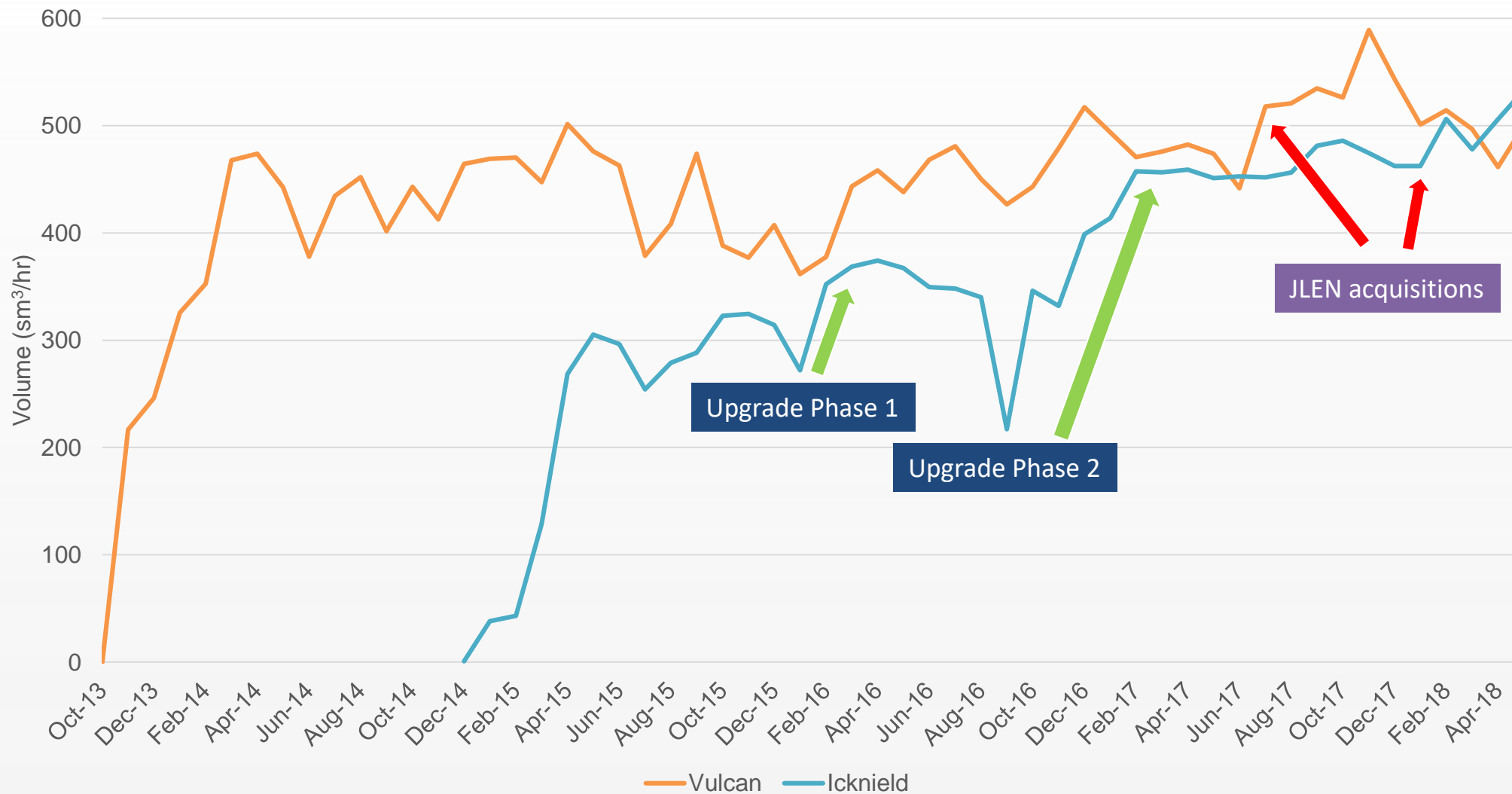
## Operating Sensitivities



Data source: JLCM

# Investment Attractions – Operational Track Record

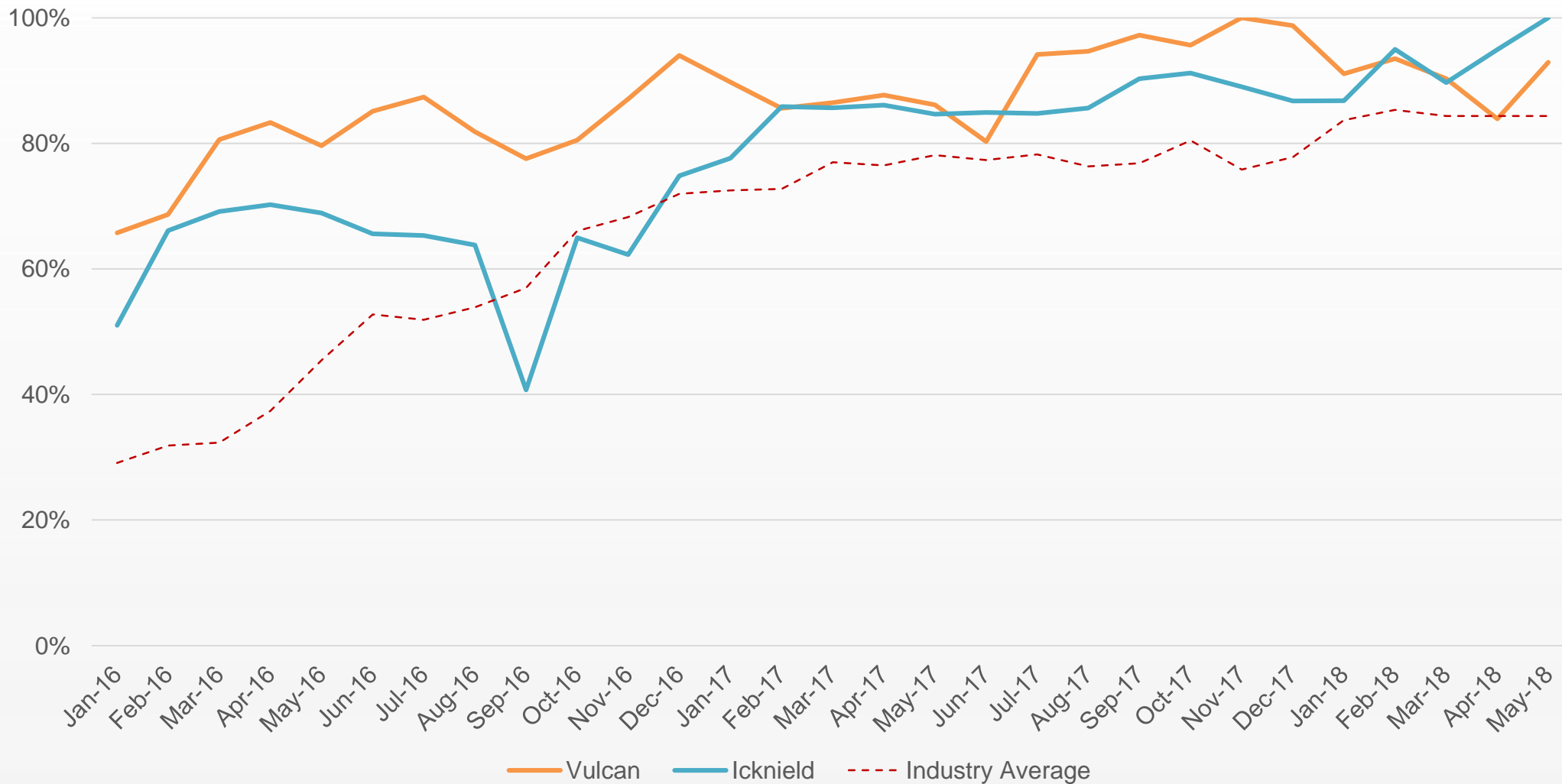
Average Daily Plant Production sm<sup>3</sup>/hr



Data source: Gemini

# Investment Attractions – Operational Track Record

Plant Performance as % of Peak Output



Data source: Gemini



# Value Enhancements

Production optimisation



Close biological monitoring & crop management to maximise gas yields and feedstock conversion efficiency

Minor capex upgrades



Rotogrind at Icknield  
Increasing gas yield with a <1yr Payback

Major capex upgrades



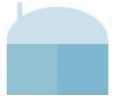
Capacity increases through new digestion tanks (Vulcan case study to follow)

Financial structuring



Introducing leverage across AD portfolio





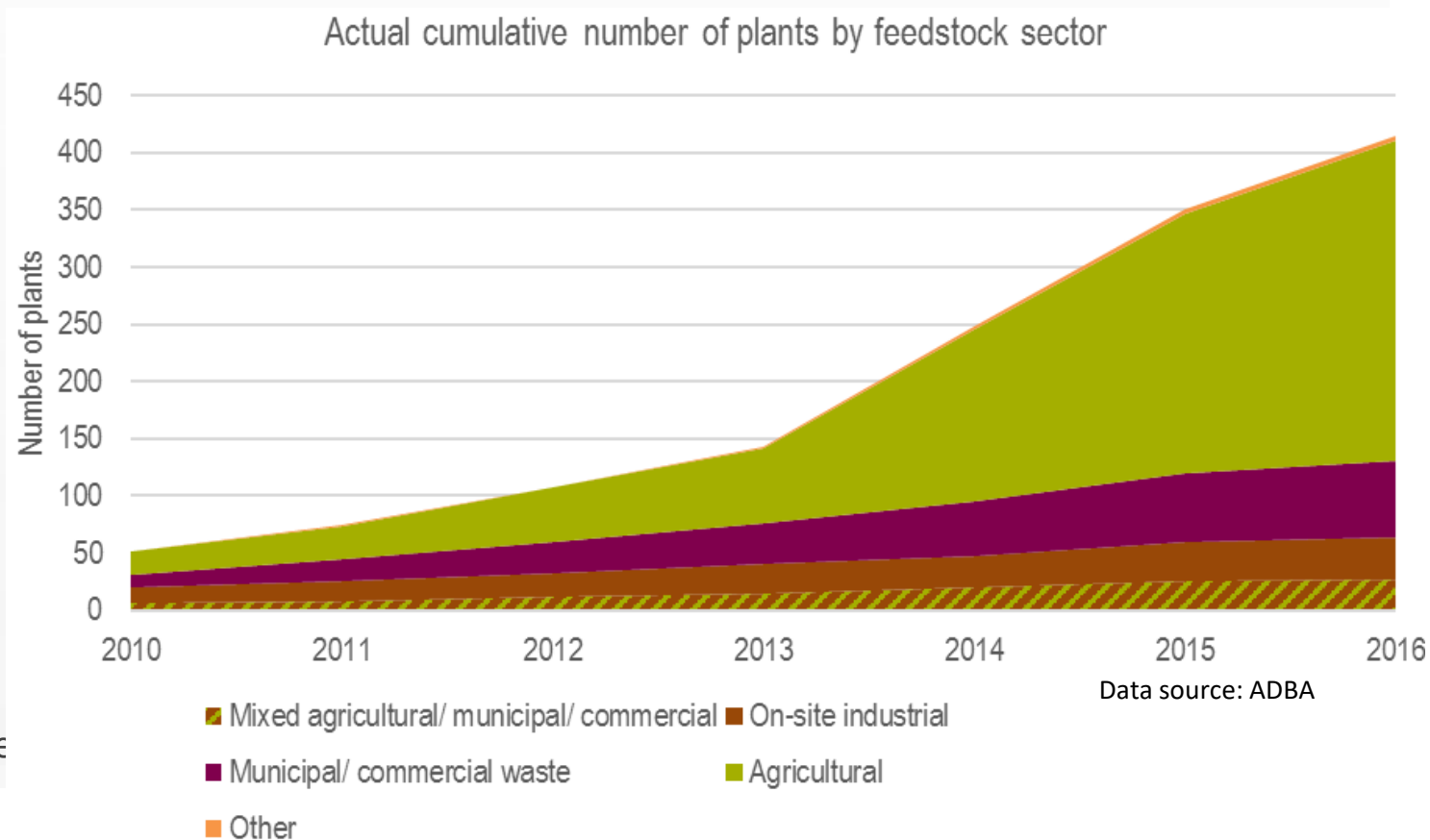
# Portfolio Management – Sector Observations

## Overview

- Strong regulatory regime and low technology risk resulted in rapid deployment and growth in sector
- Operational exposure for the industry lagged behind
- Industry focus is now on operation and optimisation

## UK AD Growth

- 2010 – Feed-in Tariffs launched
- 2011 – RHI biomethane incentive launched
- 2013 – Cost control mechanisms put in place by Government
- 2016 – Start of closures of subsidy regimes for new AD builds
- 2018 – New RHI phase 2 launched for final build phase until 2020

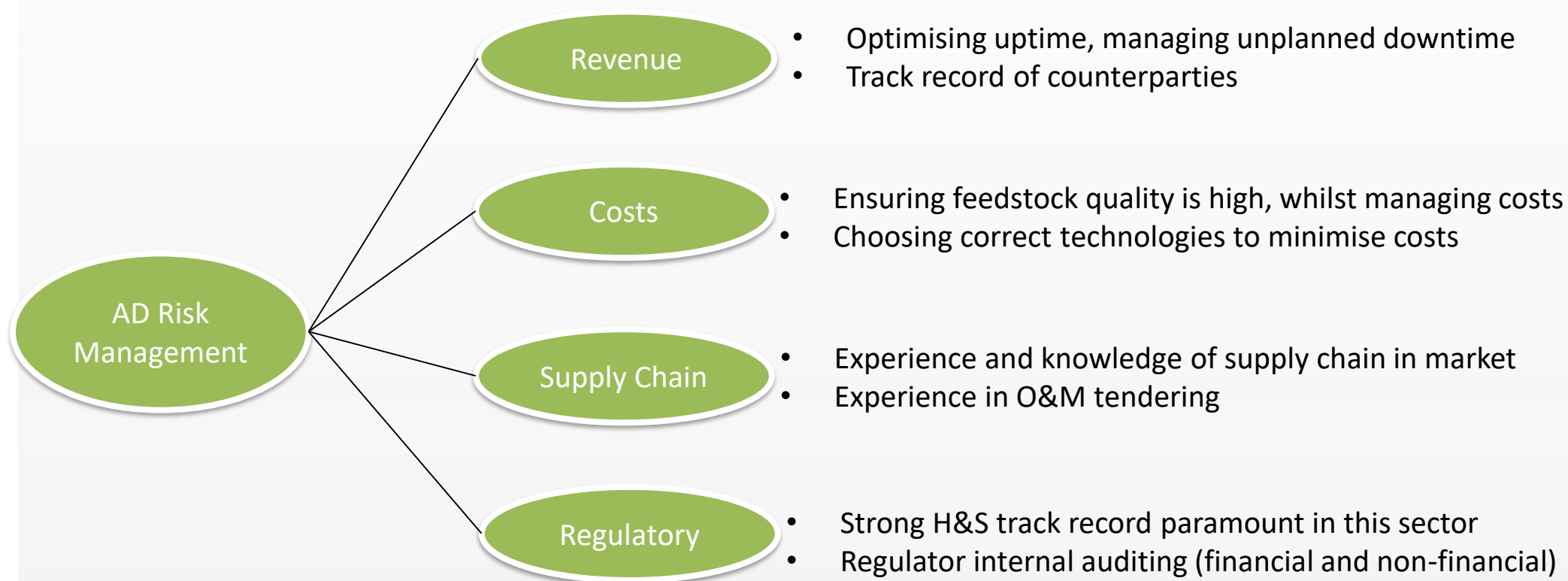




# Portfolio Management – Risk Management

## Risk Management in AD Investments

- Having a strong sector knowledge is crucial in identifying a root to successful investments in AD
- Choosing the right partner with a strong track record is also important in managing investments

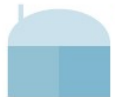


# Vulcan Upgrade Project

Vulcan Project Specifics	
Acquisition Date	August 2017
Acquisition Price	£15.3m
Plant Description	c. 5MWth gas-to-grid Agricultural fed AD plant with a 0.5MWe CHP engine to provide for the site
Operational Date	October 2013
Revenue Incentives	c. 80% Government backed RPI pegged tariffs - RHI, FIT
Feedstock	- Approximately 40,000t p.a. - Mixture of Maize, Rye & beet
Site Operator	Future Biogas (“FBL”) - FBL originally developed the plant - FBL operate a number of plants in the locality



Upgrade Project Information	
Estimated construction duration	15 months
Estimated Capital Cost	£7 million – £9 million
Biomethane increase (MWh)	More than double (approx. 120%)





**Any Questions?**

## Future Biogas

- Farming
- Biology
- Operations
- Maintenance
- Back Office

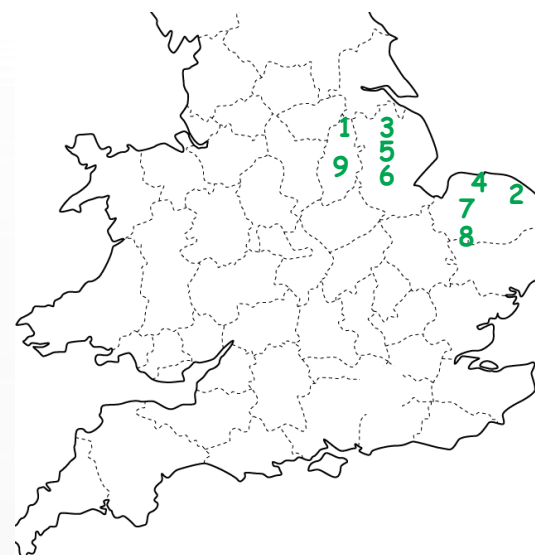
*"It has become blatantly clear that Future Biogas are one of the best if not the best operator in the country and it is unfair that you are paying for the misadventures of others."*

Lesley McKee – Alan Boswell Insurance Brokers Ltd

# Future Biogas

## Business

- Develop, build and operate and maintain AD plants
- 11 sites (approx. £120m) built since 2011
- Expert team
  - Skilled operators
  - Microbiologists with in-house lab
  - Biogas engineering team
  - Feedstock team with farming pedigree



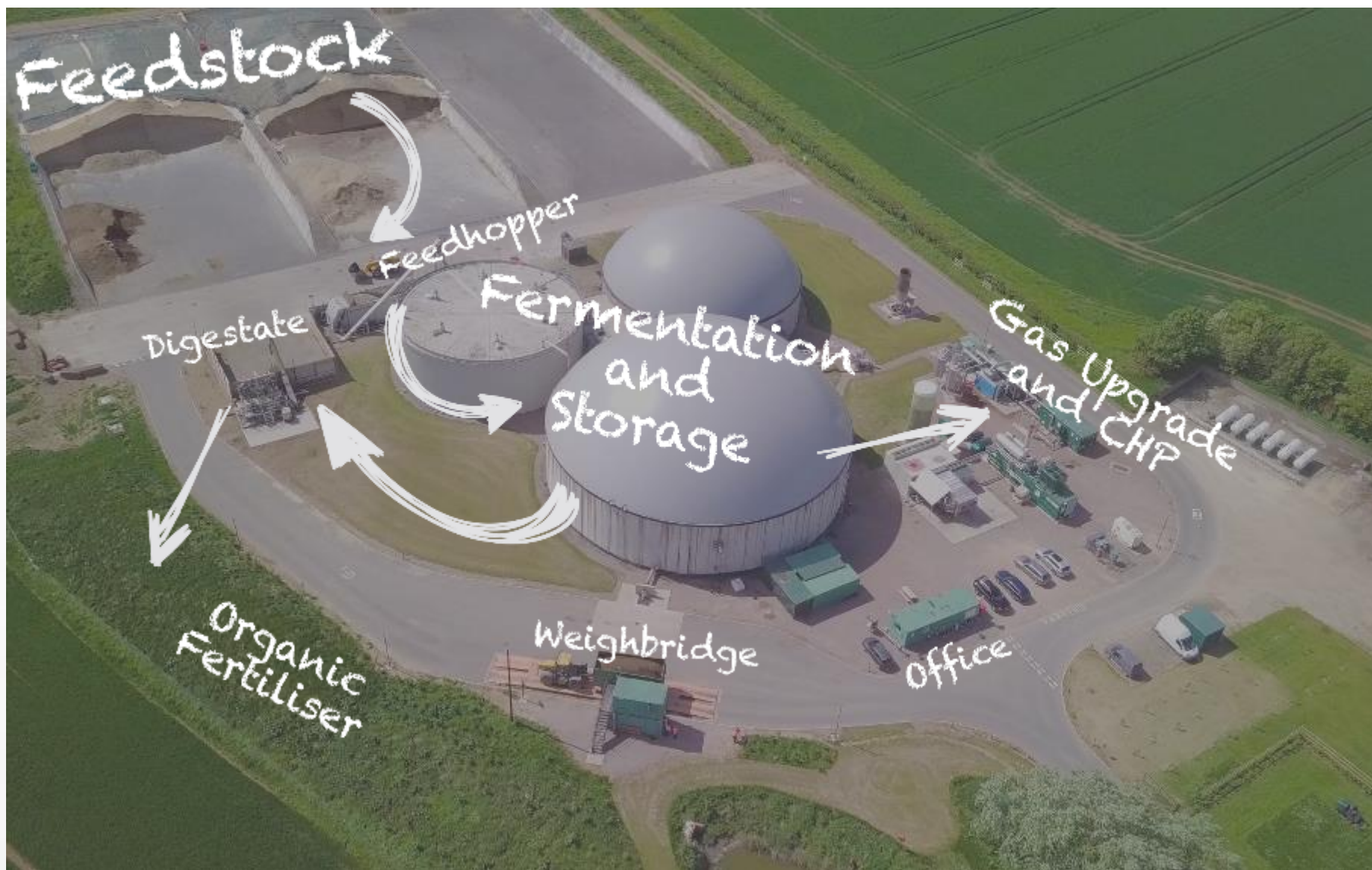
## Aims

- Be leading UK operator of AD assets
- Develop business by growing portfolio of operated plants
- Improve/Expand/Upgrade portfolio of plants

Plant	Commissioned	Funder
1 Vulcan	Oct-13	JLEN
2 Oak Grove	Nov-13	OCP
3 Merlin	Sep-14	Downing
4 Egmere	Nov-14	AMIM/Downing
5 Grange Farm	Dec-14	Downing/AMIM
6 Heath Farm	Sep-15	Ingenious
7 Redstow	Sep-15	Downing
8 Warren	Dec-15	AMIM/Downing
9 Rainworth	Sep-16	Foresight



# The AD Plant







# Feedstock And Digestate Management

## Local

- Majority of the crop sourced within 5 miles
- Economically sensible to travel up to 10 miles

## Low Impact

- Below 2% of local land-bank
- We also buy in by-products such as beet pulp and veg pack-house “wonky” veg

## Large Scale

- Grow 11,000 hectares of crop annually,
- Harvesting >450,000 tonnes
- Spread 250,000m<sup>3</sup> of liquid and 100,000t of solid digestate
- Purchasing advantages
- Multiple sites share feedstock



## Offsetting Farming Risk

### Security of Supply

- Annual or multi year
- Integrated in farming rotation
- Key farm relationships
- Range of crops and by products used
- Manage stocks carefully

### Weather Risk

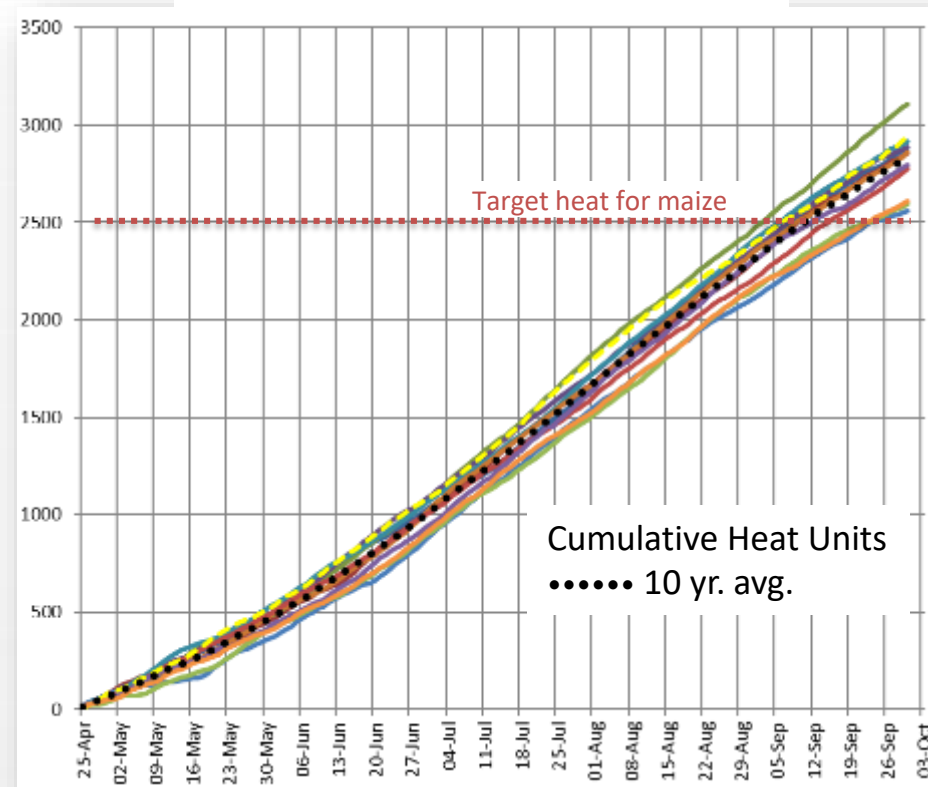
- £/tonne or rented land
- Winter/Spring crops
- Varietal (maturity) choice
- Crop Management options

### Competence

- Employ experienced Feedstock Managers
- Careful planning for peak periods of activity
- Agricultural contractor management
- Key farm relationships

Carry out farming activities efficiently, safely and considerately

### Steady Weather / 2006-16

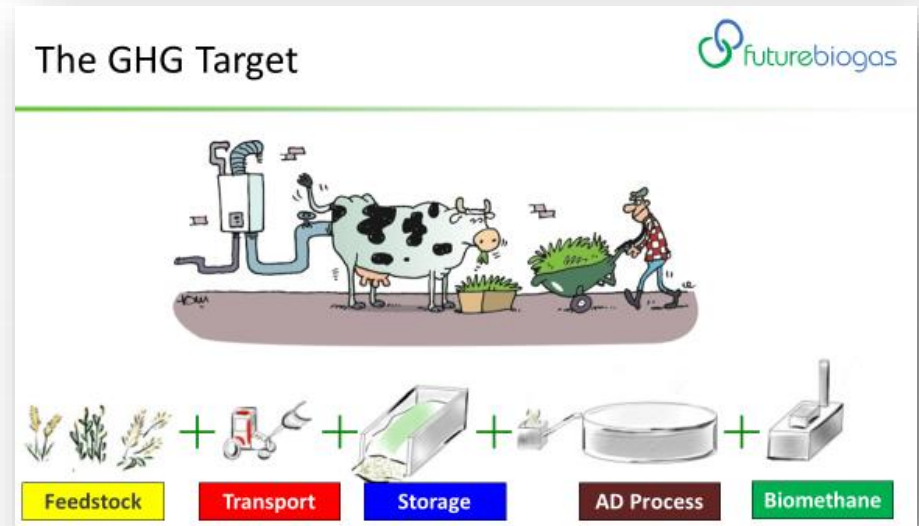


Data source: Future Biogas



## Ensuring Sustainable AD Cropping

- Crops destined for AD are measured for their carbon footprint and sustainability by OFGEM
- AD cropping is helping towards UK government renewable energy targets
- AD benefits food crops by diversifying rotation and improving soil organic matter, giving higher yields
- Changes in pesticide/herbicide availability will benefit AD
- FB engage positively to debate issues, communicate benefits and challenge myths. DEFRA consultations on “Health & Harmony” and Clean Air are good fit for AD offer
- R&D to improve sustainability
  - Perennial cropping
  - Double cropping (i.e. 2 crops in one season)
  - Digestate application



ofgem

defra  
Department for Environment  
Food and Rural Affairs



# So What's So Different About Future Biogas Feedstock?

- **Scale** – purchasing, influence, reliability
- **Quality** – measurement, recording and attention to detail
- **Local presence** – seek long term partnership with local growers for both crop and digestate
- **People** – “Train to retain” – staff, growers and contractors
- **Research** – R&D collaborations – NIAB
- **Planning** – Manage harvest logistics sympathetically to local environment
- **Collaboration** – Communicate with growers and cross industry
- **Innovate** – bringing a taste of the Alps to Norfolk!!

**COVER CROPS**

We are keen to promote the use of legimate on overwinter cover crops. Using legimate to establish cover crops saves on fertilizer costs. Other benefits include:

- Counting towards possible tillage
- Building organic matter content
- Building soil nitrate
- Certain cover crops are particularly efficient for nitrogen capture

Speak to your feedback manager for advice on cover crops which could be advantageous for your rotation.

**NVZ REGULATIONS**

NVZ Regulations apply to 'highly readily available to content manure' which includes liquid digestate which typically has little readily available N.

15 Dec	End of closed period for sandy soil
15 Jan	End of closed period for medium/heavy soil
15 Feb	Start of closed period on sandy soil
15 Mar	Start of closed period for grassland on sandy soil
15 Apr	Start of closed period on sandy soil if a crop is sown on or before 15th Sept
15 May	Start of closed period on medium/heavy soil
15 Jun	Start of closed period for grassland on medium/heavy soil

Liquid digestate: up to the end of February a maximum of 50t/ha can be applied every 3 weeks.

Solid digestate does not come under the above stated application restrictions. It can be applied to land 12 months of the year but is still limited to the 10t/ha limit of 200kg N in a growing 12 month period. This is because less than 20% of the total content of the organic manure is present in a form that can be immediately taken up by the plant.

**CONTACT INFORMATION**

For enquiries about digestate please contact your local Feedback Manager:

West Midlands & South West (01753) 87744  
 East Midlands (01753) 87744  
 Yorkshire (01753) 87744

**USEFUL LINKS**

- National Nitrogen Planning Tool: [www.plantforfarmers.co.uk/planator](http://www.plantforfarmers.co.uk/planator)
- NIAB: [www.niab.org.uk/feedback/digestate-compost-agriculture](http://www.niab.org.uk/feedback/digestate-compost-agriculture)
- NVZ Regulations: [www.gov.uk/topics/land-use/soil](http://www.gov.uk/topics/land-use/soil)

**futurebiogas**

- ↳ DIGESTATE IS AVAILABLE THROUGHOUT THE YEAR
- ↳ DIGESTATE CAN REPLACE SOME ARTIFICIAL FERTILISER REQUIREMENTS ON FARM
- ↳ TWO FORMS OF DIGESTATE – LIQUID AND SOLID FRACTIONS

**GUIDE TO DIGESTATE USE**

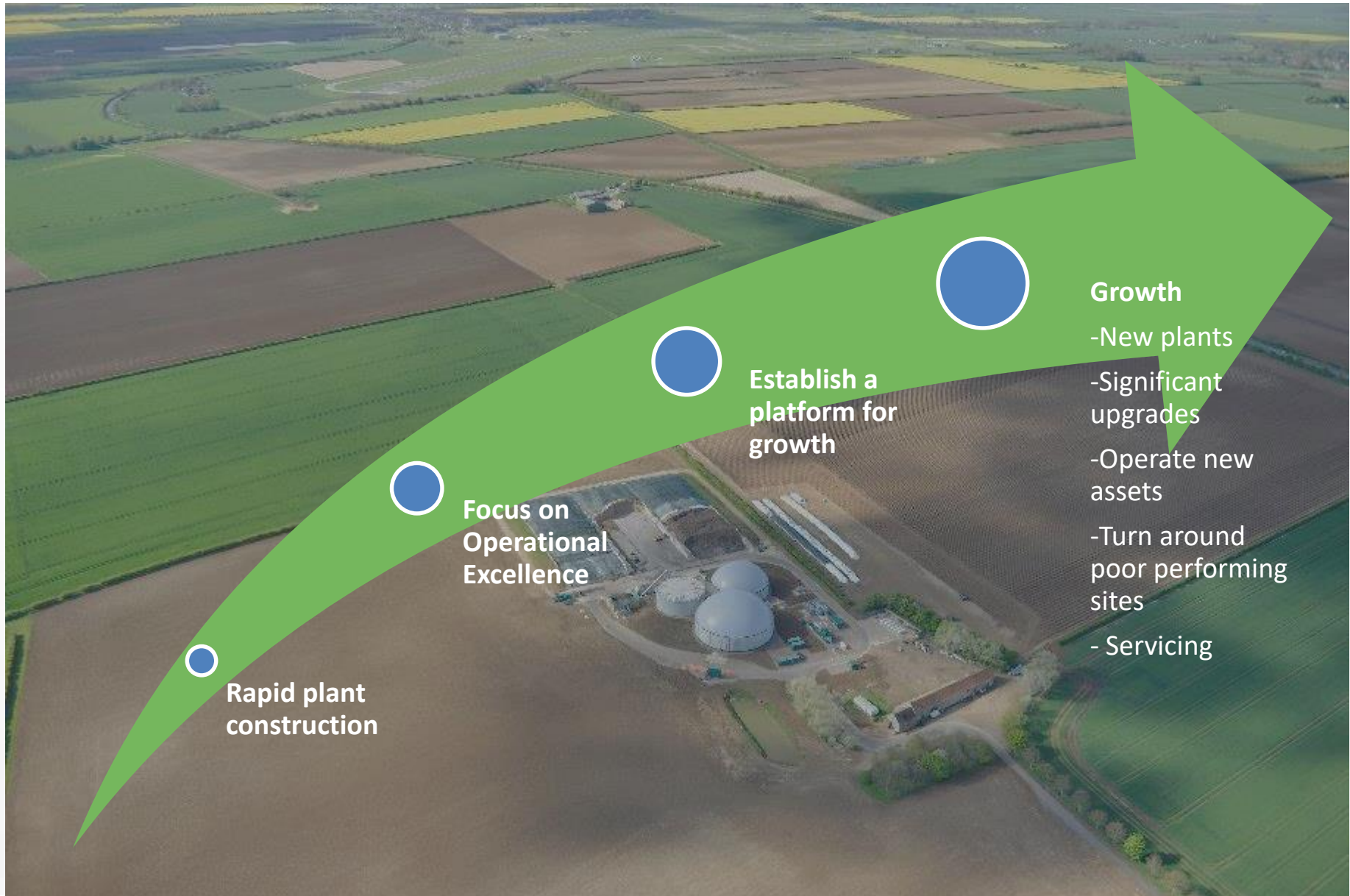
Published on: 17 July 2015  
 Address: Future Biogas Limited, 16-17 Riverside, Langer Road, Huddersfield G52 7YD  
 Website: [www.futurebiogas.com](http://www.futurebiogas.com)



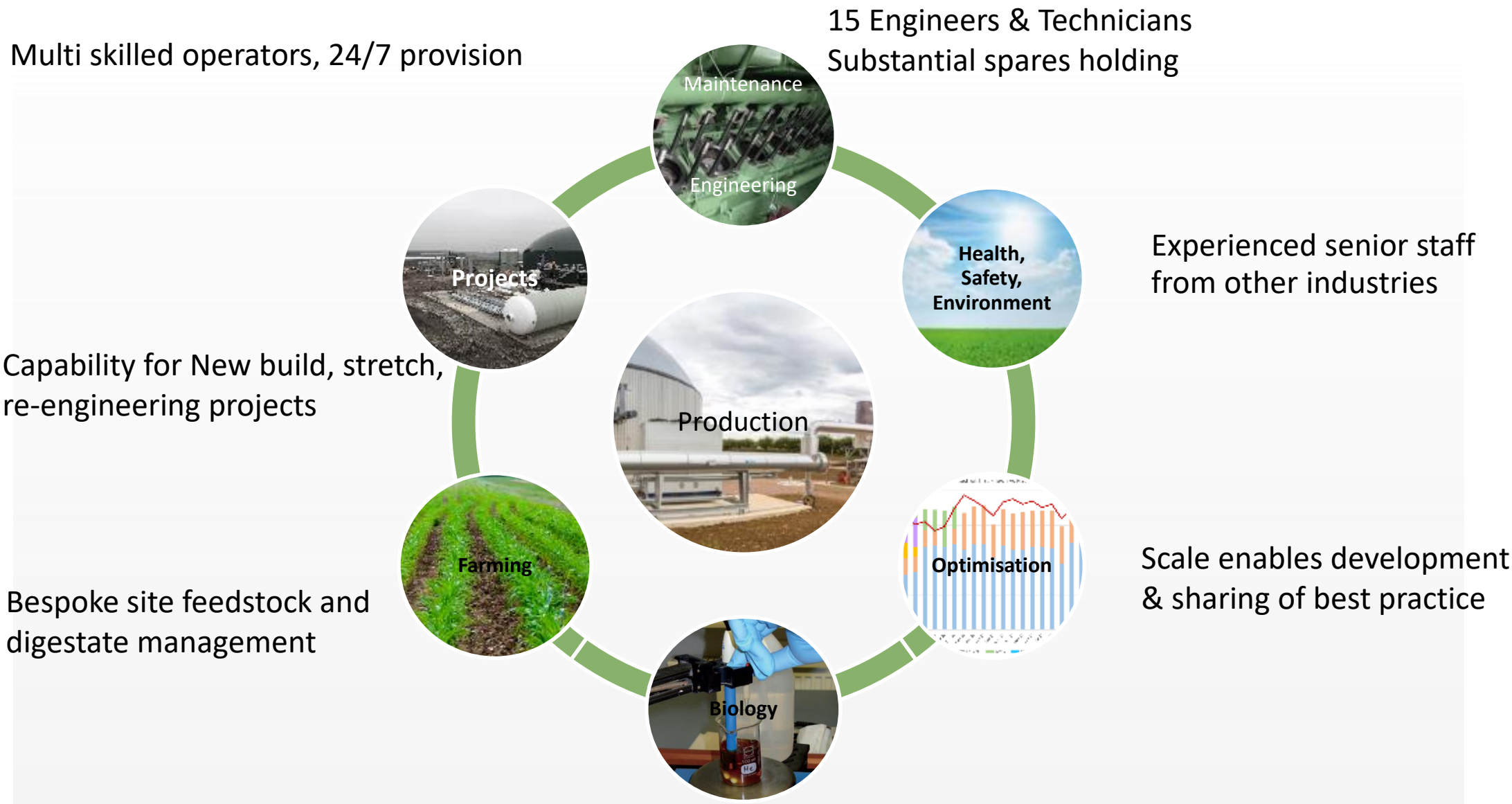
# Operations – Colin Mills







# Future Biogas – Complete provider for AD Operations



Healthy Bugs = Healthy Yield



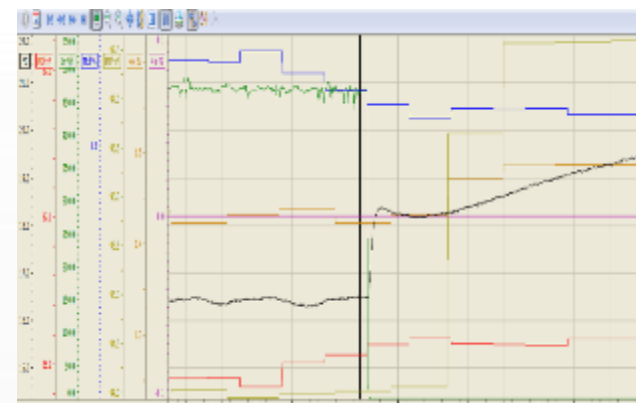
# Minimise Unplanned Downtime

## Preventative Maintenance

- Best practice and experience brought in with staff from other industries
- Multi-skilled operators are trained to perform first-line maintenance and fault-finding
- Co-ordinated approach to maintenance
- Condition based maintenance regimes - assets are monitored closely for wear

## Spares

- Critical spares analysis carried out on plants to identify key items to hold
- Over £1m spares held centrally in the UK
- 24/7, 365 day/year access to spares



Dedicated mobile  
service team –  
Spares store Swaffham

# Response To Unplanned Outages

## Equipment & Capability

- Future Biogas have the experience and resources to plan and then execute outages with quick turn arounds, saving feedstock and maximising income
- Depth of maintenance know-how allow most repairs to be dealt with in-house with major savings on specialist services and much faster response times



Solid layer from a failed mixer.



Chain snapped Sunday night, machine operational Monday afternoon with parts from central stores.



Future biogas changing feed critical Digester Stirrer when bottom bearing showed signs of failure. The digester was off line for 12hrs . Parts in stock and engineers on site next day with a crane.



FB Range of pumps to get liquid circulating quickly



Hydraulic mixer for thick layers.



FB Portable Separation Plant

## Future Biogas – Summary

- People
  - Experience brought in from other industries
  - Multi-skilled operators/technicians
- Demonstrated track record of high uptime, high output plant operation
  - Spares
  - Robust maintenance plans
  - Specialist equipment & capacity to quickly resolve operational problems
- Complete AD Operator with scale
  - Farming, Engineering/Maintenance, Production, Projects
  - Biology, SHEQ (Safety, Health, Environment & Quality), Optimisation



## Conclusion

- Market opportunity
- Attractive risk-adjusted returns
- High proportion of index-linked subsidy-backed cashflows
- Manageable risks
- Value enhancements





**Any Questions?**

## Biographies – John Laing Capital Management

### Chris Tanner – Director – John Laing Capital Management

Chris Tanner is the co-lead Investment Adviser. He has over 18 years' experience in infrastructure including PPPs, economic infrastructure and renewables. Chris joined the Investment Adviser in January 2014 and prior to this was a Principal in Henderson's private equity infrastructure team from 2007 and at PricewaterhouseCoopers for 11 years where he focused on project finance advisory with a strong focus on the waste sector. Chris is a Member of the ICAEW and has an MA in PPE from Oxford University.

### Chris Holmes – Director – John Laing Capital Management

Chris Holmes is the co-lead Investment Adviser. He has over 20 years' experience in infrastructure and renewables. Chris joined the Investment Adviser in January 2018. Prior to this, Chris was Head of Waste & Bioenergy team at the UK Green Investment Bank plc for four years and before that, Head of Capital Markets in the Infrastructure and Renewables team at NIBC, also with responsibility for UK debt origination and advisory within these sectors. Chris has a BA in Business Economics from the University of Durham.

### William Mezzulo – Head of AD Asset Management – John Laing Capital Management

Dr William Mezzullo joined JLCM in June 2018 as the head of AD asset management. William comes from Oxford Capital Partners LLP where he was Portfolio Manager and he is experienced in the management and development of AD assets, having previously worked for Future Biogas for seven years.

## Biographies – Future Biogas

### Philipp Lukas – Managing Director – Future Biogas

Philipp founded Future Biogas in 2008 following a career in law and renewables, having previously worked in corporate law at Travers Smith and then run a cellulosic ethanol developer. He was a director of the Anaerobic Digestion & Biogas Association (ADBA) for 4 years and is on the board of the European Biogas Association.

### Innes McEwen – Head of Farming – Future Biogas

Innes is responsible for feedstock and digestate for 11 AD plants (26MW<sub>elec</sub>). Prior to joining FB in mid 2014 Innes ran the in-house farms for Unilever and latterly Syngenta for over a decade. He gained an honours degree in Agriculture from University of Aberdeen followed with a Postgraduate Diploma in Crop Protection at SAC (Aberdeen). Innes is an active member of the Institute of Agricultural Management, currently Vice-Chair of the Maize Growers Association and chairs the Crop Working Group for ADBA.

### Colin Mills – Operations Director – Future Biogas

Colin recently joined Future Biogas from BOC (Industrial Gases) where he was Head of Engineering for UK & Ireland. In this role he was responsible for the majority of projects both on BOC and customer sites, national operations/service teams, 60 customer located production plants, Engineering new product development, technical standards and Engineering support to all BOC production sites. Colin has extensive experience of leading people & operations in hazardous & regulated environments.

## Disclaimer

This document and the information contained herein have been prepared solely for the purpose of providing general information about John Laing Environmental Assets Group Limited (the "**Company**") and its operations. This document is not to be used for any other purpose and in particular does not purport to provide a complete oversight of all matters concerning the Company, and does not contain sufficient information to make an investment decision. The contents of this document are not a financial promotion. The Company invests in a number of different types of environmental infrastructure assets, of which anaerobic digestion is only one. When evaluating a potential investment in the Company, prospective investors should consider the Company's portfolio of assets as a whole and the risks and other factors relevant to an investment in the Company.

In light of the foregoing, this document, the information contained herein and in any accompanying management discussion of this document does not and is not intended to constitute an advertisement or a solicitation of interest in respect of the acquisition of any shares or securities or the provision of investment management, advisory or other services. This document does not constitute or form part of, and should not be construed as, an offer, invitation or inducement to purchase or subscribe for any shares in the capital of the Company ("**Shares**"), nor shall it or any part of it form the basis of, or be relied upon in connection with, any contract or commitment whatsoever.

The recipients of this presentation should not engage in any behaviour in relation to financial instruments which would or might amount to an offence under the Market Abuse Regulation (EU) No. 596/2014.

This document is not intended to provide specific investment advice including, without limitation, investment, financial, legal, accounting or tax advice, or to make any recommendations about the suitability of any securities or investment strategies discussed in this document for the circumstances of any particular investor. If you do require investment advice, please contact an independent broker or financial adviser. You should take appropriate advice as to any securities, taxation or other legislation affecting you personally prior to investing. Prospective investors should be aware that investment in the Company carries a significant degree of risk and is suitable only for investors who are aware of and understand the risks involved and are able to withstand the loss of all or part of their invested capital.

The Shares have not been and will not be registered under the United States Securities Act of 1933, as amended (the "**Securities Act**"), or the securities laws of any other jurisdiction of the United States. The Shares may not be offered or sold, directly or indirectly, within the United States, or to, or for the account or benefit of, "**US persons**" (as defined in Regulation S under the Securities Act ("**Regulation S**")). The Company has not been and will not be registered under the United States Investment Company Act of 1940, as amended (the "**Investment Company Act**") and, as such, investors will not be entitled to the benefits of the Investment Company Act. A US Person that acquires Shares may be required to sell or transfer these Shares to a person qualified to hold Shares or forfeit the Shares if the transfer is not made in a timely manner.



## Disclaimer

This document does not constitute an offer to sell to or solicitation of an offer to purchase from any investor or in any jurisdiction in which such an offer or solicitation is not permitted or would be unlawful. Each investor must comply with all legal requirements in each jurisdiction in which it purchases, offers or sells the Company's securities, and must obtain any consent, approval or permission required by it.

None of the Company, its investment adviser John Laing Capital Management Limited ("**JLCM**") or any of their respective directors, officers, employees, advisers, representatives or other agents represents, warrants or promises (whether expressly or impliedly) that any information contained in this document is or remains accurate, complete and up-to-date, or fit or suitable for any purpose. No responsibility or liability is accepted by the Company, JLCM or any of their respective directors, officers, employees, advisers, representatives or other agents for any such information or any of the opinions contained in this document or for any errors, omissions or misstatements.

The information contained in this document is given at the date of its publication (unless otherwise stated). No reliance may be placed for any purpose whatsoever on the information or opinions contained in this document or on its completeness or accuracy. The information set out herein may be subject to updating, completion, revision, verification and amendment and such information may change materially. This document has not been approved by any competent regulatory or supervisory body.

JLCM is not acting as adviser to any recipient of this document, nor will it be responsible to any recipient of this document for providing the protections afforded to its clients or for providing advice in connection with this document or matters referred to herein.

Past performance is not necessarily indicative of future results, and nothing in this document should be interpreted to state or imply otherwise. The value of an investment and the income from it can go up as well as down, it may be affected by exchange rate variations and you may not get back any amount invested.

The information communicated in this document contains certain statements that are or may be forward looking. These statements typically contain words such as "expects" and "anticipates" and words of similar import. By their nature forward looking statements involve risk and uncertainty because they relate to events and depend on circumstances that will occur in the future. The Company and its advisors and representatives expressly disclaim any obligation or undertaking to disseminate any updates or revisions to any forward-looking statements contained herein to reflect any change in their expectations with regard thereto or any change in events, conditions or circumstances on which any such statement is based.