EMEC
THE EUROPEAN MARINE ENERGY CENTRE LTD

Carbon reduction plan

Date: Tuesday 1st July 2025

Total emissions: 71.20 tCO_2e (July 2023 – June 2024 inclusive)

Net zero by: 2030

Millie Green, Anne Sayer
Environmental Coordinator, Project Officer

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Introduction to EMEC

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EMEC - A NOT-FOR-PROFIT INNOVATION CATALYST PIONEERING THE TRANSITION TO A CLEAN ENERGY FUTURE.

- Established in 2003, the European Marine Energy Centre (EMEC) Ltd is the world's first and leading facility for demonstrating and testing wave and tidal energy converters – technologies that generate electricity by harnessing the power of waves and tidal streams – in the sea.

- EMEC offers purpose-built, open-sea testing facilities for prototype technologies. We operate two grid-connected, accredited test sites – the Fall of Warness tidal test site and Billia Croo wave test site – where larger prototypes are put through their paces, as well as two scale test sites, where smaller scale devices, or those at an earlier stage in their development, can gain real sea experience in less challenging conditions.

- EMEC is also leading innovation projects exploring the integration of renewables with green hydrogen, storage and e-fuels. The centre has established a hydrogen R&D ecosystem, featuring electrolysers, fuel cells, storage and refuelling, for first-of-a-kind and pilot scale projects aiming to decarbonise power, heat and transport applications.

Vision

EMEC is driven to act on Net Zero because…

Through the nature of our work, EMEC is inherently working towards renewable energy generation through the commercialisation of sustainable technologies. However, during this process there will be associated emissions through the use of electricity, heating, fuel and scope 3 factors.

Our commitment to reducing our emissions is conveyed through our triple bottom line: People, Planet and Prosperity, and captured in our Sustainability Strategy.

Vision

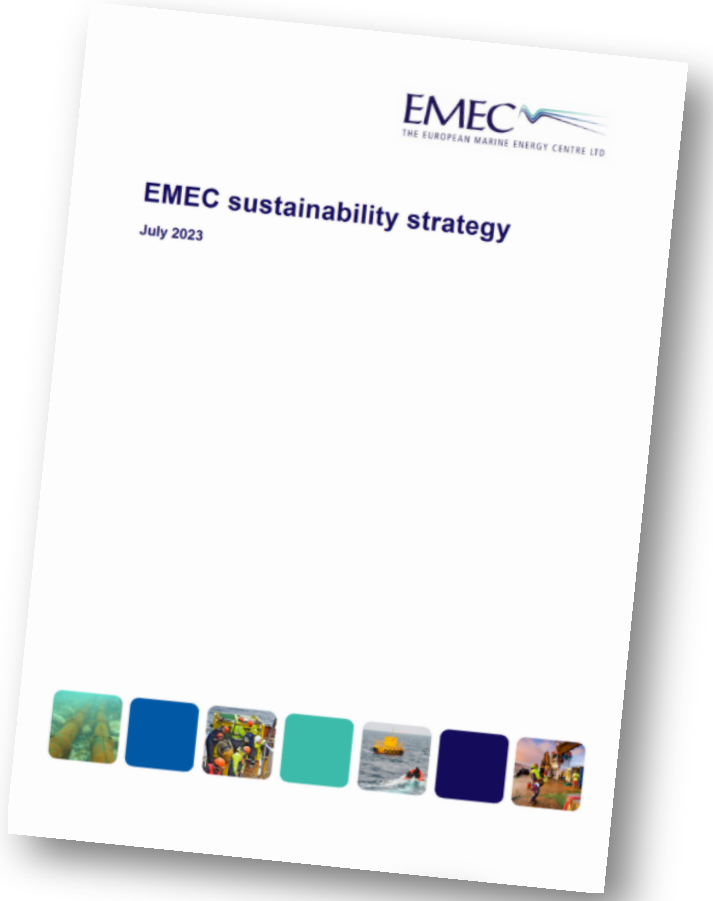
From the Sustainability Strategy (GOV431):

Vision 2025

- *"Sustainability will be at the core of the organisation with EMEC delivering on the established priorities focused on its people, community, and planet. Aware of its (scope 1 and 2) carbon impacts, EMEC will produce annual progress reports and have ambitious commitments in-line with net zero, reducing emissions and consume responsibly. We will support staff wellbeing whilst fostering a climate conscious culture, promoting staff empowerment and harnessing engagement on sustainability. As an active player in the community, EMEC will have a net positive impact in Orkney by driving initiatives for social innovation, climate justice and nature regeneration."*

Beyond 2025

- *"As a pioneer in the transition to a new, clean energy future, EMEC will grow to become a sustainability leader in its sectors, working towards decarbonising its own operations. Through collaborations in innovation and demonstration, EMEC will work to embed the philosophy of building for sustainability into the industry supply chains; benefits that will be maximised as the sectors scale-up and commercialise."*



Summary

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Net Zero

Scotland has set an ambitious target to reach Net Zero by 2045. Our commitment at EMEC is to reach Net Zero by 2030 to align with the Island Centre for Net Zero project. Our strategy follows the principles of the Greenhouse Gas Protocol.

Our net zero leads are ***Millie Green and Anne Sayer***. This strategy document will be updated yearly to reflect the action and progress made.

Our baseline emissions were calculated as 71.20(tCO2e) for the year July 2023 to June 2024 inclusive and included Scope 1 and Scope 2 emissions.

Our Scope 1 emissions accounted for 35% and Scope 2 accounted for 65%.

EMEC's Emissions Boundary

- Our operational boundary has been created in line with the principles of the Greenhouse Gas Protocol. We have included Scope 1 and 2 emission sources and have chosen what is "reasonable" and "relevant" from Scope 3.
- Our boundary will be reviewed and reset in year 2026 to include additional emission sources. This is explored more in the 'Action' section of this document. Some elements may be added before the end of 2025 such as flight emission data depending on the time available.
- We have chosen to include only Scope 1 and Scope 2 emissions for this first draft of our carbon plan to keep actions more direct and in our control. Scope 3 emissions were deemed out of scope until the review date, though progress has been made in calculating business travel emissions, specifically flights taken in 2023.
- Currently we have deemed that reducing energy usage from our substations to be impractical as these sites are online to support the generation of renewable energy. Future efforts could look to offset renewable energy generated at the site against energy used by the sites.

Emissions Boundary

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Year 1 focus

Scope 1

Heating oil/fuel – Charles Clouston

Petrol and diesel generators

Van; pick-up truck

Scope 2

Electric car(s)

Electricity – Charles Clouston Building, Warness Park Units 1&2, Billia Croo, Caldale, Garson workshop.

Future focus

Scope 1

Renewable energy heat generation – CHP

Hydrogen venting

Scope 2

Renewable electricity generation

Scope 3

Business travel – ferries, flights, car mileage.

Staff commuting

Homeworking

Waste

Supply chain

Upstream/Downstream Transport & Distribution

Investments

Other – e.g. Tractor unit (used for MEGC trailers, operated by Northwards)

Baseline carbon footprint

Baseline emissions are a record of the greenhouse gases that have been produced in the past and were produced prior to the introduction of any strategies to reduce emissions. Baseline emissions are the reference point against which emissions reduction can be measured. Emission calculated from **Public sector net zero reporting guide which details out uncertainty and gives explanations of data reporting, we report on the calculated average levels for scope 1 and 2 emissions.**

Total scope 1 and 2: 71.20 tCO_2e

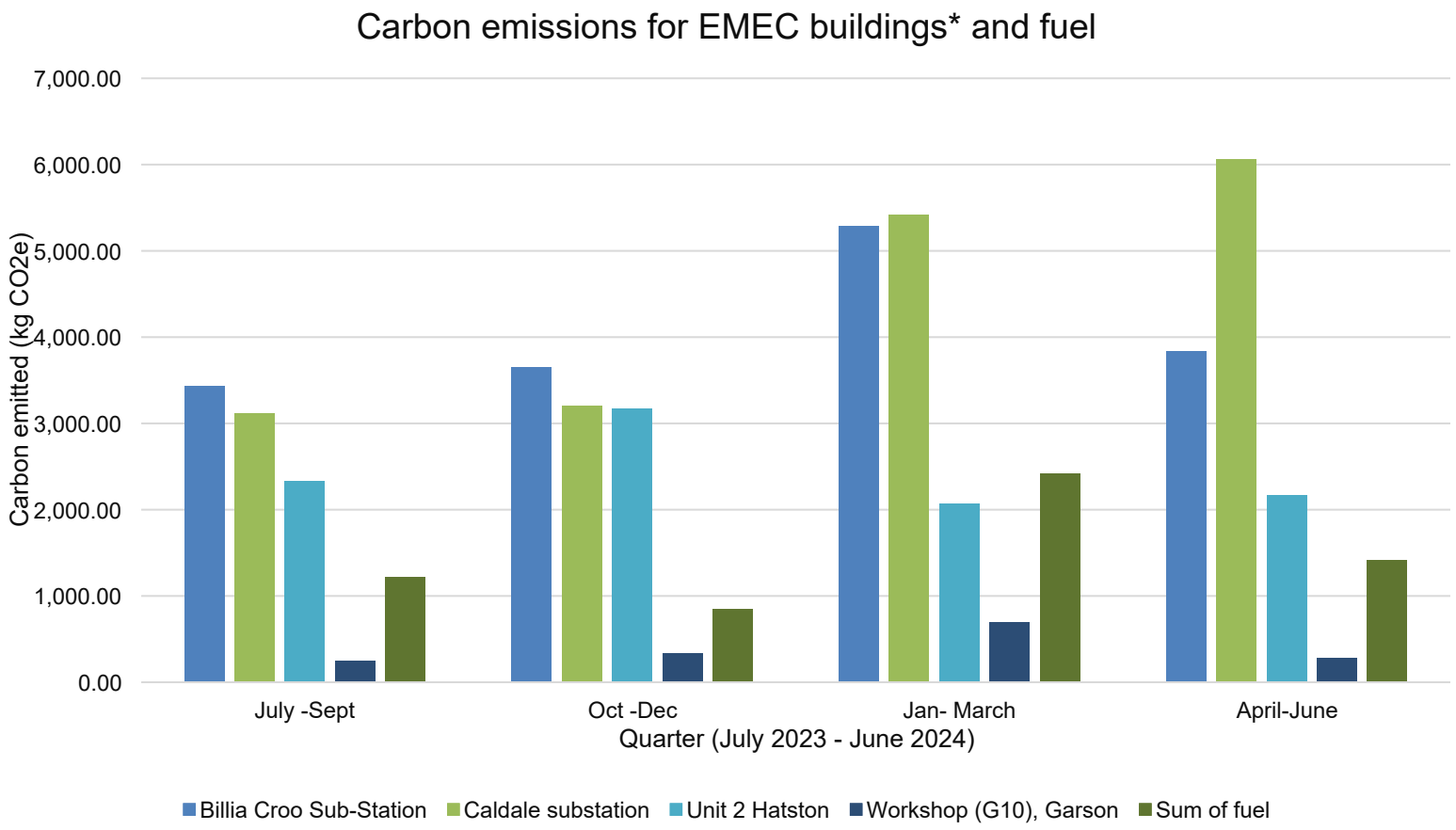
- Our emissions accounted for an estimated average of 25.50 tCO_2e for scope 1 and for 45.69 tCO_2e for scope 2.
- Our third quarter, January to March 2024, constituted the highest portion of our carbon footprint at 31%.
- The highest contributor to emissions was scope 2 from our buildings at 65% with our Caldale Control Building (17.80 tCO_2e), Billia Croo substation (16.20 tCO_2e) and Charles Clouston office (14.07 tCO_2e) representing the top three contributors.
- Oil heating at the Charles Clouston building played a significant part of scope 1 emissions from buildings with an estimated 25.07 tCO_2e, an estimated 35% of our total emissions, scope 1 and 2 included.

Breakdown of emissions

Our substations, Billia Croo and Caldale, are consistently our highest users of electricity. However, this data largely based on estimates from energy bills which are typically overestimates.

All sites use electricity for heating (excluding Charles Clouston), meaning higher usage between October and March will likely be due to cooler temperatures.

Trends in fuel use are variable across the year and would need further exploration.



* This table does not include the Charles Clouston Building electricity and heating data which was not presented in a manner able to spilt into quarters.

Charles Clouston building

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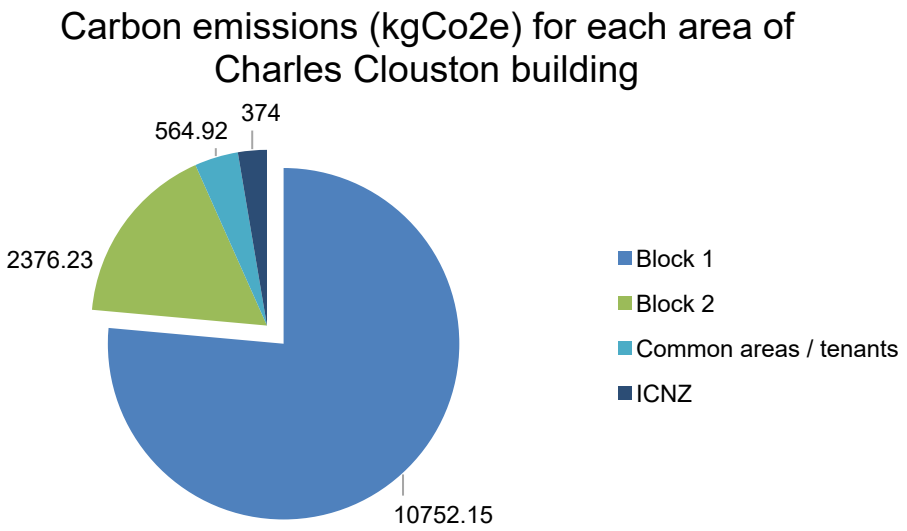
Electricity

Total electricity used was calculated from data provided by landlords originally taken between 3rd July 2023 – 8th July 2024 as an annual kWh figure for each area. These readings were adapted to get to a 365-day estimate totalling 51,179 kWh, or 14,097.3 kgCO2e. Future data collection efforts will seek to improve this through monthly meter readings carried out by EMEC.
Block 1 had the largest carbon footprint, reasonings for this will need to be further explored. Since this data was collected, we have stopped operating out of block 2.



Heating oil

Landlords also provided data on the total amount of oil delivered between 31st May 2023 to 1st May 2024 inclusive, which was 15,955 litres. We calculated an average estimate of our oil use based on data provided and our oil bill.

Total litres / number of days = 34.76 litres per day over the 14-month period.

Charles Clouston Apr23-Mar24 bill: **£10,563.84**

EMEC oil share of total Charles Clouston bill:

Area	% Share	Area Actual Cost	Est Litres Used
Block 1	27.92%	£2,949	3,542
Block 2	26.50%	£2,799	3,362
ICNZ	9.87%	£1,043	1,252
		£6,791	8,157

Carbon reduction actions

- To continue our progress to achieving net zero, we have adopted carbon reduction actions. Full details of the actions from July 2025 to June 2026 are available on the Carbon Action Plan Gantt chart.

- The timeline will remain adaptable and under review at points throughout the first year. This initial phase is focused on **discovery, behaviour change and embedding the plan into the company**.

- At the 6 month point in January 2026, and at the year end of June 2026, the plan will be reviewed and assessed for progress and effectiveness with planned communications to all staff.

Potential barriers

The potential for reducing our Scope 1 and 2 emissions is limited by the fact we rent sites rather than own them. For example, our office building, Charles Clouston building, Stromness has:

- No photocell on the stair and landing lights
- Old lighting systems (not LEDs)
- Lack of insulation in the building
- No air management or ventilation system
- No airlock on doors
- No smart meters
- Oil based heating system.

However, improvements to the building are underway with the campus development:

- Plans to replace oil boiler for air source heating
- Block 2 now has light sensors installed
- Windows were refurbished in 2024.

Actions to date

- Reduced office space in Charles Clouston building – May 2024.
- Heating turned off in Warness Park building over weekends – December 2024.
- Access to ORIC building meter allowing EMEC to take our own monthly readings – February 2025.
- Investigation into efficiency of a hot tap for EMEC versus a kettle, kettle deemed most suitable – February 2025.
- Decreased the number of company EVs from 3 to 1 (from 3 to 2 during the period of data collection and from 2 to 1 beyond the period) – August 2023 / December 2024.

Wider sustainability initiatives

At EMEC, we have run, and are currently running, several initiatives linked with sustainability prior to the start of the data collection period:

- Cycle to work scheme
- Salary sacrifice scheme - EV
- Beach cleans and litter type data collection at Billia Croo
- Staff book swap
- EV for work use
- Co-wheels car club membership discount
- EV chargers at office
- Offices in two main areas of Orkney, can help to limit long commutes
- 50% work from home policy, can help to limit long commutes

Next steps

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- Begin delivery of action plan July 2025-June 2026
- Begin data collection for July 2025-June 2026
- Deliver annual report on progress in July 2026
- Revise action plan at the end of each year

Declaration

This Carbon Reduction Plan has been reviewed and signed off by the Managing Director and Senior Leadership Team.

Name: Matthew Finn

Date: 20/08/2025

Signature: