

2024

**CORY RIVERSIDE ENERGY INCINERATION PLANT**



Field Report  
Environment Management  
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## Introduction to the Facility:

When an individual throws waste in the General Waste bin, instead of putting it in the recycling ones, then companies like Cory come forward to prevent it from going to the landfill and take charge of its proper disposal. The Cory Riverside (CRE) Incineration plant is the company's second Energy-from-waste (EfW) plant which is one amongst the largest facilities in the UK. It is in Norman Road North, Belvedere, East London beside the Thames River.

This plant was established in 2011 by Cory Environmental and Riverside Resource Recovery. As per (King's Sustainability, 2023), the plant collects waste from stakeholders, generates electricity by steam produced from incineration of the non-hazardous and non-recyclable waste.,

As per the Annual Report from Cory Group (2022), 77,000 tons of recyclable garbage were sorted, 969,000 tons of non-recyclable waste were processed to keep it out of the landfill, 258,000 tons of carbon were prevented from emission to the environment by preventing landfill dumping, 565-gigawatt hours of electricity was produced (which is enough to power 195,000 households) and a GRESB (Global Real Estate Sustainability Benchmark) score of 98/100 was achieved which marks an outstanding level of environmental, social, and governance performance.

## History of the Site:

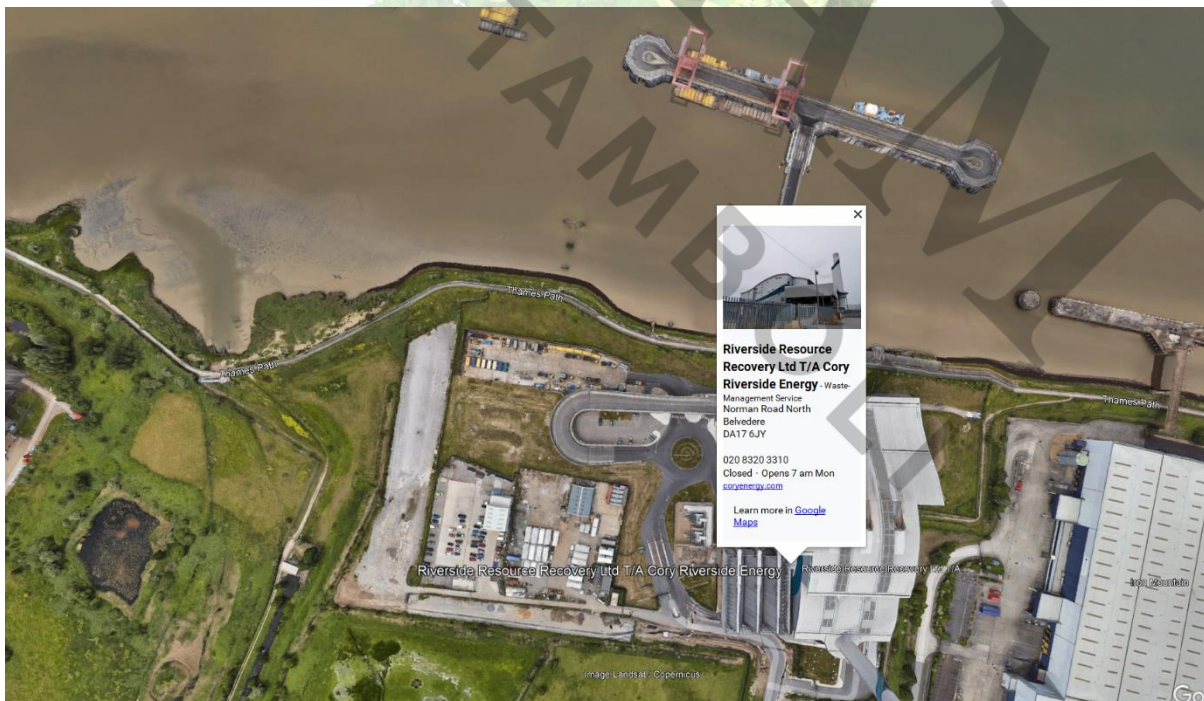


Fig-1: Riverside Resource Recovery Ltd T/A Cory Riverside Energy. (Google Earth, 2024)

As per the History section of Cory Group (2024), the CRE is situated in Belvedere in the London Borough of Bexley, spanning over an area of the 6-hectare site which was formerly occupied by the chemical company Borax Industries. It was constructed to switch from landfills to more environmentally friendly waste treatment techniques in place of Cory's Mucking Landfill, which was closed in 2010.

Geographically, the facility is located on the south bank of the river Thames. The plant adds to the mix of residential, commercial, and industrial uses in Lower Belvedere, making up a sizeable portion of the area's industrial environment. Since waste is mostly transported by river to the facility, this site is strategically important for waste transportation and supports the plant's environmental objectives of reducing the amount of waste transported by road and its corresponding carbon footprint. (Power Technology, 2024).

## Design of the Facility.

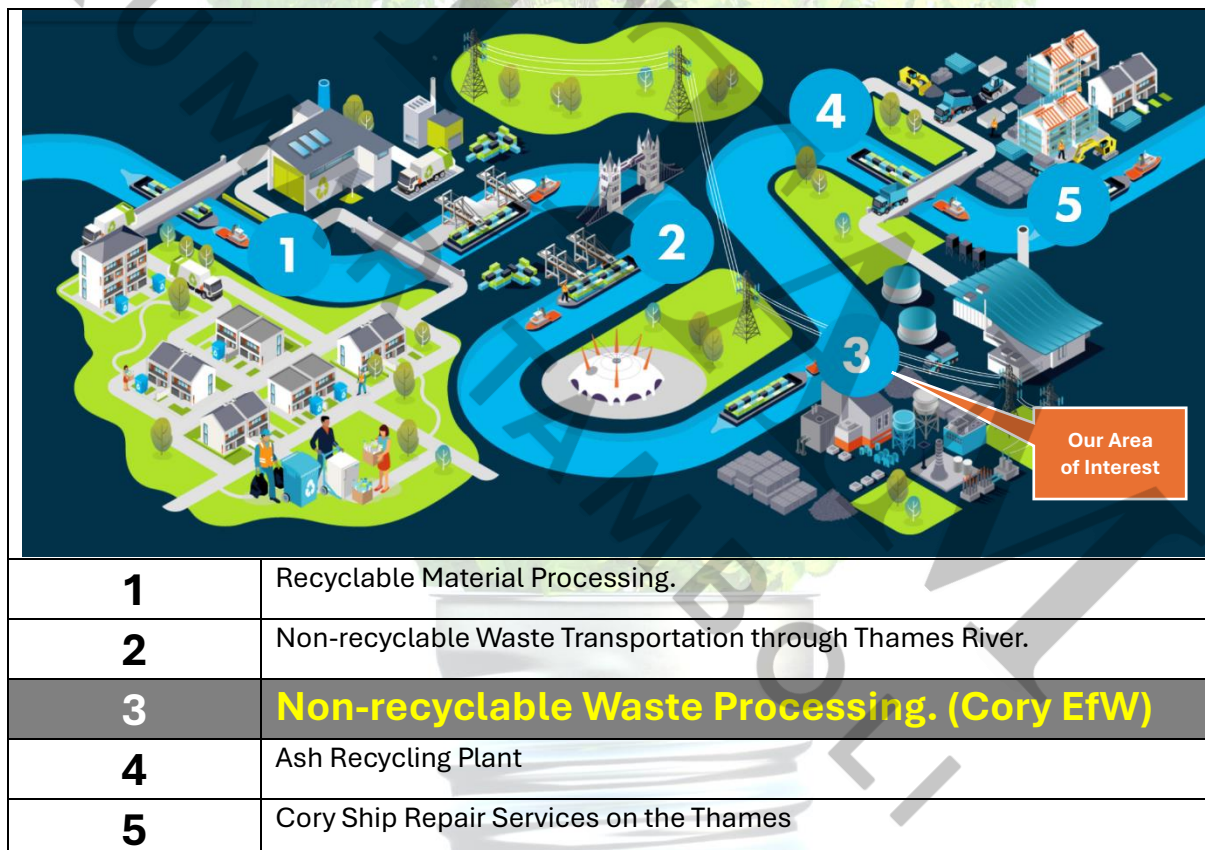
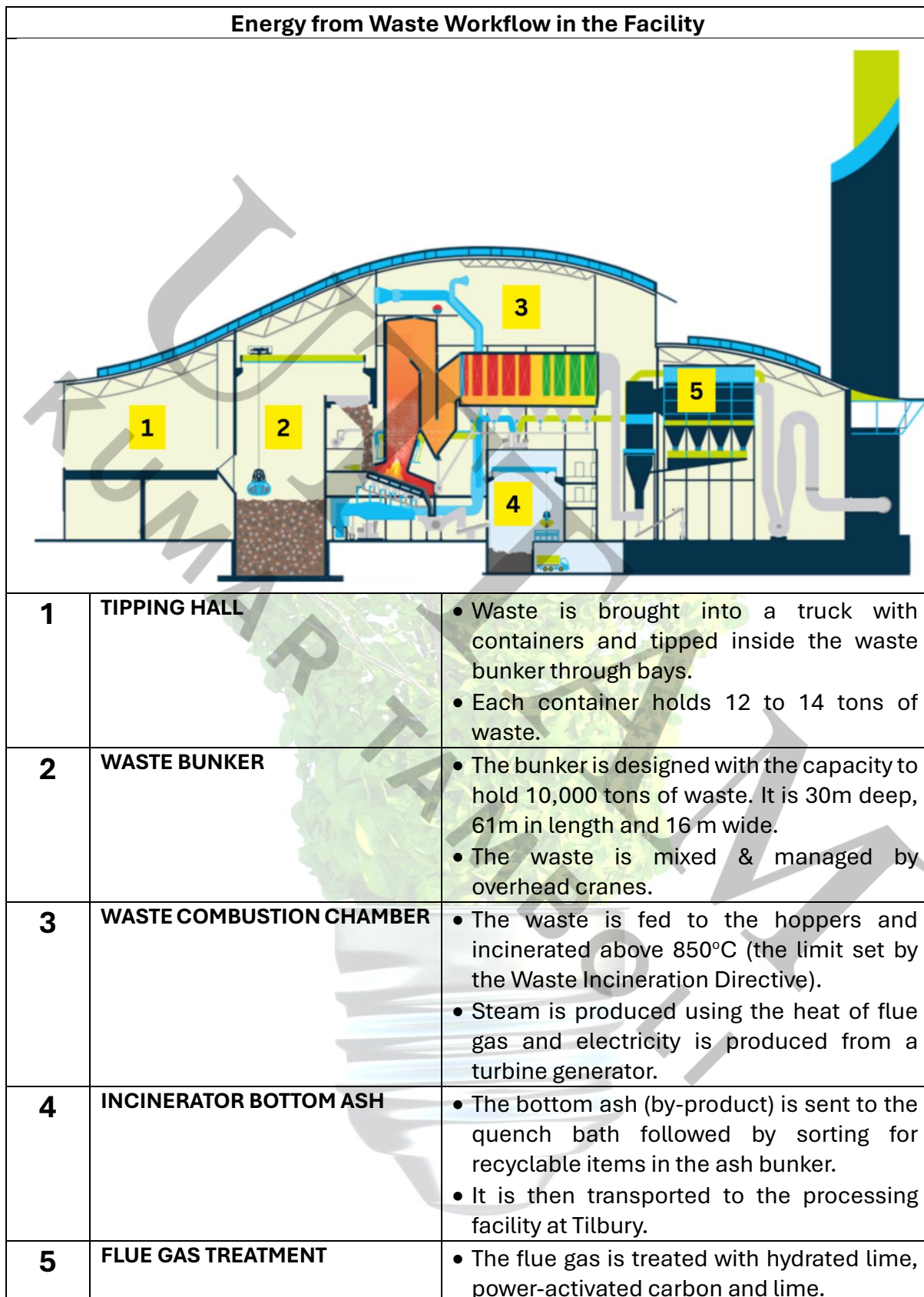


Table-1: Cory Group Operation Overflow. [Infographic: Cory Group (2024) What We Do]

The Riverside Energy from Waste (EfW) Facility has been rated R1 in operation since 2011 which is a Waste Framework Directive Efficiency classification of Recovery This rating is important for them to be classified as a waste recovery facility instead of a disposal facility. In terms of waste incoming, around 85% of waste is brought to the facility through

four river transfer stations, 10% comes from the local borough located in Bexley and the rest is brought through commercial vehicles directly to the site.



		<ul style="list-style-type: none"> <li>• It is then sent to a fabric bag filter to trap the APCR and pass through clean gas.</li> </ul>
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Table-2: Workflow of Cory Riverside Incineration Plant. (Infographic: At a glance section of Cory Group (2023))

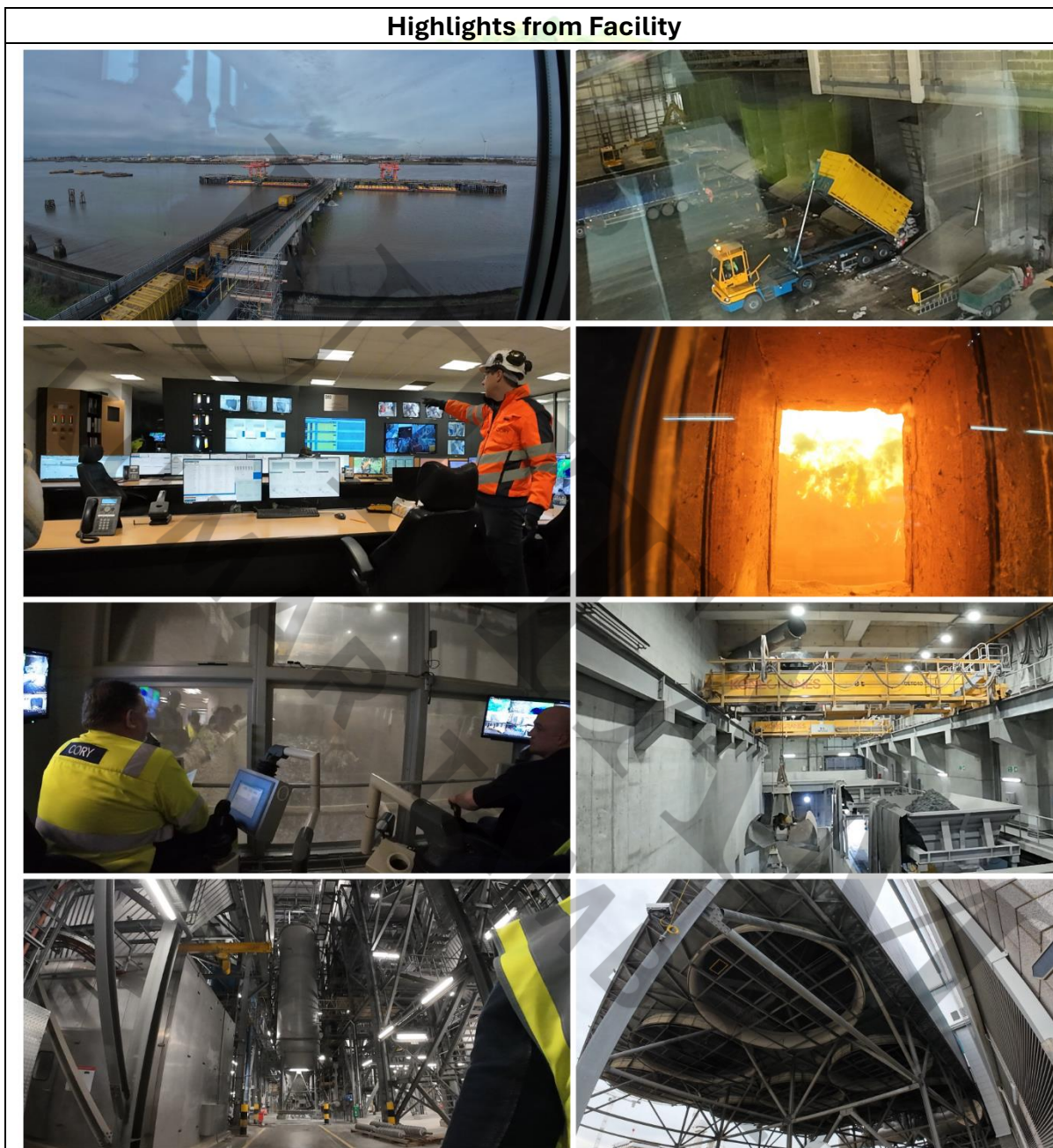


Table-3: Photographs of Cory Riverside Facility. (Primary Images by Author, 2024)

## Policies & Legislation Affecting the Facility

### Hike in Landfill Tax:

As per the (HM Revenue & Customs, 2022), the last ten years have seen an annual increase in Landfill Tax rates; the normal rate charged went from £72.00 per tonne in April

2013 to £102.10 per tonne in April 2023. This was implemented by the UK government to encourage the diversion of waste to other waste management practices than landfilling. This significantly affected the demand for the CORY Incineration Facility.

## Bexley's Climate Change Statement and Action Plan 2022 to 2026:

The London Borough of Bexley have mentioned in their Climate Change Statement that they are and will not send their waste to landfills which facilitates the existence of EfW facilities like CORY. (London Borough of Bexley, 2022),

## Environmental Permitting Standard Rules:

As per the (Environment Agency, 2023), CORY must strictly follow standard operating procedures, such as secure waste disposal, particulate matter emission control, vibration, and noise reduction etc.

Apart from this, it is also a must for CORY to adhere to compliance with Environmental Permitting Regulations (England and Wales) 2010, as amended, which incorporate the EU directive 2010/75/EU (the Industrial Emissions Directive) applicable to England and Wales. (Department for Environment, Food & Rural Affairs, 2015)

## Alternatives & Comparisons:

As per the (U.S. Environmental Protection Agency, 2023), in terms of waste treatment, non-recyclable & inorganic waste is not suitable for anaerobic digestion. In that case, the only alternative left for their disposal other than Incineration is landfilling. However, as per the Sustainability Report Cory Group (2022), the CORY Incineration plant produces nine times more energy per tonne of waste while saving 200 kg of carbon compared to landfilling thereby explaining its efficiency in cutting carbon emissions.

In terms of generating electricity, as per the What We Do section of Cory Group (2024), the facility generates electricity to power 195,000 homes from incineration of waste which is a comparatively less environmentally destructive method than fossil fuel-based production.

## Environmental Impacts & Mitigation Measures:

As per Cory Group (2024), the following are the environmental impacts produced by incineration plants and the actions taken by CORY to address them:

### Noise, Bad Odor, Flue Gas & Air Pollutants:

The doors of the tipping bays are equipped with hydraulically operated doors to minimize odour and noise during waste tipping. Moreover, the waste bunker is kept under negative pressure and the deodorizer is sprayed to control odour. Furthermore, Cory uses

Recycled Air Pollution Control Residue (APCR) from the Flue Gas Treatment chamber to make building materials like cinder blocks.

## Water Consumption:

CORY consumes the town's main water supply for its operations. Hence it makes sure to use the air-cooled condensers to convert the steam from the boiler back to water followed by demineralization and treatment to guarantee its purity. It is then recirculated through the system to ensure maximum efficiency.

## Risk of Combustion

The negative pressure also prevents fire accidents and heat rise in the Waste Bunker. Any hotspots over 90 degrees Celsius are detected by thermal cameras and water cannons are activated automatically if it occurs.

## Bottom Ash

The bottom ash is used to make tarmac for roadways, breezeblocks, and landfill capping. Moreover, Air Pollution Control Residues.

## Completed & On-going Initiatives:

CORY follows the five-step Waste Hierarchy implemented by the European Union in 2008. (European Union, 2024)

Stages	Include
 <b>Prevention</b>	Using less material in design and manufacture. Keeping products for longer; re-use. Using less hazardous materials.
 <b>Preparing for re-use</b>	Checking, cleaning, repairing, refurbishing, whole items or spare parts.
 <b>Recycling</b>	Turning waste into a new substance or product. Includes composting if it meets quality protocols.
 <b>Other recovery</b>	Includes anaerobic digestion, incineration with energy recovery, gasification and pyrolysis which produce energy (fuels, heat and power) and materials from waste; some backfilling.
 <b>Disposal</b>	Landfill and incineration without energy recovery.



Fig-2: The Waste Hierarchy followed by Cory. (Sustainability by Cory Group, 2024)

One of the biggest USPs that CORY has is the mode of transportation. As per the Sustainability Report 2022 of Cory Group (2022), 100,000 truck movements were avoided by Cory by transporting 843,000 tons of garbage via the Thames. In addition to lowering emissions and traffic on the roads, this initiative uses London's historic river to facilitate contemporary garbage management which also ensures avoiding close exposure to human establishments.

As per the Carbon Reduction Plan of Cory Group (2023), till June 2021, 3300 tons of CO<sub>2</sub>e was saved by shifting the river fleet fuel from marine gas oil to renewable diesel. Moreover, 200 tons CO<sub>2</sub>e has been saved every year since 2021 after the implementation of the program to run tugs (small powerful boats) by the Lighterage team with 75% engine power.

## Future Plans of CORY:

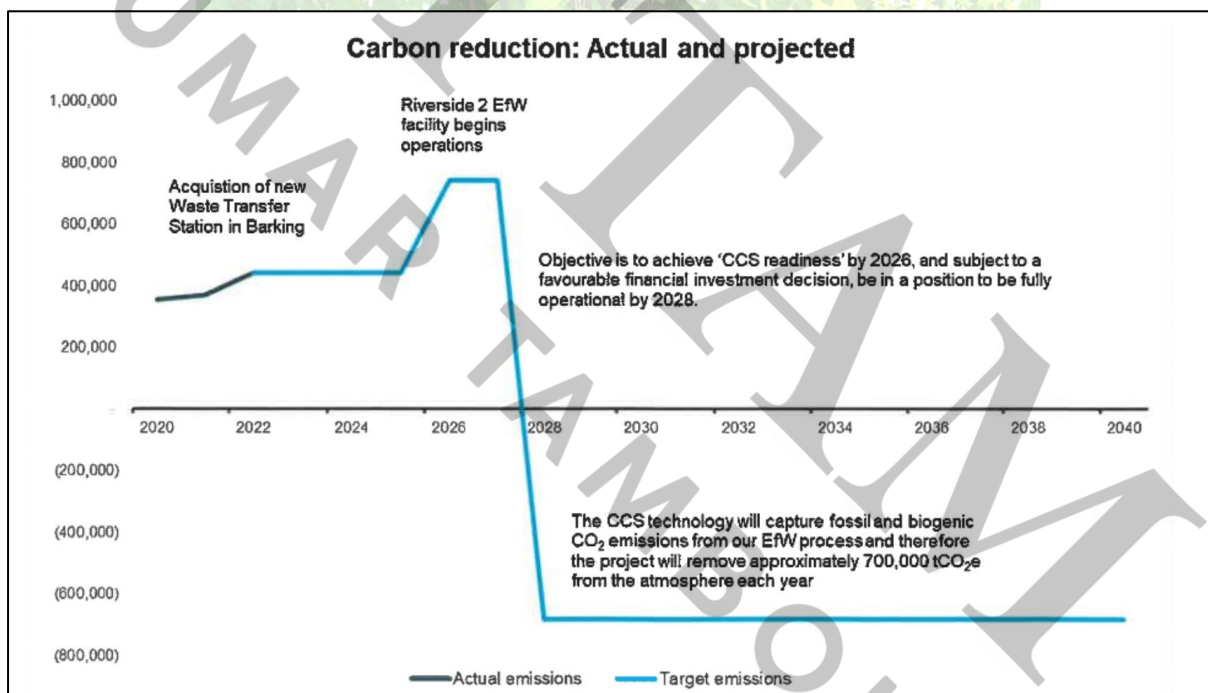


Fig-3: Anticipated Performance & Target Achievement as per Carbon Reduction Plan of Cory Group (2023)

In terms of mitigation strategies, as per the Carbon Reduction Plan of Cory Group (2023), Cory is committed to achieving the Net Zero Emission Target by 2040. They have further stated in their plan that the target's achievement is dependent on the installation of a Carbon Capture Storage facility in the Riverside Incineration plant of Belvedere which is expected to be in full operation by 2028. Moreover, they have mentioned that at full capacity, the facility will ensure permanent geological sequestration of more than 1.37

million tons of CO<sub>2</sub> per year by 2030 thereby significantly contributing to achieving the UK Government's Net Zero Target by 2050.

## Interaction of CRE With Community.

In terms of social perception, the idea of burning waste does not sound as positive in terms of environmental positivity as compared to using the sun and wind to produce electricity. Because of this, the resistance of the public in the form of protests like (UKWIN, 2024) comes into the picture.

Hence to bridge the knowledge gap in the community and ensure positive public perception, CORY has adopted a transparent approach called Good Neighbor where they stay open and vocal about their procedures, operations, and future plans to the public and regulatory bodies. Apart from this, they conduct initiatives such as plant open days, work experience initiatives, school visits, sponsorships, and collaborations on skills development thereby highlighting industrial operations, cleanliness, and community development. (Community section of (Cory Group, 2024))

At last, CORY Energy from waste Incineration plant may not be the best solution out there but considering the demand for waste management of the growing population, their presence becomes extremely significant for achieving carbon reduction and environmental sustainability.

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