Ormonde Organics

POWERING A GREENER WORLD AND REDUCING YOUR CARBON FOOTPRINT

PRESENTATION TO:

# EXPRESS/ South-East Energy Agency

DATE:

## 22nd November 2023

# Who we are:

## We are Ireland's largest producer of biogas

**We operate an integrated Anaerobic Digestion (AD) and Compost Facility at Portlaw, Co Waterford.**


Portlaw AD

**We turn organic wastes into**
**Green energy (biogas, bio-methane, electricity, heat)**
**And nutrient-rich soil amendment products.**


Portlaw Compost

# What is Anaerobic Digestion:

Anaerobic Digestion(AD) is a natural process in which micro-organisms break down organics in the absence of oxygen, producing biogas and digestate

AD is a mature and robust process

The first known AD facility was built in 1859 in India

There are approx. 20,000 AD plants operating in Europe, ranging from large scale industrial plants to small farm-based plants

There are currently less than 15 plants operating in Ireland

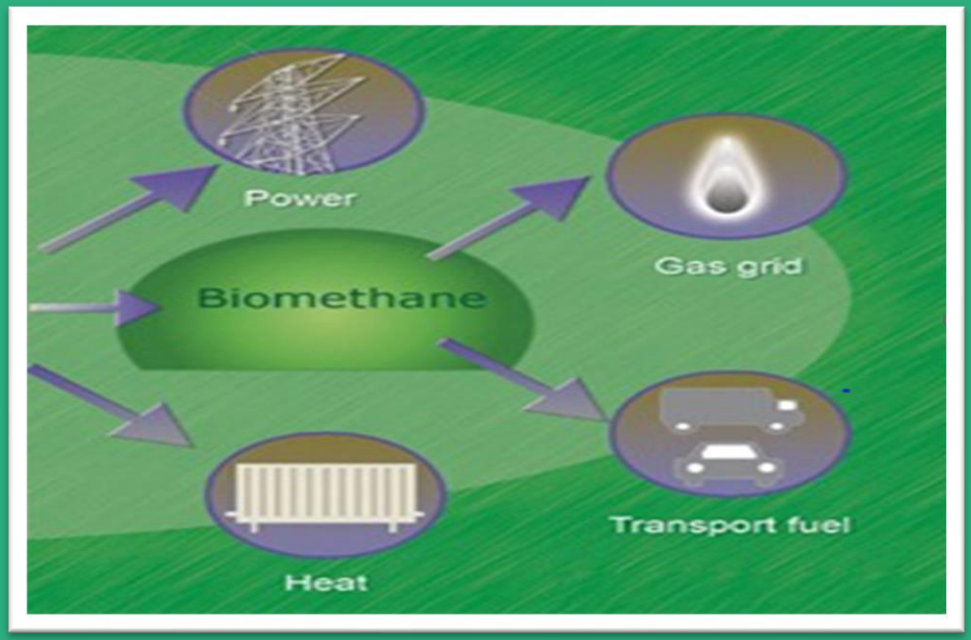
AD Plant in Ireland

# What is Biogas:

Biogas is the gas that is produced in the Anaerobic Digestion process

It is a mixture of: Methane (55%-65%)
Carbon Dioxide (45%-35%)
Nitrogen, Hydrogen, Ammonia & Hydrogen Sulphide (trace)

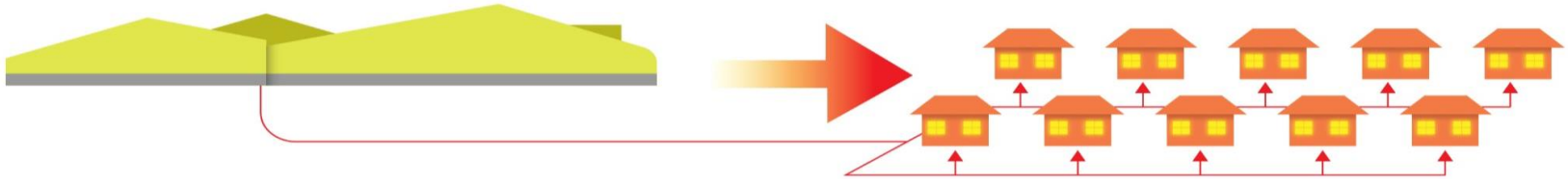
Biogas can be used to:
- Generate electricity
- Generate heat
- Upgraded to Biomethane




Biomethane is a renewable natural gas

# Our Green Credentials:

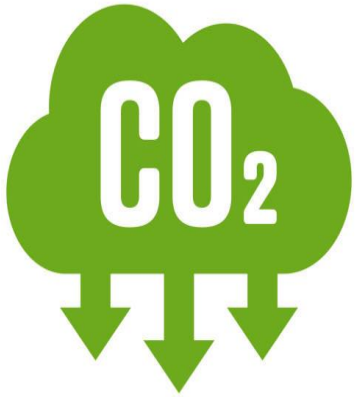
Ormonde generate enough green energy to:



- Power **8,000 houses** per annum (80% of all the houses in Kilkenny City)
- Heat **3,000 houses** per annum

Ormonde achieve Greenhouse Gas savings of **58,000 tonnes** per annum through:

- Replacement of energy generated from fossil fuels with our green energy
- Capture of Methane that would otherwise have been emitted to the atmosphere
- Replacement of Chemical Fertilisers by the use of our Digestate & Compost



# Our Journey – Key Milestones

## 2006

Acquired facility in Portlaw, Co Waterford

## 2007

Compost facility opens

## 2013

Anaerobic Digestion facility opens with electric export of 0.5 mWh

## 2015

Expansion at Anaerobic Digestion facility at to increase electric export to 1.0 mWh

## 2021

Biomethane Gas production facility opens

Interreg NWE supported

## 2023

Signed Connection Agreement to National Gas Grid

# Portlaw Anaerobic Digestion Facility

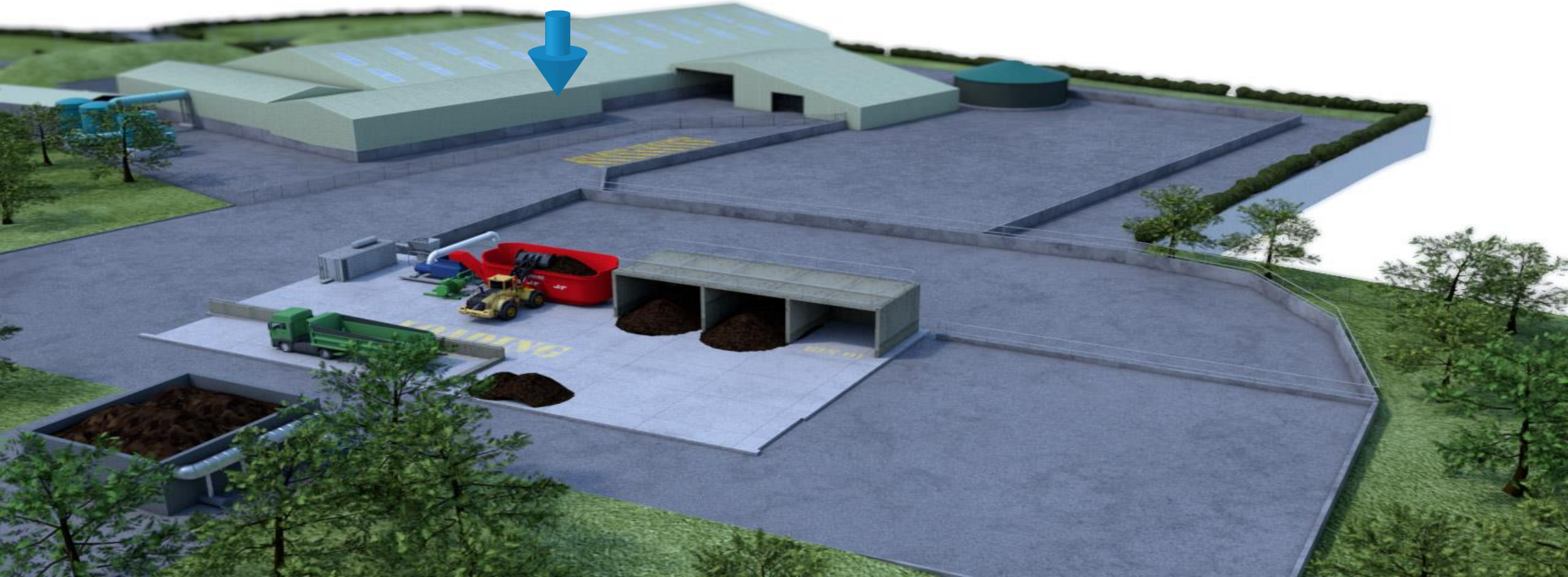
## *Process Overview – An Introduction*

# Anaerobic Digestion Facility – Mesophilic Process with Post Pasteurisation

- Anaerobic Digestion (AD) is a bacterial process carried out in absence of oxygen.
- Micro-organisms breakdown organics, producing biogas & digestate

# Solid Feeding System

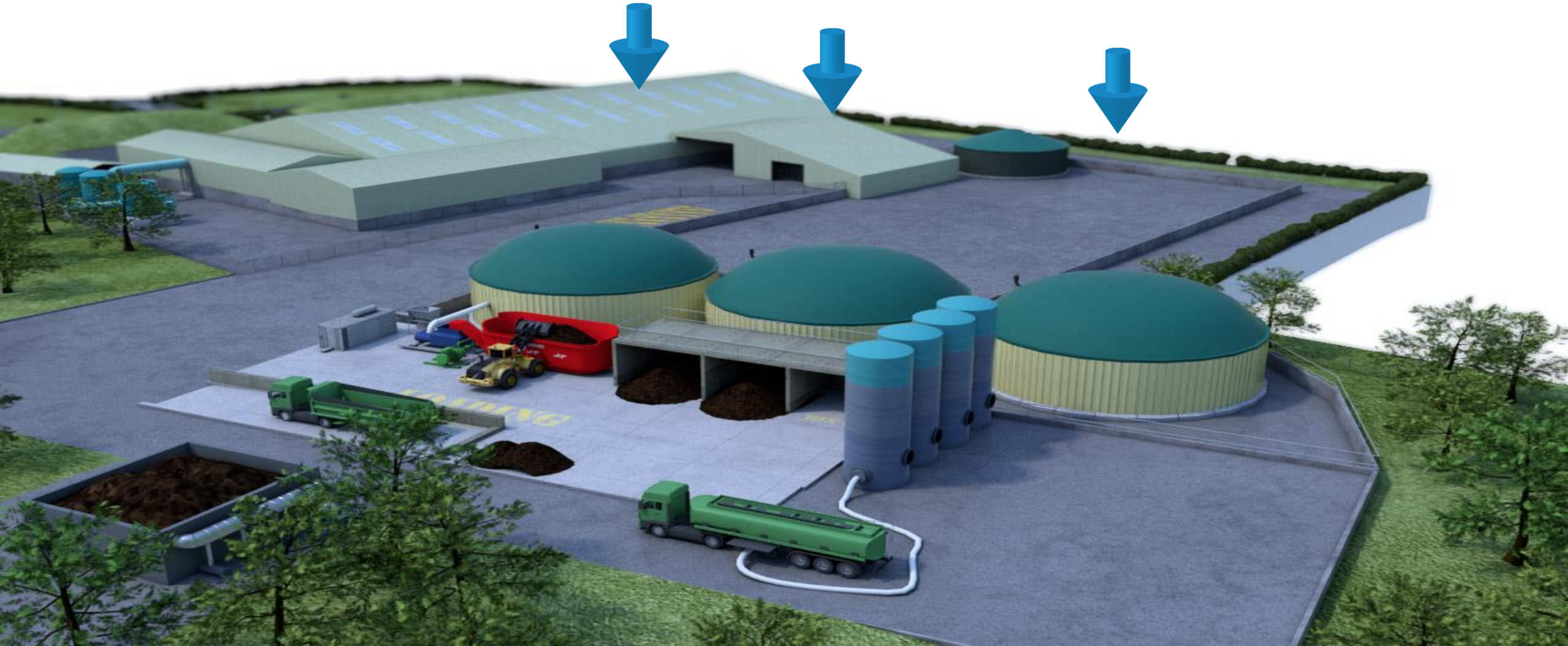
- Solid Feeding System to feed Anaerobic Digesters.
- Augers mix solid waste material & blend with liquid from digesters to achieve a pumpable feed.



# Intake of Liquid Wastes to Liquid Storage Tanks

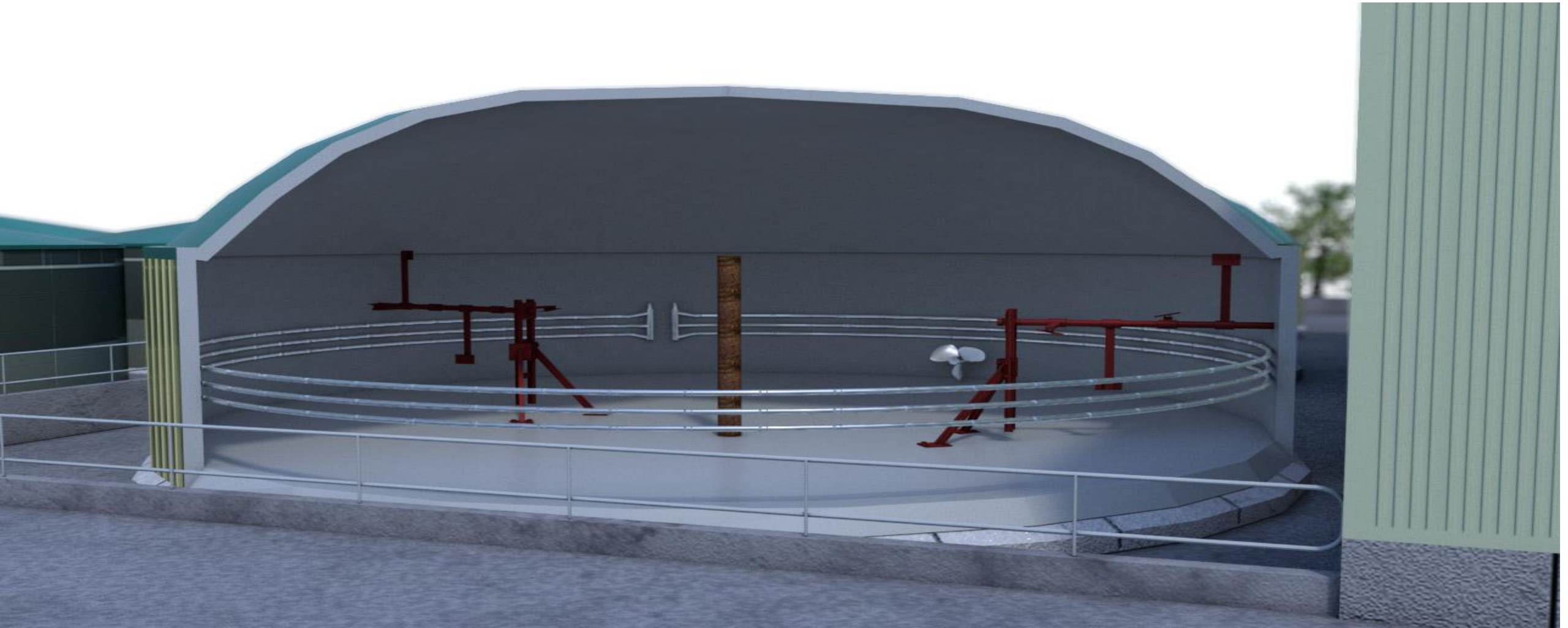
- Liquid waste is required to maintain the optimal dry solids content in the digesters, maximising biogas production

# Feed from Solid Feeding System & Liquid Storage Tanks to Primary Digesters, then to After Digester



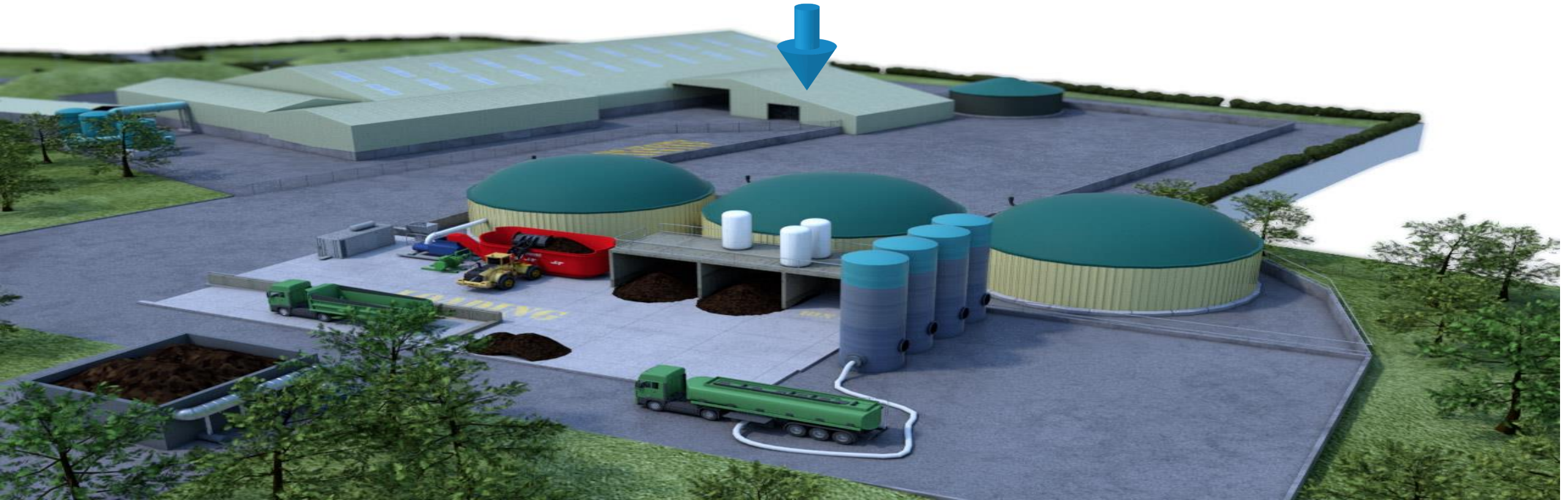
# Anaerobic Digesters – A Look Inside

- Rotary Paddles and wall mounted Propeller agitate the mixture.
- Heating coils, maintaining temperatures at circa 40 degrees Celsius.



# Digestate pumped from After Digester to Pasteurisation Tanks

- Pasteurised at 70$^{o}$Celcius for 1 hour, EU Standard.

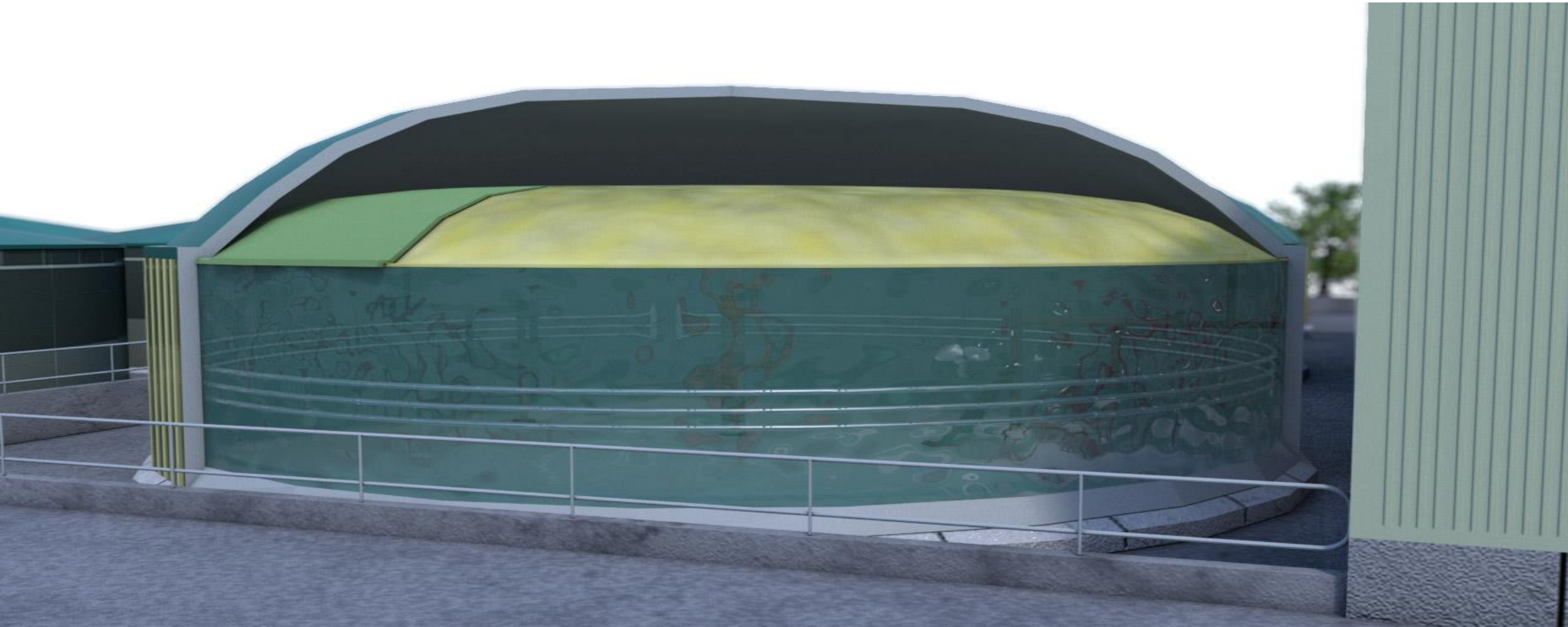


# Piped to Digestate Storage Tanks 1-5

- Stored and available for re-use in Agriculture & Horticulture.
- Digestate is an excellent fertiliser and can be used to supplement/replace the use of chemical fertilisers

# Anaerobic Digesters – Biogas Builds up

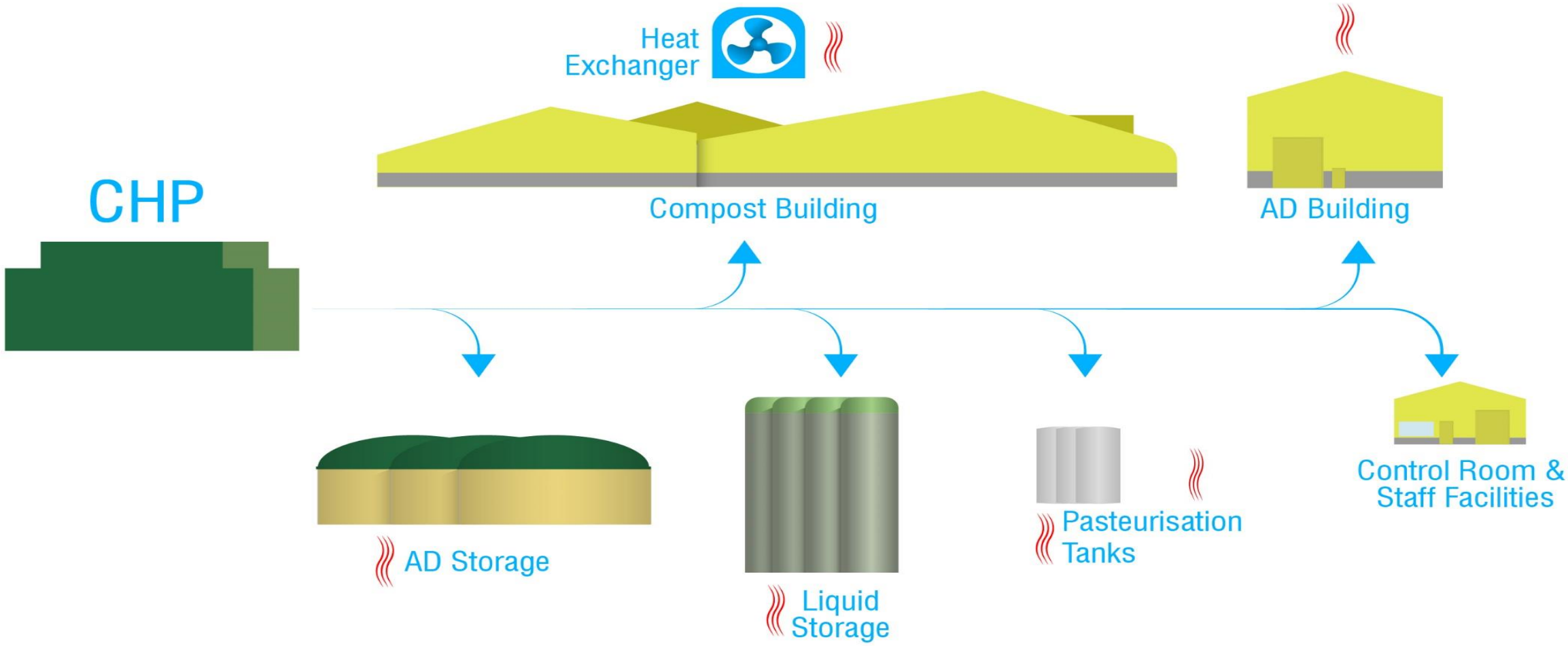
- Internal membrane rises and falls with levels of bio-gas.



# Biogas used as a fuel in a Combined Heat & Power (CHP) Engine & Upgraded to Biomethane on site

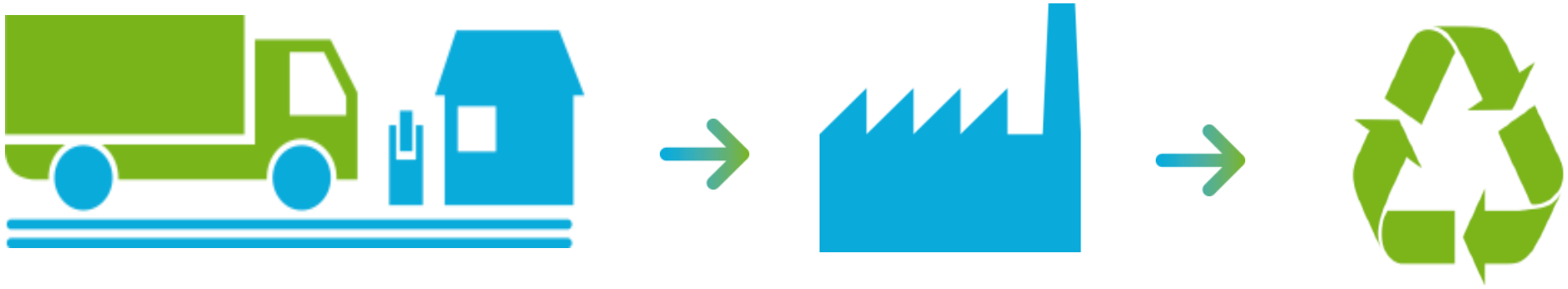
# Electricity generated from the CHP is exported to the National Grid

# Heat Generated from the CHP is re-used on site



# Upgraded Biomethane is transported off-site

- Provides an off-grid renewable gas solution for local customers
- Direct substitute for fossil fuels
- The Biomethane Upgrader was part of the Interreg NWE, RegEnergy Project



# Interreg NWE – RegEnergy Project

- Participated in the RegEnergy Project, which was supported by Interreg North-West Europe
- Worked in conjunction with the South-East Energy Agency on the project
- Developed a new off grid business model for biomethane
- Providing consumers seeking to decarbonise their energy needs with access to renewable biomethane
- Matching Rural renewable energy supply with Urban Energy demand
- Currently supplying Biomethane to Local Authority sites in both Kilkenny & Wexford

# Main Challenges to Anaerobic Digestion in Ireland

1. Approvals/consents required
2. Energy support scheme
3. Finance

# 1. Approvals/consents required

i. Planning Permission
ii. Environmental Licence
iii. Electric Grid Connection
iv. Gas Grid Connection

# i. Planning Permission

- Planning Permission is where detailed plans & particulars of a development are approved or refused by the Local Authority
- Environmental Impact Assessment Report required as part of the planning permission application

| Stage | Timeframe | Notes |
|---|---|---|
| Planning Authority | 8 weeks | This is a minimum. If a request for further information (RFI) is issued, then 26 weeks + is more likely |
| Appeal Window | 4 weeks | Third parties can lodge an appeal within 4 weeks of the Planning Authorities Decision. If no Appeal, the Final Grant of Planning issues |
| An Bord Pleanála | 18 weeks | This is a 'Statutory Objective, rather than a binding timeline. The average period taken by An Bord Pleanála is 52 weeks + |
| ***Total Time*** | ***Best Case: 12 weeks*** | ***Assumes no RFI or Appeal*** |
| | ***Medium Case: 34 weeks*** | ***Assumes RFI but no Appeal*** |
| | ***Worst Case: 60 weeks +*** | ***Assumes RFI and Appeal*** |

- **Our experience – from 12 weeks to 109 weeks**
- **Upfront costs €500k + (Binary outcome)**
- **If Planning Permission is not granted funds are lost**

# ii. Environmental Licence

- The Environmental licence is issued by the Environmental Protection Agency (EPA)
- The licence sets conditions on how the activity must operate to protect the environment from pollution
- The EPA is required to make a decision, on an application within a period of 4 months from the date of receipt of the application
- This period can be extended by the EPA – and in general is extended
- Average time for an Environmental licence to issue is currently in excess of 2 years
- Environmental Licence cannot be applied for until Planning Permission has been granted

- **Our experience – 85 weeks**
- **Upfront costs - €100k +**

# iii. Electric Grid Connection

- Connections are currently operated under the Enduring Connection Policy (ECP)
- ECP-2 is now open
- This is a single batch window for all applications Nationwide to connect the Electric Grid
- Planning Permission is required
- Target 100 connection offers – current batch
- Prioritisation of offers:
  - First 25 largest renewable energy generators
  - Remainder on earliest planning permission grant date

- **Our experience – 12 months (connected to Electric Grid prior to introduction of Enduring Connection Policy)**
- **Connection costs likely to be in excess of €1m**

| Stage | Timeframe |
|---|---|
| Application | 1st October - 30th November 2023 |
| Batch Formation | December 2023 - February 2024 |
| Batch Processing | March 2024 - February 2025 |

# iv. Gas Grid Connection

- The grid connection process is still being developed by grid operator – Gas Networks Ireland (GNI)
- We initially contacted GNI about connection of our on-site ‘Above Ground Installation’ in 2013
- Signed grid connection agreement in June 2023 – 10 years later
- This will be the first connection to the Gas Transmission Network in Ireland
- Planning Permission is required
- Connection process has commenced
- Completion timeline – Q4 2024

- **Our experience - 12 years**
- **Cost to date - €1.5m+**

# Summary – Approvals/Consents

- Process of securing all necessary approvals/consents is a lengthy & expensive process
- A number of the approvals/consents operate consecutively rather than concurrently
- There is no guarantee that you will be successful with any of the individual consents/approvals
- The site selection and location are essential, prior to commencing the process

# 2. Energy Support Scheme

- There are currently no suitable support schemes of scale in place for Energy produced from Anaerobic Digestion in Ireland
- Operating an Anaerobic Digestion facility on merchant energy rates is not viable
- The electric support scheme (REFIT 3) closed for applications in 2015
- Currently there is no Biomethane support scheme in place
- Lack of a suitable support scheme adds to the uncertainty when developing a project – as a minimum revenue level is not guaranteed into the future

# 3. Finance

- An Anaerobic Digestion facility requires a significant financial commitment to develop
- Lack of understanding of the Anaerobic Digestion technology by the mainstream banks in Ireland has led to a reluctance to fund projects
- The absence of a suitable energy support scheme is challenging, when seeking finance
- Alternative sources of finance need to investigated

# Conclusion

- The AD sector is in its infancy in Ireland
- Consumers are unable to easily access biomethane to meet their energy needs
- Approval/consent is required from a number of different Agencies & Authorities, making it a cumbersome, expensive and lengthy process to develop an AD plant
- National policies and frameworks are not fully developed/implemented
- Progress has been made in the last 12  months, but still a long way to go…….