

Vu Online^{vu}



CARBON FOOTPRINTING AND RECOMMENDATIONS

Vu Online

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A mostly environmentally friendly proposal document, please print sparingly.

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1. Summary

What's the current situation?

The Problem

Over the past 50 years the average global temperature has increased at the fastest rate in recorded history and this trend is accelerating. All but one of the sixteen hottest years have occurred since 2000.

Greenhouse gas (GHG) emissions that cause global warming and are generated by companies and organisation, can include those generated by the direct emissions from fuels that the companies burn, such as petrol and diesel in company cars and haulage fleet or heating fuels, indirect emissions that are generated by burning fuels on behalf of the company, in the generation of electricity for example and those generated by subcontractors, further down the supply chain.

Carbon emissions from the internet are estimated to be equivalent to those of air travel, at around 830 million tons of CO₂ annually, which is around 2% of global GHG emissions. However, much of this energy use is in the form of power and increased use of renewable energy sources and increased awareness of the issue of climate change have the potential to reduce the emissions and counteract the ongoing growth of this sector.

Decarbonisation Consultants were commissioned by Vu Online to assess their GHG emissions in the financial year 2019/20, with a view to allow them to set a target to reduce their emissions over time.

Vu Online are a small Digital Agency currently based in Totnes, Devon, comprising of 4 employees. As such, they have no legal obligation under the Streamline Energy and Carbon Reporting Regulations (SECR), that impose a requirement on large companies to report their Carbon Emissions in their annual reporting. Nevertheless, Vu Online have taken the initiative to assess their emissions and intend to work towards reducing them.

This work has identified that the largest emissions were from electricity use (around half of the heating, all of the lighting, and office appliance use) in their Grade II listed Totnes Office, (see images of the office in the Annex). The office consists of a meeting room, a back office, a kitchen, two toilets and a storeroom. Heating is provided by a mixture of radiators connected to a gas central heating system and electric convection heaters.

These Scope 2 emissions are not under the control of the company, being the responsibility of the landlord of the rented office. However, if the landlord could be persuaded to invest in lower-carbon forms of heating and power (by switching to a green energy tariff, for example), or if the company decided to move offices to one where the landlord provided low carbon energy, the emissions of the company could be substantially reduced. Scope 3 emissions could also be reduced by selecting a greater number of suppliers that pledge to use renewable sources of power.

Decarbonisation  Consultants

2.Scope 1 Emissions

2.1 Scope 1 definition

Scope 1 emissions are defined by the IPCC as direct greenhouse gas emissions that are from sources owned or controlled by the reporting entity.

These are usually emissions from direct combustion of fuels by the employees of an organisation that arise from the activities of that organisation.

The most common Scope 1 emissions are heating (e.g. burning of natural gas and oil) and transport fuels in haulage and business travel.

The organisation generally has the most control over Scope 1 emissions since it can, in theory, choose to change the source of heating or transport to a low carbon source, such as electric vehicles, or air source heat pumps.

2.2 Scope 1 emissions generated by Vu Online

Vu Online rent a serviced office where heating is supplied within the rental contract. Therefore, emissions associated with heating are dealt with in Scope 2. There were no business mileage expenses claims in the Financial year 2019/2020, therefore it has been assumed that emissions due to transport fuels were negligible in this year.

3.Scope 2 emissions

3.1 Scope 2 definition

Scope 2 emissions are defined as indirect GHG emissions associated with the production of electricity, heat, or steam purchased by the reporting entity. Scope 2 emissions are caused by the direct combustion of fuels by a contracted supplier of power or heat and organisations still have a degree of control over their Scope 2 emissions, but less so.

For example, an organisation may choose to purchase a green electricity tariff, and they might choose to rent office space in buildings that provide low carbon heating, both these choices would have the effect of reducing Scope 2 emissions.

3.2 scope 2 emissions generated by Vu Online

3.2.1 Primary Energy use in Totnes Office

The electricity and heating in buildings can be measured or estimated using a number of techniques. The preferred method is to examine electricity and heating fuel bills, but because Vu Online rent a serviced office, the costs of heating and electricity are not visible on their rental invoices. As an alternative, it is usually possible to extract this information using the Primary Energy value from the buildings Energy Performance Certificate (EPC).

Primary Energy as is usually supplied as a kWh/m² value on the EPC and can therefore be used to apply to similar buildings, even when they have different floor areas. Primary Energy is defined as the energy required for heating, lighting and hot water in a property.

However because 16 High Street is a listed building, which are not required to have EPCs, there is no available EPC for this address. Therefore, in order to estimate the primary energy of the Totnes Office, we have used the primary energy as stated on the [EPC of a neighbouring property \(Flat 16a, High Street, Totnes\)](#). This is a mid-floor flat in the adjacent property to the right of the Vu Office, above a Craft shop. The Primary Energy value for this property was 305 kWh/m³.

Using the measuring tools in both Google Earth and [Vu Online's own interactive office layout software](#), the floor area of the Totnes Office was calculated to be 107.7m³. Therefore, the primary energy for 16 High Street is estimated to be 32,635 kWh per year.

Typically heating and hot water contribute about 60% of primary energy use, therefore we can assume that 19,581 kWh per year was used for heating and hot water. If we also assume that half of that heating was provided by natural gas and the other half by electricity, then 9,790 kWh/yr was provided by gas heating and the remaining 22,845 kWh (heating and lighting) was provided by electricity. After correcting for a typical gas boiler conversion efficiency of 85%, the amount of gas used for heating would have been 11,518 kWh.

Using [Defras GHG reporting factors tables](#), the GHG emissions factor for grid natural gas (on Net CV basis) in 2019/20 was 0.20492 kg CO₂e/kWh. Therefore, the total GHG emissions from gas heating was 2,360 kg CO₂e.

The GHG emissions for grid electricity in 2019/20 was 0.2556 kgCO₂e/, so the GHG emissions from the electricity used for heating and lighting was 5,839 kg CO₂e.

3.2.2 Electricity used by Office Equipment.

Using Vu Online’s interactive office layout software, we identified that in 2019/20 there were 19 office appliances as shown in Table 1. The annual energy use from these appliances was estimated to be around 10,653 kWh and using the grid electricity GHG emissions factor of 0.2556kg CO₂e/kWh, the total GHG emissions from office appliances was 2,723 kg CO₂e.

Table 1. Office Appliances in use in 2019/20 at Vu Online’s Totnes Office

Appliance type	Number in office	Energy use per item (kWh/yr) ⁴	Total Energy Use (kWh/yr)
Laptops	6	52.3	313.8
Monitors	7	60.7	424.9
Printers	2	536	1072
Server	1	8760	8760
Kettle	1	42	42
Landline phone	1	20	20
Overhead projector	1	40	20
		Total	10,653 kWh/yr

The total Scope 2 emissions generated by Vu Online in 2019/20 were therefore 10,922 kg CO₂e.

4.Scope 3 emissions

4.1 Scope 3 definition

Scope 3 emissions includes all other indirect emissions, i.e., emissions associated with the extraction and production of purchased materials, fuels, and services, including transport in vehicles not owned or controlled by the reporting entity, outsourced activities, waste disposal, etc. Scope 3 emissions are generally considered to be the most difficult to quantify and control, however careful selection of subcontractors can still result in carbon savings and it is increasingly easy to identify and select lower carbon sub-contractors as greater use of carbon footprinting is used by organisations.

4.2 Scope 3 emissions generated by Vu Online

All supplier invoices were provided for the FY 2019/20. There were thirty separate suppliers. For each one, we carried out the following process to identify their emissions that arose as a result of Vu Online's activities:

- 1) A web search to identify whether the supplier had published any carbon intensity figures, or declared that they used 100% renewable energy. If 100% renewable energy was used, the emissions for that activity was assumed to be zero.
- 2) If we were unable to establish carbon intensity figures for that supplier, we used the [website carbon calculator site](#) figure as the GHG figure for that supplier.
- 3) If neither of these methods were available, we have disregarded the emissions from that supplier.

A summary of the GHG emissions for each supplier is shown in Table 2.

Supplier name	No of Invoices	Source of GHGs	No of websites hosted	Total Annual Emissions kgCO2
20i	7	Websitecarbon.com	9	1953
Adobe	8	Company reporting	n/a	8
Ahrefs	9	Websitecarbon.com	n/a	106
Algolia	6	Carbon Neutral	n/a	0
Amazon	44	Company reporting	n/a	138
Cloudflare	12	Carbon Neutral	n/a	0
Digital Ocean	7	Carbon Neutral	n/a	0
Envato	5	Websitecarbon.com	n/a	14
GitHub	8	Unknown	n/a	0
Go Daddy	2	Websitecarbon.com	1	37
Google GSuite	13	Carbon Neutral	n/a	0
Guru/UK Dedicated	23	Websitecarbon.com	8	203
Heart Internet	71	Websitecarbon.com	5	7
Hellosign	1	Websitecarbon.com	n/a	238
Hootsuite	6	Websitecarbon.com	n/a	266
LogMeIn	1	Carbon Neutral	n/a	0
Olark	5	Websitecarbon.com	n/a	221
OpenSoir	6	Unknown	n/a	0
Paddle.com	6	Websitecarbon.com	n/a	40
Ponticello	11	Unknown	n/a	0

Rackspace	23	<u>Carbon Neutral</u>	n/a	0
Sendgrid	12	Websitcarbon.com	n/a	111
Shutterstock	2	Websitcarbon.com	n/a	159
Siteground	12	Websitcarbon.com	1	30
Teamwork	24	Websitcarbon.com	n/a	208
Uptime Robot	12	Unknown	n/a	0
Xero	10	<u>Carbon Neutral</u>	n/a	0
Zapier	4	Websitcarbon.com	n/a	102
Zestia	12	Websitcarbon.com	n/a	0.2
Zoom	6	Websitcarbon.com	n/a	1087
			Total	4928.2

Seven of the thirty suppliers used by Vu Online in FY2019/20 declared that they were Carbon Neutral (36%). It was not possible to estimate the emissions for only 4 of the suppliers, and the remaining 19 suppliers generated a total of 4928 kg CO2e in 2019/20 as a result of activities carried out on behalf of Vu Online. So, the total Scope 3 emissions were approximately 4928 kg CO2e

5. Total carbon emissions and carbon intensity

5.1 Total carbon emissions

Table 3 shows the Scopes 1, 2 and 3 and total carbon emissions released during the financial year 2019/20. Total emissions were 15,850 kgCO2e

	GHG Emissions kg CO2e FY 2019/20
Scope 1	0
Scope 2	10,922
Scope 3	4,928
Total Emissions	15,850

5.2 Carbon intensity

Carbon Intensity (CI) in the context of company GHG reporting is the level of greenhouse gas emissions emitted per unit of economic output. This measure allows a comparison between different-sized companies operating in the same industry.

Different industries use different measures of economic output, but the most common is company turnover. The benefit to using this as the denominator is that it allows customers to calculate their Scope 3 emissions by simply using the values paid in their supplier invoices multiplied by their suppliers CI, by turnover. To calculate CI by turnover, we simply divided the total carbon emissions 15,850 kg CO2e by Vu Online's Turnover in FY2019/20, which was £214,677. This gives a CI by turnover of 73.8 kg CO2e/£1000 TO.

Another common way to present CI is per employee. In 2019/20, there were 4 employees on average in 2019-20, therefore the CI by employee was 3,963 kgCO2/employee.

5.3 Carbon intensity compared to other organisations

We were only able to find a limited number of small digital agencies that publicly disclose their GHG emissions and those that do, tend to already have strong green credentials.

Since there is currently no legal requirement for them to do so, this is understandable. However, increasingly larger companies, who are legally obliged to report emissions will seek suppliers that not only declare their emissions, but will select those that declare the lowest emissions, so it is likely that this will become more important in the future.

Impression Digital Ltd, a Nottingham Based Company, declared that before they offset all their carbon emissions [they generated 3.5 tonnes CO2 of Scope 1 and 2 emissions each month](#), which is equivalent to around 42,000 kgCO₂e per year. Impression Digital had 43 employees in 2019, so their Scope 1 and 2 CI by employee was 976 kgCO₂e/employee.

At the larger end of the agency scale, WPP, a multi-national communications advertising, and PR company, who are classed as a 'large company' and are therefore required to publish their emissions under SECR regulations, published [their 2019 GHG emissions in their 2019 annual report](#). Scope 1 and 2 emissions were 0.6 t CO₂e/employee – equal to 600 kgCO₂e/employee, largely achieved by carbon offsetting. They have a target to reduce this amount to 410 kgCO₂e by 2030.

In 2018, Google Inc, a household name, [had a CI per FTE Employee of 8400 kgCO₂/employee](#).

6. Recommendations

Scope 2 emissions contribute 69% of the total emissions of the company. But these are not under the direct control of the company because they are supplied under the rental contract of the serviced offices. By switching to a green electricity

tariff, the electricity emissions could be reduced to zero. If Vu Online intend to continue to rent the same office, we recommend discussing this with their landlord.

Because around half of the heating is through gas central heating, those emissions could not be reduced by simply switching fuels in the same way.

However, if the landlord does agree to switch to a green electricity tariff, then Vu online might consider using the electric heaters in preference to the gas-heated radiators, where possible to reduce emissions.

The Scope 3 emissions were relatively low because many of their suppliers already use renewable sources of power. We recommend greater use of suppliers such as these.

Overall, in comparison to the limited number of similar companies that have reported their GHG emissions, Vu Online have comparable, if slightly higher emissions per employee and unit turnover, but this is due primarily to the nature of the office in which they operate and can be easily reduced over time.

Finally, we recommend setting a target and tracking against that target. A sensible target might be to work towards reaching net zero by 2025, which would bring Vu Online 25 years ahead of the UK target to reach net-zero by 2050.

Thanks for your time.

If you have anything else to discuss, please get in touch.

The Vu team.

Would you like to keep in touch?



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