Bio-Resources – Strategy & Aspirations

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Challenges we face

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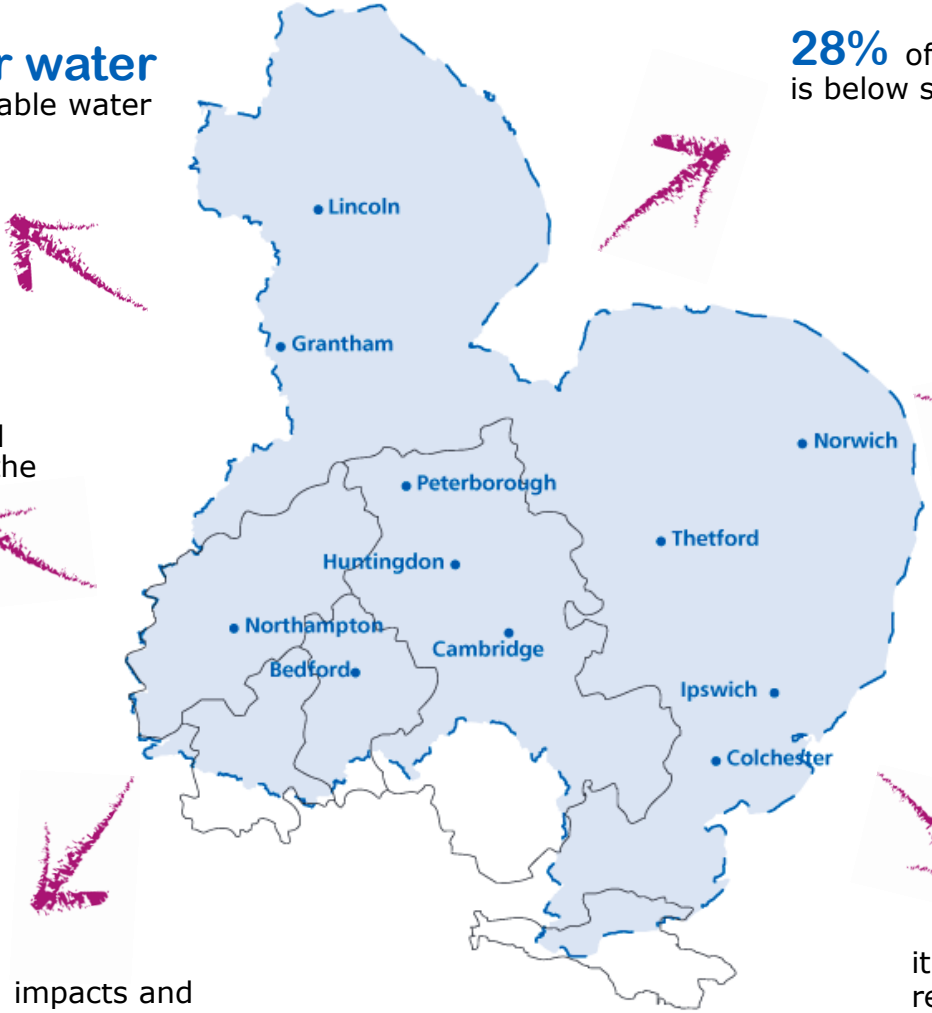
demand for water
will rise but available water won't

28% of the region is below sea level



population is expected to rise – around 1m homes to be built in the next 25 years

as a low-lying region there is a high use of energy to pump water around the region

Climate change impacts and uncertainty

it is the **driest** region in the UK

ANGLIAN WATER CARBON STORY

2006 CHALLENGES
CLIMATE CHANGE & POPULATION GROWTH

2006 RESPONSE
Energy Initiative launched promoting action in energy efficiency.

2007 STRATEGY
Measurement and Baselining
Capital and operational carbon for the 2010-2015 business plan.

80% of emissions are in the concrete, steel and site construction

Operational Carbon

Capital Carbon

2008
Anglian Water takes **leaders** from its supply chain to the MayDay Summit - Action Pledged.

2009
TARGETS
Back to back with the supply chain.
£2 billion programme.

Deliver a 50% reduction in capital (embodied) carbon by 2015 from a 2010 baseline

Exceed a 10% reduction in real terms in gross operational carbon by 2015 from a 2010 baseline

2010
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Water Innovation Network Launched Challenging **SMEs** in response to the carbon challenge.

2011
Bedford Water Recycling Centre

2012
SUPPLY CHAIN
Collaboration and engagement in meeting the carbon challenge.

GOVERNANCE
Capital and operational carbon challenged against baseline prior to construction.

SUCCESS
Aligning the Supply Chain
- **66%** reduction in capital carbon
- **170%** reduction in operational carbon
- **43%** reduction in capital costs

Awards - Promoting positive behaviour in our supply chain

2013
REDUCE CARBON REDUCE COST

ICR
HM Treasury Infrastructure Carbon Review
Aimed at leaders to deliver carbon and cost reduction. Through the Green Construction Board, Anglian Water at the heart of this document.

2014
Proud recipients of the **Queens Award** for Enterprise: Sustainable Development

2010 TARGETS DELIVERED
- **Exceeded 10%** reduction in operational carbon in real terms
- **54%** reduction in capital carbon

2015
EXEMPLAR PROJECT
- **Saved 7,302t CO2e**
- **Saved £1.4m**

This project bought together the learning of the past five years. From early design collaboration with operations and the supply chain, to using innovative materials, off site build and zero material removed from site, faster delivery and zero accidents.

UPDATED TARGETS
Deliver a 60% reduction in capital (embodied) carbon by 2020 from a 2010 baseline

Exceed a 7% reduction in real terms in gross operational carbon by 2020 from a 2015 baseline

Low carbon concrete

Cambridge Water Recycling Centre

INNOVATION
Through zero cement concrete. 60% carbon reduction in the base slab.

PAS2080
Carbon management in infrastructure. Anglian Water the first company to be verified globally. Next step PAS to ISO.

2016

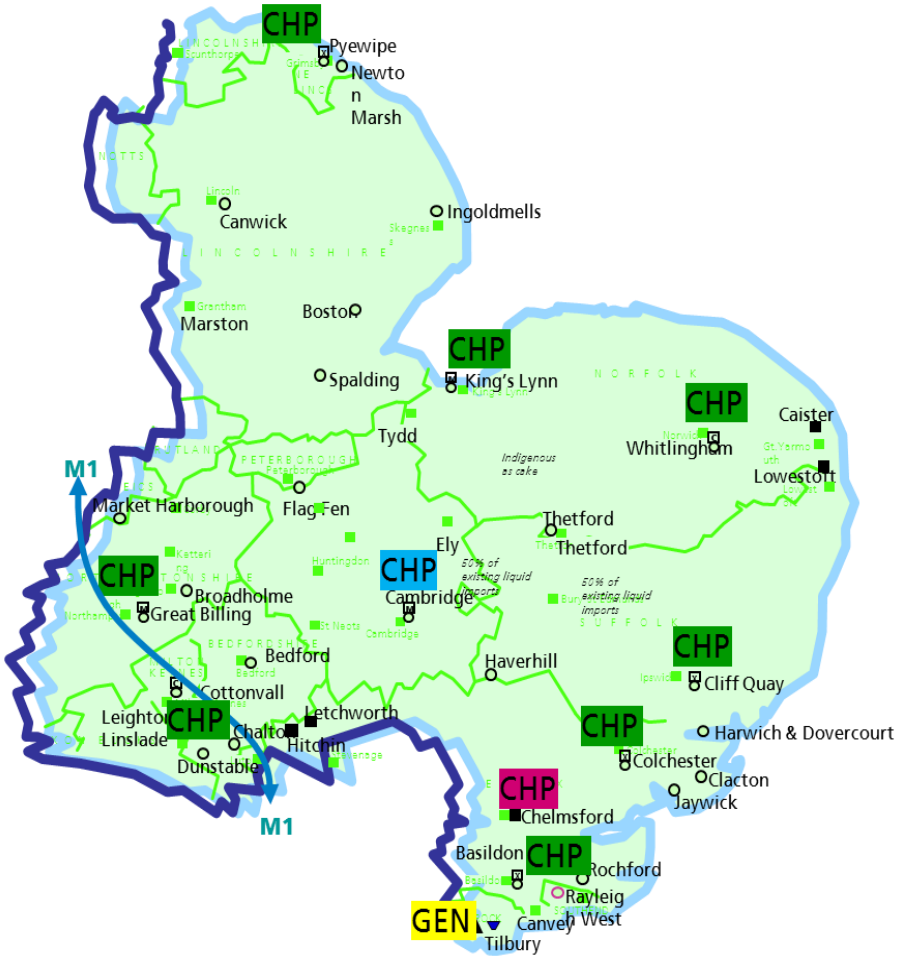

First large scale solar installations. Contribute towards renewable energy from biogas and wind

2017
NEW TARGET
CARBON NEUTRALITY BY 2050

Bio-Resource Strategy Overview

- Our strategy is to treat all raw sludge to the higher enhanced treated standard by 2020, minimising risks to agricultural outlets and reducing the volume of solids to be recycled
- Product recycled to agriculture under the Biosolids Quality Assurance Scheme (BAS) as a soil conditioner providing valuable nutrients and organic matter to farmland
- In developing our current strategy from 2005, advanced anaerobic digestion technology was judged a clear winner compared with alternatives as it provides maximum solids destruction and reliably achieves enhanced treated quality
- Maximising solids destruction increases biogas yields and improves business case for renewable power generation and supports our wider renewable energy and carbon goals
- Future ambition is to maximise performance of our existing asset base and where appropriate supplement the process with new emerging technology that allow us to maximise energy recovery from bio-resources and maintain a strong outlet for the recycling of other residues and products as a result of treatment

Our Bio-Resource Treatment Sites

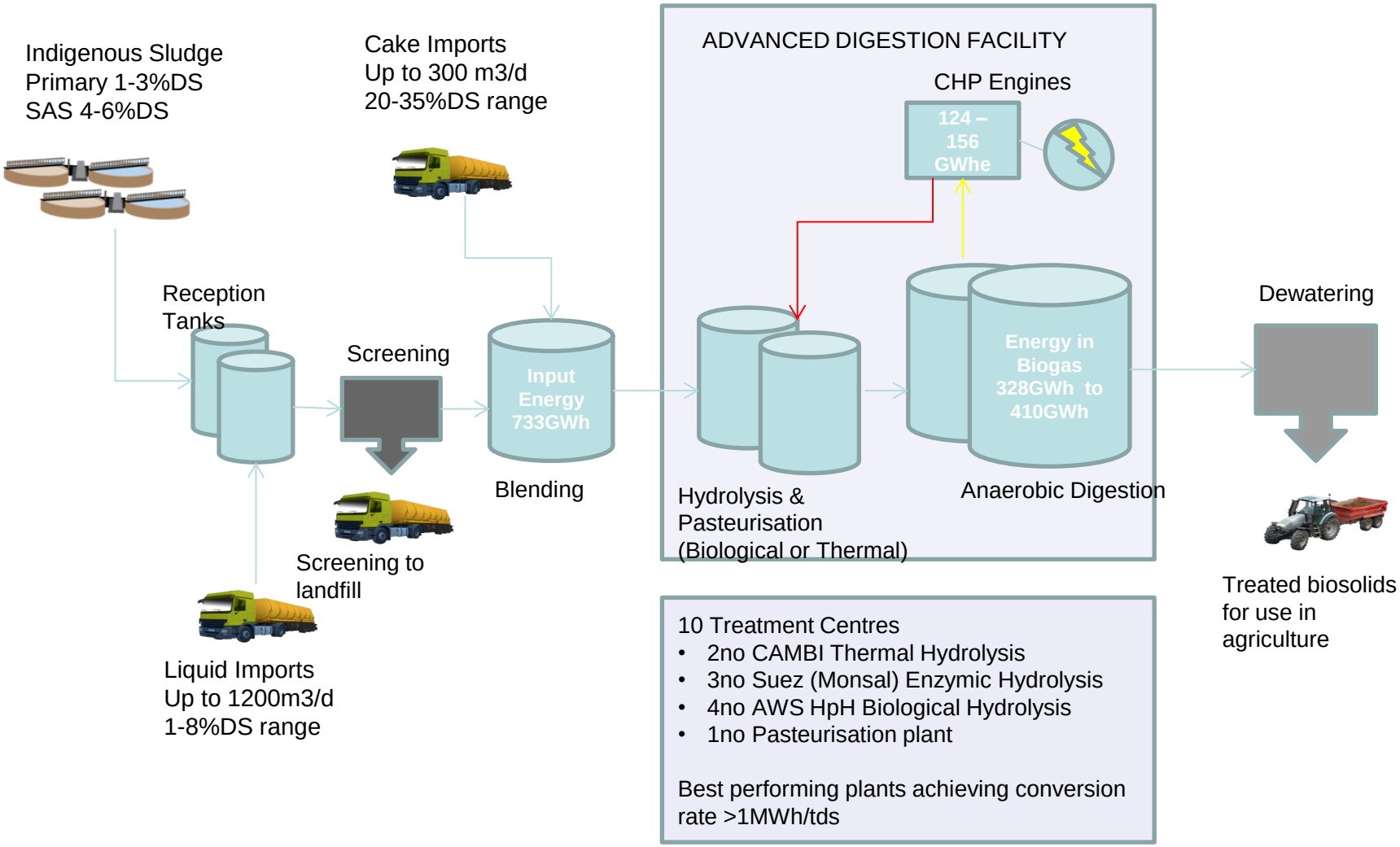


CHP Fleet

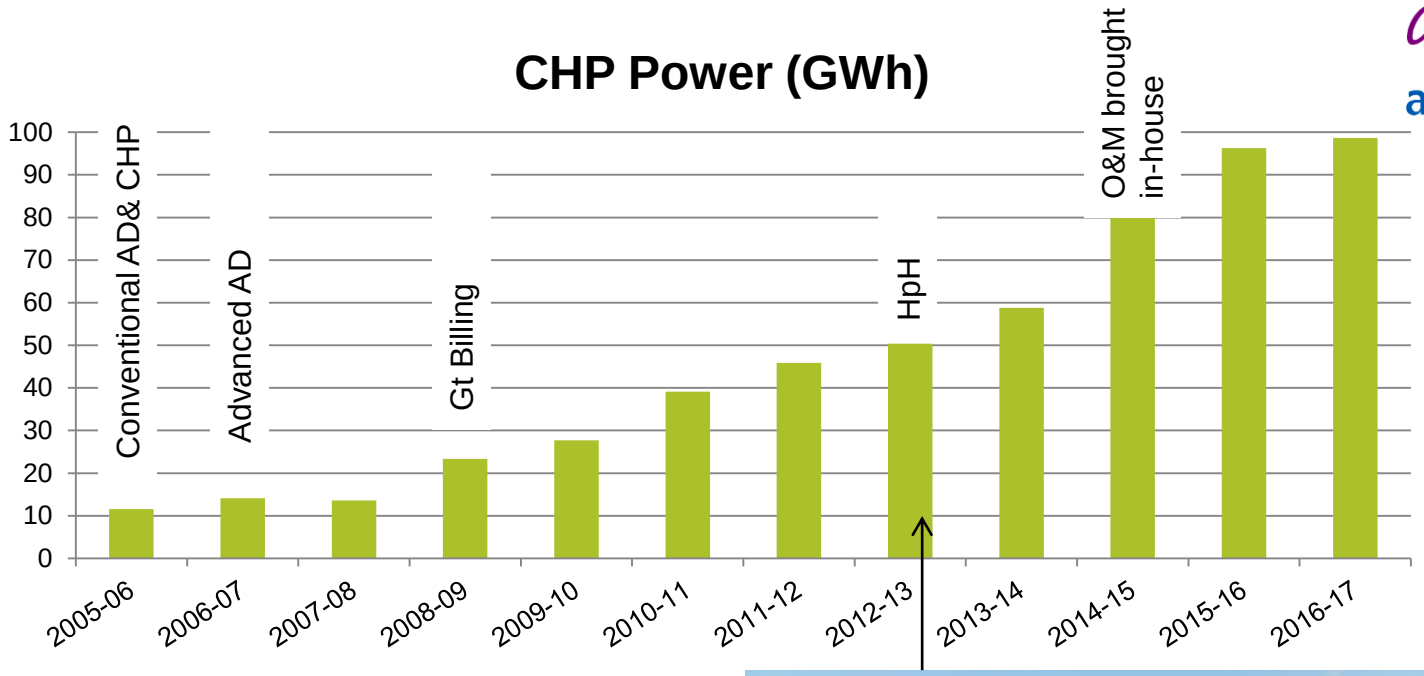
Pyewipe
2No. 1.2MWe MWM
Kings Lynn
2No. 1MWe Jenbacher
Great Billing
3No. 1.4MWe Jenbacher + 1No. 1.5MWe MWM
Cottonvalley
1No. 1.75MWe Cummins + 1No. 0.65MWe CAT
Whitlingham
1No. 1.75MWe Cummins + 1No. 1.2MWe MWM
Cambridge
1No. 0.6MWe MWM + 0.34MWe MAN
Cliff Quay
2No. 1.2MWe MWM
Colchester
2No. 1.2MWe MWM
Chelmsford
2No. 0.37MWe Perkins
Basildon
2No. 0.6MWe MWM

Bio-Resources Treatment

Typical Flow sheet



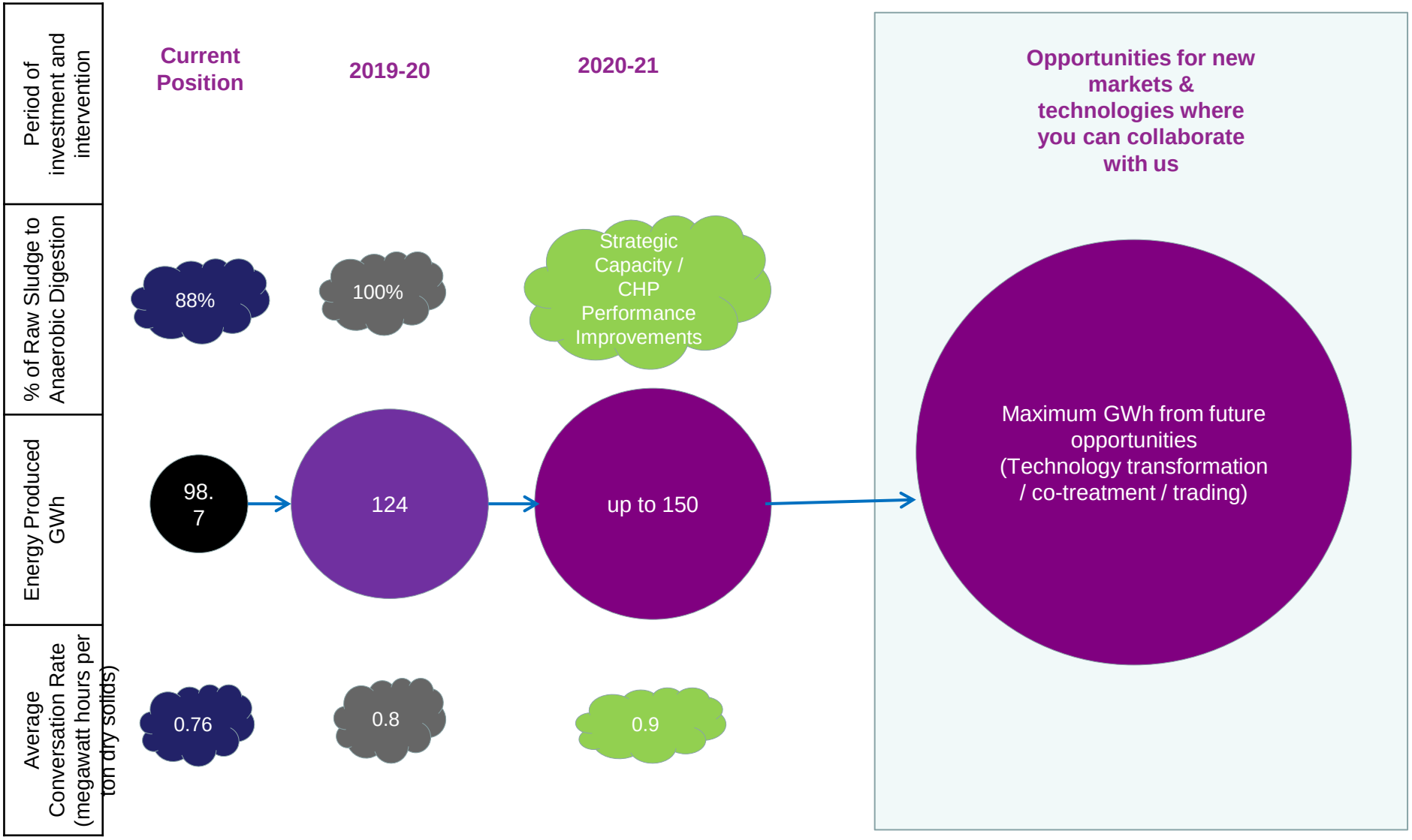
Renewable Generation



Winner
UK AD & BIOGAS
INDUSTRY AWARDS 2015
Innovation in sewage treatment through AD
Sponsored by Edina

Energy from Bio-Resources

Here is a visual of Anglian Water's current output from Combined Heating Power (CHP) and the plans for 2021 and beyond.



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