



Hello!

Here's what we do...



Provide safe drinking water



Provide quality customer service



Reduce disruptions to water supply



Encourage customers to use water wisely around the home



Ensure there's enough water for now and in the future



Return cleaned wastewater safely back to rivers, lakes and the sea



Prevent sewer flooding affecting homes or gardens and local areas



Ensure sufficient wastewater treatment and drainage for now and in the future

What happens when you flush the loo?

Did you know...

Our Sewage Treatment Works range in size, from serving a handful of homes to hundreds of thousands of households, while our sewer network moves sewage through thousands of kilometres of pipes.

Household property



Commercial property



Sewage treatment works



Bioresources



Outfall: the outlet of a body of water e.g. a lake, river or the sea



What you flush and rainwater goes through a network of sewers (often built by the Victorians) to one of 500+ United Utilities Sewage Treatment Works.

Any solids are removed and separated into 'sludge' (which is essentially 'broken down poo'), that can then be used to generate energy or make fertiliser.

The wastewater is cleaned and returned to lakes, rivers and the sea.

The sewage cycle and the environment

What are the potential impacts of the sewage cycle on the environment?

Which are the most concerning to you?

What action, if any, do you think United Utilities is taking to protect the environment from these impacts?

What is Carbon Net Zero?

Net Zero is considered the most effective way that the world can reduce global warming and limit the impacts of climate change.

**Actions to
remove carbon**

For example: planting more trees

+

**Actions to
lower emissions**

For example: invest
in green technology

**Emissions of
greenhouse gases...**

For example:
from industry or cars

VS

Net Zero

Balance between amount of greenhouse gases produced and removed from the atmosphere

=

What we mean by...

Carbon Emissions:

Gases released into the atmosphere as a result of a chemical reaction that occurs as part of the treatment process.

Pollutants:

A substance introduced into the environment that has the potential to damage living things.

By-products:

Substances left over after a process has taken place.

1
Taking the
sewage
away

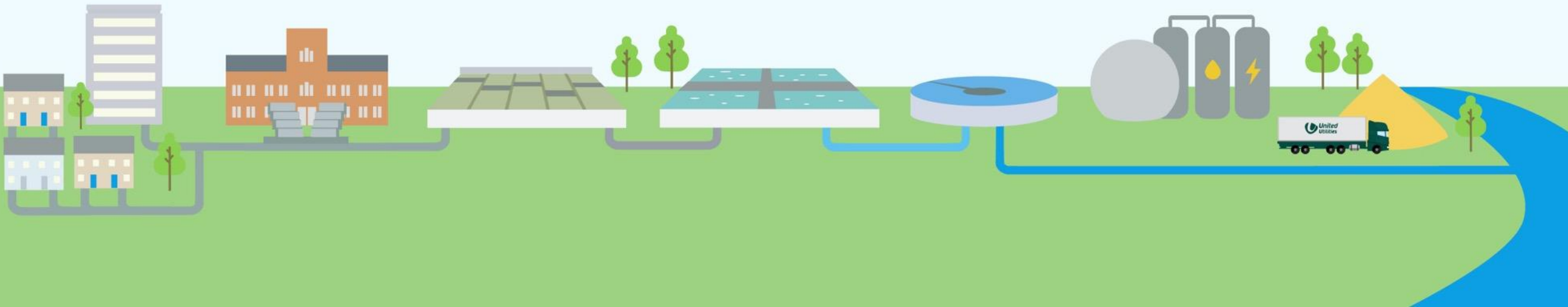
2
Screening the
sewage

3
Treating the
sewage

5
Generating
power and
products for
farming &
agriculture

6
Return
water to rivers
and solids
to land

The sewage treatment process



What emissions, pollutants and by-products are given off?

Thing we can use:

Co2

**Methane
(energy)**

Sludge

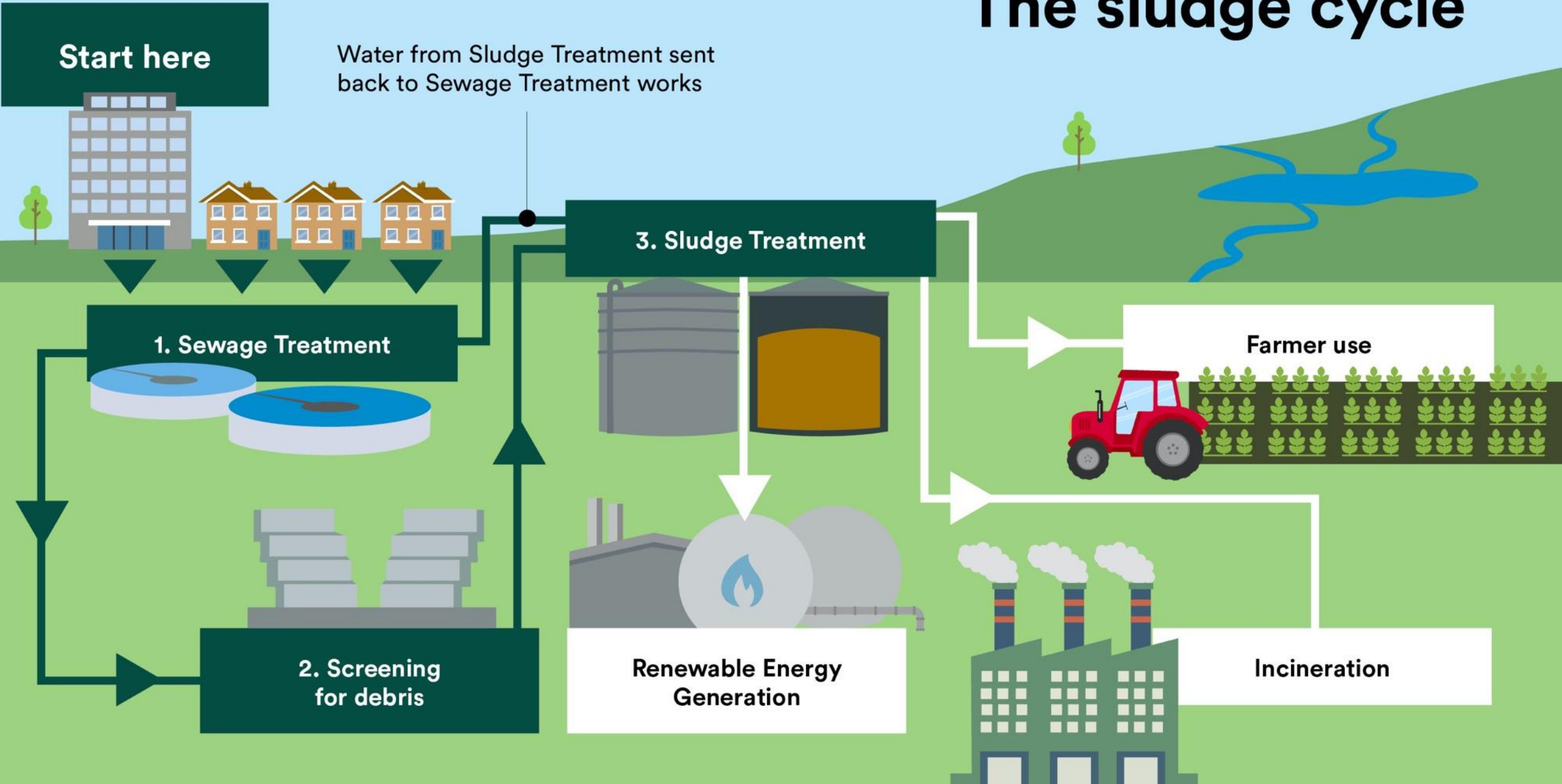
Waste water

**Nutrients
(Nitrogen &
Phosphorous)**

Thing we need to get rid of:

Microplastics and bacteria are within sludge and can't be separated. Screening takes out this unusable material (about 5%) and this goes to landfill. This means that 95% of the sludge is recycled.

The sludge cycle



A

Anaerobic Digestion (current process)

Wastewater Treatment

Sludge is produced

Sludge Treatment

Anaerobic Digestion



Electricity generated

Storage of Biosolids

Use on crops



Sludge transported to a sludge treatment centre



Small sites



Transport Biosolids to farms



B

Advanced Anaerobic Digestion (current process)

Wastewater Treatment

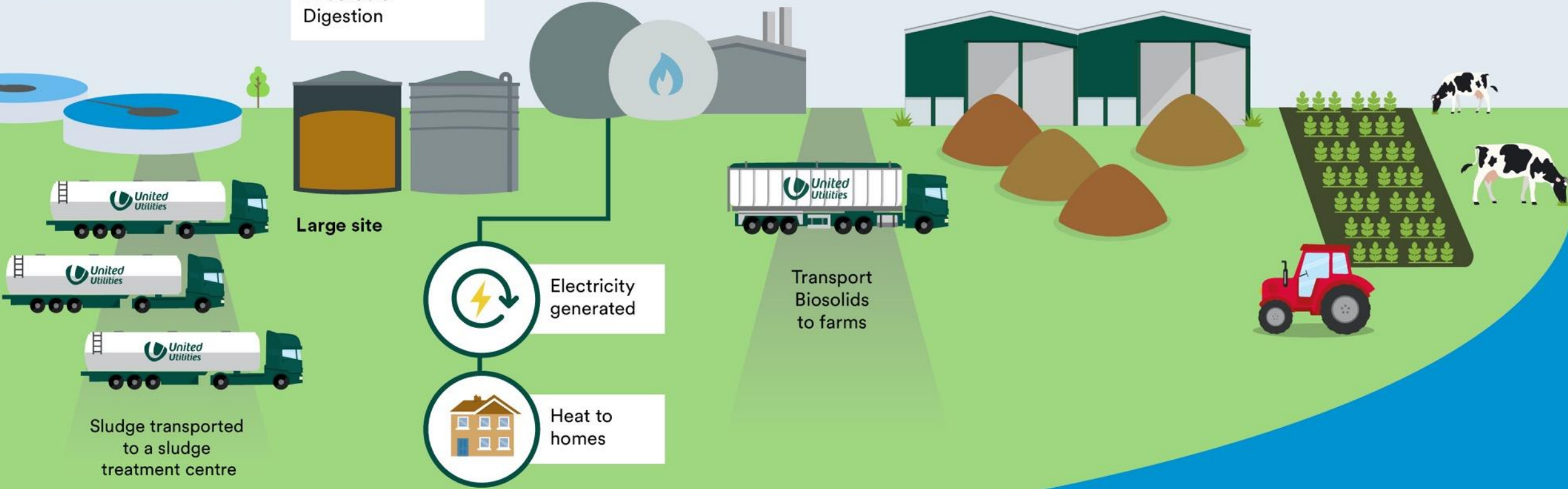
Sludge is produced

Sludge Treatment

Advanced Anaerobic Digestion

Storage of Biosolids

Use on crops and grass





AAD + Incineration

Wastewater Treatment

Sludge is produced

Sludge Treatment

Advanced Anaerobic Digestion

Storage of Biosolids

Incineration & landfill

Large site

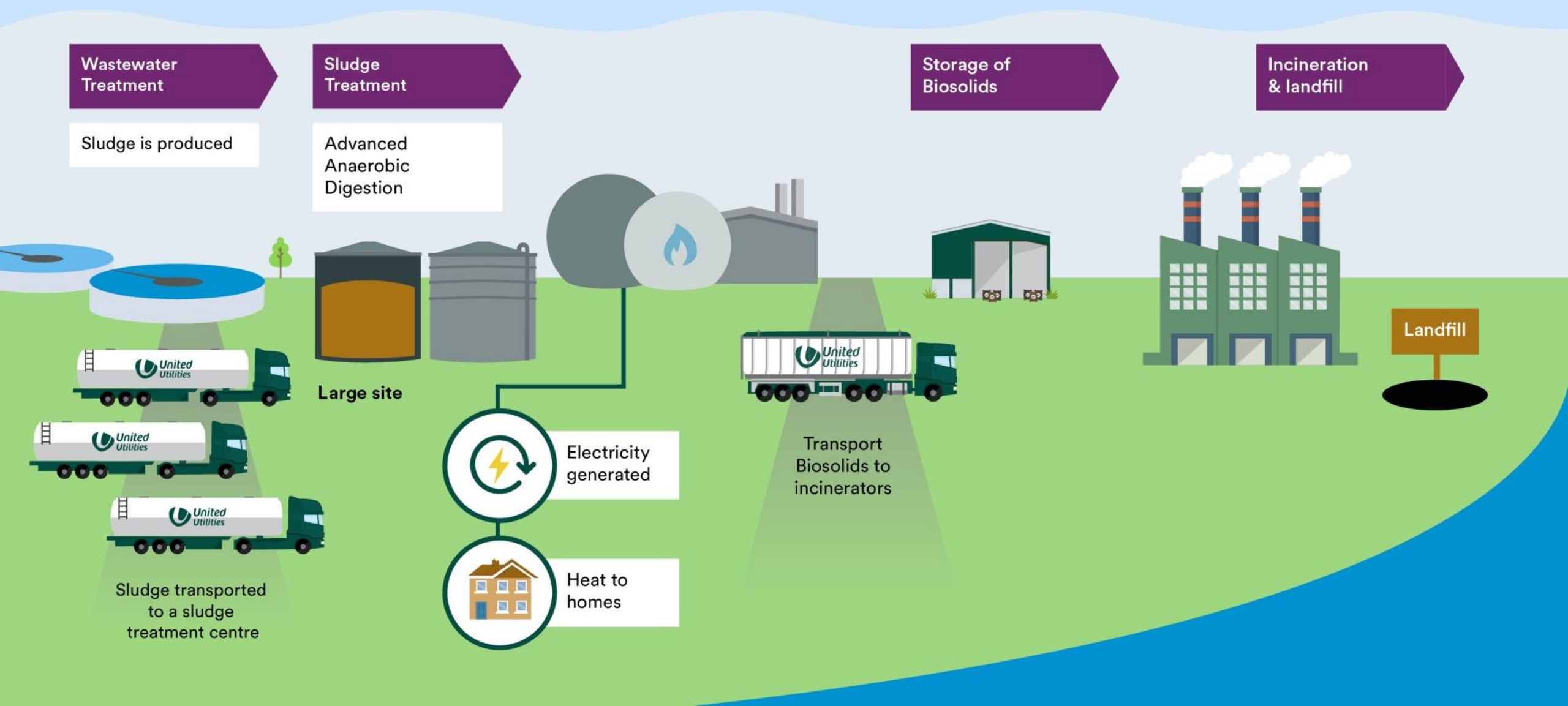
Electricity generated

Heat to homes

Transport Biosolids to incinerators

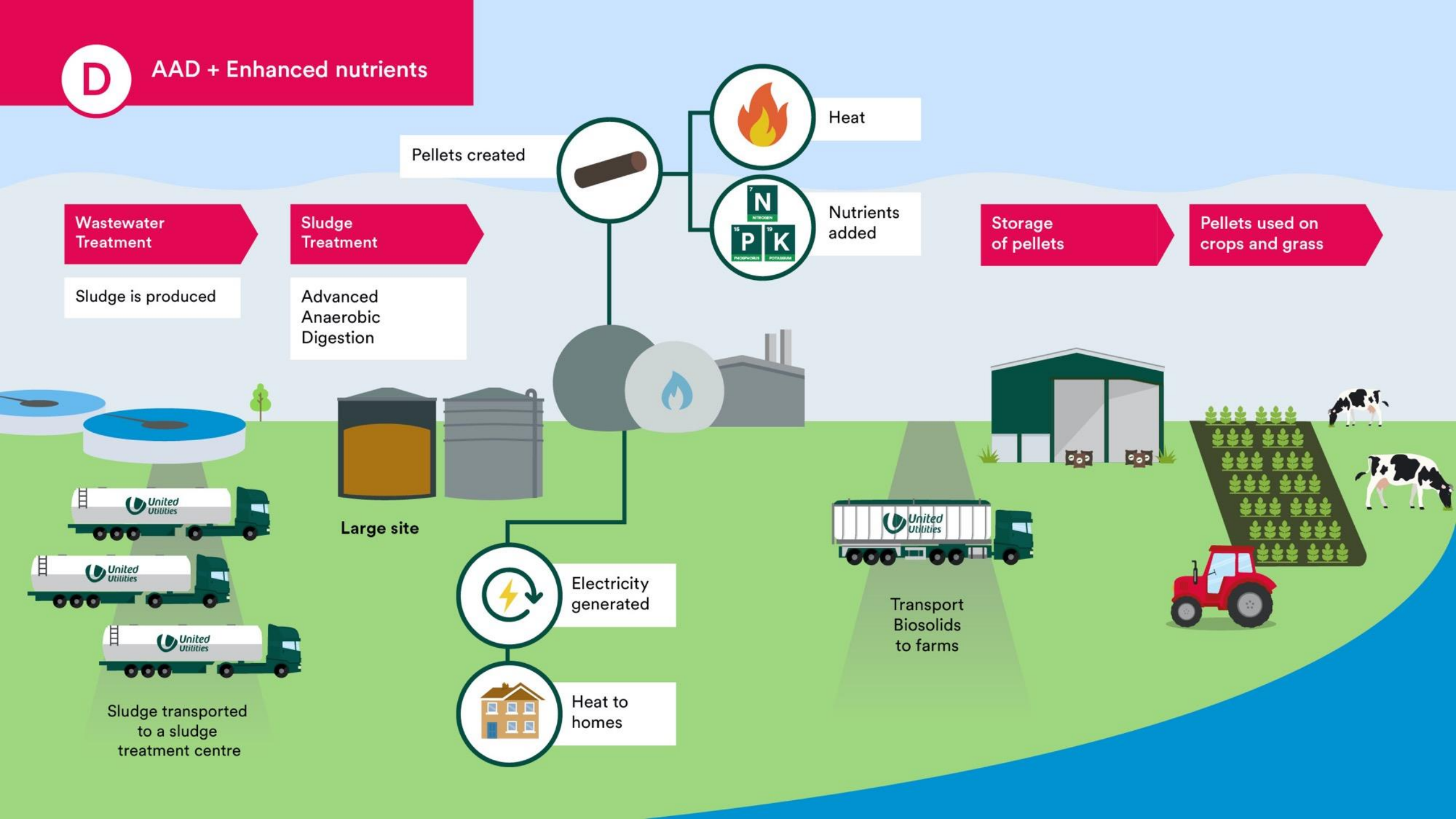
Landfill

Sludge transported to a sludge treatment centre



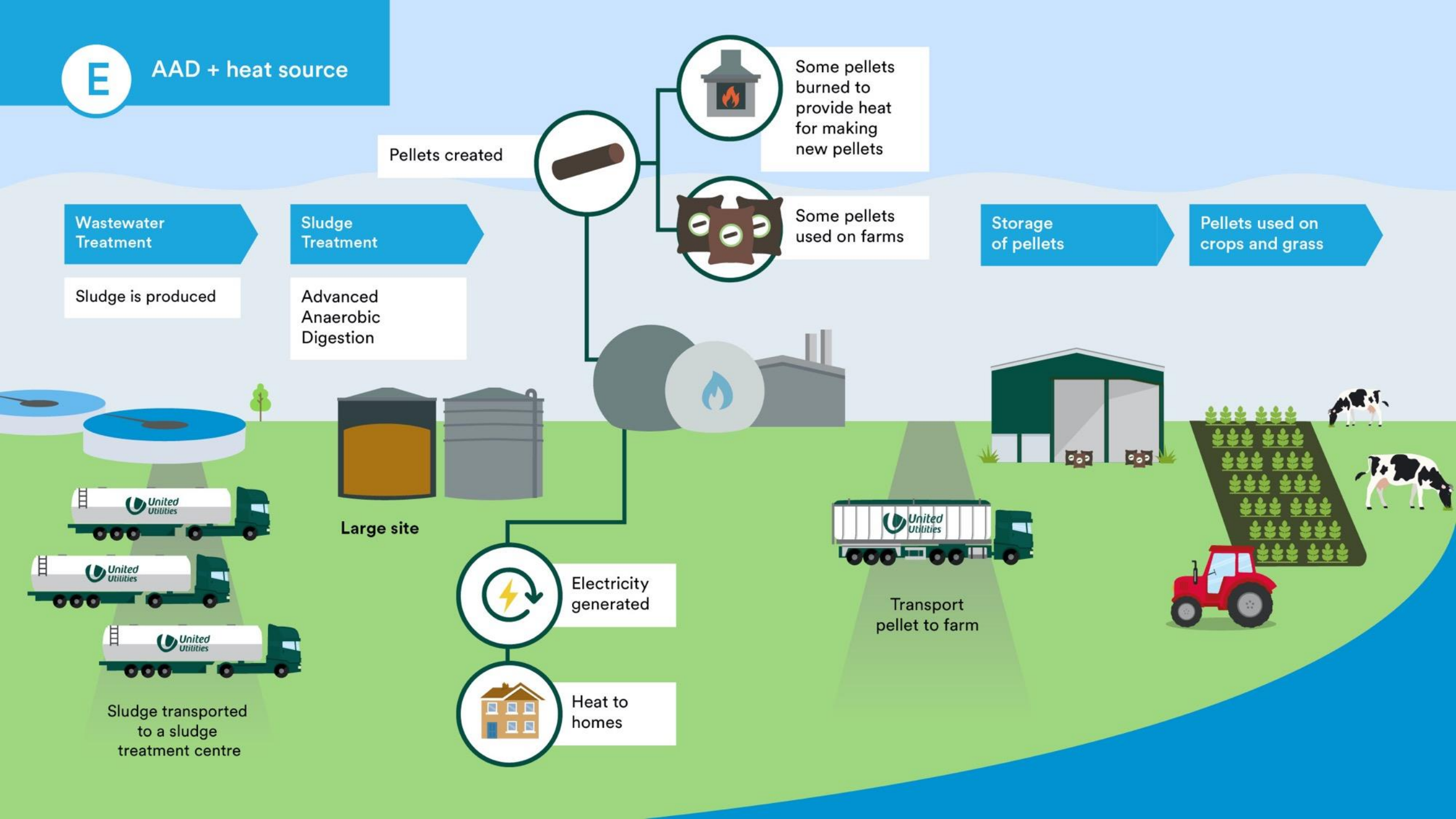
D

AAD + Enhanced nutrients



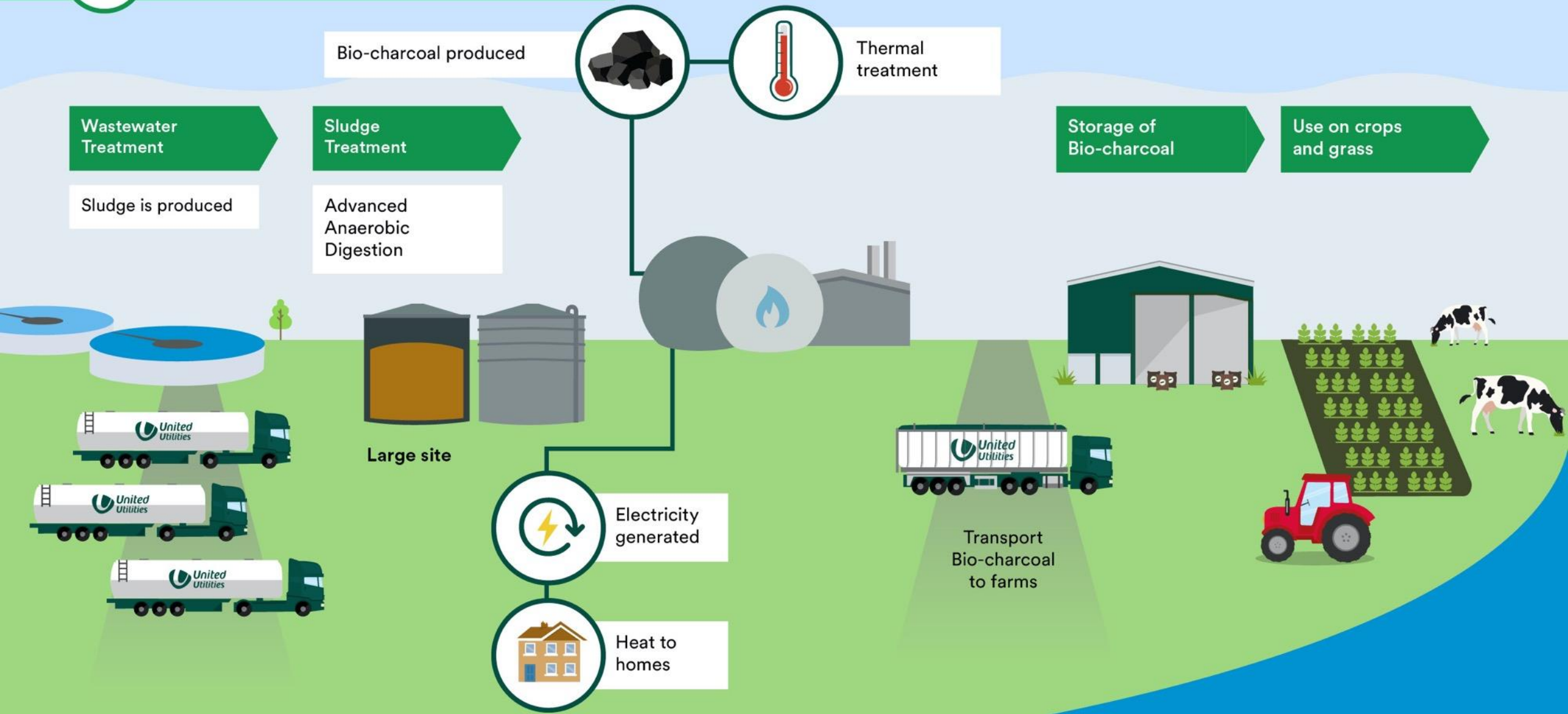
E

AAD + heat source



F

AAD + Advanced thermal treatment



Pros & cons report: commissioned for United Utilities Board of Directors

Carbon footprint

Trucks on the road

Storage space

Risk of contaminating land & rivers

Impact on air quality and pollution

Farmer use

New technology