2023 CARBON ROADMAP

Tackling climate change: how we will cut carbon emissions

Contents

Why we are publishing this report

More and more businesses are now calculating their carbon footprint and making efforts to decarbonise. According to The Science Based Targets Initiative (SBTi), more than 4,500 companies and financial institutions around the world have submitted science-based reduction targets to them, or have committed to developing targets, and this number is growing every year. While real concerns remain about whether the world is making progress fast enough, there are positive steps forward.

We are also seeing great strides being made in the wine sector. For example, there are growing efforts to produce freely available carbon calculators for vineyards and wineries so they can measure their carbon footprint more easily, identify emission hotpots and put reduction plans in place. We are also seeing increased participation in collaborative groups such as The Porto Protocol and The Sustainable Wine Roundtable, who are encouraging and enabling the sector to work together on climate change, share learnings and pool resources. The movement to tackle and adapt to climate change is accelerating in the wine sector and The Wine Society is passionate about doing all we can to support it.

And so, it is in this spirit that The Wine Society is publishing this report. We don't see the environment as a commercial battleground, but a shared responsibility. This is why we have committed to sharing our carbon footprint, our carbon reduction targets and our roadmap in full. We know that it opens us up to scrutiny. But we hope that by doing this it will help galvanise the industry, encourage others to do the same and add to the growing wealth of information, knowledge and ideas to help those on a similar journey.

We also want to give our members the confidence that we are being sufficiently ambitious and are doing the right thing. It is a great opportunity to engage members, and suppliers, in an ongoing dialogue about one of the greatest issues of our time and how they, and we, can achieve our goals. Going forward, we will share in our Annual Sustainability Report the progress we are making against these goals, any challenges we are facing and what we are doing to overcome them. We will also provide updates to the plans we have set out in this report, as part of our continuous improvement approach. This transparency will enable members to hold us to account.

This carbon roadmap is by no means perfect. While it builds on strong foundations and great work that is already underway in The Wine Society to reduce our carbon emissions, this is the first time we have completed a full Scope 1, 2 and 3 footprint and developed a comprehensive carbon reduction plan. There will inevitably be areas where we can improve, so we will need to revisit and revise these plans every year as we make progress and learn more – and I'm sure also make a few mistakes along the way. We certainly don't have all the answers now, but we're committed to getting there, in partnership with our suppliers, our members and others across the wine sector.

Dom de Ville

Dom de Ville
Director of Sustainability and Social Impact

We certainly don't have all the answers now, but we're committed to getting there, in partnership with our suppliers, our members and others across the wine sector

Dom de Ville

Dog Point Vineyard in New Zealand uses sheep to control grass and weed growth

What the report covers

Any company serious about tackling climate change needs to take concrete action to reduce its carbon emissions, not just in its own operations but also throughout its supply chain. This is what The Society is doing.

We have:

- hired 3Keel, who are expert, independent sustainability advisors, to help us calculate our carbon footprint
- set carbon emission reduction targets across our business and supply chain (Scope 1, 2 and 3)
- developed a plan for how we are going to achieve our targets.

In this report we explain all of the above, so that our members have a clear picture of what we are doing and why – and importantly, can hold us to account. While we don't yet have all the answers for how to achieve our ambitious targets and will need to continuously evolve our plan every year as we learn more, we have plenty to be getting on with.

> Any company serious about tackling climate change needs to *take concrete action to reduce its carbon emissions*
>
> **Steve Finlan**
> Chief Executive Officer

Which greenhouse gases are measured in a carbon footprint?

In this report we use 'carbon' as an umbrella term to cover all greenhouse gas (GHG) emissions from The Society that contribute to global warming and that we are required to measure under the GHG Protocol Corporate Accounting and Reporting Standard. There are a number of greenhouse gases that are accounted for in our carbon footprint, including: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PCFs), sulphur hexafluoride (SF_6) and nitrogen trifluoride (NF_3).

Improving a vineyard's ecosystem by increasing biodiversity, Viña Koyle, Chile

Why we need to act

There is now overwhelming scientific evidence of climate change. The IPCC's Sixth Assessment from 2022, ratified by 195 member countries, was unequivocal that climate change is not only accelerating but is also the result of human activity. This has led to an urgency for all businesses to take firm action to reduce their contribution to climate change.

There is additional evidence from our growers and producers who are on the front line of climate change. They've told us about the increasing challenges they face from more extreme weather and are asking us to act. Growers have always had to contend with the weather – it's part and parcel of the art and science of making great wine. However, the warming climate is changing things. While warmer temperatures have been a bonus to some in cooler regions, such as the south of England, they have been devastating to others. Many of our growers tell us that over the past 20 years, the weather has become consistently more unpredictable and extreme, and that this is accelerating. The World Meteorological Organisation recently confirmed that the past eight years were the warmest on record, fuelled by increasing concentration of greenhouse gases and trapped heat.

For our growers, this results in more acute changes in temperature and precipitation patterns, as well as more extreme weather, significantly affecting a vine's physiology, growth and development. More frequent heatwaves can damage vines and decrease yields, while changes in rainfall patterns can lead to water stress or flooding, affecting grape quality and yield.

The World Meteorological Organisation recently confirmed that *the past eight years were the warmest on record*

Vines and olive trees at Tablas Creek in California's warm Paso Robles region

As the Californian wildfires in 2020 showed, climate change can also take its toll on grapes (in the form of smoke taint) without directly destroying them.

The wine sector is highly dependent on nature. Growers need a stable climate for quality grape production, and extreme changes in climatic conditions can significantly affect the wine sector's production, quality, and profitability. We therefore need to do what we can to reduce our contribution to climate change as well as help them adapt, so they can continue to thrive and make great wine for our members for many years to come.

Our member surveys also indicate that the majority of our members want us to play our part in tackling climate change. While the wine sector is not the worst contributor, compared to the transport or energy sectors, for example, there is still a great deal that needs to be done.

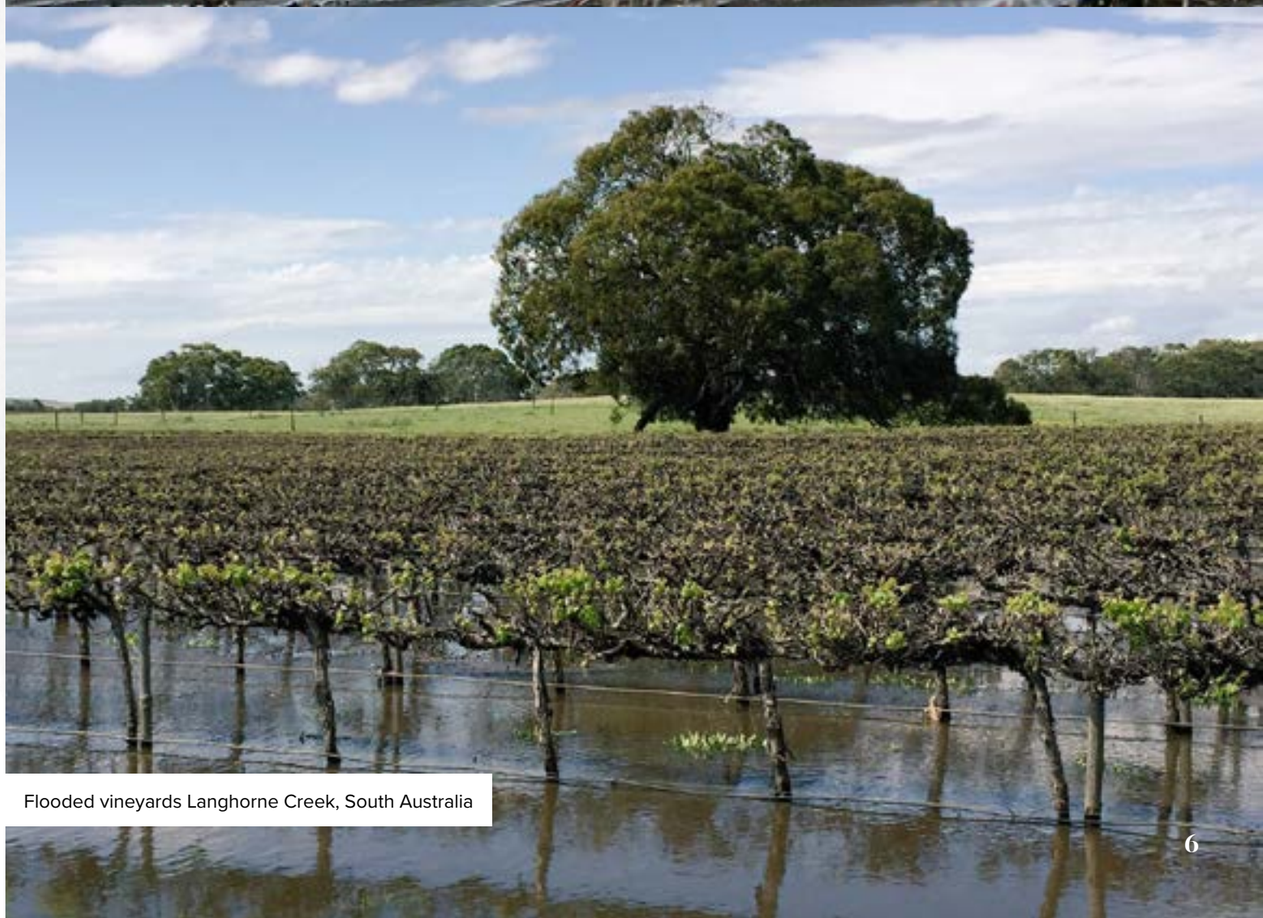
There are also legislative imperatives to act. The UK Government passed a law in 2019 that requires the country to achieve net zero by 2050. Over time we believe there will be increasing legal requirements on businesses – including The Society – to reduce their carbon emissions much more quickly if the UK has any hope of achieving net zero by 2050. So, it makes sense for us to take steps now to reduce our emissions, in the normal course of business, rather than having a potentially expensive race to catch up in the near future.
In addition, acting now can help avoid costs over the longer term. Here are two examples:

Example 1
Increased energy prices took our annual electricity costs from around £180,000 in 2021 to more than £440,000 in 2023. Installing additional solar panels on our new warehouse, which will last 20 years and produce around 30% of our annual electricity requirements, would save the Society around £130,000 per year at today's prices.

Example 2
In 2024, the UK Government is bringing in new packaging legislation (Extended Producer Responsibility) which is likely to increase packaging compliance fees significantly. The Society already pays nearly £600,000 a year in Packaging Recovery Note fees, so any further increases would be significantly challenging for our finances. Whilst the packaging legislation is still being developed, it is expected to reward companies with lower compliance fees if they reduce packaging weight (for example glass bottle weight), ensure it is made from recycled material and is 100% recyclable.

Tackling climate change and reducing carbon emissions is an essential part of our business that we cannot ignore. We also believe it will be of direct benefit to members now and in the future, so that they can continue to enjoy the quality of wines they have come to expect from The Society.

Frost in Chablis, Burgundy



Flooded vineyards Langhorne Creek, South Australia

Executive Summary

Our footprint

At The Society we are passionate about tackling climate change and doing the right thing. So, we are publishing this report to help galvanise and inspire our colleagues, our members, our suppliers and the wider industry to take action. We have been sourcing quality wines for our members since 1874 and we want to be doing this in another 150 years' time!

The Society's overall footprint for financial year 2021/2022 was 16,488 tonnes CO_2e*. 6% of our emissions come from Scope 1 and 2 activities, with the remaining 94% from Scope 3 activities**. Our footprint breaks down as follows:

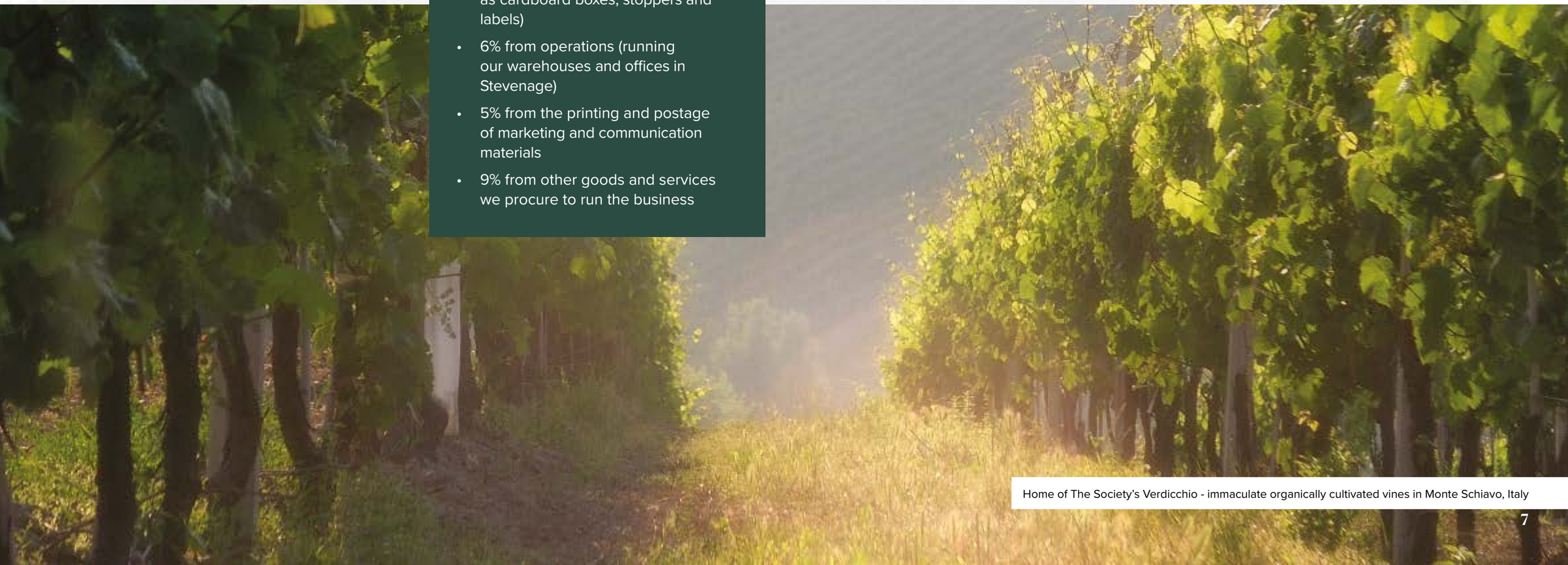
- 31% from the manufacture and disposal of glass wine bottles
- 21% from shipping wines to the UK and delivering to members doors
- 17% from the production of wine (vineyards and wineries)
- 11% from other packaging (such as cardboard boxes, stoppers and labels)
- 6% from operations (running our warehouses and offices in Stevenage)
- 5% from the printing and postage of marketing and communication materials
- 9% from other goods and services we procure to run the business

Our reduction targets

The Wine Society has set an ambitious target to be net zero across our business and supply chain by 2040, with key milestones along the way:

- Equivalent of carbon neutral in Scope 1 and 2 emissions in 2024***
- 100%† reduction in Scope 1 and 2 emissions by 2028
- 50% reduction in Scope 3 emissions by 2032
- Net zero across all three scopes by 2040

* Note: this does not include the 1,874 tCO_2e produced from construction of a new warehouse at our site in Stevenage. We have not included this in the total figure as it was a one-off and we will not need to reduce annual emissions against it.
** See page 14 for an explanation of Scope 1, 2 and 3 emissions
*** See page 21 for a detailed explanation of how we will achieve this
† Please note that in reality this may be 99% reduction as there will likely be some residual GHG emissions from air conditioning leakages and testing the fire pump.



Home of The Society's Verdicchio - immaculate organically cultivated vines in Monte Schiavo, Italy

Our roadmap

The Wine Society is not starting from scratch. We are, for example, already implementing programmes to reduce bottle weights, trial lower carbon packaging formats and raise environmental standards across our wine supply chain. This roadmap builds on extensive work already underway, providing a comprehensive framework for action across our full business and supply chain so we can achieve the targets we've set ourselves.

2022 | 2023 | 2024 | 2025 | 2027 | 2028

1. How we will be the equivalent of carbon neutral in Scope 1 and 2 emissions in 2024

Ongoing carbon removal programme

In 2024 we will launch a carbon removal programme. Instead of paying into an offsetting scheme to be carbon neutral, we will invest the equivalent funds on nature-based projects in our suppliers' vineyards. The aim of these projects will be to capture and store carbon, reduce emissions and enhance biodiversity, which all help in the fight against climate change.

Investing in carbon removal projects in our own supply chain (often called 'insetting') means we directly support our wine producers, we can accurately measure impact and we can share learnings to encourage others in the wine sector to do the same.

2. How we will reduce Scope 1 and 2 emissions by 100% by 2028

This will require ongoing investment over the next five years to reduce emissions in areas under our control.
By implementing these actions, we believe that by 2028 we can reduce our annual Scope 1 and 2 emissions by 99.6%, saving 1,087 tCO_2e per year.

Switch to renewable energy tariff for the remaining electricity we buy from the national grid

This was achieved in September 2022

Ongoing initiatives 2024 - 2028

Invest in renewable energy generation (solar)

Our goal is to generate 80% of the electricity we need to power our offices and warehouses in Stevenage by 2028

Cut greenhouse gas (GHG) leakage from air conditioning units and switch to low global warming potential refrigerant gases

Replace all older models with modern units by 2028

Invest in low carbon delivery

Switch our own delivery fleet of 35 vans electric or another zero-emission option by 2028****

Replace natural gas appliances

Switch our boilers and cookers to electric or another zero-emission option by 2028

3. How we will reduce Scope 3 emissions by 50% by 2032

Areas we have direct influance to drive change

To tackle our Scope 3 emissions, we have broken our roadmap into five focus areas: packaging, wine production, marketing materials, third-party logistics, Scope 3 operations.
We have developed detailed actions for each focus area, recognising that there are areas where we have more control and influence to drive change (such as packaging) than others (third-party logistics).
We have then calculated the estimated annual carbon reductions these actions will result in by 2032.
Our full set of actions are laid out in the report, however highlights include:

Increase the volume of wines we sell in lower carbon packaging

In 2023, trial six of our best-selling wines in different alternative packaging formats (such as bag-in-box). From 2024, scale the most successful

Reduce the environmental impact of 'other' packaging such as card

From 2024, implement and enforce new packaging specifications for The Society and our suppliers based on reduction, recyclability, recycled content and use of sustainable materials

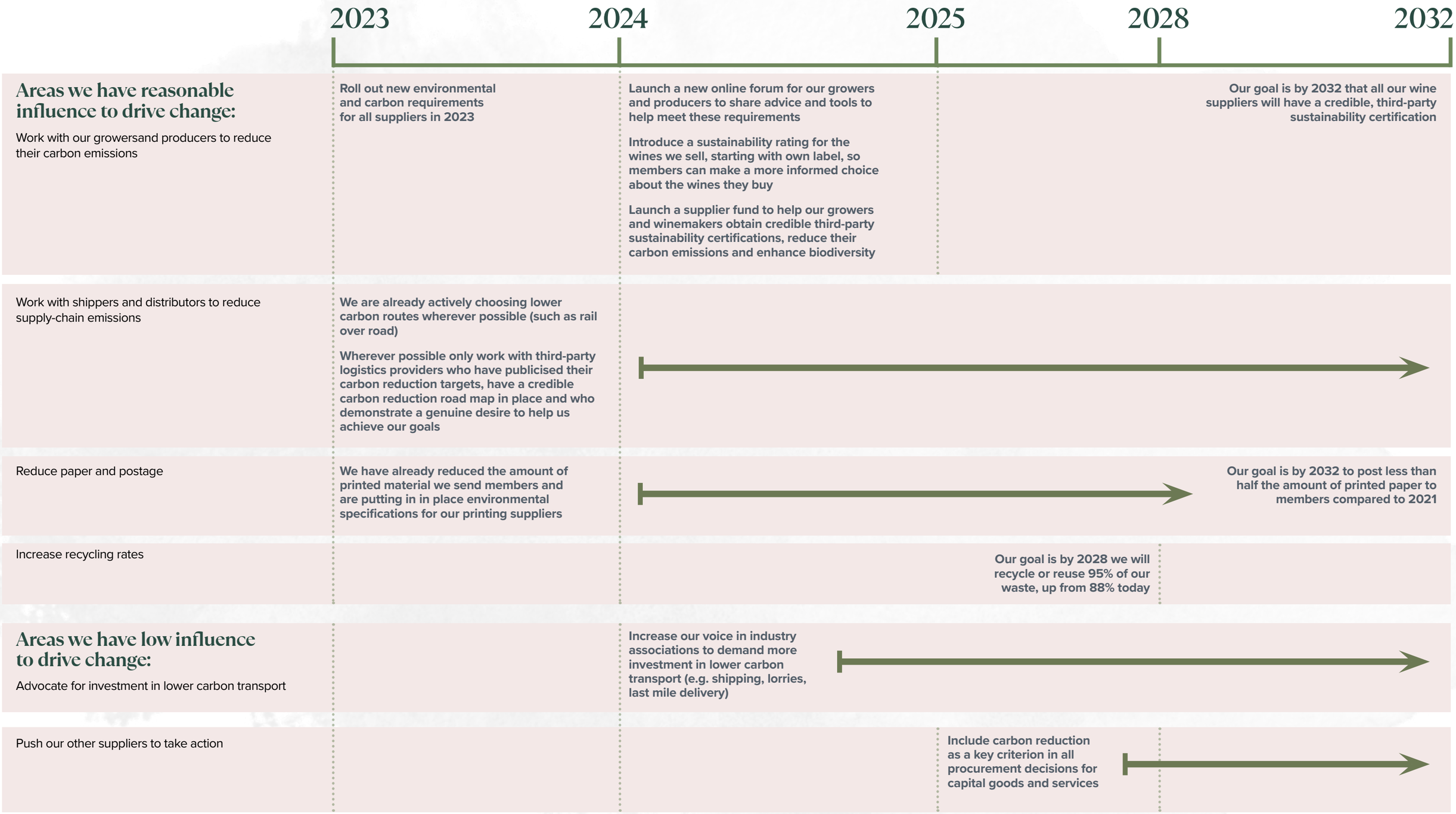
Bulk-ship wines

From 2025 bulk-ship wines where it is more environmentally and economically efficient to do so

Reduce the weight of glass wine bottles year-on-year

From the 2027 vintage, all of our range will be in bottles below 420g

****Please note that being able to switch all 35 vans and delivery routes will depend on the availability of the required zero-emission van technology



If we implement all the actions laid out in the roadmap, we believe we can reduce our annual Scope 3 carbon emissions by approximately 5,175 tCO_2e by 2032 – a 34% reduction. This doesn't quite hit the 50% reduction we need, but it is a great start. We will then review and revise these plans each year to identify new opportunities and innovations to close the gap.

The Wine Society's Carbon Footprint

Our carbon footprint explained

In 2021, our total carbon footprint was 16,488 tCO_2e* (tonnes (t) of carbon dioxide (CO_2) equivalent (e)).

What does 'carbon dioxide equivalent' mean?

A carbon dioxide equivalent is the standard unit for measuring greenhouse gas (GHG) emissions. It covers all GHG emissions we measure that contribute to global warming, such as carbon dioxide, methane and nitrous oxide, and converts them all to an equivalent carbon dioxide tonnage. This means we have one carbon footprint figure that represents all relevant GHG emissions.

While it is not possible to give an exact equivalent, to put our footprint into perspective, 16,488 tCO_2e is similar to driving a medium-sized petrol car 150 million miles or powering 6,300 average UK homes for one year.

Another way to think about it is in terms of how much carbon is emitted to produce one bottle of wine and how this compares to other food and drink products. Bottles of wine sold by The Society have an average carbon footprint of 1.35 kg CO_2e per bottle. This is roughly equivalent to the weight of a bottle of wine, which usually weighs 1.2-1.5kg. So, if you hold a bottle of wine in your hands, roughly the same weight of carbon has been emitted into the atmosphere from producing and transporting it to your house.

In terms of how The Wine Society's carbon footprint compares to others, 1.35kg of CO_2e per-bottle of wine is within the same range as similar per bottle estimates from other sources we have looked at. However, comparing per bottle carbon footprints is difficult as each company does things slightly differently, such as with the scope of activities included, data quality or the different emission factors used. The important thing is we are all consistent in how we measure our own footprint and are working hard to reduce it.

Bottles of wine sold by The Society have an average carbon footprint of 1.35 kg CO_2e per bottle

The bottling line at Greencroft Bottling, part of the Lanchester Group

Carbon emissions of our new warehouse

In 2021 we also started construction of Warehouse 5 (WH5) at our Stevenage HQ. This produced an additional 1,874 tCO_2e, which, when combined with the rest of our footprint, totals 18,362 tCO_2e.

WH5 emissions resulted largely from the materials we purchased for construction, such as steel and cement. The GHG Protocol carbon accounting rules also require us to include the carbon emissions of WH5 in our total footprint for 2021. However, as it is a one-off construction, we have not set reduction targets against the full 18,362 tCO_2e. If we did this, we would have immediately reduced our carbon footprint by just over 10% from 2021 to 2022 – which would be too easy and not a genuine reduction. Instead, we are using the lower figure of 16,488 tCO_2e against which we need to reduce emissions.

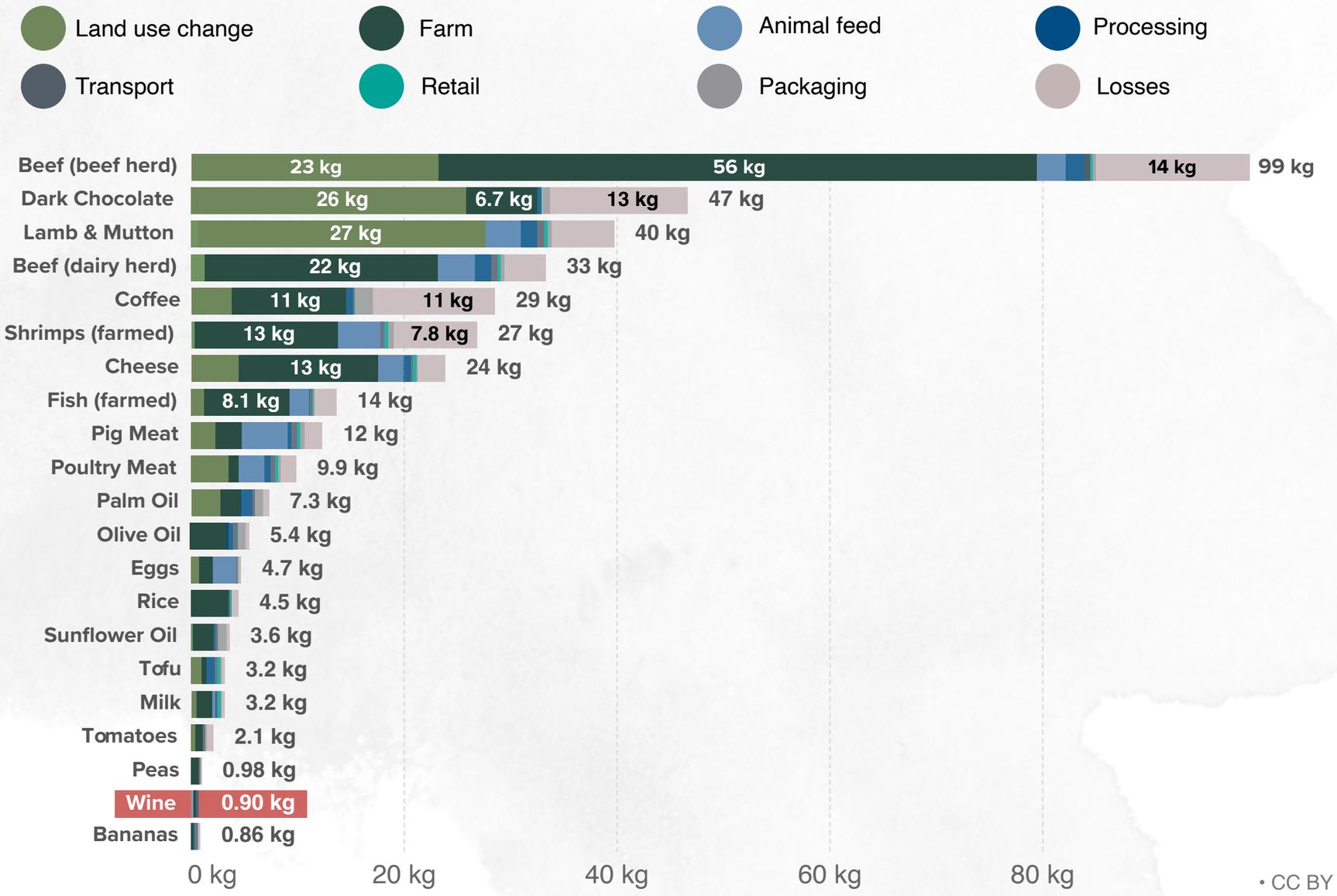
How does the carbon footprint of wine compare to other food and drink products?

As an additional way of putting into perspective the carbon footprint of wine, the graph below from OurWorldInData.org gives an indication of how Wine Society wine in a glass bottle compares, weight-for-weight, with other food and drink products in their normal packaging.

Please note that we have not reviewed the methodology Poore and Nemecek (2018) have used, or highlighted any significant differences between our methodology and theirs, which means the figures in this graph do not necessarily provide an accurate comparison to ours. We have included it merely to give our members a broad indication. Additionally, for the purposes of this comparison we have converted our carbon footprint into kg. This means that 1kg of Wine Society wine (in a glass bottle) produces roughly 0.9kg of carbon.

Fig 1: Food: greenhouse gas emissions across the supply chain

Greenhouse gas emissions are measured in carbon dioxide-equivalents (CO_2eq^2) per kilogram of food.



Source: Joseph Poore and Thomas Nemecek (2018)

Scopes 1, 2 and 3 explained

We have calculated the amount of carbon emissions produced by The Society's business activities across our own operations and our supply chain – this covers Scopes 1, 2 and 3:

Scope 1 = 551 tCO_2e
Direct emissions from things we own, such as our diesel vans, gas boilers, gas cookers and leakage of GHGs from air-conditioning units

Scope 2* = 540 tCO_2e
Indirect emissions from the electricity we buy from the National Grid to power our offices and warehouses at our site in Stevenage

Scope 3 = 15,396 tCO_2e
All other emissions related to The Society's activities throughout our supply chain, from the vineyard to members' doors. This includes areas such as:

- fertiliser, water, tractor fuel and energy consumption in vineyards and wineries
- the manufacture, use and disposal of packaging such as glass and cardboard
- shipping wines from around the world and delivering them to members' doors
- business activities such as producing and posting printed marketing materials, business travel, employee commuting, running our website and storing data.

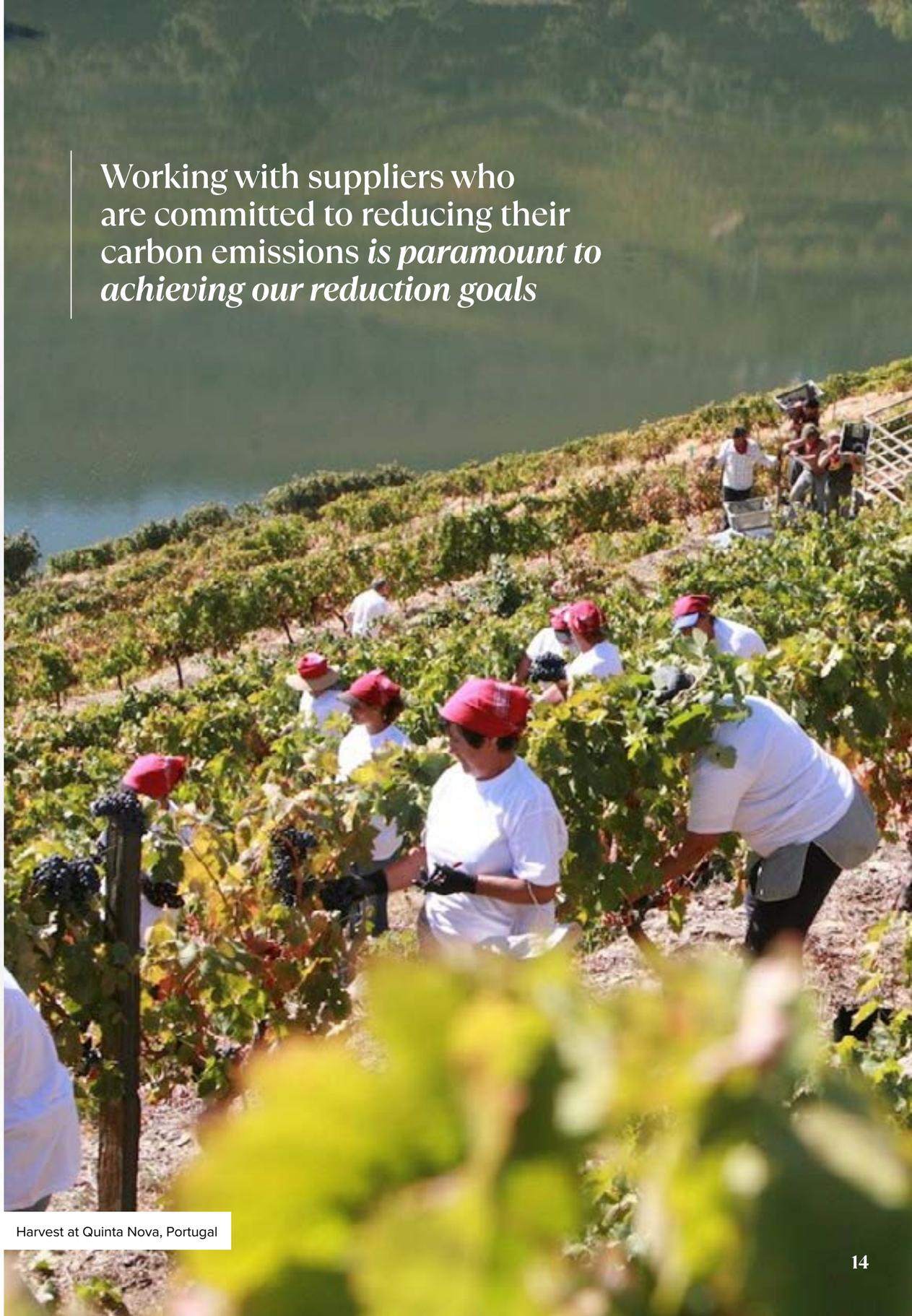
*These are our Scope 2 market-based emissions. These are the scope 2 emissions that The Wine Society will report against going forward. Market-based estimates take into account the type of electricity tariff that The Wine Society uses.

Our Scope 2 location-based emissions for the same period were 327 tCO_2e.

Location-based estimates are calculated using average grid emission factors, and do not take into account which tariff we use.

While Scope 1 and 2 emissions are more within the control of The Society to tackle, it is much harder to reduce Scope 3 emissions. Only 6.6% of our emissions come from Scope 1 and 2 activities. The remaining 93.4% comes from things we don't directly control or own. Many of our suppliers' Scope 1 and 2 emissions will therefore make up The Society's Scope 3 emissions. This is why working with suppliers who are committed to reducing their carbon emissions (and the carbon emissions of the suppliers *they* use) is paramount.

Working with suppliers who are committed to reducing their carbon emissions ***is paramount to achieving our reduction goals***



Harvest at Quinta Nova, Portugal

Where our emissions come from

Production and disposal of glass bottles is top of our emission hotspot list, accounting for 31% of our footprint. In 2021, The Society used just under 6,000 tonnes of glass. Glass wine bottles are usually produced in gas-powered furnaces at around 1,500°C, which requires a lot of energy and produces high levels of carbon emissions. While infinitely recyclable, recycling rates of glass are not as high as we would like them to be. Decreasing the weight of glass bottles and increasing their recycled content is a priority area to bring emissions down.

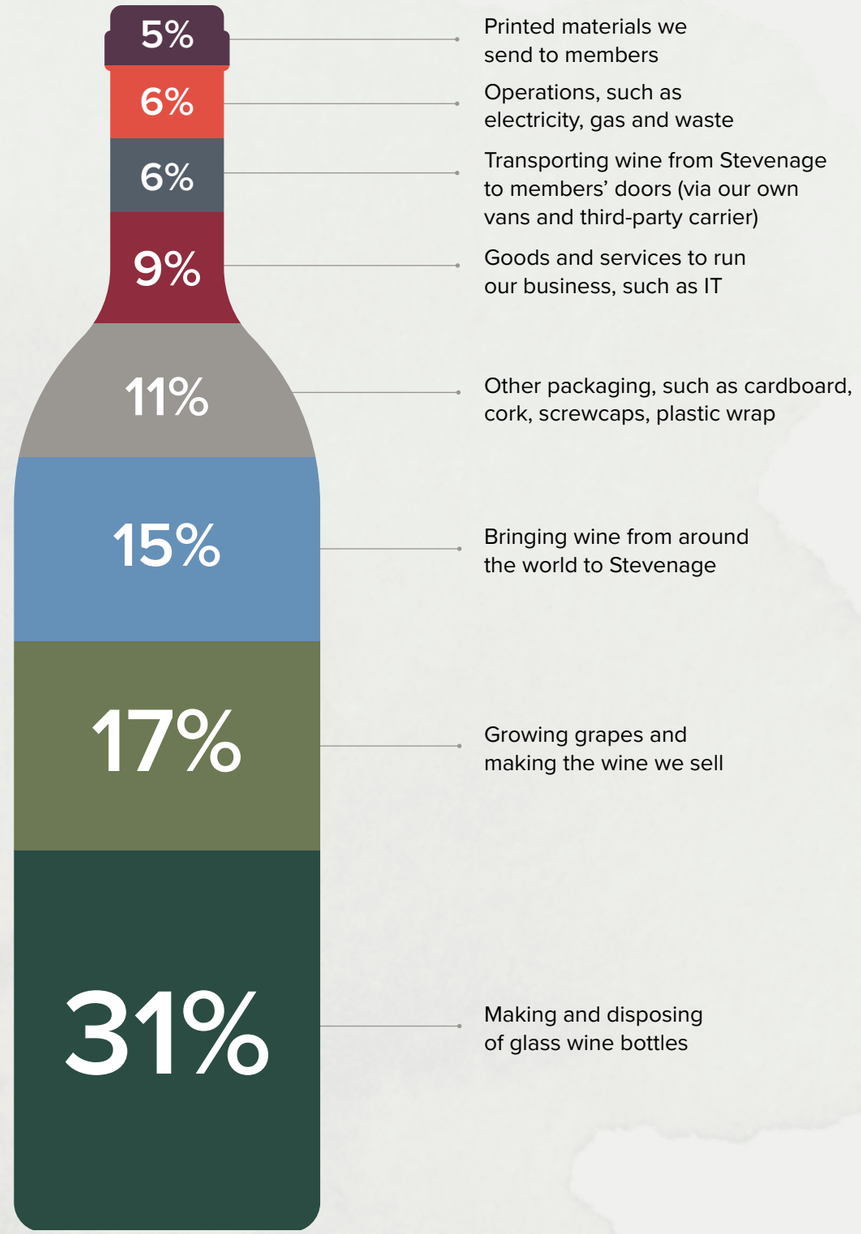
Other packaging, which contributes to 11% of our total emissions, includes the manufacture and disposal of all other packaging we use. This includes materials such as corks, screwcaps and labels for bottles; cardboard boxes and wooden boxes to carry the wines; pallets and shrink wrap to transport the boxes – and any other packaging needed, such as tape to seal the boxes. While not as high as glass wine bottles, it is still a significant portion of our footprint and a priority for us to tackle.

Grape-growing and winemaking are in second place, totalling 17%. While each producer does things differently, these emissions come from activities such as the use of fertilisers and other agro-chemicals sprayed on the vines, use of diesel in farm machinery such as tractors, electricity to power the winery, water use and waste management.

This is an area where we have the least amount of accurate primary data, as many growers and producers have not yet calculated their carbon emissions. A key action for The Wine Society going forwards is to encourage and support more of our suppliers, and the sector as a whole, to calculate their carbon emissions. This will provide more precise data about the main causes of carbon emissions in different climates and regions around the world and what works to reduce them.

Transporting wine around the world, from wineries to members' homes, makes up 21% of our emissions. The Society ships wines from where they are made and bottled to our warehouses in Stevenage where they are stored (we never transport wine to the UK by plane, except samples). The wines are then delivered to members' doors, when ordered, either by our own vans or by our third-party delivery partner.

Perhaps surprisingly, container ships and rail are much less carbon intensive than lorries. For example, it is possible for Australian wine sent to a port by rail then shipped to the UK to produce less carbon than wine driven from Bordeaux to the UK by lorry. Transporting wine by lorry uses considerably more carbon per kilometre than by boat. Our challenge is to work continually with our shipping suppliers to use the most carbon-efficient transport methods and routes wherever possible.



Each bottle supplied by The Wine Society has an average carbon footprint of 1.35kg Co_2e

Please note that the carbon emission figures in this report have been rounded up or down.

Running operations at our HQ in Stevenage, which consists of five warehouses and offices for approximately 250 staff, makes up 6% of our total footprint. These emissions primarily come from:

- the electricity we buy from the National Grid to power our offices and warehouses
- burning natural gas on site to power our boilers and catering cookers
- GHG emissions that leak from our air-conditioning units, which are required to keep wines at constant temperature in our warehouses
- employee commuting to the office
- collecting and recycling waste
- water use.

Emissions from designing, printing and posting marketing materials to our members account for 5% of the total. In 2021, we sent nearly 300 tonnes of paper to our members. This includes publications such as our quarterly *1874* magazine, The List, The Pick and various Christmas offers. While more and more of our members read digital versions on our website, many still choose to receive them by post. We are working hard to find the right ways to tackle this, in ways that work for both the environment and our members.

Lastly, there is a bucket of emissions called 'other'. These includes emissions from other capital goods and services The Society uses, such as capital goods purchases like repairs and furnishings, computer equipment and warehouse equipment. It also includes emissions related to services and activities such as pension contributions, legal and professional advice, insurances, laundry and cleaning, postage and telephone, stationery, recruitment costs and our on-site canteen. While we can make different choices about what we buy, this is the hardest area to reduce, as it largely depends on our suppliers reducing carbon emissions from their business activities.

One of The Wine Society's warehouses

Our Carbon Reduction Targets

Our carbon reduction targets

When we developed our comprehensive sustainability plan in 2021, we set ourselves an ambitious target of being net zero across our business and supply chain by 2040. With the insight gathered from the carbon footprint work, we have now reaffirmed this commitment and added several interim milestones along the way.

> We set ourselves an ambitious target of being *net zero across our business and supply chain by 2040*

Our goals and milestones

2024

Equivalent of carbon neutral in Scope 1 and 2 emissions in 2024 through investing in carbon removal projects in our supply chain

2028

100% reduction in Scope 1 and Scope 2 emissions by 2028

2032

50% reduction in Scope 3 emissions by 2032, in line with the global goal of keeping the world below 1.5 degrees of warming

2040

Net zero across all three Scopes by 2040

The Wine Society's Scope 1 and Scope 2 emissions reduction targets have been submitted to The Science Based Targets Initiative (SBTi), in line with their SME target validation route

Vineyard at Ridgeview, England

What's the difference?

Carbon neutral
A carbon-neutral business has committed to reducing emissions, and in the meantime balances its remaining emissions through carbon removal schemes. We have committed to be the equivalent of carbon neutral for scopes 1 and 2, for which we will be looking to implement carbon removal schemes within our own supply chain – see our Carbon Neutral section on page 21.

Zero emissions
When no carbon is produced directly from a particular activity, product or service (such as the running of an electric van or an electric cooker on electricity produced through solar power)

Net zero
When a business has reduced its Scope 1, 2 and 3 emissions by as much as possible, leaving only 'residual' emissions, which cannot be removed. Current guidance from the SBTi states that for most businesses, this means a total reduction in emissions across all scopes by 90%. Carbon removals should then be used to neutralise the residual emissions.

Our approach to reducing emissions

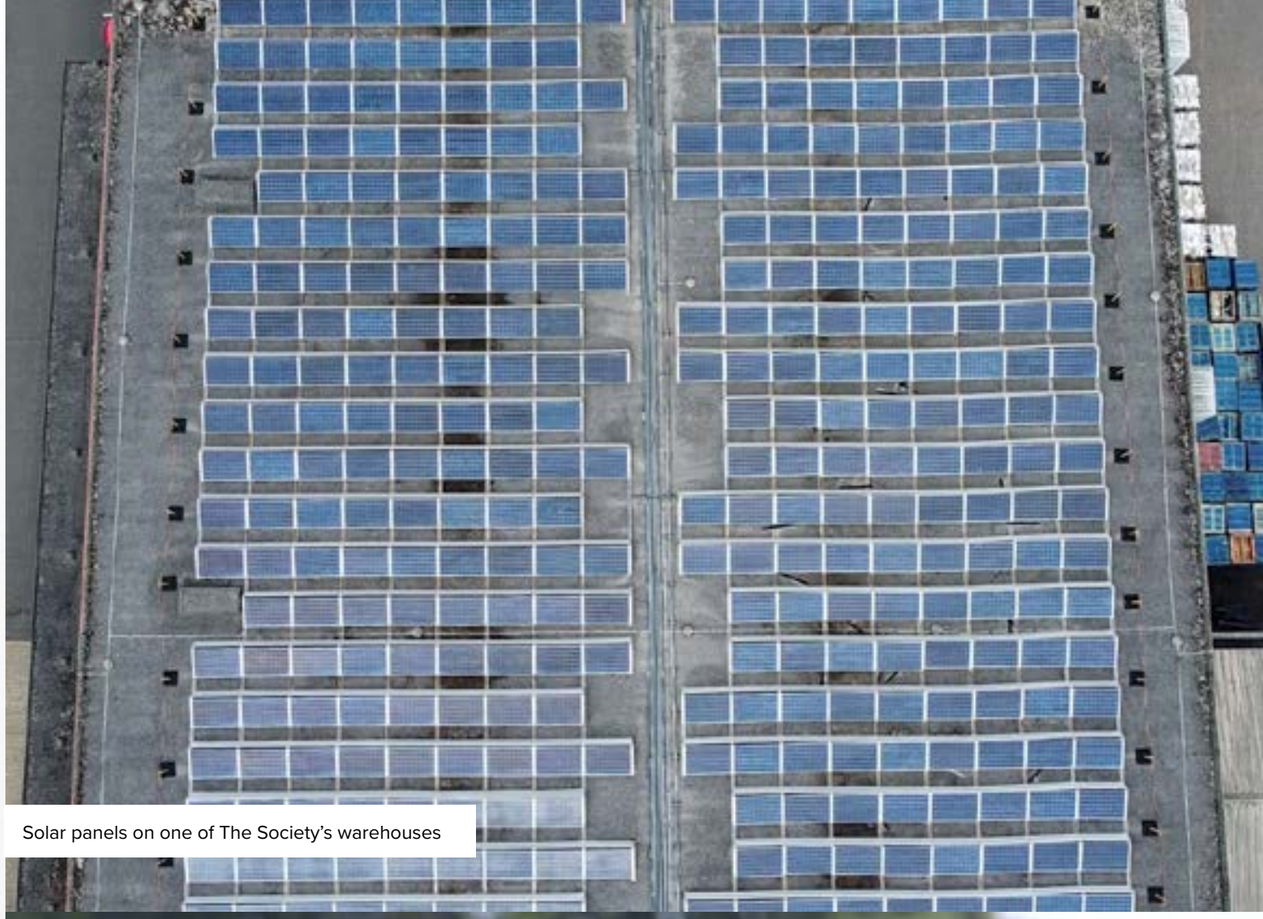
We must be realistic and honest with ourselves. Reducing carbon emissions is complicated and will require a lot of hard work. While we have set ourselves a target of reducing Scope 3 emissions by 50% by 2032, we have calculated that even if we implement all our plans successfully and a conservative amount of passive decarbonisation* takes place, our roadmap currently only gets us to a 38% reduction in total emissions by then. There are still new ideas, processes, partnerships and technologies that will need to be discovered and incorporated along the way. This is why we will need to review and update our roadmap annually, to take advantage of new learnings along the way.

What is passive decarbonisation?

The Society does not operate in a vacuum and is not the only business reducing its emissions. In this report, we use passive decarbonisation to refer to the activities that others take, outside of the specific actions of The Wine Society, which will help us reduce our emissions faster. This may be due to activities such as the decarbonisation of the national grid through the use of renewable energy or technology changes such as shipping efficiencies from lower carbon fuels. As the world improves and increases efforts to decarbonise, this will inevitably complement the specific activities being taken by The Society.

We must also be realistic that as a small to medium sized business (SME) we have a limited amount of influence for driving change on our own. We have therefore prioritised our actions into four categories, according to the level of influence and control to make those changes happen:

1. **Full control** – The Society has full control over these emissions as they are under our direct control, and as such have the greatest scope for changes (such as installing solar panels or switching our vans from diesel to electric)
2. **Direct influence** – The Society has direct influence over reducing some of these emissions, through our purchasing decisions and policies, such as selling more of our wines in lower carbon packaging formats, like bag-in-box, cans or plastic bottles
3. **Reasonable influence** – These are emission categories where The Society has some influence, but not enough to directly drive change. This is where we need to work together with suppliers, encourage action, provide support and join coalitions to increase our leverage. Examples include encouraging growers to implement more sustainable viticulture practices or joining associations to accelerate investment in the decarbonisation of transport
4. **Low influence** – These are emission categories which The Society has little influence over. These categories will be the toughest to change, and may rely on wider changes to the economy, such as our professional services suppliers like insurance companies reducing their emissions.



Solar panels on one of The Society's warehouses

Pierre Mansour, The Society's Director of Wine, with Simon Roberts, Head Winemaker at Ridgeview

Our Carbon Reduction Roadmap

How we will be the equivalent of carbon neutral in Scope 1 and 2 emissions in 2024

If we achieve everything in our carbon reduction roadmap, we will be well on our way to hitting our overall goal of being net zero by 2040. However, we need to consider two things:

1. We will still be emitting carbon dioxide and other GHGs along the way
2. It is unlikely that we will be able to reduce our Scope 3 emissions down to zero even by 2040. Achieving this relies on other industries such as shipping, distribution, glass manufacturing, agro-chemical manufacturers also reducing their emissions to zero.

Our 2040 net zero goal therefore assumes that we can reduce our Scope 3 carbon emissions by 90%. The remaining 10% of unavoidable residual emissions will need to be balanced by taking the same amount of carbon out of the atmosphere through other parts of our business and supply chain. As we are in the agricultural sector, the best hope we currently have of achieving this is by capturing and storing that carbon into nature in our suppliers' vineyards.

This is why we have committed to investing in a carbon removal programme that launches in 2024. This is often called 'insetting', although that term has not been officially defined. For The Wine Society, this means investing funds on nature-based projects in our suppliers' vineyards aimed primarily at sequestering more carbon. Secondary aims are to enhance biodiversity and help vineyards become more resilient to climate change.

Whilst the specific projects are still to be decided, it might include investing in areas such as:

- Technological improvements (such as solar power or carbon capture and storage from fermentation)
- Improving regenerative agriculture practices or body of research
- Biodiversity enhancement projects
- Conservation and restoration projects (such as tree planting or wetland creation).

We will invest these funds each year, measure their impact and share the lessons to help other suppliers do the same. As this hasn't been done before, we have given ourselves time this year to develop our project plans.

To begin with, as a minimum we will balance our full Scope 1 and 2 emissions (which in 2021 was 1,091 tCO_2e) through the insetting (carbon removal) programme, which means we will be the equivalent of carbon neutral. As insetting is a new approach, and we are not using mainstream carbon offsetting programmes, there isn't yet an official certification scheme. So although we won't be certified carbon neutral, we will be the equivalent of it. We will use an independent consultancy to publicly confirm we have spent the required funds.

Manure is an important contributor to soil health. Cattle at Cullen's biodynamically farmed estate in Margaret River, Australia

If we only balance out our Scope 1 and 2 emissions through the insetting programme, then the amount we invest would decline each year as we reduce those emissions. We don't want to do this, and are committed to keeping our insetting investment at a similar level. This means year-on-year we will also be balancing out more and more of our Scope 3 emissions, as we work towards our 2040 net zero goal. Once our insetting programme is fully developed later in 2023, we will share more detail on how it will work, the projects we are investing in and the emissions we are aiming to balance out through the programme.

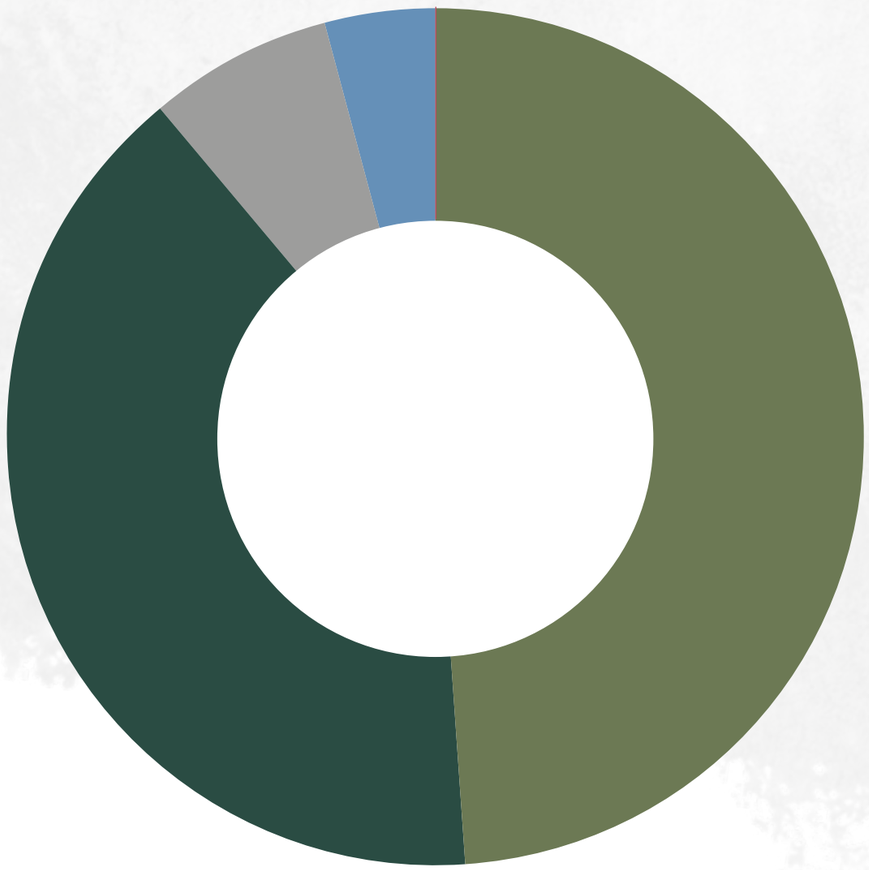
What is carbon sequestration?

The natural or artificial process of capturing, removal and storage of carbon dioxide from the earth's atmosphere. This can be achieved through nature-based initiatives in vineyards such as conservation and restoration, tree planting, creating wetlands or by employing more regenerative viticulture practices such as not tilling the soil and increasing biodiversity.

How we will achieve 100% reduction in Scope 1 and 2 emissions by 2028

The Wine Society's Scope 1 and 2 emissions represent 6.6% of our total footprint. These are primarily emissions that result from the energy use at our Stevenage site and from fuel use in Society delivery vans. The Society has made an ambitious public target for these emissions to be zero by 2028, as much of this is in our direct control.

Fig 2: Summary of The Wine Society's Scope 1 and 2 emissions



Delivery vehicle fuel 40%
Natural gas 7%
Red diesel <1%
Electricity 49%
Refrigerant gases 4%

Actions we will take between now and 2028

Invest in renewable energy generation – so we produce as much of our own renewable electricity as possible

At The Wine Society, we believe one of the most tangible, and cost effective, ways we can contribute to the fight against climate change is to generate as much of our own renewable energy as possible.

The Society currently produces around 22% of the electricity we need to power our offices and warehouses at our site in Stevenage, through solar panels on the roofs of two of our warehouses. However, this is just the start. We believe that by 2028 we can generate up to 80% of the electricity we need to power our offices and warehouses in Stevenage. We can do this by adding solar panels onto our new warehouse and replacing the existing solar panels on our other warehouses with modern, more efficient models. And there is a clear business case for doing this.

At the time of writing (2023), our annual electricity bill is more than £440,000. With current high electricity prices, solar panels can pay for themselves within three to four years. This means it is possible that by 2028 we will be producing 80% of our energy needs as cleanly as possible and for free.

Switch to renewable energy tariff – for the remaining electricity we purchase from the grid

Renewable energy tariffs are not a perfect solution, but they are significantly better than standard tariffs. That is why in September 2022 we moved to a renewable tariff, which under official carbon accounting rules from the GHG Protocol saves 243 tCO_2e per year.

While this is a positive step, we still believe producing our own renewable energy is the best course of action, financially and environmentally.

Switch our own vans to zero emissions

The Society currently owns 35 vans, delivering approximately 25% of the wines we sell to members. All of these vans are currently diesel and our goal is to move them to zero emissions by 2028. However, we need to be realistic about this target, given the pace of improvements in zero-emission van technology.

Our vans travel 175 miles per day on average and start their journey with around one tonne of wine. There are currently no affordable, fully electric or other zero-emission vans on the market that can manage that distance and weight on a single charge. If we were to charge the vans during the day this would take significant time and the driver would be able to deliver fewer orders. This means we would need to hire more drivers and purchase more vans to deliver the same amount of wine, which is neither economically nor environmentally viable.

While we hope to move to zero emission vans for as many of our routes as possible over the next five years, achieving 100% by 2028 will depend on the technology available. There may be some remaining routes, particularly those in more rural areas where our vans travel longer distances and there is limited charging infrastructure, that we may not be able to switch until 2030. However, we will try our hardest as switching all 35 vans to zero emission versions would save 441 tCO_2e per year.

Dom de Ville, The Society's Director of Sustainability and Social Impact next to solar panels at The Society's HQ

The Wine Society Kitchen

Replace natural gas appliances with zero emissions

We currently use gas boilers to heat our offices and gas cookers to cook food for the events we host. Over the next five years we will replace these with electric or another zero-emission option, which will reduce our emissions by 71 tCO_2e per year.

Cut leakage of GHGs from air-conditioning units

We need to use air-conditioning units to keep the wine we store for our members at a constant temperature and to heat and cool offices for our staff. This is particularly important for wines we store for longer periods in Members' Reserves. While the air-conditioning units in our warehouses have already been upgraded, some of those in our adjoining offices are older models and leak GHGs.

Over the next five years we aim to continue our air-conditioning replacement programme so that by 2028 we will only be using modern units in our offices that minimise GHG leakage and use low Global Warming Potential (GWP) gases. This will reduce our annual carbon emissions by 35 tCO_2e per year.

Potential carbon reductions by 2032

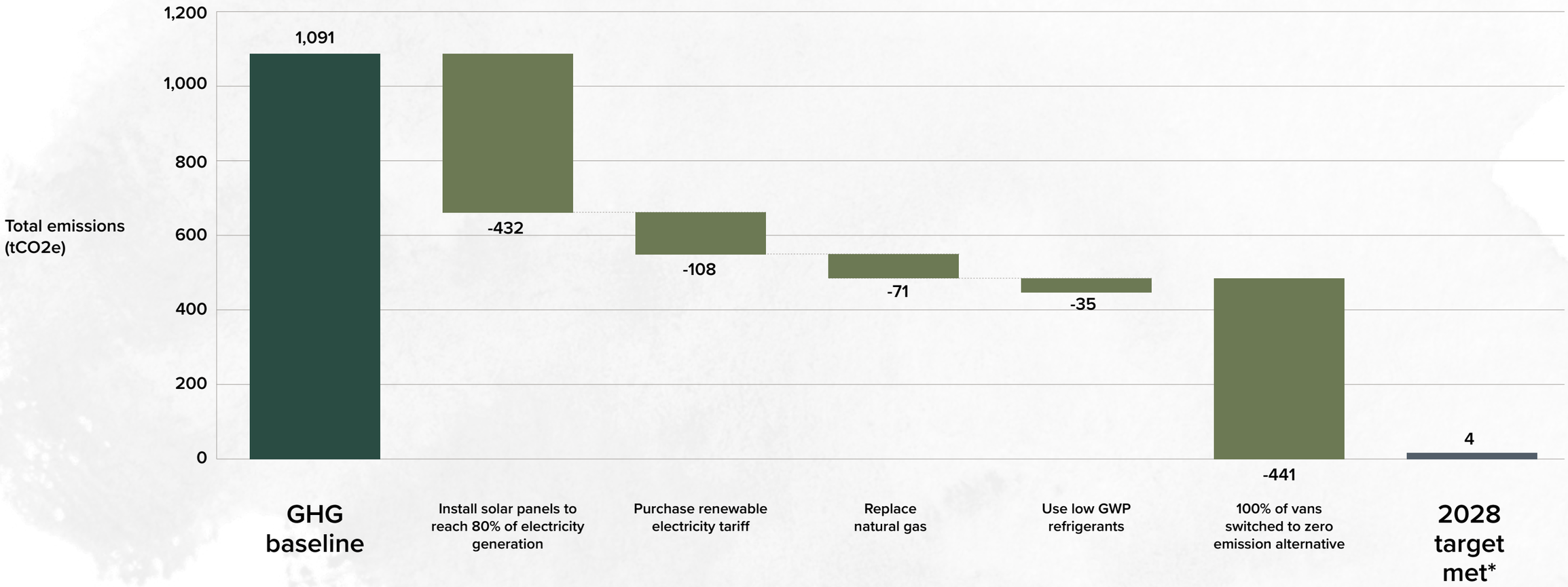
By implementing all these actions, we believe that by 2028 we can reduce our annual Scope 1 and 2 emissions by 99.6%, saving 1,087 tCO_2e per year.

The waterfall chart on the following page (Fig 3) demonstrates the carbon emissions we will save from each initiative, towards our 2028 goal.

Fig 3 illustrates how The Society aims to reduce Scope 1 and 2 emissions by 100% by 2028

Please note that this waterfall chart is illustrative. From 2024 we will update our Scope 1 and 2 emissions annually, so we can accurately track and report progress.

Estimated emissions reduction -1087 tCO_2e
-99.6% of Scope 1 and 2



*Excluding less than 1tCO_2e associated with fuel required to test the fire pump and approximately 3tCO_2e of unavoidable refrigerant emissions

How we will halve Scope 3 emissions by 2032

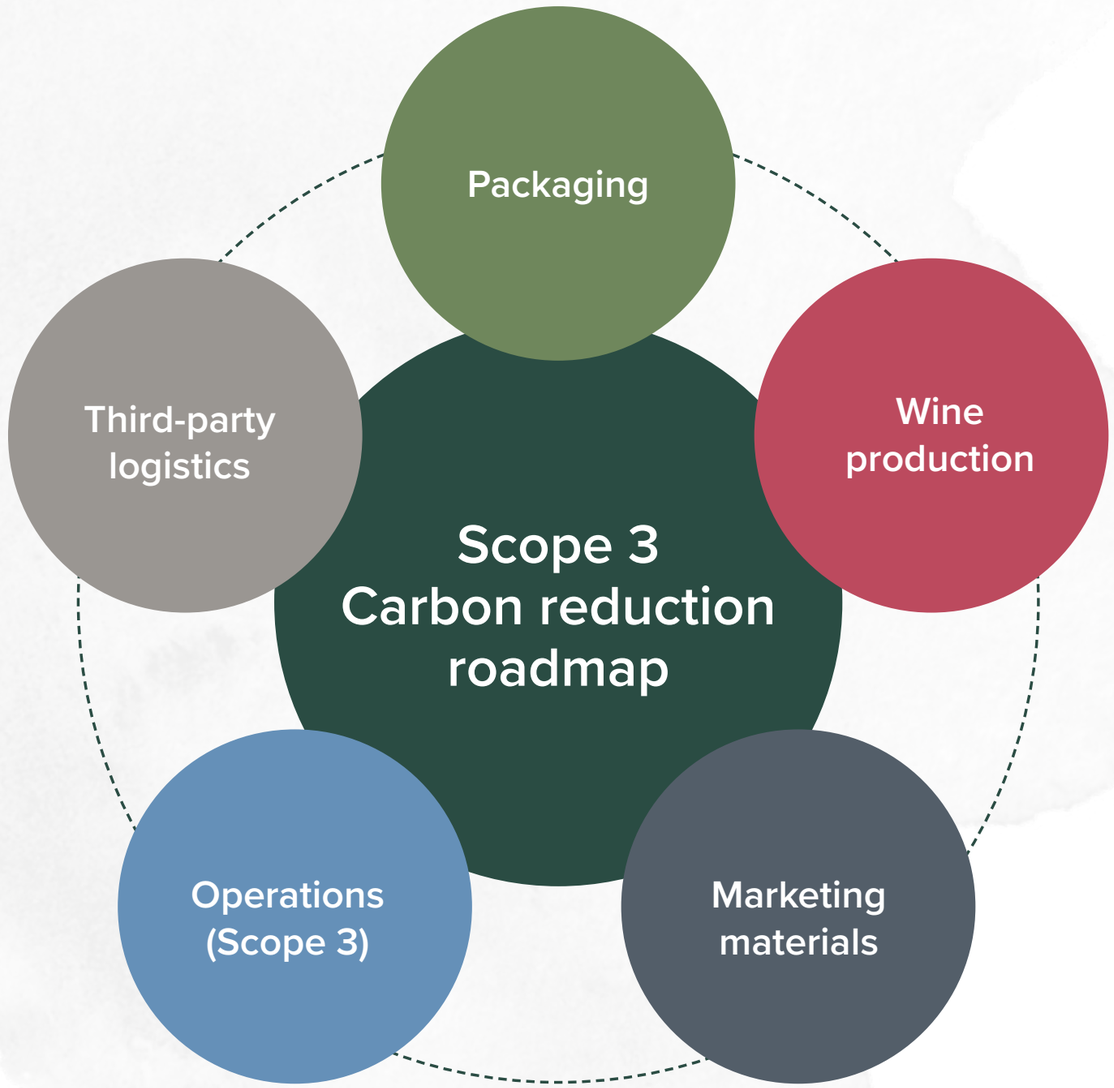
93.4% of our emissions come from activities throughout our value chain and therefore by their very nature are harder to tackle. Reducing our Scope 3 emissions requires working in partnership with our suppliers, which is one of the great strengths of The Wine Society.

We know, for example, that we owe the quality of our wines to the winemakers who supply us. Our model as a mutual means our buyers invest in visiting and building close relationships with our growers and producers around the world, often over many years. There is enormous strength in this community of producers and The Wine Society continues to have a strong reputation across the world as one of the best organisations to do business with. This provides an incredible opportunity to work together to identify scalable solutions to climate change and biodiversity loss and share those learnings with others.

To tackle our Scope 3 emissions, we have broken our roadmap into five focus areas. Where possible, we have divided these actions for each area into short term (one to two years) and medium term (three to five years). While we have tried to be as specific as we can with the actions we are taking and when, in many areas there is more work to be done to set specific targets. Where this is the case, we have committed to dates on when we will publicise those targets. This will help keep us focused on the work and enable our members to hold us to account on progress.

For each of the five focus areas, we have also estimated the annual emissions reductions the different actions could lead to. This helps us to identify where we can make the fastest and greatest impacts and to prioritise resources. These estimated reductions are summarised in a waterfall-style chart at the end of the section on each of the focus areas. Please note that they are estimates only, some actions are easier to quantify than others and the accuracy will improve as we firm up our plans over the coming years.

Fig 4: Our five focus areas



Packaging

As the chart below shows, packaging is the single-biggest source of carbon emissions for The Society. In 2021 we produced 7,018 tCO_2e from packaging, which represents 42% of our total Scope 1, 2 and 3 emissions. These emissions are produced from the sourcing of raw materials, manufacture and end-of-life disposal. 6,600 tCO_2e are from production of the packaging, and 418 tCO_2e are from disposal after use by our members.

'Other packaging' includes everything we use other than glass bottles (see Fig 6 for a breakdown of what this includes). In total The Society used an estimated 1,688 tonnes of other packaging, which produced 1,870 tCO2e and represents 11% of the total Scope 1, 2 and 3 footprint.
Packaging is unavoidable, but it is the area where we can make the greatest carbon reductions in the shortest time.

Fig 5: Packaging represents 42% of our total Scope 1, 2 and 3 emissions

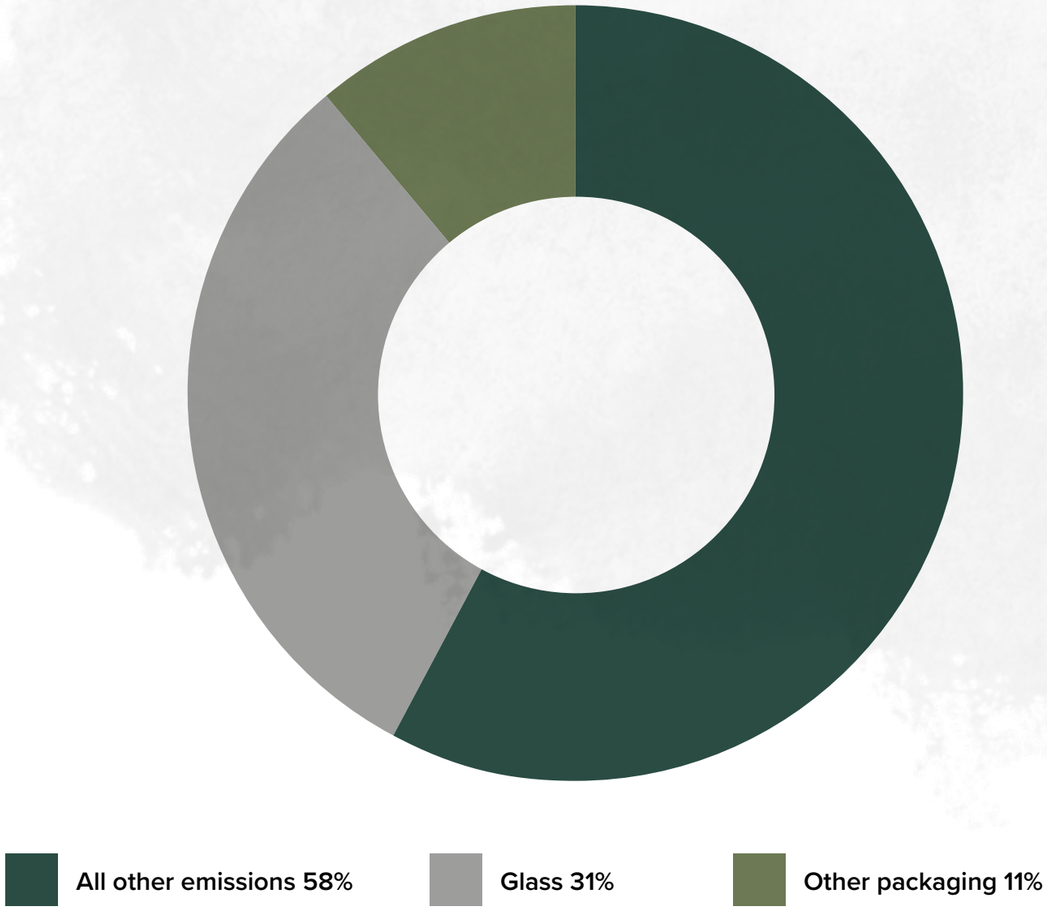
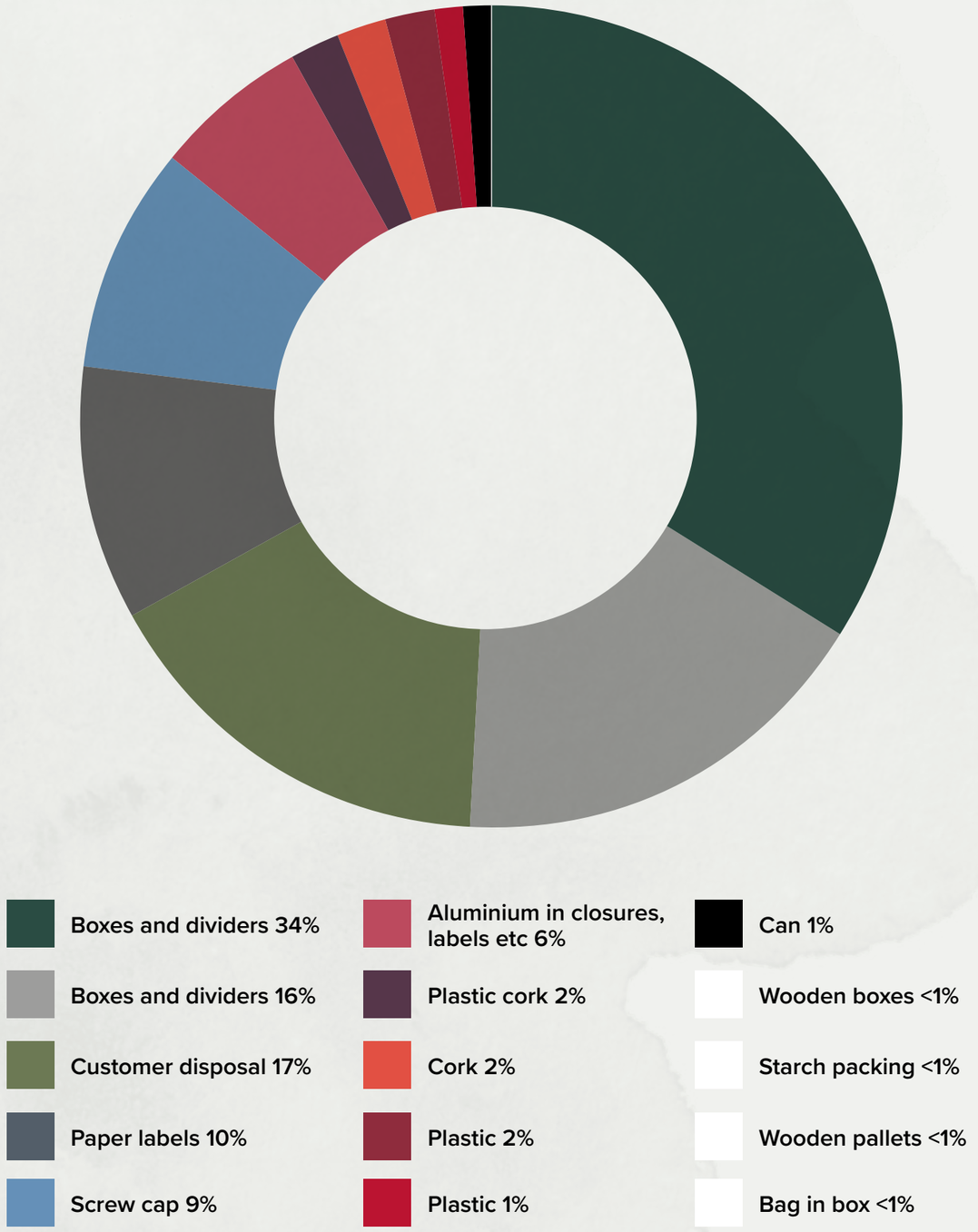


Fig 6 provides a breakdown of 'Other Packaging', which represents 11% of our total Scope 1, 2 and 3 emissions



What we've done

- ensured our cardboard boxes are recyclable, made from recycled content and FSC approved
- reduced the average bottle weight of The Society's own-label range to below 420g per bottle
- removed the capsule from The Society's own-label wines that have corks, as it is not necessary and a waste of resource.

What we're doing next

In 2023, The Society will build on what we have already been doing for a number of years and accelerate efforts to reduce the environmental impacts of packaging. This will involve four programmes of work, creating new standards and approaches for how we package our wines, focusing initially on wines that do not require ageing.

- accelerate efforts to right-weight glass bottles
- further improve the environmental credentials of cardboard boxes
- put more of our wines in lower-carbon, alternative packaging formats
- investigate and maximise the opportunities from bulk shipping.

1. Right-weight glass

As many members will know, there is a big difference in the weight of glass bottles used to package wine. For still wine, this can range from 390g to 800g per bottle. For sparkling, bottles can range from 650g to 1.5kg. Although we must bear in mind that sparkling-wine and Champagne bottles do need to be stronger to withstand the high pressures from the wine inside.

In most cases, brands use heavier bottles to indicate quality than for any practical reason. Every extra gram of weight increases the carbon footprint of the bottle; from the additional material required, the additional weight to transport, the additional space needed to move the bottle around the world and its disposal. The Wine Society has calculated that for every 20g reduction in the average bottle weight of our full range, we will reduce our carbon emissions by around 150 tCO_2e per year.

This is why we are committed to 'right-weighting' – bringing the weight of all our glass bottles down to the lowest possible amount without increasing the likelihood of it breaking in transit. While glass-bottle technology is constantly evolving, according to recent research by the Sustainable Wine Round Table, a sensible weight for still glass bottles is around 380g to 400g. For sparkling it is around 550g to 650g for Prosecco and 800g to 835g for Champagne.

Packaging is the area where we can make the ***greatest carbon reductions in the shortest time***

Our short-term commitment

- In 2023 we will implement year-on-year bottle weight reduction requirements for our suppliers, so that from the 2027 vintage onwards all of our still wine range will be in bottles below 420g.

Our pathway to achieving this target is:

- From the 2023 vintage, 40% of our still wine range will be in bottles below 420g
- From the 2024 vintage 50% will be below 420g
- From the 2025 vintage 60% will be below 420g
- From the 2026 vintage 80% will be below 420g
- From the 2027 vintage 100% will be below 420g

These targets have been informed by research currently being finalised by The Sustainable Wine Roundtable, which was part-funded by The Wine Society in conjunction with five other well-known retailers. Please note, however, that there may be some wines which even in 2028 might be in heavier bottles for reasons beyond our control, such as due to appellation regulations or because the wine has been aged.

Our medium-term commitment

- to include the weight of every glass bottle we sell as part of the product information, so members can make a more informed choice about the wines they buy
- to work with other retailers, through the Sustainable Wine Round Table, to agree a ‘bottle-weight accord’. This will be an agreement by a critical mass of retailers to work towards similar targets on the weight and recycled content of glass bottles. If a critical mass of wine retailers can align on the same goals, this will help encourage wine producers, glass manufacturers and other stakeholders to work together and make faster progress.

2. Minimise the impact of our cardboard boxes

The Society currently uses around 600 tonnes of cardboard every year. This is made up of the cardboard used by our suppliers to ship their wines to us in Stevenage, plus The Society’s own boxes used to repack wines and ship to members.

Reducing the amount of cardboard we use by 50% would result in an annual emissions saving of 316 tCO_2e (2% of our total footprint). Furthermore, a box that is made of mostly recycled content accounts for half the emissions of a box made of virgin material. It’s not a straightforward task, however, given that our 800 or so suppliers ship wines in different types of boxes with varying weights and levels of recycled content.

Our short-term commitment

By the end of 2024:

- develop and roll out packaging standards that all our suppliers must adhere to. This will include meeting required levels of recycled material, strength (so they can be reused), recyclability and use of sustainable materials
- revisit and revise the specifications of our own Wine Society cardboard boxes to identify where we can reduce the amount of material used and maximise their environmental credentials.

Our medium-term commitment

- explore the opportunities of take-back and reuse systems, to reduce single-use boxes

This could involve using foldable, plastic crates that can easily be stored by members then returned with their next wine delivery. However, we must be realistic that this may be limited in scope. At the moment it would only be possible to set up a system like this for our own vans which operate out of our Stevenage depot, which is a relatively small proportion of our deliveries. It would not, for example, be possible

to do this for wines delivered by our third-party delivery provider, as it is not practical or cost effective, or for our own vans that operate out of other depots around the country, as there is no way to get the crates back to Stevenage.

However, there are always opportunities to do more. We are committed to doing what we can.

3. Expand our portfolio of lower carbon wine packaging formats

Awareness about the high carbon footprint of glass wine bottles is increasing. There is also a growing body of lifecycle assessment (LCA) studies that compare the environmental benefits of wine packaging formats, such as cans, bag-in-box (BiB), flat plastic (PET) bottles, paper bottles, flaxseed bottles and pouches. While none of the LCAs are perfect, there are significant carbon savings to be made from using alternative packaging materials and formats.

This is why The Society is taking action to increase the percentage of wines we offer in alternative, lower-carbon packaging formats, whilst ensuring there is no change in the quality of the wines. For example, if 20% of the volume of wines we sell were in BiB, it would reduce our carbon emissions by 883 tCO_2e per year.

Short-term commitment

- In 2023 we will launch an alternative packaging trial, where we will put a number of our own label wines in different, lower-carbon packaging formats.

If successful, from 2024 alternative formats and materials to glass will become a normal part of our packaging portfolio, particularly for wines that do not require ageing and are ready to drink. We will look to expand the number of wines we sell in alternative packaging, as well as continually evaluate and explore the use of new alternative packaging materials and formats as they become commercially available.

Medium-term commitment

- In 2025, based on the findings of the packaging trial, we will set a goal for the percentage of the total volume of wines we sell to be in alternative, lower carbon packaging by 2032.

Bulk shipment can achieve carbon savings in three ways:

- Weight savings by not shipping individual, heavy glass bottles
- Space savings by using larger flexi-tanks (a 20-foot container can hold 9,000 litres of wine in single glass bottles, compared to 24,000 litres of wine in a single flexi-tank)
- Using more environmentally efficient UK bottling lines and being able to control the use of lighter-weight bottles.

4. Investigate and maximise the opportunities from bulk shipping

Bulk shipping involves bringing wine from wineries around the world to the UK in large, flexible containers (flexi-tank) rather than individual bottles. The wine is then bottled in the UK.

While bulk shipping can lower carbon emissions, it can often only be done efficiently with large volumes. The challenge for The Society is we sell around 6,000 different wines in any one year (including vintage changes), but we don't sell many wines in large-enough volumes to be bottled in the UK. Minimum bottling runs from many UK bottling plants are 8,000 litres.

We need to carry out more research to see which of the wines we sell are suitable for bulk shipping, and where environmental and economic savings can be made.

We conservatively estimate that if we bulk-ship 40% of the volume of wine we sell, we could potentially save a minimum of 249 tCO_2e per year (1.5% of our total footprint). Savings could be much higher, but more in-depth modelling is required to quantify this.

Short-term commitment

- In 2024 we will conduct LCA modelling to identify which of our higher volume wines can be shipped in bulk and better understand how this can be done with fewer emissions and costs.

Medium-term commitment

- In 2025 we will draw on the findings of the LCA work and develop the best process and partners for bulk shipping that reduces environmental and financial costs yet retains (or enhances) quality.

The Society's new bag-in-box wines

- In 2025 we will also set a target to reach by 2032 for the volume of wine we sell each year to have been bulk shipped - along with the associated carbon savings this will result in.

Potential carbon reductions by 2032

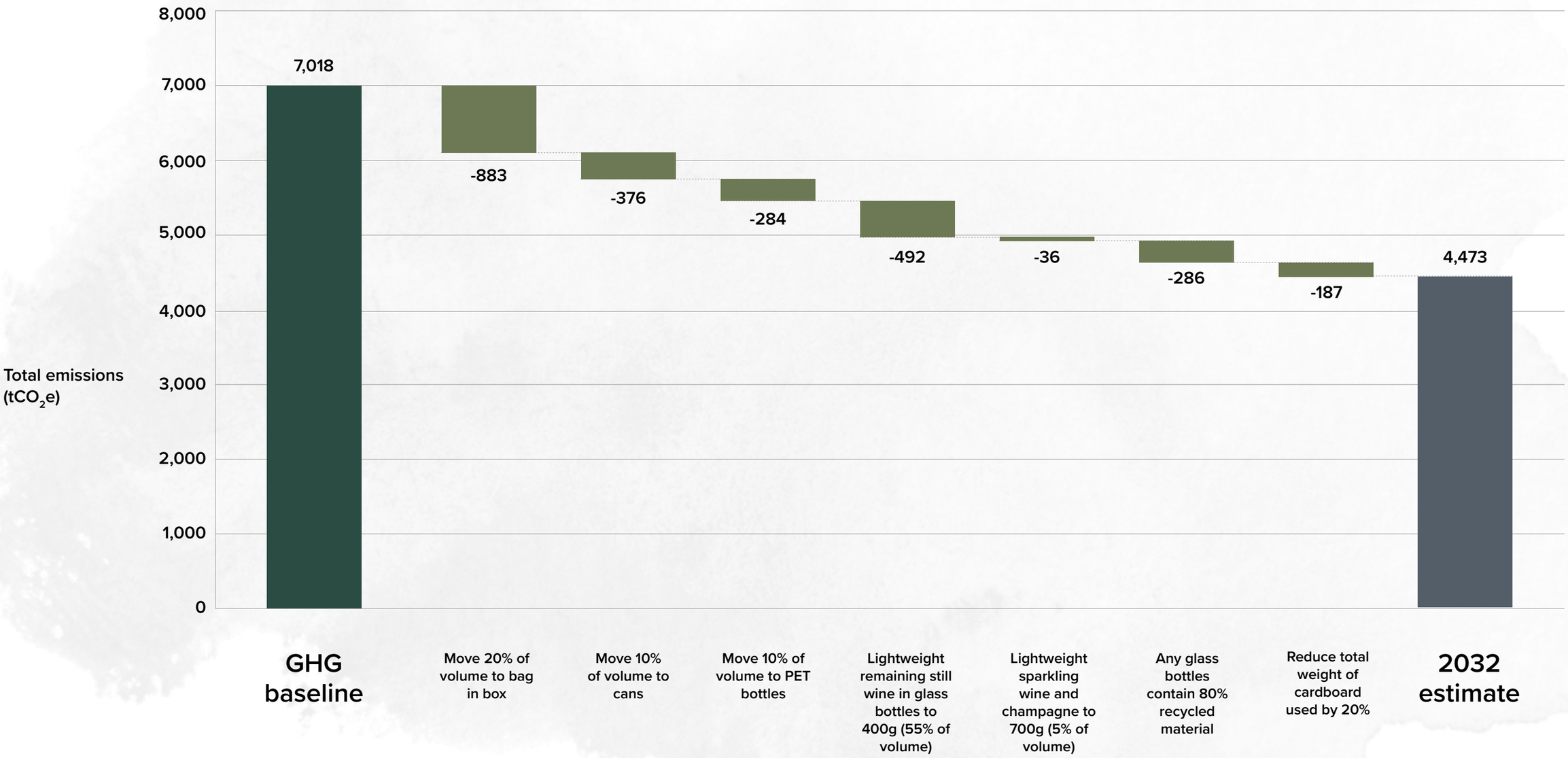
The waterfall chart (Fig 7) represents how we can achieve an estimated 36% reduction in our annual packaging emissions by 2032, if we implement all the actions described above. Please note that this chart is illustrative and is for packaging only. It is not possible to develop precise carbon reduction amounts at this stage and the actions will evolve over time.

However, this chart does provide us with a clear vision for how the actions we have set out can help us achieve our goal. While this is not quite the 50% reductions we are aiming for, it will be a significant step forward. Particularly as the 36% reduction is from Wine Society actions alone and does not include any additional savings that may come about from passive decarbonisation. Although we cannot know for sure what that might be, there could for example be developments in more sustainable fuels for glass furnaces (such as Hydrogen), which would significantly reduce the impacts of glass production.

We will continue to review and revise these plans every year, incorporating new innovations and ideas to help close this gap towards our goal.

Fig 7 illustrates the potential annual emission reductions that can be made from packaging by 2032

Estimated emissions reduction ~2,545 tCO_2e
~36% of packaging ~16.5% of Scope 3



Bulk shipment savings have been added to the third-party logistics reductions

The percentages and types of lower-carbon packaging formats have been included in this chart for illustrative purposes only at this stage. In 2023 we are launching a trial of lower carbon packaging formats, starting with bag-in-box. Once this trial is complete we will be much clearer on which formats our members prefer and what percentage of our sales volume can be packaged in them by 2032.

Wine production

Wine production covers emissions associated with growing grapes and making wine. Emissions come from activities such as the use of fossil fuels in machinery, electricity, fertilisers, pesticides, refrigerant gases in cooling units and from the purchase of other goods and services used in the winemaking process.

Each vineyard and winery is unique and operates in different conditions. The activity that produces higher emissions in one vineyard may be very different to another. This means the best approach to tackling carbon emissions is often different for each grower and producer. However, we believe there are some common principles and practices which can lead to carbon reductions:

- regular carbon footprint calculations to identify emission hotspots and develop reduction strategies

- adopting more regenerative farming practices, such as 'strengthening the health and vitality of farm soil, increasing biodiversity above and below ground, improving the water cycle, enhancing ecosystem services, supporting carbon sequestration and increasing resilience to climate change' (www.regenerativeviticulture.org)

- investing in carbon reduction initiatives such as renewable energy or water recycling.

The Wine Society cannot exist without the community of winemakers and growers who supply us. We know that many are already facing significant challenges from climate change, that this is accelerating, and we need to do all we can to slow the change down. This requires not only leading by example and reducing emissions in our own direct operations, but also helping our suppliers reduce theirs. By working together, identifying and embracing new innovations and ways of doing things we can be a force for good for the sector, encouraging others to do the same. This combined effort will only have a positive benefit for our suppliers, for the quality of the wines they make and for our members who drink them.

This is why The Society is committed to working with, and investing in, our wine suppliers to encourage them to make continuous improvements. However, we also recognise that they are all at different stages of the journey. This means some will not be able to move as fast as others due to their size, financial circumstances or capacity and we will need to identify those who will benefit most from our support.

How we will do this

We will invest in working with our suppliers to reduce carbon emissions in six ways:

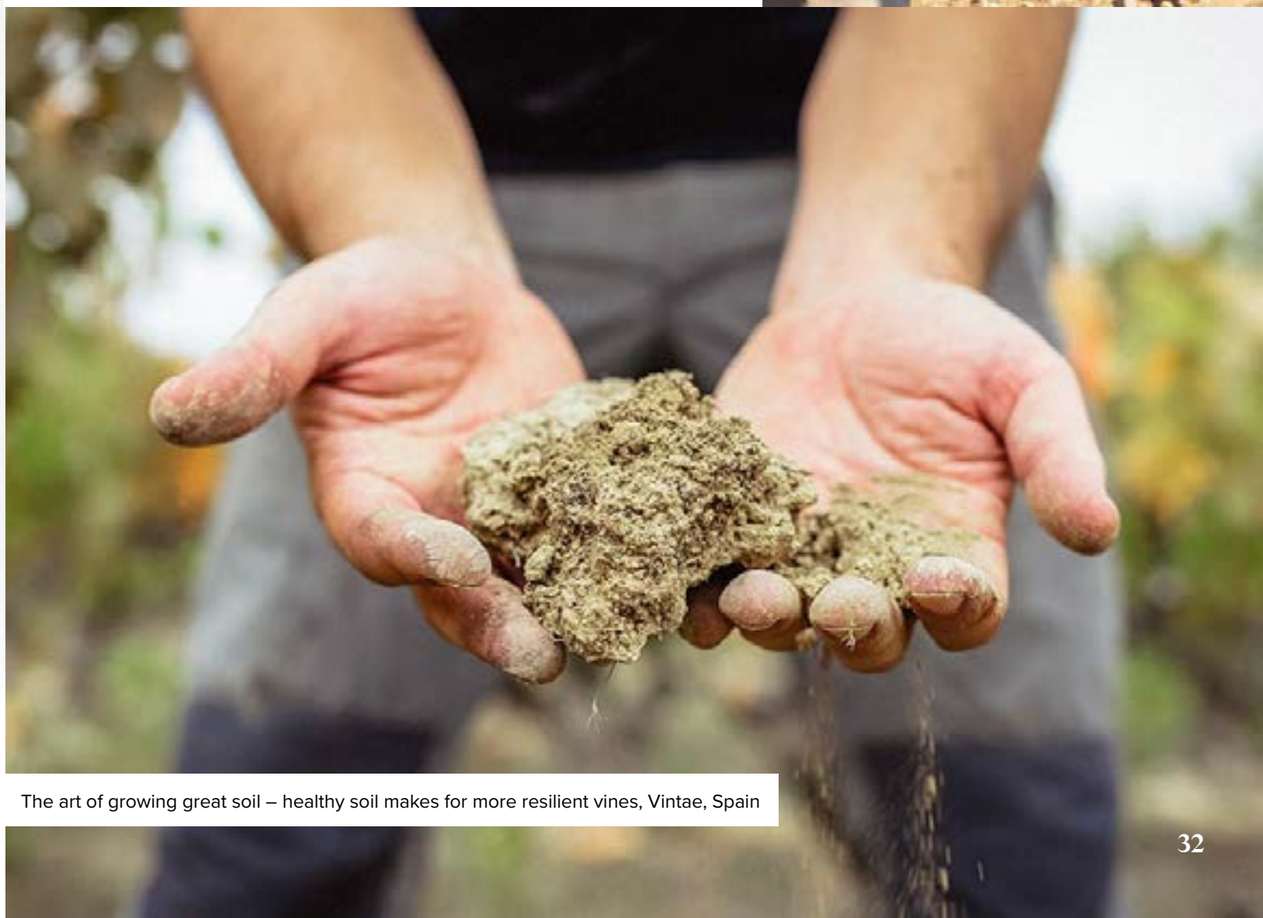
Short-term commitment

1. 2023: Implement mandatory social and environmental requirements which all our suppliers must meet

In 2022 we began our responsible sourcing programme. Its purpose is to ensure that all suppliers we buy wine from meet a reasonable standard (over time) when it comes to the environment, climate and human rights. With regards to carbon reduction specifically, we have included carbon reduction expectations as part of our new social and environmental code of conduct, which from July 2023 all suppliers will need to sign. The expectation we set out is that over time all our suppliers commit to:

- regularly measuring their carbon footprint (ideally annually for their Scope 1 and 2 emissions)

Jason Lett of Eyrie Vineyards, Oregon, suggests that the more diverse mix of plants above ground leads in turn to a diverse mix of soil micro-organisms below ground



The art of growing great soil – healthy soil makes for more resilient vines, Vintae, Spain

The Society is committed to *establishing a supplier forum by 2024*

Dom de Ville

Sam and Bob Lindo of Camel Valley in Cornwall have achieved carbon-negative certification for their vineyards

- providing carbon footprint data to The Society, in relation to the wines we buy from them, so we can more accurately measure and track our own carbon emissions
- implementing reasonable carbon reduction plans, in line with their size and resources .

We recognise it will take time to achieve the above, as this is still a new area for many, and we are committed to doing what we can to help.

2. 2024: Launch an online supplier forum

A great deal of practical and scientific knowledge and expertise already exists about how to measure, track and reduce carbon emissions in vineyards and wineries. Many of our growers and producers are already doing great things, and have been for many years. We need to find better ways for this valuable knowledge and expertise to be shared, so our suppliers can more easily learn from each other. This is something we hear all the time from our suppliers.

That is why The Society is committed to establishing a supplier forum by 2024. This will be an online space where information, tools and guidance notes can be shared between our community of growers and producers to help them reduce carbon emissions, meet our environmental and social standards, achieve sustainability certifications (where desired) and improve resilience to climate change.

For example, growers and producers who are just starting out on their journey to calculate and reduce their carbon emissions will be able to use the forum to access our 800+ suppliers, ask questions and find guidance and tools from those who are further ahead on their journey.

3. Invest in carbon reduction and sequestration, through insetting

Please see page 21 above for details on this.

4. Introduce a Sustainability Scorecard for the wines we sell

From 2024, starting with our own-label range, we will introduce a sustainability rating for our wines. While the criteria for this rating are yet to be developed, the aim is to put a spotlight on the wines we sell which have strong environmental and social credentials. In relation to carbon, the rating criteria we use will enable us to highlight wines that are in lightweight bottles or other lower carbon packaging. It will also shine a light on growers and producers who are making great strides to measure, track and reduce their carbon footprint.

The purpose is to enable members to find wines that are more sustainable more easily, which we hope will encourage our growers and producers to make continuous strides forward.

Medium-term commitment

5. Require all the wines we sell to have a credible, third-party sustainability certification

Our goal is that by 2032, all wines we sell have a credible and independent sustainability certification. We believe that credible certifications are a good way to demonstrate to our members about the tangible progress being made on sustainability and give them the confidence that the wines they are drinking have been made responsibly. However, we recognise that sustainability certifications:

- can be expensive and time-consuming to obtain, which can be especially challenging for smaller growers and producers who are simply trying to survive
- can be confusing. There are currently around 40 sustainability certifications in wine, many of which are different. It can be difficult to know which ones are credible

- are often context-specific, which makes it hard to compare them against each other. Many standards are designed to be specific to the local climate and conditions.

The Society is committed to finding ways through this over the coming years. This includes:

- supporting the Sustainable Wine Round Table (SWR) to come up with a common approach in the sector to sustainability certifications. This may include developing a global standard against which all certification schemes are benchmarked, to help identify the most comprehensive and robust
- providing tools, guidance and financial support to help our suppliers obtain certifications.

6. Providing financial support to super-charge action

Some of our valued growers and producers who make great wine may not have the time or resources to gain sustainability certifications or act on climate change.

This is why The Society has committed to launching a supplier support programme in 2025. This programme will provide financial and advisory support, in the most efficient and scalable way possible, to help some of our suppliers obtain credible sustainability certifications, reduce carbon emissions, adapt to climate change and increase biodiversity. The exact mechanism is yet to be designed – we will be doing this work in 2024, ready for a 2025 launch.

One option which shows promise is a community agronomist model, where The Society may contribute funding for an expert to provide consultancy support to a select group of suppliers, across a number of different regions around the world. This might be, for example, advice and support to instal solar on roofs or in car parks, build healthier soils or increase biodiversity.

Potential carbon reductions by 2032

As in the previous section, the chart in Fig 8 is an illustrative model and should not be taken literally. The detail will vary considerably by region, production system, and supplier. However, our goal is that by undertaking all the actions above, this will encourage as many of our 800 suppliers as possible to take tangible action to address their carbon hotspots. This includes areas such as fossil fuel, water and chemical use, waste management and the use of renewable energy.

Estimating the exact carbon savings from the six interventions outlined above is difficult due to the degrees of separation between The Society and its suppliers. However, as the chart demonstrates, we have estimated that implementing these activities could help reduce the carbon intensity of wine production by 25% by 2032. This would be a concrete saving of 718 tCO_2e per year. As with packaging, this doesn't get us to the 50% reduction we are aiming for but is a good start.

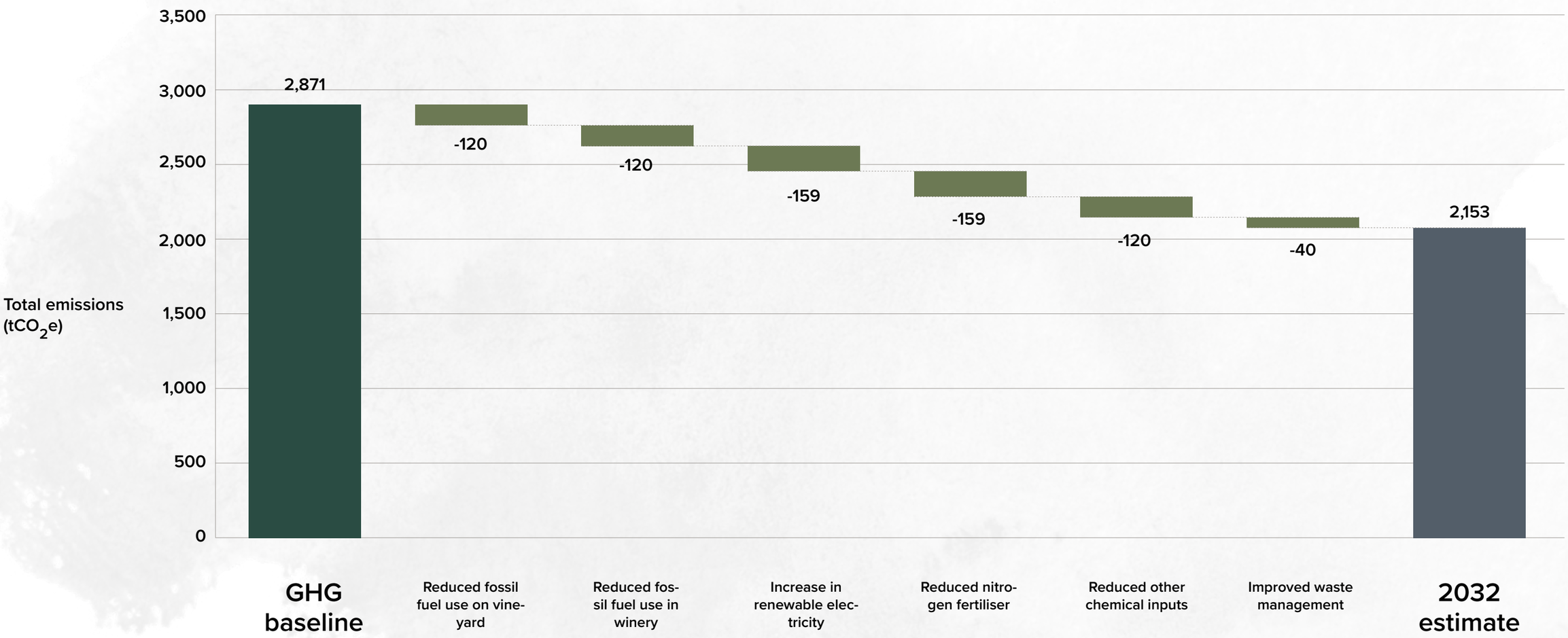
Friends and neighbours, Sam Pfeiffer of Whistler and Scott Rogasch of Forage Supply Co in Australia's Barossa Valley

Forage Supply Co's Scott Rogasch on a mission to teach children where food comes from

Fig 8 illustrates the potential annual emission reductions that can be made from wine production by 2032

The Wine Society will work to ensure that the actions in this roadmap will result in carbon reductions across the areas below*:

Estimated emissions reduction ~718 tCO_2e
~25% of wine production ~5% of Scope 3

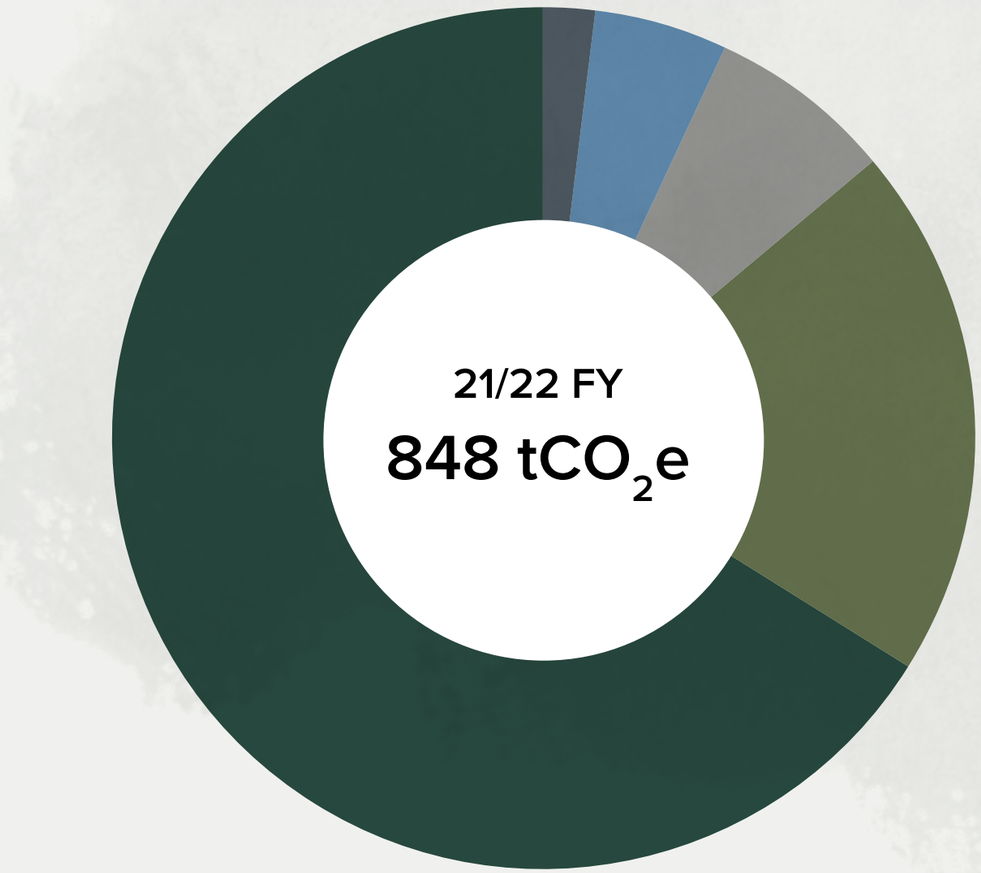


*The reductions described in this graph are for illustrative purposes only. Real reductions will depend on the success of the actions in the wine production section of this roadmap.

Marketing materials

In 2021, The Society posted just over 290 tonnes of printed publications to its members. This produced 848 tCO_2e, just 65 tCO_2e lower than the operational footprint of our whole site in Stevenage. Two-thirds of these emissions are from the production of printed marketing materials, and a further fifth are from the postage of that material. The chart below breaks down the emissions associated with marketing during the reference period 2021/22.

Fig 9: Breakdown of emissions from marketing materials



This is clearly an area we need to tackle, and like packaging, is an area we have reasonable control and influence over.

At the same time, we also need to recognise that marketing materials are an important part of our business model. The Society operates in a highly competitive market, so we need to reach our members with exciting offers, new wines and interesting articles. Other than our Stevenage Showroom, The Society doesn't own shops – we are essentially an online retailer. This means the key ways we can reach our members are through our website, via email and from publications we post. Many members are happy to only read our communications online, however many still prefer print.

While we cannot immediately stop sending printed materials, there are things we can do to significantly reduce our emissions.

What we are doing

Our overarching goal is that by 2032 we will be posting less than half the amount of printed paper to members compared to 2021. And whatever we do post to members will be as sustainable as possible. To that end, work is already underway in three key areas:

Send fewer mailings and use lower carbon formats

Typically we have approached our printed marketing activity by sending the main printed campaign communication each month to every active member who is opted in to receive our marketing. This approach has erred on the side of caution, not wanting members to miss out. Going forward, we are taking a more considered approach, selecting members whose previous purchase behaviour might indicate a greater interest in receiving the full pack, with other members perhaps receiving a slimmed down postcard or leaflet, or indeed not receiving the print at all.

Halving the amount of paper we send would save 290 tCO_2e per year in materials. If we simplistically assume we also reduce postage by half, that equates to 91 tCO_2e from postage. This would reduce emissions from marketing by 45% and our total footprint by 2%.

Introduce environmental requirements for printers

In 2023 we will tender for new printer suppliers and postal services. We have already incorporated specifications on carbon reduction, as well as around general sustainability credentials, into the procurement criteria. While it is unlikely suppliers can meet all these specifications immediately – they are ambitious and potentially costly – we will only work with printers who demonstrate a willingness to make continuous improvements each year. This includes working towards a service where we:

- only use paper that is 100% recyclable, made from 100% recycled content, 100% sustainably sourced and lowest appropriate weight
- only use printers that:
  - use sustainable inks and printing methods and print with renewable energy
  - have set public carbon reduction targets and have a plan in place to achieve those targets
  - will work with us to calculate, track and reduce the carbon emissions of our printed materials
  - can demonstrate strong environmental credentials such as good waste management processes, particularly with the disposal of any harmful chemicals

- only use postal services that:
  - are actively working with us to calculate, track and reduce the carbon emissions of postage
  - have set carbon reduction targets and published an action plan to achieve them.

Although we are already making inroads, it is important to reiterate that achieving the above will take some time, for the following reasons:

- costs can be prohibitive. For example, paper made from 100% recycled paper can be twice as expensive than paper with only 50% recycled material
- many printers are still at early stages on their journey. For example, while significant strides have been made to improve the environmental footprint of inks and printing methods, there has been less progress so far by printers to develop comprehensive carbon reduction strategies.

Track and compare the carbon emissions of each publication

Each year The Society currently sends out around 20 different publications. From January 2023 we have now started to track and compare the carbon emissions of each publication, to identify how we can make reductions publication by publication.

For example, we have calculated that the printing and postage of our quarterly *1874* magazine produced 59 tCO_2e in 2022. By implementing initiatives such as reducing the amount of material we post, sending smaller A5 postcards to some members encouraging them to read the publication online, and reducing the stock weight of the magazine, we estimate that the printing and postage of *1874* in 2023 will produce 34 tCO_2e – a year-on-year reduction of 42%.

Going forward, we will be applying the same rigour to all of our printed material.

Potential carbon reductions by 2032

Our goal is that all the initiatives above will lead to an estimated emissions reduction of 402 tCO_2e per year by 2032, which is just under 50% reduction against our 2021 baseline. This would reduce our overall Scope 3 emissions by 2.6%.

Waste paper recycling for the production of new paper for the printing industry - waste paper storage and sorting plant

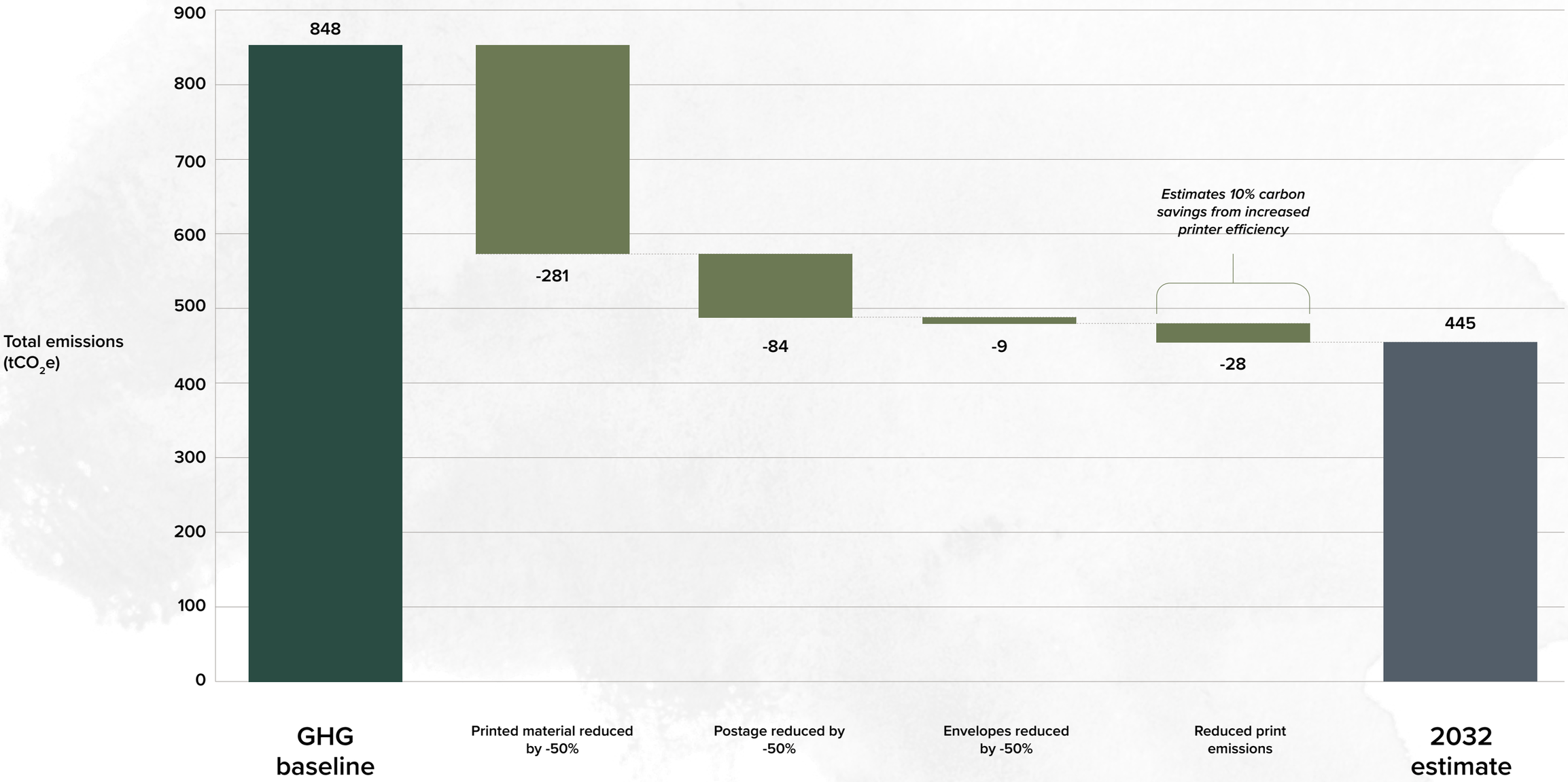
Why is recycled paper more expensive than virgin paper?

This is largely because the infrastructure and processes in the UK for recycling paper are not yet efficient enough. In 2021, only 70% of paper and card was actually recycled in the UK (UK statistics on waste - www.GOV.uk). This means too much paper goes to incineration or landfill. Perversely, recycled paper is therefore not as abundant as virgin paper. Additionally, recycled paper requires more of a difficult, lengthy and costly process to make (collection and recovery, pulping, de-inking, milling) than virgin paper (logging, milling).

We hope that with the introduction of new legislation, such as Extended Producer Responsibility, costs for recycled paper will eventually be lower than for virgin paper.

Fig 10 illustrates the potential annual emission reductions that can be made from marketing materials by 2032

Estimated emissions reduction -402 tCO_2e
-47% of marketing materials -2.6% of Scope 3

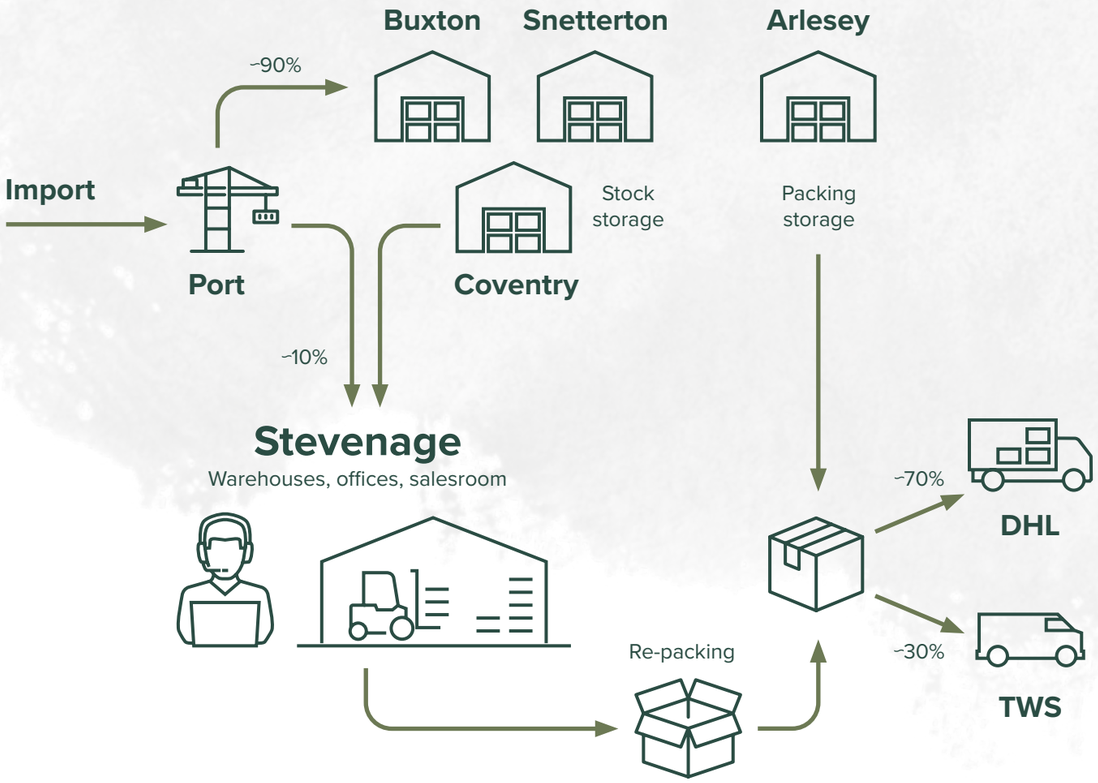


Third-party logistics – inbound and outbound

Shipping wines from wineries around the world to our warehouses in Stevenage (inbound) and then on to members' doors via DHL (outbound) accounts for 17% of our total emissions.

The Society ships around 12 million bottles of wine to the UK per year from 25 countries. Whereas a supermarket's range might be around 50 wines, at any one time The Society can have more than 4,000 wines on sale or being prepared for sale. Over the course of an average year, we sell around 6,000 different wines and vintages from 800+ suppliers. Because of this large range of wines, which can often be in small volumes, ensuring they all arrive in the UK as efficiently as possible is a complex operation.

Fig 11: How wines were transported in 2021/22 from their entry into the UK to our members



This diagram is accurate for 2021/22. In 2023 The Society's new warehouse was completed, which means going forward we will no longer need to use storage space at three of the third-party warehouses (Snetterton, Coventry, Arlesey)

Loaded flexitank prior to shipping – effectively, a giant bag-in-box! Photo courtesy of Hillebrand Gori

Once the wines arrive in our warehouses in Stevenage, they are stored until bought. Members can choose one of two delivery options:

- next day through our third-party carrier (which at the time of writing is DHL). The wines are picked up by DHL from Stevenage, go through their national distribution network and are dropped at members' homes
- delivery by one of our own 35 vans. Vans operate either out of Stevenage or third-party depots around the country.

Around 70% is delivered by third-party carrier and 30% is through our own vans.

Please note that this section only covers emissions from third-party logistics providers. Emissions associated with our own vans are included in our Scope 1 and 2 emissions, covered on page 22 of the report.

How we are reducing emissions

The shipping and distribution of our wines by third-party providers is an area where The Society has limited influence and control. As an SME, The Society will often only be a small proportion of a third-party logistics provider's total business, so we have limited leverage.

However, there are still four main things we can do:

Short-term commitment

1. Include carbon reduction as a key criterion in procurement decisions

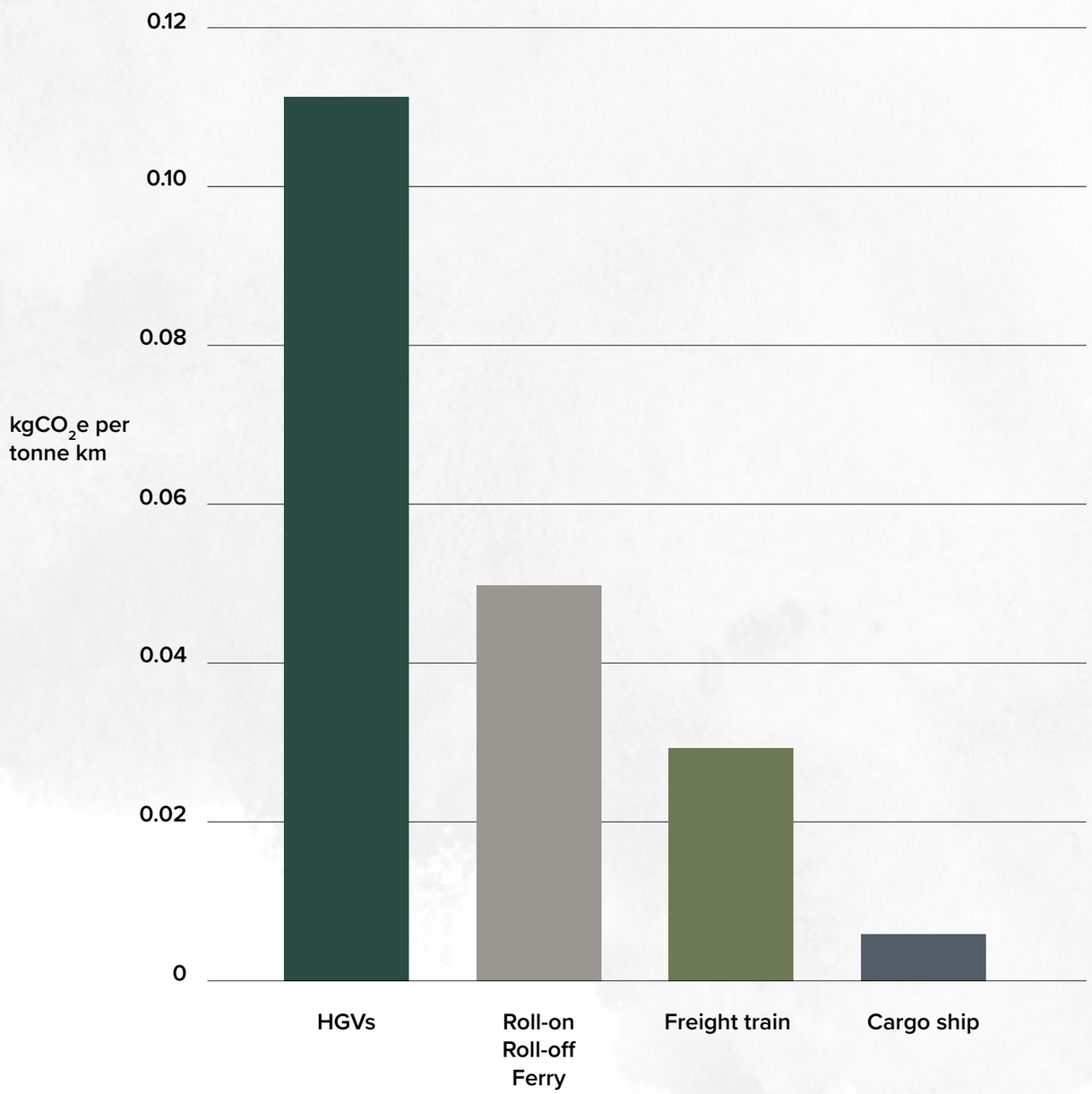
At present, The Society selects shippers and distributors based primarily on price and quality of service. Going forward we will elevate efforts on carbon reduction to a similar level of importance in our supplier selection criteria. While conversations with our suppliers on carbon reduction have already started, we recognise it will likely take several years to get to a point where we are only work with third-party logistics providers that:

- have stretching, publicly available carbon reduction targets and plans in place
- are willing to work with us to reduce emissions, by identifying the most carbon-efficient timings, routes and modes of transport (such as minimising lorries and using rail wherever possible)
- are investing in renewable energy to run their operations
- are moving to zero-emission last-mile delivery
- are investing in cleaner transport such as biofuels or sustainable marine fuels.

2. Minimise HGV use in shipping routes

The chart below shows the average emissions impact of a tonne of cargo for every kilometre it is transported by the four different modes of transport The Society uses.

Fig 12 shows the emissions impact per tonne.km for each mode of transport. Source: BEIS



While there will be variations in different countries, as this chart shows HGVs (lorries) can have a much higher carbon impact per tonne/per kilometre than freight trains. This is why we are working with our shippers to select routes that minimise HGV distances and ship wine on electric rail, wherever feasible.

3. Work together with shippers to identify the most efficient ways to transport wine

This can be done in several ways:

- improving consolidation where possible. While the third-party logistics industry is already very good at this, there is more work that can be done to reduce emissions, such as ordering less often but bigger volumes or combining our shipments with other companies (such as groupage)
- using more alternative packaging. Using individual glass bottles is one of the least-efficient ways of transporting wine as it is heavy and takes up significant space. Alternative packaging formats, such as bag-in-box and flat plastic bottles, are both lighter overall, which requires less fuel to move them, and enables more volume of wine to fit into each container or on each pallet
- explore efficiencies from bulk shipping – see page 30 earlier in the report.

Medium- to long-term commitment

4. Increase collaborative action through collective demand and lobbying groups

Often, The Society is only a small portion of a third-party logistics supplier's business and therefore does not have significant leverage on its own. However, through collaborating with other businesses, The Society can have larger influence on logistics providers' actions, through initiatives such as the British Retail Consortium's Carbon Club (www.brc.org.uk) or The Wine and Spirit Trade Association's Retailer Group (www.wsta.org)

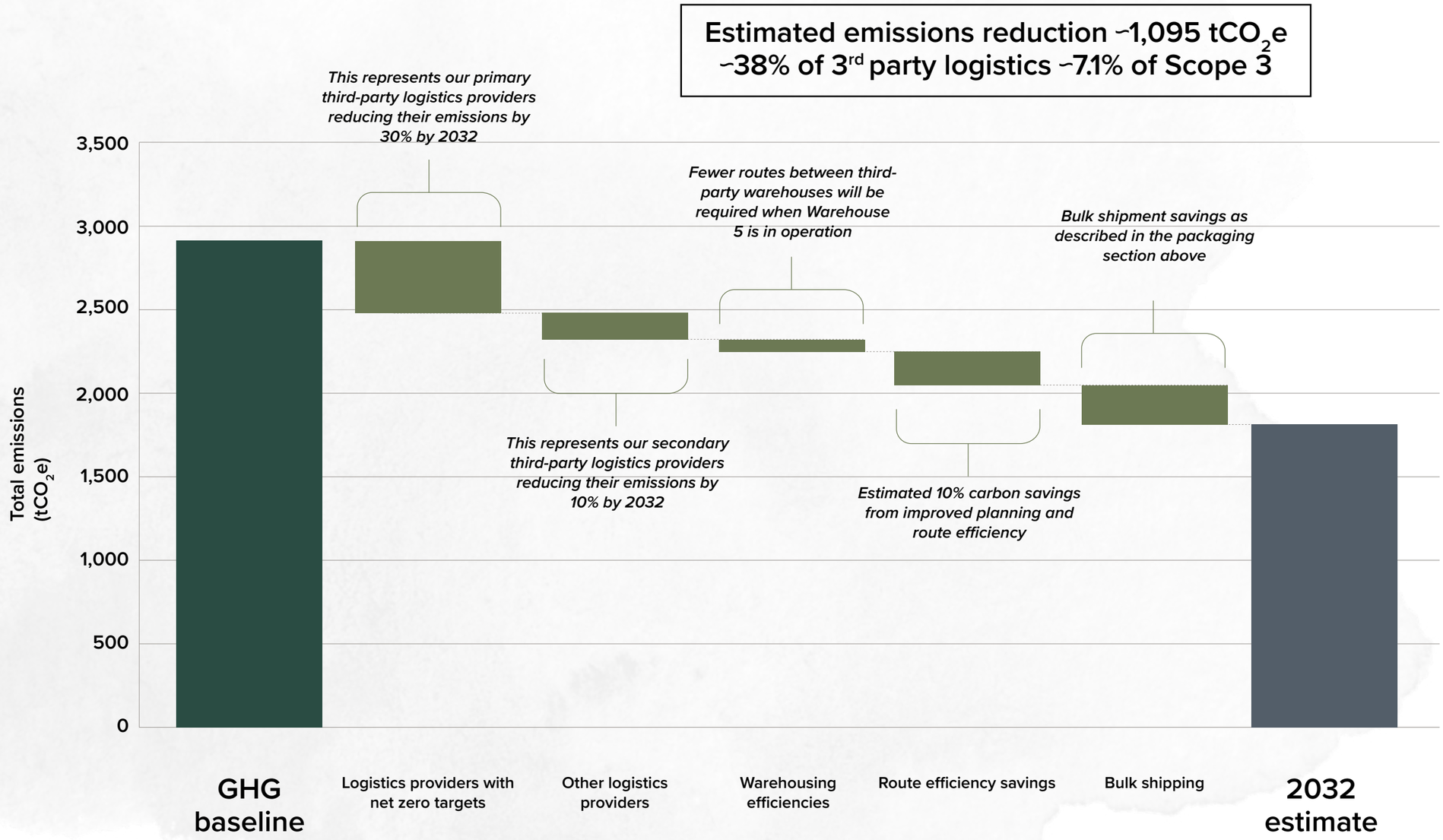
Fig 13 illustrates the potential annual emission reductions that can be made from third-party logistics providers by 2032

Potential carbon reductions by 2032

The exact reductions associated with these measures are difficult to calculate accurately. However, we estimate that if all the actions above are implemented, by 2032 this could result in an annual reduction of approximately 1,095 tCO_2e. This equates to a 38% reduction in Scope 3 emissions from third-party logistics.

Achieving this would require:

- our primary third-party logistics providers reducing their carbon emissions by 30% (by investing in lower carbon fleets and assets and using renewable energy)
- our secondary third-party logistics providers reducing their carbon emissions by 10%
- saving 199 tCO_2e per year from better planning and route efficiency and using more carbon-efficient modes of transport (such as rail over road)
- saving 249 tCO_2e per year from bulk shipping 40% of our wine volume.

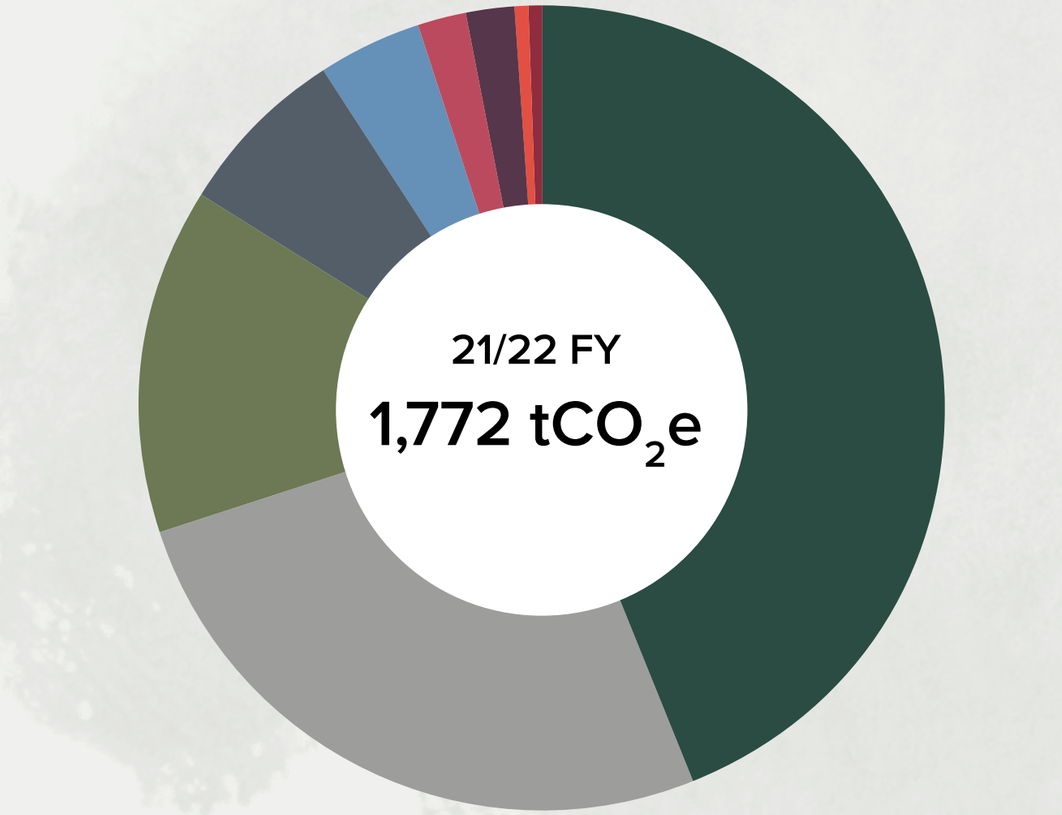


Please note that this waterfall chart is illustrative of the kinds of carbon savings we would expect to see from the actions laid out in this section. It is not possible to calculate the savings precisely. However, we will work with our suppliers to improve the accuracy of our third-party logistics carbon footprint, which over time will help us to more accurately set reduction targets.

Scope 3 operational emissions

The chart below shows The Society's Scope 3 operational emissions, which account for the non-Scope 1 and 2 emissions associated with running The Society's operations in the UK. These emissions represent 11% of The Society's total Scope 1, 2 and 3 carbon footprint.

Fig 14: Breakdown of The Society's Scope 3 operational emissions



These categories are estimated based on financial spend values, as data on physical volumes/activities was not available.

This category contains a diverse array of emissions. The largest portion, from 'purchased services', includes capital goods purchases such as repairs and furnishings, computer equipment and warehouse equipment. It also includes emissions related to services such as pension contributions, legal and professional advice, insurances and catering services at The Society's Stevenage site.

This is where our influence and control are weakest, with limited levers for change. However, there are things we can do over time to reduce emissions.

How we will reduce emissions

We will reduce emissions in three key ways:

1. Include carbon reduction as a key criterion in our procurement decisions for capital goods and purchased services

From 2025 we will introduce a Social and Environmental Code of Conduct for all our suppliers of higher-value goods and services not for resale (GSNFR). This Code of Conduct will set out requirements for current and prospective suppliers to demonstrate that they are making efforts to calculate, track and reduce their carbon footprint.

2. Support more sustainable employee commuting

Employees commuting accounts for 4% of our Scope 3 operation's emissions. While this is a relatively small amount, there are tangible actions we can take to reduce this:

- through our employee Wellbeing Group, we are already encouraging colleagues to commute to the office by walking, bike, car share and train
- in April 2023 we introduced the Cycle to Work scheme, to enable employees to purchase a more affordable bike and cycle to work
- from 2024 we are aiming to introduce an electric car scheme. We are also planning to instal electric vehicle (EV) charging points in our car parks for staff.

If we can halve the emissions from commuting this would save 38 tCO_2e per year (0.5% of our total footprint).

3. Increase recycling rates

In 2021, The Wine Society disposed of more than 1,000 tonnes of waste on site. Currently by weight, about 88% of this was recycled, 11% recovered (incineration) and 1% reused.

A key focus going forward will be to maximise segregation of waste in our offices and warehouses to ensure the most amount of waste gets reused and recycled, with only the residual waste going to recovery.

To achieve this, in 2024 we will set an ambitious target, over the following five years, to achieve 95% of waste being recycled or reused, and just 5% of waste going to recovery.

Because The Society already sends zero waste to landfill, achieving this target will have a relatively small impact on emissions. However, waste management is vital for reasons outside of carbon and therefore should be treated with no less importance.

Alberto Coffele and one of his beloved horses: his estate was the first in Soave Classico, Italy, to achieve organic status, the result of a 20-year commitment to transform

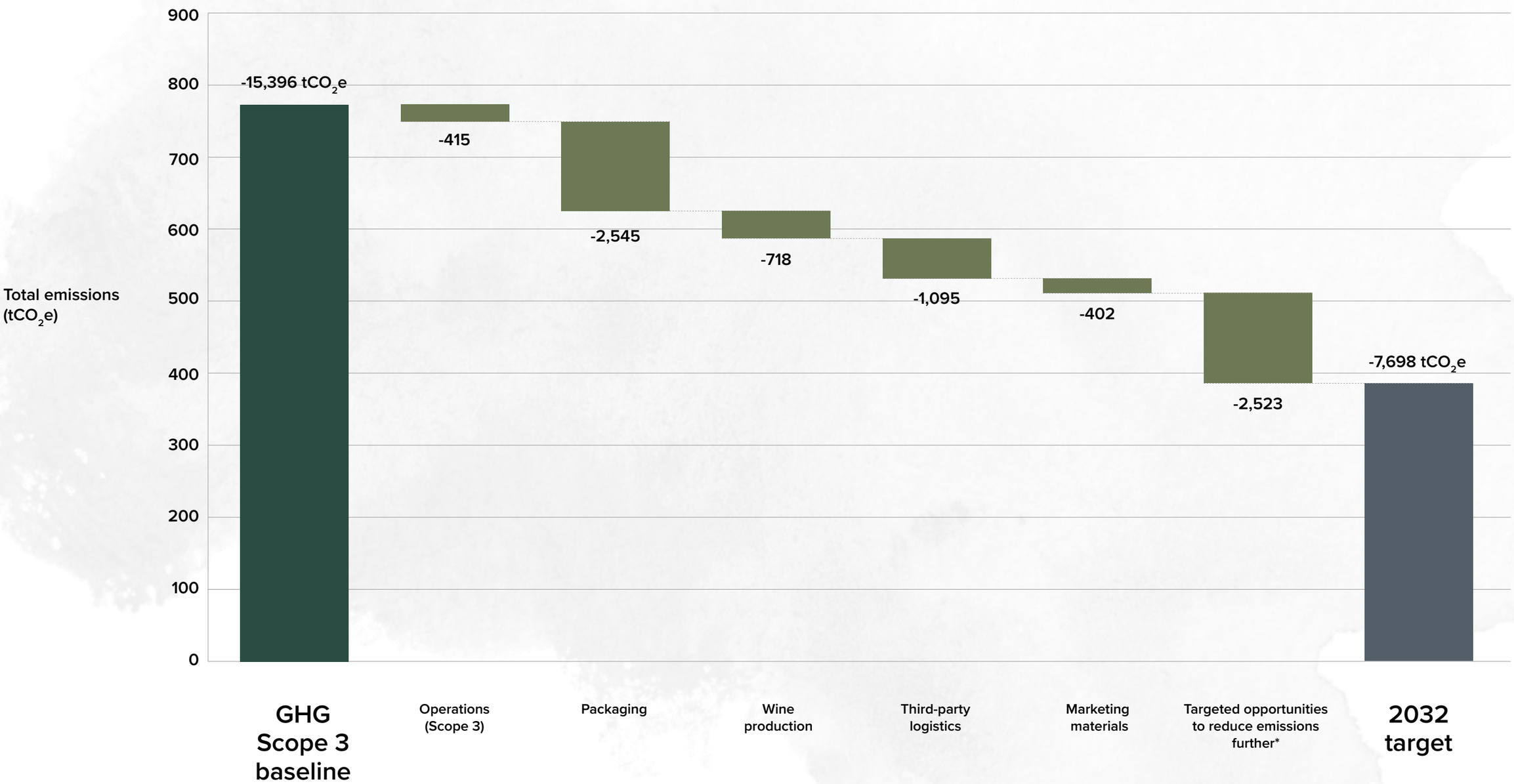
Potential carbon reductions by 2032

If we implement all these initiatives, we can reduce our Scope 3 operational emissions by 406 tCO_2e per year, a 23% reduction against 2021. However, by only working with suppliers who have also committed to ambitious carbon reduction targets and actions, we hope to be able to move faster and further than this initial, cautious plan.
This is why we will review and revise our actions each year.

Summary of actions to reduce Scope 3 emissions

The actions in this Scope 3 roadmap achieve a ~34% emissions reduction, with a total saving of ~5,175 tCO_2e

Fig 15:



*These are reductions that will be achieved from new, targeted opportunities that we identify over the coming years

A final word to our members

To end this report, we want to bring it back to wine and our members.

We believe we have a responsibility to not only follow the prevailing climate science and prepare The Society for future legislation, but also to support our grape growers and winemakers now.

We owe the quality of our wines to the winemakers and growers who supply us. However, with the warming of our planet, they are already seeing significant changes in temperature, precipitation, weather patterns, soil quality and more frequent damage from extreme weather. These changes can have financial impacts for growers and winemakers, such as from reduced grape yields, higher production costs or changes in quality which affects reputation, making it harder for them to make a decent living. There are also financial impacts from the cost of adapting to climate change with new techniques and technologies, such as irrigation systems, canopy management, and new grape varieties that are more resistant to pests, diseases, water stress or heat stress. All of this ultimately affects prices for consumers, making it more expensive for our members to enjoy their favourite wines.

While it is true that some regions are benefitting in the short term, it is certainly not the case for most. This is why we believe we need to do what we can, therefore, to reduce our own contribution to the changing climate, as well as help our growers and producers adapt so they can continue to thrive and make great wine for our members for many years to come.

Our member surveys also indicate that the majority of our members, and prospective members, want us to play our part in tackling climate change. Members are increasingly asking what we are doing about climate change; they are asking for lower-carbon packaging, they want to know why we are still delivering wines in diesel vans; they want to know which wines have been produced more ethically. We see these changes in member expectations and buying patterns and we cannot ignore them. We are here to source the wines our members want.

We are still at an early stage in our journey, we have a lot to do and we will need support and participation from our members. We want to encourage our members to get involved – to try the new lower carbon packaging formats and tell us what they think, to ask which producers are making good strides on sustainability, to share their ideas on what we can do better and to hold us to account.

If you have any questions or suggestions about this report, please email sustainability@thewinesociety.com

Appendix

The Wine Society's carbon footprint was calculated in line with the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard, using the operational control consolidation approach (i.e. everything within The Wine Society's operational control has been included in the footprint).

An extensive data collection exercise was carried out to ensure that primary data was used for the most material parts of The Wine Society's activities.

The table below describes the data that was used for each part of the footprint:

Electricity	Data complete – electricity use in kWh provided for reference period
Natural gas use	Data complete – natural gas use in kWh provided for reference period
Diesel fuel use (vehicles)	Data complete – diesel use in litres provided for reference period
Other fuel use	Data complete – red diesel use in litres provided for reference period
Refrigerant gases	Data complete – refrigerant gas movements provided in kg for each gas in reference period
Water and waste water	Data complete – water and waste water readings provided for reference period
Waste	Data complete – weight of waste and end of life destinations provided for reference period
Employee commuting	Partial data provided – number of employees at The Wine Society was combined with the average commuting distances for the UK and the assumption that all employees drive to work in cars was used
Wine and drink procurement	Data complete – the volumes of all drinks purchased was provided for the reference period
Wine and drink packaging	Partial data – for 63% of beverages by volume, data was provided at either the product level, or if that was not available, an average for that supplier was used. For the remaining 37% of beverages by volume, the total packaging weight was extrapolated to estimate the total.
Repacking material	Data complete – packaging material by weight was provided for six suppliers.
Food procurement	Data near-complete – quantity data was provided for all procured food and other goods used for resale. Emissions categories were not provided so were created as part of analysis. 79% of these goods by quantity also had weight data provided. The remaining 21% had no weight data, so to estimate the total emissions for this category, the total emissions were extrapolated using the number of items purchased.
Marketing materials	Data near-complete – for the material items (the leaflets, booklets and envelopes), weight data was provided. Postage and other areas was provided as spend data only.

Natural pest control at Whistler, Australia

Other consumable goods and services	Partial data – management accounts were provided for the financial year and were broken down to granular levels where required. This was provided for the entire business. Listed as partial data as weight data would have been preferable for some categories.
Capital goods	Partial data – the asset registry was provided for the financial year and were broken down to granular levels where required. This was provided for the entire business. Listed as partial data, as weight data would have been preferable.
Upstream leased assets	Partial data – electricity use in kWh was provided for two of the four warehouses leased as upstream assets. Electricity use for the other warehouses was estimated using available data and the number of pallets stored.
Upstream Transport & distribution – within UK	Partial data – fuel used to transport goods was provided for two of the four routes from leased warehouses. For the two remaining routes, a tonne.km estimate was created based on the distance to the Stevenage site and the total weight of goods kept in that warehouse in the reference period.
Upstream Transport & distribution – to UK	Data near complete – data was collected for four logistics providers, considered to cover the majority of The Wine Society's international logistics operations for the reference period.
Downstream Transport & distribution – delivery by third party logistics	Partial data – at CO_2e estimate was provided by The Wine Society's supplier for the delivery of an 'average' parcel, which was used for the final estimate. However, it's likely that The Wine Society parcels are above the average weight, and therefore this may be an underestimate for The Society. However, due to lack of available data on the calculation, this figure could not be accurately increased, so the average figure was used.
Downstream Transport & distribution – Customer travel	Partial data – visitor numbers to the salesroom were provided, which was combined with national averages on travel distances for retail. It was assumed that all customers travel to The Wine Society by car.
End of life of sold products	Partial data – packaging data was combined with national averages for waste disposal.

Of the 21 categories of activity data, 20 were considered either high or good quality for an accurate carbon footprint estimate. Specifically, 12 categories, including those considered to be the most emissions intensive, had complete or near complete primary data. A further eight categories had partial primary data that could be combined with secondary data or extrapolated for an estimate of the complete picture. These were low emission intensity categories, and therefore any uncertainty within them will likely be immaterial to the footprint.

Overall, the quality of the data provided for this footprint is considered by 3Keel to be high.

The activity data described above was then combined with emission factors to estimate the greenhouse gas emissions associated with each activity. The combination of the activity data and the emission factors are designed to account for all of the emissions within The Wine Society's supply chain. For example, for the wine, the emissions factor that was used covers the emissions that are associated with the agriculture (vineyard) and manufacture (winery) of the wine. The activity data collected on packaging is combined with emission factors that account for the emissions associated with the production of the packaging that the wine is bottled into. The activity data collected on transport is then combined with emission factors accounting for fuel use, which accounts for the transport of the wine to Stevenage, and so on.

Emission factors were chosen based on a combination of their quality, date and geographical coverage. The main sources of emission factors include those published by the Department for Business, Energy and Industrial Strategy (BEIS), Agribalyse3.0 and Ecoinvent. The use of emission factors from secondary data sources is common practice, as collecting primary data on the exact carbon emissions of each part of the supply chain is not possible for many of the businesses that The Wine Society work with.

The Wine Society has committed to calculating its carbon footprint regularly, as an essential part of achieving its carbon reduction goals. The Society will continue to work closely with its suppliers to improve the availability and accuracy of primary data, which in turn will improve the accuracy of the carbon footprint calculation.