

Sustainability Report 2022/23

The Climate Change (Scotland) Acts 2009 and 2019

In the context of both the biodiversity and climate crises, RBGE's work has never been more critical. To perform our vital work often requires international travel, while our own expansive estate requires significant resources to operate and maintain, both of which affect our carbon output. RBGE recognises the need to routinely assess our working practices, to improve our facilities and our operations, and to modify our organisational behaviour and activities, in order to reduce our carbon footprint and lower our environmental impact.

In 2009, the Scottish Government set what remains one of the most ambitious pieces of climate change legislation anywhere in the world; to achieve net zero emissions by 2050. In an amendment to this, published as the Climate Change Emissions Act (2019), the Scottish Government brought forward this target to reduce all greenhouse gasses to net-zero by 2045 at the latest, with interim targets for reductions of at least 75% by 2030 and 90% by 2040.

Section 44 of the 2009 Act places duties on Scottish public bodies in relation to climate change. From 1/01/2011 any public body must, in exercising its functions, act:

- in the way best calculated to contribute to the delivery of the Act's emission reduction targets
- in the way best calculated to help deliver any statutory programme for adapting to the impacts of climate change
- and in a way that it considers most sustainable

Carbon Management Plan

In response to this legislation, RBGE developed a revised Carbon Management Plan for 2021- 2030 which outlines our pathway to Net Zero to align with Scottish Government objectives. It is also a critical time following international discussions on climate change at COP26 in November 2021 and considering the current energy crisis and cost of fuel. Our Carbon Management Plan contains over 100 projects that will directly contribute to a reduction in carbon emissions from the RBGE estate, as well as cost.

Our carbon reduction targets have been set at a 40% reduction by 2030 based on a 2019/20 baseline year, which will put us on track to Net Zero emissions by 2045. This includes a 5% reduction in gas and electricity each year, as well as a significant reduction in travel emissions compared to pre-pandemic levels.

We plan to achieve this through a combination of sustainable building upgrades, and careful operational management of our energy consumption and operational behaviours. We will also need to review and optimise our travel policy to ensure our essential international work can be carried out while being mindful of our carbon footprint.

A number of sustainability projects were completed in 2022/23, including several large-scale LED upgrades in the John Hope Gateway, Balfour Building, and House 20. The Gateway upgrade alone has saved RBGE 3.8tCO₂e and over £4,000 in electricity costs in its first six months after installation. LEDs will continue to be rolled out across the estate as part of any general refurbishment works to maximise efficiencies and reduce costs. Two new solar PV arrays have also been installed at both Logan and Dawyck which will generate electricity, reducing our dependence on the national grid and protecting us somewhat against increasing electricity costs.

Design works were completed for a new sustainable heating system and lighting upgrade at Benmore, to be completed in Autumn 2023. This will include LED lighting and updated controls, as well as an air source heat pump, which will deliver efficient heating to the courtyard area.

Carbon Footprinting

RBGE continues to fulfil our requirement to submit the annual Public Bodies Climate Change Duties Report (PBCCDR). This annual report provides a comprehensive overview of RBGE’s greenhouse gas emissions and our renewable energy projects. While this report was officially compiled and submitted in November, a preliminary summary of the information to be included is provided in the table below.

RBGE Carbon Emissions 2022/23

Emissions Category		Total Carbon Emitted (tCO ₂ e)		Percentage of Total Carbon		Cost of Carbon Emitted	
		2022/23	2021/22	2022/23	2021/22	2022/23	2021/22
Buildings Electricity, Gas, & Biomass	Edinburgh Benmore Dawyck Logan	2035	2,150	90	94.7	£791,133	£506,883
	Fleet	17.28	37.7	8.9	4.6	£153,871	£63,545.70
Transport	Business Travel	183.18	65.9				
Waste	Landfill	3.3	3.4	0.8	0.5	£52,495	£39,223
	Combustion	2.0	1.4				
	Compost	6.7	6.7				
	Anaerobic Digestion**	0.2	0.1				
	Recycling	1.9	1.8				
Water	Supply	11	6.8	0.5	0.3	£104,985	£84,947
	Treatment						
Renewables	Generated electricity	(9.7)	(9.5)			(£15,817)	(£16,270)
Totals (Gross)		2,260	2,271	100%		£1,101,479	£694,409

During 2022/23, RBGE emitted 2,260 tCO₂e (tonnes of carbon dioxide equivalent). This is similar to last year (less 11tCO₂e), but we see a significant rise in costs of the associated emissions. This can be attributed in part to the energy crisis, but also the return to international business travel following the COVID-19 pandemic.

When comparing this year’s emissions to our baseline year for the Carbon Management Plan (2019), we are seeing a 25% decrease in emissions, which puts us on track with our reduction targets.

Gas consumption has decreased from last year, which is likely due to the Biomes project reducing heating requirements in the Glasshouses. Electricity has continued to increase in line with the return to office working, but carbon emissions have remained stable due to the increase in renewable energy being generated across the UK, which lowers the national grid carbon factor. In terms of cost, however, we see a significant increase due to rising energy prices. RBGE belongs to the Scottish Government Procurement Framework for electricity, which has protected us from the volatile energy market over the last few years by purchasing electricity in advance. However we are now starting to see the impact of price rises on our

electricity costs, so it is imperative that we continue to reduce our energy consumption where possible.

Waste is overall similar to last year's figures. Paper waste has reduced as staff are encouraged to operate a paperless working environment as far as possible. The number of staff working from home has also caused a decrease in printing.

RBGE's carbon footprint for water has increased from last year which is likely due to increased occupancy of the buildings. We have also installed top up taps in partnership with Scottish Water, which allows visitors to refill their water bottles; reducing the need to purchase drinks in single use plastics. Further efficiencies in irrigation processes are planned by Horticulture. In addition, we continue to monitor and report water consumption on a regular basis, allowing for quick identification and repair of any leaks.

The lifting of international travel restrictions has allowed RBGE staff to travel by rail and air again, though transport emissions are still well below pre-pandemic levels at 183 tCO₂e compared to the 2019 figure of 399 tCO₂e. Several staff members have chosen to travel by cross-country rail which has around ten times less carbon than by plane, so these efforts should be commended and encouraged.

While measuring carbon emissions is integral to RBGE's progress towards Net Zero, it is important to note the other activities occurring at RBGE that are not necessarily captured within our emissions reporting but play a large part in the wider sustainability of the organisation. For example:

- Our Cycle to Work Scheme has been reviewed to allow purchase of e-bikes
- Engagement with MSc students on sustainability related dissertation projects
- Increased innovative recycling practices in Horticulture and Science
- Continued partnerships with various organisations around Edinburgh and Scotland
- Free online climate change and biodiversity short courses have been developed by Education
- Sustainable materials and working practices are being included in the Biomes project
- Our procurement process is being adapted to include sustainability consideration
- BTC has developed a sustainable buying policy to ensure that all goods sold in the shop have ethical and environmental consideration

While this is not an exhaustive list of every sustainability related activity at RBGE, it does provide a glimpse into the many ways, big and small, that RBGE is implementing greener practices and behaviours across the organisation in tandem with our larger carbon-reduction goals.