Environmental Management System (EMS) Report Q2 2020/21[1]

Purpose

- This paper provides:

  - A breakdown of how COVID-19 has affected organisational carbon output;
  - An overview of Zero Waste Scotland's environmental impacts in Q2 of 2020/2021; and
  - An update on the company's Net Zero carbon plan commitments and offsetting strategy.

Foreword on the current homeworking situation

Covid-19 continues to have a huge impact on the day-to-day operations of Zero Waste Scotland, and across the country generally. Homeworking has again been mandatory throughout Q2, meaning that obtaining office-based emissions data has not been possible. This report utilises a combination of historic emissions data and assumptions, as well as current data where possible, to provide an estimated overview of total organisational emissions for the Quarter across all currently measured sources.

This report refers to 'total' emissions and not 'operational' emissions. **The emissions profile of Zero Waste Scotland has undergone fundamental changes versus previous years**. In order to get an accurate overview of emissions under our new way of working, it is now necessary to consider our entire carbon footprint and not just our operational emissions[2]. Operational heating emissions are currently negligible, and so to capture our actual heating impacts (from home-office heating), we must look beyond operational emissions, and consider our entire carbon footprint versus previous years.

The following should be considered when reading this report:

- Corporate travel and commuting were not occurring during Q2, and so our travel-related emissions continue to be nullified, which represents a huge saving, but does not reflect normal working conditions.

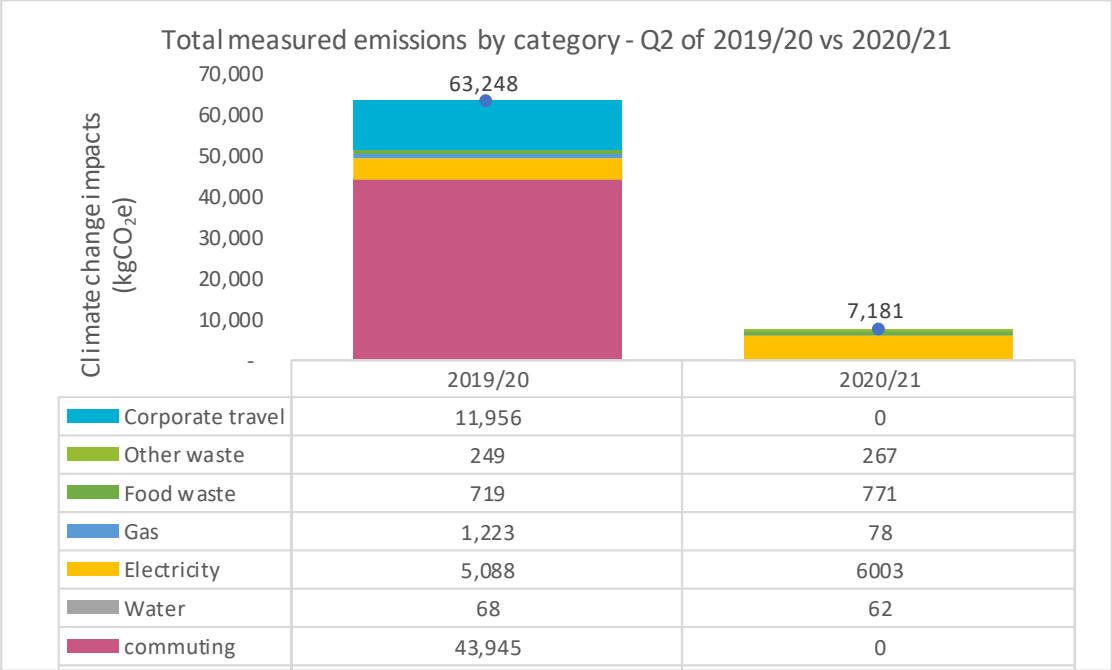
- Q2 is deemed to fall within the 'non-heating' season.[3] As such, home heating emissions during homeworking are zero, and residual office heating emissions[4] equate to 0.08 tCO_2e.

- In previous reports commuting was considered as a stand-alone impact and was not considered within the context of our operational carbon footprint. Commuting impacts will now be included within our total carbon footprint to reflect the changing shape of Zero Waste Scotland emissions.

[1] This report was prepared by Fraser Millar and reviewed by Michael Lenaghan
[2] Operational emissions refers to office-based and corporate travel only, and do not account for commuting and other scope three emissions that will included as we develop ways to accurately measure them.
[3] Non-heating season is April – September: UK Government, Department of Energy and Climate Change 2011, 'Report 4: Main Heating Systems' [online]; found here
[4] The district heating network automatically provides 2 hours of heating per week to Moray House for fabric protection, referred to as residual heat emissions.

The organisation's overall environmental impacts

- **Summary**
  - Total measured climate change impacts, expressed in carbon dioxide equivalent, in Q2 of FY 2020/2021 were 7.18 tonnes of CO_2 eq. *Whilst overall impacts were 89% lower than in the same period last year*



	2019/20	2020/21
Corporate travel	11,956	0
Other waste	249	267
Food waste	719	771
Gas	1,223	78
Electricity	5,088	6003
Water	68	62
commuting	43,945	0

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  - Figure 1), results are not directly comparable. During Q2 of FY 2020/21, all staff continued to work exclusively from home (WFH). Consequently, as with Q1, there has again been no corporate travel and no commuting during this period.
  - Homeworking gas use is considered as being zero, in line with Government guidance on home heating.[5]
  - Electricity impacts have been calculated using historical data and current staff role. Impacts are estimated to have increased by 15% due to significant expansion of the staff role since last year, and a relatively low consumption rate in Q2 FY 2019/20, compared with the rest of that year.[6]

[5] UK Government, Department of Energy and Climate Change 2011, 'Report 4: Main Heating Systems' [online]; found here

[6] This calculation was completed using historical data to determine a per-capita estimate multiplied by staff role, as detailed in the Zero Waste Scotland homeworking methodology

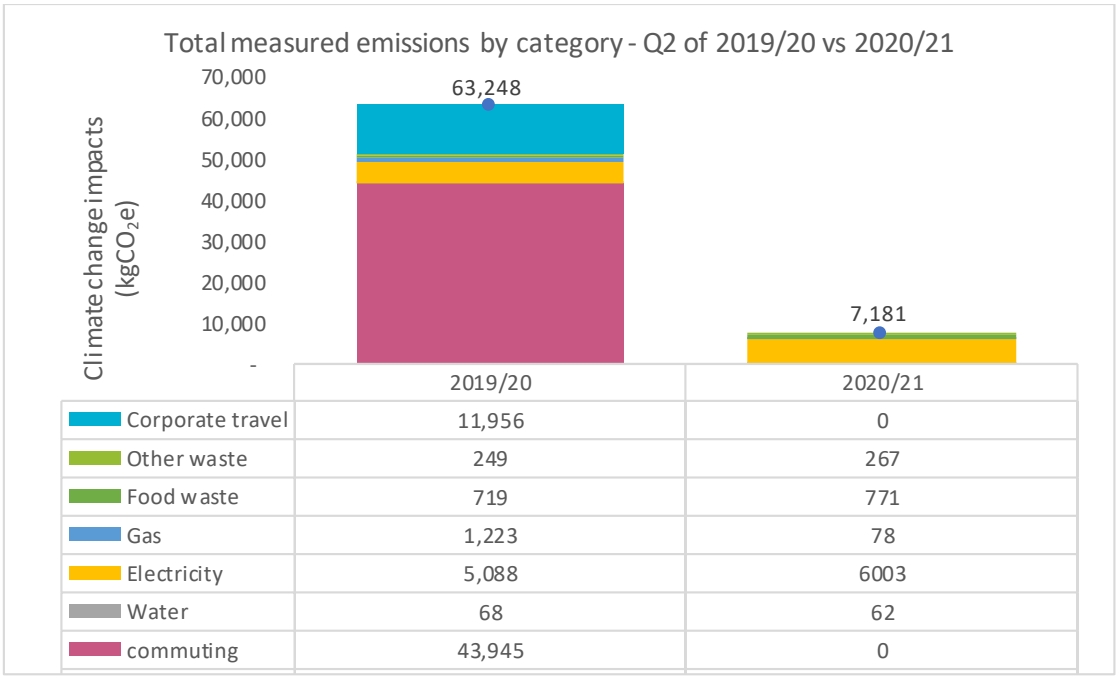

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Figure 1 Breakdown of total climate change impacts by category for Q2 in 2019/20 & 2020/21

- **Corporate travel impacts**
  - As a result of imposed homeworking across the organisation, corporate travel impacts for Q2 were 0 $tCO_2eq.$, compared with 12 tCO_2eq over the same period last year, representing a huge saving against BAU.

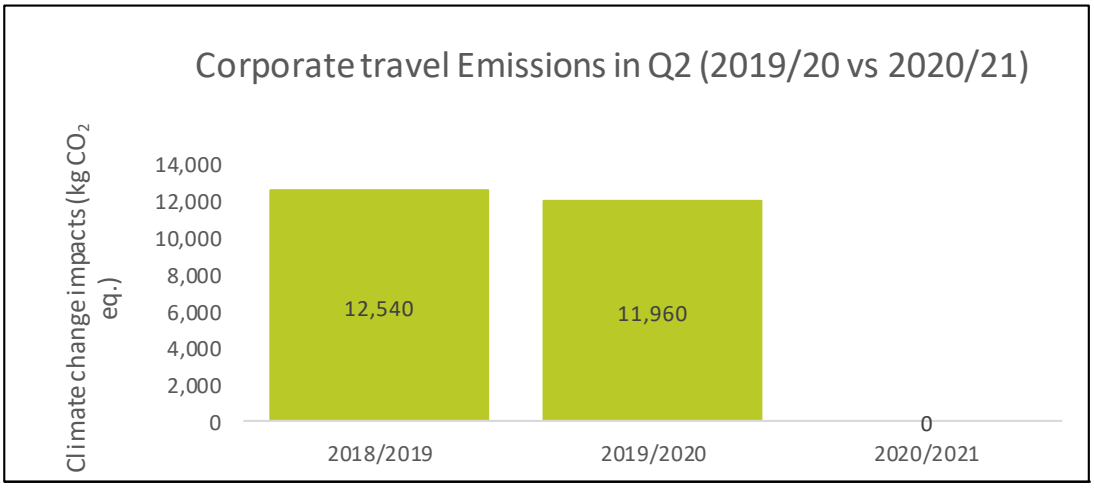

Figure 2 Corporate travel emissions Q1 comparison (2019/20 vs. 2020/21)

- **Flights mileages**

The company flight cap for 2020/21 is set at 34,800 miles – 80% of the total flight mileage recorded by staff in FY 2019/20. As with Q1, zero flight miles have been recorded during Q2. A total of 2,067 airmiles were flown by Zero Waste Scotland over the same period (Q2) last year, with an attendant footprint of 0.53 tCO_2 eq.

Figure 3 (below) shows the remaining quarterly flight cap for the year. Six months into the financial year and the cap remains intact, meaning that our cumulative remaining mileage allowance is untouched at 34,800 miles.

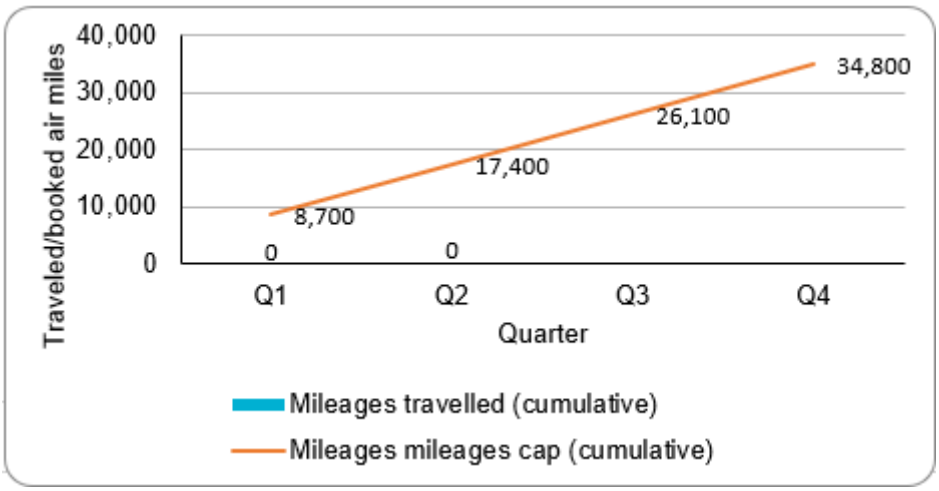

Figure 3 Air miles vs the annual cap for 2020/21.

- **Commuting**

  - Zero Waste Scotland staff have commuted 0 (zero) miles so far in FY2020/21.

  - Analysis of our commuting survey over Q2 of last financial year (2019/20) shows total commuting mileages of nearly 267,500 miles and emissions of ~44 tCO_2e occurring (figure 1 above). By not commuting thus far in FY 2020/21, Zero Waste Scotland has already made a carbon saving of 88 tCO_2e versus last year.

- **Office impacts**

Electricity

  - It is estimated that impacts of electricity consumption amounted to 6 tCO_2e in Q2 of the financial year, *~15% above Q2 levels for last financial year* (Figure 4). As the Q2 total for this year is spread across the homes of staff members[7], it was not possible to get an exact electricity emissions figure for this period. Rather, per capita electricity use for homeworking was considered to remain unchanged from office-based usage, if constrained to I.T equipment and server power only.
  - To obtain the Q2 total for this year, a daily per-capita average usage rate was calculated using historical electricity data. This calculation provided an estimate of 25,748 kwh over the period, with an attendant emissions output of 6 tonnes of CO_2e[8].

- **Heating (gas)**

[7] The total number of ZWS employees during Q2 FY 2020/21 was 176, according to HR records.
[8] 2020 DEFRA grid factors have been applied in order to provide an accurate total. Decarbonisation of the grid accounts for the 4% decrease in electricity impacts, compared with last financial year. The electricity figures for last FY were until recently, inaccurate; quotes as being ~3 tCO_2e in the FY 2019/20 Q2 report. The revised figure of 5,090 $kgCo_2e$ is an average drawn from monthly reports, and supersedes the old, erroneous figure.

- The estimated impact of *gas consumption was 0.08 tCO_2e for Q2 of FY 2020/21*, contrasting with an output of 1.223 $tCO_2eq.$ for the same period last year. The figure of 0.08 tCO_2e accounts for residual office heat during lockdown. Homeworking gas usage was considered as being 0 (zero)tCO_2e (Figure 4).
- In 'heating' months (Oct – Mar), heating ZWS office space becomes far less carbon intensive than heating individual homes. If universal homeworking continues into the heating season, estimates show there will be a significant rise in gas emissions within the organisation during Q3 and Q4 of 2020/21, compared with office-based working.

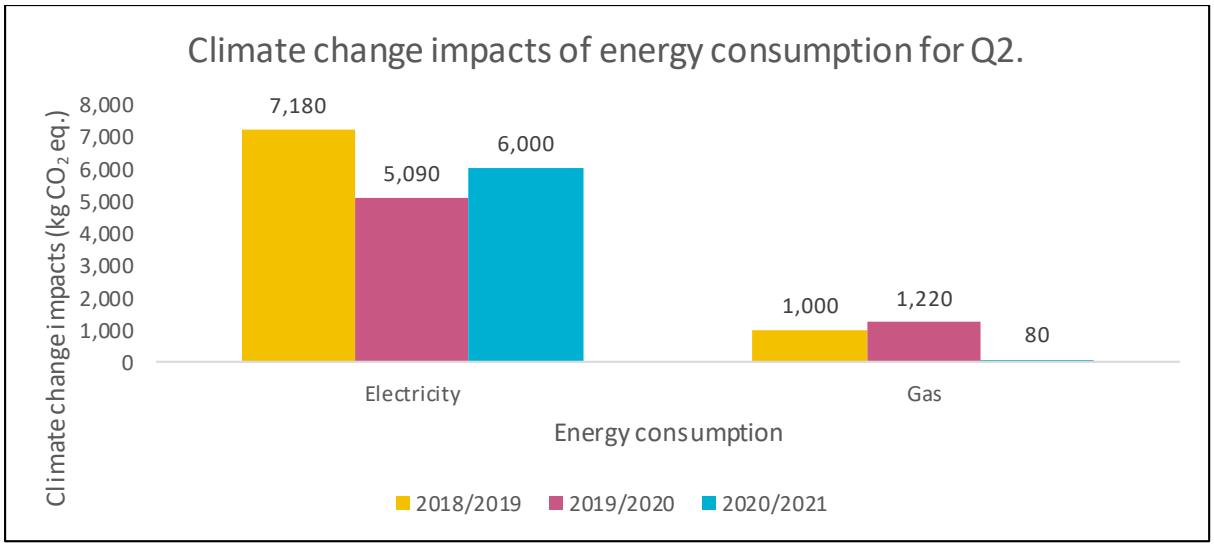

Figure 4 Climate change impacts of energy consumption in Q2.

- **Resource loss and waste management**

- *Food waste and non-food waste impacts have both risen by 7% over Q2 last year.* These figures are based on previous totals multiplied by current staff role, and do not account for waste saving initiatives or reduction measures.
- Despite an increase in staff role, water emissions were estimated to have dropped from 0.068 CO_2e to 0.062 CO_2e since last year, due to on-going decarbonisation of the water supply, outstripping the rise in staff from Q2 of FY 2019/20.
- Impacts for the same period last year can be seen in Figure 5 (below) and detail *the combined impact across waste generation and water usage to be ~1.1 tonne CO_2e for the quarter*, representing a relatively small contribution to ZWS carbon output.

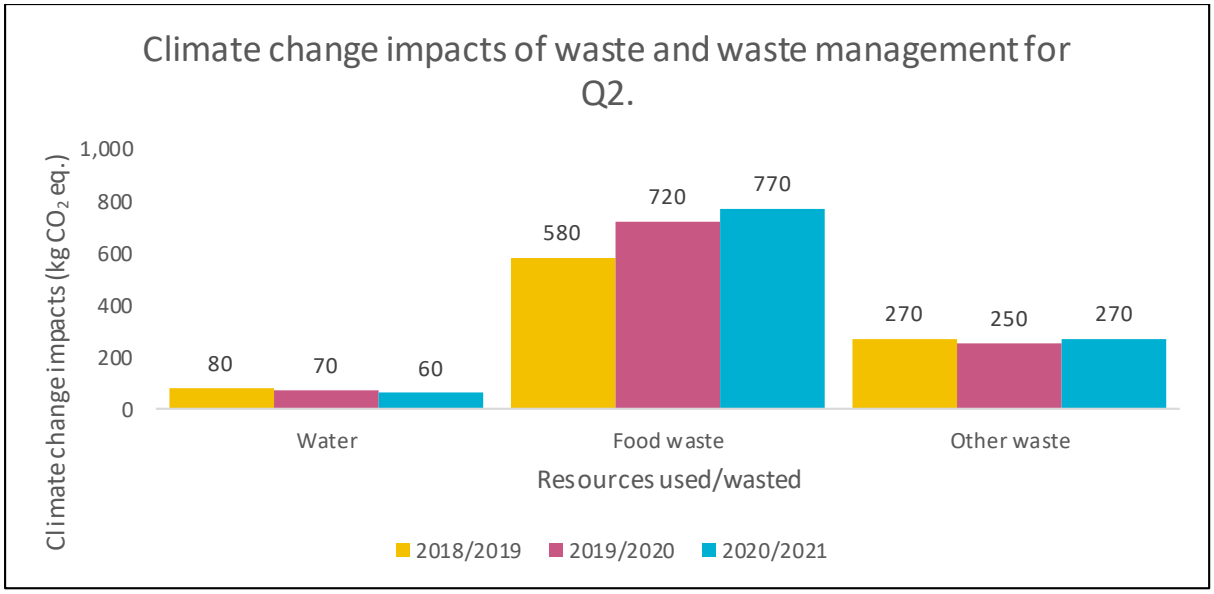

Figure 5 Climate change impacts of water and waste management in Q2.

- **Paper use: printing & copying**

  - As ZWS office space was closed during Q2 2020/21, no office printing occurred during this time. The total number of sheets printed in the same period last year was 8,200. It is not expected that staff are printing at home, so home-printing levels are considered to be zero.

  - So far this FY, the organisation has avoided the printing of ~14,500 sheets of paper based on consumption rates for FY 2019/20; equivalent to saving 1.5 fully grown trees.[9]

- **The Net-Zero Carbon initiative**

COVID-19 has changed the profile of ZWS emissions considerably and will likely continue to do so for some time. Despite this, the net zero carbon project is still progressing, and many actions under it are being advanced, however the implementation of some measures have, by necessity, been subject to delay until the organisation has a clearer understanding of operational needs and office space going forward. At time of writing, homeworking is still universal with the company, and as such many office-based measures are on-hold.

CEO Iain Gulland recently met with the Zero Waste Scotland Green Team to discuss the possibility of refocussing the net-zero plan, in order to account for the rise in homeworking emissions, and to ensure that the net-zero plan remains as pioneering, as relevant and as impactful as when it was first published. No firm decisions have been made in respect of this move yet, however the Green Team have recently begun working on a suite of measures aimed at quantifying, mitigating and locking in

[9] Ribble Packaging (2020); 'How much paper comes from one tree?' Report [online]; available here

emissions-savings related to homeworking, to keep pace with the direction of the business, and the volume of staff opting to work from home on a permanent basis.

Appendix 1: List of commitments under the net zero plan

Below is a list of commitments that for the basis of the Zero Waste Scotland net zero carbon plan. The plan was completed in Q4 of FY 2019/20 and as such the commitments expressed under it were devised prior to lockdown. COVID-19 and the temporary shift to homeworking have delayed implementation of many of the office-based initiatives contained within the plan. This list replaces EMS objectives and RES commitments from previous years.

Table 4. Forthcoming net zero commitments and status

No.	Impact Area	Actions	Start date
1	Offsetting	Offset to net-negative status – completed for FY 2019/20	01/04/2020
2	Commuting	Encourage use of cycling through improvement of cycling facilities – A clothes drying unit has been purchased and will be installed within Moray House upon return to office.	01/04/2020
3	Corp. Travel	Cap and reduce flight miles by 20% per annum until 2022/23 – On-going measure supported by 'no-fly zone' and stricter accountability air travel. ZWS will easily meet obligations under this measure for this year.	01/04/2019 – Ongoing commitment
4	Corp. Travel	Cap and reduce private vehicle miles by 50% per annum until 2022/23 – ZWS has worked closely with local car hire rental firms to promote greater use of electric and hybrid hire vehicles, including an EV familiarisation day.	01/04/2020 – Ongoing commitment
5	Office impacts	Installation of double glazing within Moray House – Air quality monitoring tests have been completed in support of this measure, and talks are on-going with Stirling council. Long term aspiration.	01/04/2020 – (estimated completion 2022)
6	Office impacts	Move 60% of servers to the cloud – Work is underway in support of this measure, and the I.T Department are currently transferring ZWS data to Sharepoint cloud-based server.	01/04/2020 – (estimated completion 2021)
7	Procurement	Switch to ~50% oat milk for the office – taste testing sessions have been rolled out and a survey drawn up – currently postponed due to coronavirus homeworking	01/07/2020 – delayed
8	Commuting	Undertake gap analysis of commuting with Sustrans – Sustrans have agreed to assist ZWS with this measure, however currently delayed due to coronavirus homeworking	01/07/2020
9	Procurement	Establish system for measuring catering and contract impacts - methodology devised and approved, to be trialled with upcoming contracts.	01/07/2020 -
10	Office impacts	Establish system for measuring impacts of satellite offices – The lease for satellite offices has been surrendered and no further work will be undertaken in support of this measure (unless subsequent satellite space is identified.)	01/07/2020 – postponed
11	Office impacts	Explore options to own and operate renewable electricity infrastructure – working with Strathclyde University to achieve this goal; using them as a case study to identify the most effective means of doing this.	01/10/2020
12	Commuting	Explore options to encourage greater commuting by train – rail saving fact sheet is being finalised for release at appropriate time	01/10/2020
13	Corp. Travel	Improve video conferencing and video calling facilities within Stirling offices – measure postponed until offices are again occupied, however	01/04/2021 - Delayed

		this measure will be prioritised due to inevitable increase in tele-conferencing.	

N.B – 'Delayed' here exclusively refers to unavoidable delay due to COVID-19 homeworking. 'Postponed' indicates the measure will not be taken forward under current operational conditions.

No.	Impact Area	New Actions	Start date
1	Governance	Develop membership of the Green Team, to ensure representation right from across the business to help with execution of net-zero initiatives – membership has been expanded to include IT, procurement and facilities	01/010/2020
2	Commuting	Develop generic commuting tool for use by third parties to assist them on their own net-zero journey – tool being developed for upcoming release to SSN to distribute to public sector.	01/07/2020
3	Procurement	List of common office equipment emissions to be devised and handed to SSN for dissemination to public sector. – List has been devised and is currently being reviewed before being handed to members as requested.	01/07/2020
4	Homeworking emissions	3 workstreams: - Engage staff around the home office and how they can keep homeworking emissions down - Quantifying the embedded emission f o homeworking and working to mitigate these - Locking in homeworking savings upon a partial return to the office. New measures - no progress as of yet	01/10/2020

Appendix 2: Shift to permanent homeworking

Mandatory homeworking was imposed by Zero Waste Scotland as a response to the on-going COVID-19 pandemic, as directed by Scottish Government, in March 2020. Following the move, the Environmental Analysis team conducted a study to determine the carbon cost of homeworking versus office-based working and determined that significant carbon savings could be achieved through homeworking.

This study, along with rigorous investigation into any perceived wellbeing, financial and social implications relating to such a move, prompted the Executive Leadership Team to present an offer of home working to colleagues on a permanent and formal basis in September 2020. To date, this offer has been accepted by 119 Zero Waste Scotland staff, representing 68% of the business.

Homeworking throughout the calendar year was established as being far more carbon efficient than office-based working, when the avoided impacts of commuting and corporate travel were considered. Impacts throughout the year in a homeworking-only scenario were calculated as being 2.2 $kgCO_2e$ per-capita per day; with per-capita office-based levels calculated at 8.1 $kgCO_2e$ per day. This represents a 73% reduction based on the old BAU (figure 6 below) ; however, does not consider the corporate travel and commuting travel impacts that will remain after COVID restrictions are lifted.

Further analysis is required in order to accurately assess the impacts arising from the new blended working format, with the majority of staff electing to work permanently from home, and around 30% choosing to remain office based.

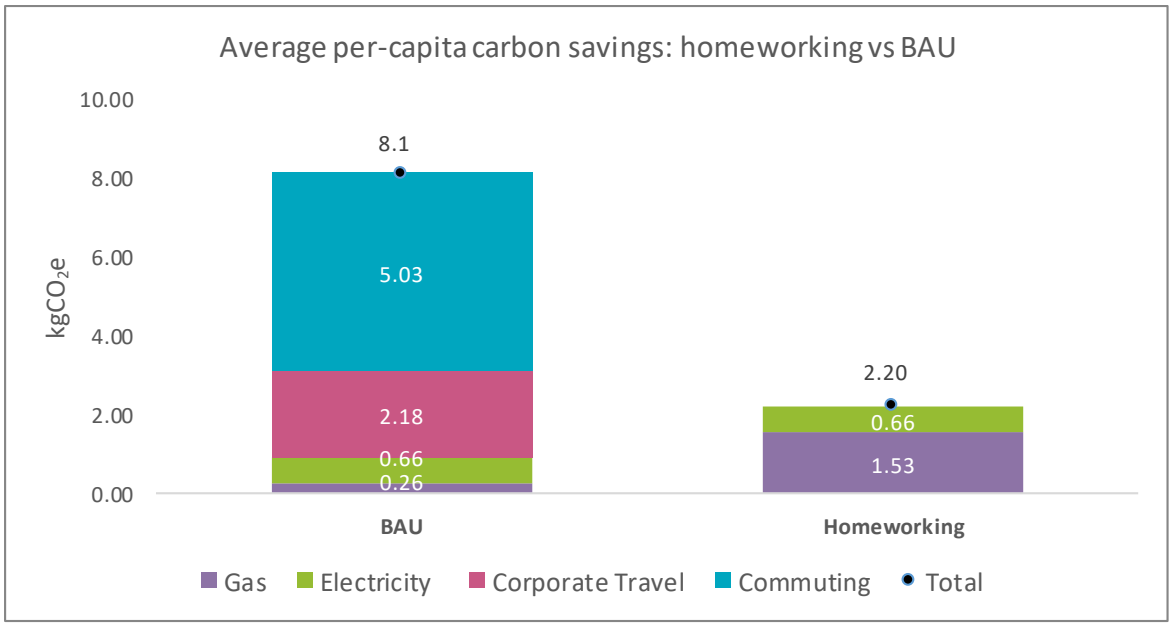

Figure 6: Per-capita lockdown homeworking emissions vs BAU