Planet

In October 2021 we issued our line in the sand manifesto and set ambitious interim targets on our way to net zero 2050. We know that as an airline we have a pivotal role to play in protecting the planet, while connecting people across the globe and strengthening crucial trade connections. For more than a decade we've been leading the way in the decarbonisation of the aviation industry. We're now on a mission to be net zero carbon by 2050 through our aircraft operations and have a number of important interim milestones along the way.

The scale of the challenge cannot be understated but at the same time targets are not a substitute for action. We are committed to moving faster, to building a coalition of the willing and to working with partners across the energy value chain to make a difference. Our stakeholders, people and customers will rightly judge us on the progress we make, not the aspirations we set.

Line in the Sand

In 1984 we set up to challenge the status quo. We wanted to change the aviation industry and create an airline that put customers first. It's that desire for change that's got us to where we are today. And it's what continues to push us to do things better.

The climate crisis is the single greatest challenge of our lifetime. So, this is our line in the sand. A commitment to double down on efforts made.

The way we travel must evolve faster than ever before to ensure the next generation also get to experience the very best the world has to offer. The sights and sounds of the unfamiliar and beautiful. A hug from the loved one you haven't seen in years. Or the handshake that speaks volumes. We know what travel really means, and it's why we're ready to roll up our sleeves and challenge everything we do.

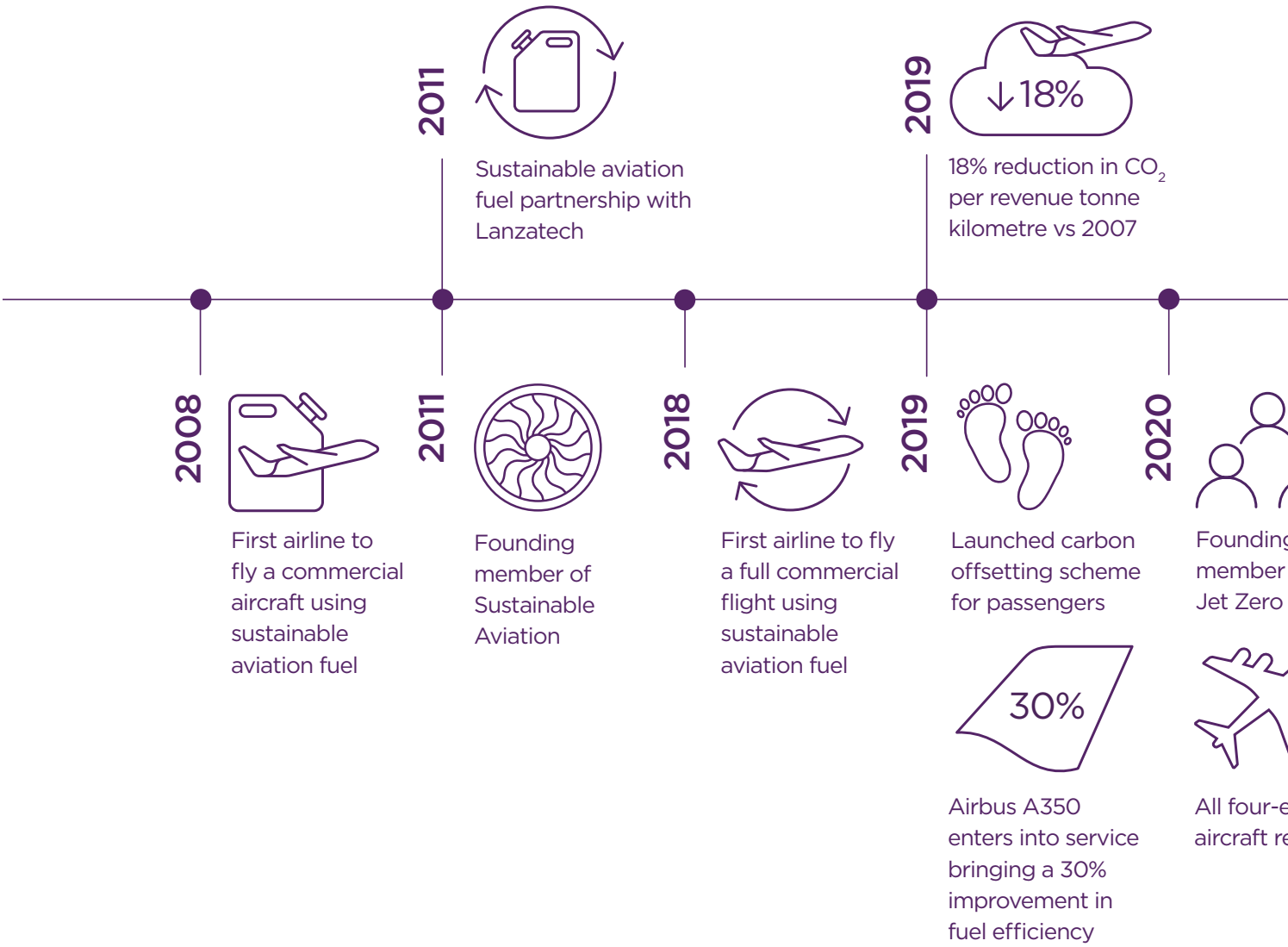
We've already made bold strides by accelerating the development of sustainable fuels, investing billions into one of the cleanest and youngest fleets in the sky and becoming a founding member of the UK's Jet Zero council.

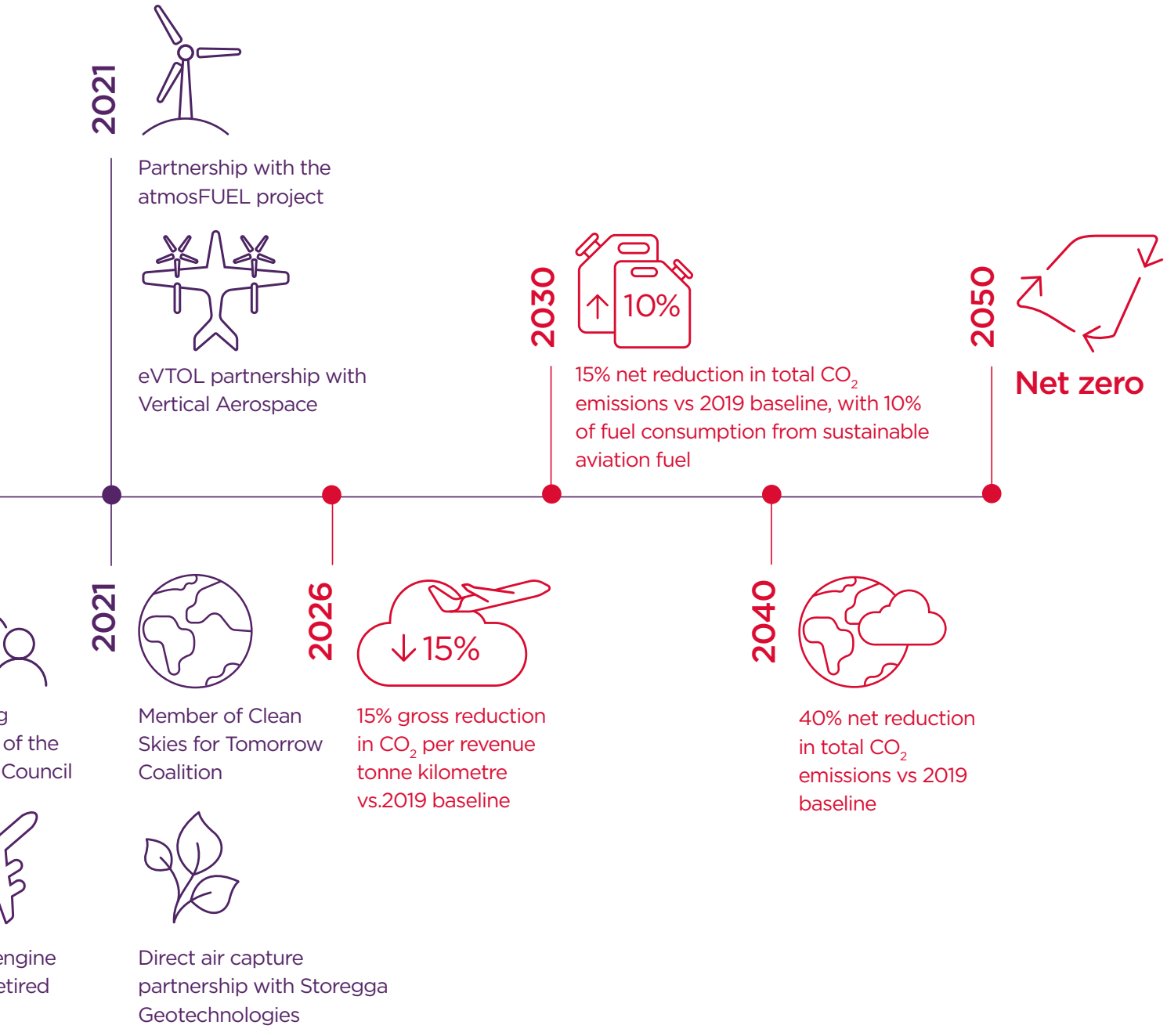
But we must now find even better, greener ways to fly by treading lighter and being more sustainable in everything we do. To be part of the solution, rather than the problem.

This is a crossroad for aviation. It's a time to work together so that we can move forward faster. We will share our research, our innovations, and our progress. Because we can't do this alone.

We know it can't be fixed overnight. But we'll give it all we've got. We're on a mission to achieve net-zero, and we've set ambitious targets on our journey to get there. Because we're in it for the long haul. And we're just getting started.

Virgin Atlantic's mission to net zero




2021
Partnership with the atmosFUEL project
eVTOL partnership with Vertical Aerospace
2030
10%
15% net reduction in total CO_2 emissions vs 2019 baseline, with 10% of fuel consumption from sustainable aviation fuel
2050
Net zero
2021
Member of Clean Skies for Tomorrow Coalition
Direct air capture partnership with Storegga Geotechnologies
2026
↓15%
15% gross reduction in CO_2 per revenue tonne kilometre vs.2019 baseline
2040
40% net reduction in total CO_2 emissions vs 2019 baseline

Planet
Continued

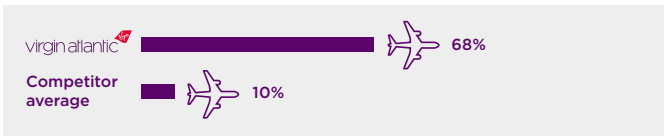
For airlines, there are three core pillars to decarbonisation:

Fleet renewal and fuel efficiency
The aircraft we fly and the fuel we burn has the biggest impact today on the carbon we emit. We are already one of the most carbon efficient long-haul airlines. Operating one of the youngest and cleanest twin-engine fleets in the skies. At the end of 2021 our average aircraft age across the fleet was just under seven years and 68% next generation. This increases to 100% next generation by the beginning of 2027. This means our aircraft are equipped with the most efficient engines and state-of-the-art technology designed to save fuel and reduce emissions.

Since 2019 we have welcomed eight new Airbus A350s and retired all four-engine aircraft. In 2022 we welcome a further A350 and the first three A330-900s. Our fleet transformation has already delivered an 17% reduction in CO2/RTK[1] and this is expected to increase to 30% by end of year 2026 as our re-fleeting program completes and we continue to drive efficiency in our network operations to optimise passenger load factors and cargo carried.

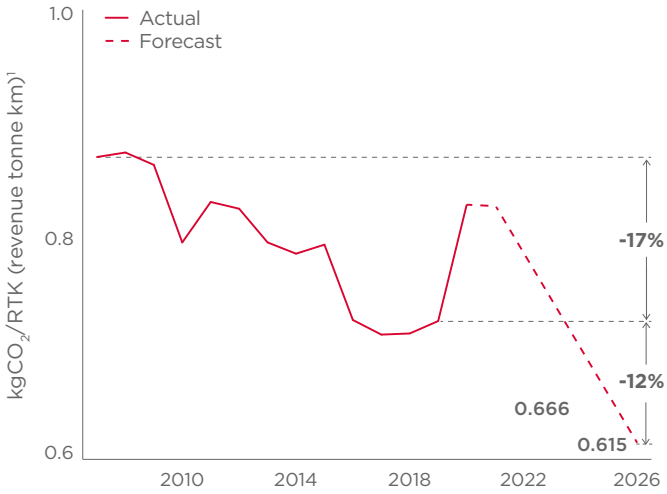
Average fleet age[2]

% of next generation (fleet)[3]



[1] [Reduction between 2007 and 2019 (the last year of full operation pre-Covid 19). CO_2 per Revenue Tonne Kilometre (RTK) is an efficiency measure accounting for the amount of CO_2 emitted in relation to the people, luggage and cargo we carry.
[2] Source: Citi benchmarking completed in August 2021.
[3] Source: Citi benchmarking completed in August 2021.

Fleet transformation delivering carbon efficiency[4]



Investment in Sustainable Aviation Fuel (SAF):
SAF is not the single solution to decarbonisation, but it represents the single biggest opportunity to deliver breakthrough reductions in carbon emissions from long haul flying in the next 20 years.

SAF includes alternative next generation fuels produced from sustainable feedstocks (ranging from waste fatty acids and oils, to recycled biomass, recycled plastic and captured carbon) that can be processed into fuel and "dropped in" to existing airport and airline infrastructure. Creating the opportunity to reduce lifecycle carbon emissions by more than 70% compared to traditional jet fuel.

A concerted global, industry and UK effort is now needed to commercialise SAF at scale. Requiring collaboration across the energy value chain – between governments, producers, oil majors, airlines and corporate customers to support commercialisation. The challenge is multifaceted and multiparty, requiring alignment of policy incentives, offtake commitments and investment in technology to scale production at pace. In the UK there are no plants in production and, at a global scale,

[4] Assumes fleet efficiencies only, excludes SAF and/or offsets. Incremental improvement shown relative to 2007

production volumes in 2021 represented less than 0.01% of global jet fuel supply[5]. By 2030 jet fuel demand is forecast to be 400 million tonnes[6] requiring a significant increase in current production.

As a founding member of the Jet Zero Council we are working with the UK Government and wider industry to accelerate the commercialisation and uptake of SAF in the UK. In 2021 we became a member of Clean Skies for Tomorrow and a founding member of the Aviation Climate Taskforce. Global cross industry forums focused on overcoming the technology, innovation and commercialisation challenges to deliver SAF at scale.

We also partnered to innovate and to support new technology development that can play a future role in decarbonising aviation. Building on our cornerstone partnership with LanzaTech in 2011 to support development projects including Carbon Engineering and Storegga (a specialist carbon reduction and removal company) to explore ways in which Direct Air Capture can be captured and sequested as well as becoming a future feedstock for SAF.

In 2022, our focus is on accelerating a portfolio of offtake agreements working with suppliers in the UK, US and other destinations we serve. In January 2022 we announced a supply agreement with Neste Oyi for 2,000 metric tonnes of SAF to be delivered into London Heathrow[7], supported by our largest fuel supplier at Heathrow, Exxon Mobil. Whilst this represents the first commercial supply of SAF for Virgin Atlantic, it is only enough fuel to operate 140 flights between London Heathrow and New York JFK[8]. To hit our 10% SAF target in 2030 requires us to deliver this volume more than 70 times over.

Carbon offsets and removals

As a hard to abate sector and with high dependency on technology innovation (particularly for SAF at scale, as well as breakthrough flight technologies) carbon offsets and removals have a key role to play in achieving our net zero ambition. Whilst our priority will always be to reduce in sector carbon emissions, we know current innovation, deployment and cost curves will require us to invest in high quality and fully verified carbon offsets.

Our net carbon emissions will be reduced by investing in carbon offset and removal projects and funding emissions reductions through the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) and applicable Emission Trading Schemes (ETS). Under the UK and EU ETS, airlines are required to report, verify and offset their emissions by submitting carbon allowances to the relevant Environment Agencies. In 2021, we paid €429,886[9] to meet our obligations under the EU ETS scheme. We did not incur a liability under CORSIA (which remains in its pilot phase) or UK ETS.

We also continue to offer our customers the ability to offset their carbon emissions through our third-party provider, ClimateCare, financing renewable energy and natural resource conservation projects around the world. Our partnership with Storegga includes a Memorandum of Understanding to purchase permanent and verifiable removal of CO_2 from the atmosphere. Storegga plans to build a first of its kind Direct Air Capture (DAC) facility in northeast Scotland.

[5] Calculated using 2021 US Renewable Identification Number (RIN) count of SAF and estimates of additional SAF volumes.
[6] World Economic Forum, Clean Skies for Tomorrow Report November 2020

[7] Neat SAF, delivered on a mass-balance basis
[8] Based on Virgin Atlantic analysis with a 35% / 65% blend rate of SAF to traditional jet.
[9] Offset obligation for 2020 emissions paid in April 2021

Planet *Continued*

eVTOL Vertical partnership
In June 2021 we announced a partnership with Vertical Aerospace to launch a Virgin Atlantic-branded short haul network in the UK. Pioneering sustainable, zero emissions air travel for the first and last 100 miles of the customer journey using Vertical's electric vertical take-off and landing (eVTOL) aircraft. Embracing new ways to travel more sustainably and more seamlessly across the UK and accelerating the introduction of lower-carbon ways to fly, starting with our airport hubs in London and Manchester.

On the ground
Although emissions from energy use in our buildings and vehicles in our ground fleet make up just 0.1% of our overall carbon footprint, we are committed to taking action on all direct emissions to reduce them as fast as possible. In 2021, 93% of our car fleet and 11% of our non-specialist airport fleet were petrol hybrid[10]. We've also installed electric charging points at our Heathrow hangar and our VHQ to support our transition. By the end of 2023, are targeting 100% mix of electric or electric hybrid for our cars and light commercial vehicles.

Alongside our vehicle fleet, we continue to invest in electrification of our ground service equipment (GSE), which includes machinery such as tugs, access platforms and scissor lifts. Currently over 30% of our GSE is petrol hybrid or electric and as technology and infrastructure improves, we will continue to pursue electrification where possible.

Reducing onboard waste and plastics
Through innovative product design, investing in reusable and smarter loading of products we are constantly finding ways to reduce the weight and waste on board. We work with suppliers to trial and test replacement products onboard, using alternative materials, increasing the recycled content and moving to light-weighting packaging where possible.

In 2022, we are targeting the removal or replacement of 90% of raw (virgin) single use plastic inflight service items by weight compared to 2019. The equivalent of c.60m flown items per year. We're already making good progress against the target having achieved a 43% reduction.

[10] Non-specialist airport vehicles include cars and vans permitted for airside use

In 2021 we:

- Removed all individual plastic water bottles onboard, helping to reduce our plastic use by 11m bottles a year.
- Began working with canned water brand CanO Water to provide an alternative solution to plastic bottles in Upper Class, using packaging made from more than 50% recycled content.
- Started a trial of canned wine as part of our complementary wine service in Premium and Economy cabins, replacing single serve inflight plastic bottles and saving 5.9m bottles per year.

In 2022, we will continue to work with our catering suppliers to further identify waste saving opportunities across the customer journey. We will also look to improve the functionality of our pre-order and pre-select food options to drive down food waste onboard.

Sustainable supply chains

Across our supply chain we continue to work with partners and suppliers to ensure we operate efficiently and source responsibly. Investing in new solutions to improve collaboration and visibility at every step.

Our supply chain is generally the most difficult part of our footprint to measure, monitor and improve performance as it sits out of our control. Effective supply chain engagement is fundamental to ensure we're making meaningful improvements, finding mutual opportunities to share knowledge and best practice and increasing transparency.

Since 2018, we have been working with EcoVadis, a platform that assesses supply chain sustainability performance. Across our supplier base, we ask companies to complete annual questionnaires on policies and activities relating to sustainability, together with supporting evidence. The analysis by EcoVadis creates a scorecard that allows us to understand each supplier's performance. The approach aligns with our Responsible Supplier Policy which all suppliers and subcontractors are asked to adhere to and supports our efforts to tackle social and environmental risks in our supply chain.

In 2022, we will work with our partners to review our full supply chain sustainability strategy. Ensuring it is aligned to our purpose and goals to collectively set measurable targets and take action on the issues that matter most.

Governance and stakeholder engagement

Reporting and governance

As set out in the CEO review, sustainability is a core element of our four-year Velocity$_x$ plan, meaning we measure, monitor and report monthly to our Leadership Team and Board on carbon emissions KPIs. Our focus in 2022 is on expanding the accuracy and granularity of our measurement across all sustainability KPIs, alongside improved reporting and governance and starting with our carbon footprint across the operation.

In 2021, our sustainability team moved into the Corporate Development team at Virgin Atlantic. Reporting directly into the CEO and emphasising the importance of sustainability to the airline. Whilst our Chief People Officer continues to be responsible for our people and communities' pillars, the teams operate cross functionally to ensure alignment in priorities and action.

Our Audit Committee is the highest level of risk governance within our business. It meets twice a year to consider operational, environmental, social and governance risks. The committee is made up of four non-executive directors as well as executive directors of the board. Principal risks, which include a number of sustainability issues, are assessed for likelihood of occurrence at the committee as well as impact on corporate objectives and strategy. Further information can be found on page 74.

We are committed to adhering to internationally accepted recommendations on disclosures – such as the Task Force on Climate-related Financial Disclosures (TCFD) – to investigate and report our climate-relate financial risks and opportunities. Our position statement can be found on page 48. We also continue to participate in the Carbon Disclosure Project's Climate Change programme and received a score of B- for our 2020 disclosure.

In 2022, we will be working to strengthen our oversight, reporting and delivery of sustainability priorities across the airline. This will include an independent maturity assessment of existing sustainability governance, further TCFD review and establishing an external advisory board made up of experts in climate change and transport decarbonisation together with leveraging best practice, expertise, and external perspectives to embed prioritisation and delivery against the SDGs.

Materiality Assessment

At the end of 2021 / early 2022, we undertook our first sustainability materiality assessment. Working with an external expert in sustainability reporting, we identified and assessed the environmental, social and governance priorities for the airline with our people, partners, suppliers, customers and investors. Adopting a double materiality framework that supports the identification and mapping of areas and action that matter most to the business value of Virgin Atlantic and the external social and environmental impact of our operations.

Identifying what matters

Our materiality assessment focused on the top 18 environmental, social and governance topics to Virgin Atlantic, identified by reference to responsible business practices, peer benchmarking and best practice materiality frameworks. Across our stakeholders, and through surveys, interviews and workshops, we collated qualitative and quantitative data on the relative importance and impact of the actions we take. Applying a weighted scoring model to prioritise issues through a double matrix, categorising topics as: material, meaningful, modest.

As a long-haul airline, reducing our carbon emissions as well as resilience and action to address climate change were the two most material issues for every one of our stakeholder groups. Other material issues include investment in innovation, sustainability advocacy and purpose-led leadership. They represent the impact and value of our core business activities and are areas where we can and do take direct action.

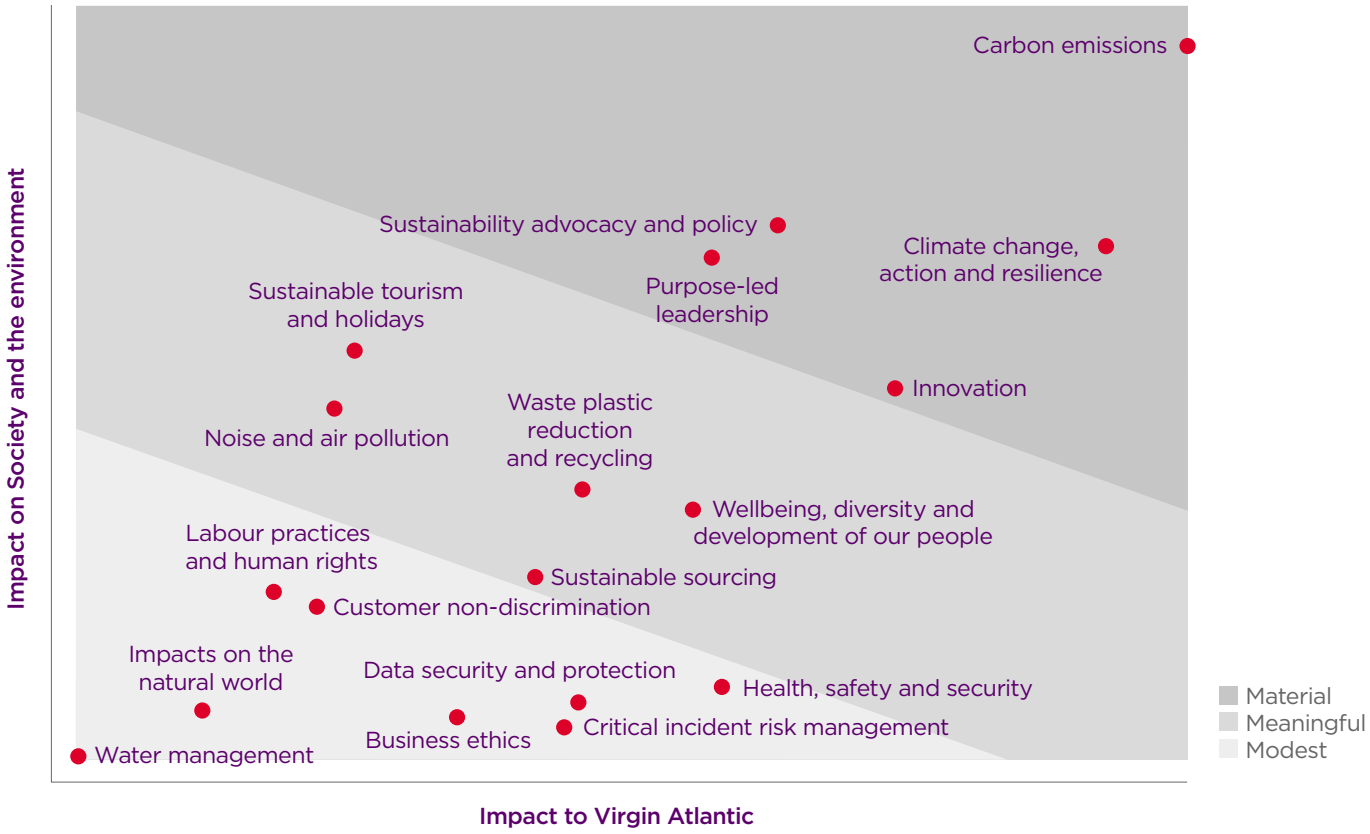
Topics that were categorised as meaningful are largely areas that are less directly in our control and require collaborative action with partners. Covering sustainable tourism and holidays, noise and air pollution, waste and recycling and sustainable sourcing. Wellbeing, diversity and development of our people was identified as meaningful in this assessment, it continues

to be the primary focus of the airline. This brings together our purpose led leadership to ensure we deliver the best people journey possible across our workforces.

We already have measurable KPIs, targets or clear governance structures in place for several issues identified. In 2022, we will use the results of the materiality assessment to help evolve our sustainability strategy to help inform our priorities and how we report and communicate progress. This will ensure we focus our activities where we have an impact whilst strengthening enterprise visibility and controls.

We recognise that materiality is both dynamic and subjective and will continue to monitor global issues, stakeholder expectations and any significant changes within Virgin Atlantic.

Overview of results



Governance and stakeholder engagement *continued*

Material (Prioritise action)

	Issue	Description	Management approach
1.	Carbon emissions	Mitigating climate change risks; adaption and resilience to climate change; creating new opportunities and products; reducing greenhouse gas emissions.	
2.	Climate change action and resilience	Fuel efficient and greener fleet; operational efficiencies; investment in sustainable aviation fuel; carbon offsetting; carbon capture and removal; energy management; renewable energy.	
3.	Innovation	Finding sustainable solutions; new products and services to reduce our environmental impact; new ways of thinking; digital transformation	
4.	Sustainable policy and advocacy	Public policy practices; advocacy; lobbying activities; stakeholder engagement.	
5.	Purpose-led leadership	Leading by example; ESG business objectives and renumeration; board composition; governance frameworks and committees; leadership accountability.	

Meaningful (Continue efforts and communicate)

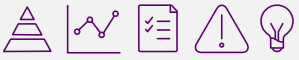
	Issue	Description	Management approach
6.	Sustainable tourism and holidays	Economic, social and environmental impacts to destinations as a result of travel; promoting responsible and respectful tourism; reducing over-tourism.	
7.	Noise and air pollution	Fleet modernisation and maintenance; engine and route management; performance monitoring; new products and innovation.	
8.	Waste, plastic reduction and recycling	Circular economy principles; waste reduction opportunities and innovation; increasing recycling rates; reducing single use plastics; waste management data transparency.	

Key – measures in place

Measurable KPIs | Governance Board | Policy | Identified as principal risk | Programme/initiatives

	Issue	Description	Management approach
9.	Development, diversity and engagement of our people	Attracting and retaining talent; Inclusive business practices; diverse colleagues within leadership and management; ensuring the right policies and procedures are in place.	
10.	Sustainable sourcing	Minimising environmental impacts within our supply chain.	

Modest (Monitor and manage)

	Issue	Description	Management approach
11.	Labour practices and human rights	Fair wages, safe working conditions, and freedom of association, human trafficking and modern slavery within VAA and our supply chain.	
12.	Customer non-discrimination	Inclusive products and services; customer accessibility; ensuring the safety and security of our customers; providing great customer service to all.	
13.	Data security and protection	Protecting colleagues and customers; cyber security and information security; data privacy.	
14.	Health, safety and security	Customer and colleague health and safety; guidance and training for our people; setting the highest standards; mitigating safety risks.	
15.	Critical incident risk management	Robust operational procedures to mitigate critical risks when flying; minimising the likelihood of high-impact incidents.	
16.	Business ethics	Anti-competition; corporate culture; Anti-bribery and corruption; corporate criminal liability.	
17.	Impacts on the natural world	Improving or protecting all forms of biodiversity that make up the natural world; protecting wild animals and their habitats through responsible tourism.	
18.	Water management	Operational efficiency, intensity and recycling; mitigating risks in destinations of water stress.	

Task Force on Climate-Related Financial Disclosures

At Virgin Atlantic, we have been pioneering sustainability leadership in our sector for over a decade. In October 2021 we announced interim targets on our pathway to net zero by 2050. Doubling down on our commitment to embed sustainability through innovation, transparency, and accountability. Ensuring we tackle greenhouse gas emissions related to our operations and drive radical collaboration across the energy value chain to support industry decarbonisation. This is Virgin Atlantic's first Taskforce on Climate-Related Financial Disclosure (TCFD). An important step in our continued transparency on climate issues.

Having completed our phase 1 TCFD review, the below overview provides a summary of what we achieved to date and our priorities in 2022 with respect to the TCFD disclosure framework. This includes the first iteration of climate-related scenario analysis, focussing on exploring our preparedness for physical risks, and transition risks and opportunities under a range of climate scenarios including the IEA's Net Zero by 2050, and the IPCC's SSP5-8.5 and SSP2-4.5.

Governance

Our progress so far:

Climate-related responsibilities of key leadership roles are delegated according to our governance model. Key roles and responsibilities are summarised below:

- **Board of Directors:** Review and approves Enterprise Risk Management (ERM) strategies and overall risk appetite, including those related to sustainability and climate.
- **Audit Committee:** Reviews key risks of the business including climate-related risks and mitigation actions and determines principal risks. Ensures internal reporting and control systems provide oversight to Board.
- **CEO:** Holds ultimate responsibility for sustainability and climate-related strategy, management of risks and opportunities, and commitments and targets. Updates Board in relation to material sustainability and climate issues and decisions.
- **Leadership Team:** Led by the CEO, is responsible for setting company targets, including climate-related targets, coordinating across the business to achieve targets, and reporting on progress.
- **VP Corporate Development:** Sets strategic direction for sustainability team and holds line management responsibility for delivery. Sponsors climate-related proposals at Leadership Team and Board meetings.
- **Sustainability Team:** Execute sustainability strategy, advise the business on sustainability issues, manage day to day delivery of priorities.

Incentivising and rewarding for carbon reduction targets:

Since 2020, and following approval by the Leadership Team, Board and Remuneration Committee, our senior leaders have been incentivised and rewarded for achieving absolute carbon emission reductions.

Priorities and plans in 2022

Use the outcomes of climate scenario analysis conducted as part of phase 2 TCFD review to incorporate more sophisticated consideration of specific physical climate risks and transition risks and opportunities into our governance model, management structure and decision making, including consideration of risk time horizons.

Strategy

Our progress so far:

Climate issues influence many elements of our business, operation and financial planning and, as a result, are embedded across our business strategy.

- Sustainability commitments, decision making and investments are driven by identified and assessed climate-related risks and opportunities. From our multi-billion-dollar fleet investment, commercial partnerships supporting breakthrough technologies such as Sustainable Aviation Fuel (SAF) and carbon removals.
- Membership of cross industry and governmental forums such as Sustainable Aviation, the UK's Jet Zero Council, the Clean Skies for Tomorrow coalition and the Aviation Climate Taskforce are indicative of the extent to which we expect climate issues to shape our decisions and operations in the near, medium and longer term.

We conduct detailed forward-looking analysis of climate related risks, exposures and mitigations including emissions forecasting, SAF uptake and CORSIA compliance costs. Most recently, we have developed our approach to climate-related scenario analysis involving specific temperature-aligned global outcomes.

- Our risk and sustainability teams have reviewed a range of climate-risk scenarios based on specific drivers – defining a range of risks through our Corporate Risk Management and ERM processes. Risks have been assessed for probability and size of impact on the business, mapped against time horizons where possible.

Of the range of climate risks identified, the most material include delays in commercial availability and/or increased market costs of Sustainable Aviation Fuel supply; the costs of CORSIA and carbon pricing compliance, reputational and demand impact for aviation and disconnected climate-related regulatory environments (including SAF mandates and carbon related taxes) driving overall cost increases or demand suppression.

Priorities and plans in 2022

Conduct more detailed analysis on the climate-related risks and opportunities most relevant for Virgin Atlantic, with a focus on our preparedness for a net zero by 2050 scenario.

- During Q4 2021 - Q1 2022 we conducted internal stakeholder engagement sessions on TCFD and climate-related risks and opportunities. Sessions covered all key business segments with attendees from our Senior Leaders Group (Head Of and Vice Presidents)
- As a result, we have mapped internal awareness of TCFD considerations, identified gaps in our approach, shaped the focus areas for our climate scenario analysis that will feed into our detailed TCFD disclosure and developed time horizons to capture a range of climate risks / opportunities that are aligned to our internal planning and financial cycles as well as our shareholders'
- As part of our process to date we have developed our approach to climate scenario analysis, to be completed in 2022. Applying the IEA's Net Zero by 2050 scenario to evaluate transition risks and opportunities and the IPCC's SSP5-8.5 and SSP2-4.5 to evaluate physical risks.
- The outcomes will be used to identify and consider possible business impacts and the adequacy of our existing strategy, controls and mitigations to help inform additional measures that could be developed to improve our resilience to the climate futures we could experience.

Task Force on Climate-Related Financial Disclosures *continued*

Risk Management

Our progress so far:

Climate-related risks and opportunities for Virgin Atlantic are identified and assessed on an ongoing basis (more frequently than every 6 months), as part of our sustainability strategy, Corporate Risk Management process, ERM framework and risk governance model.

- Teams from across the business are led by the risk team to identify, assess, describe and rate the risks within their division according to a five-by-five ratings matrix, which considers impact and likelihood of different risk types to the business
- Review is undertaken quarterly with the most significant or material risks mapped and reviewed by the Leadership Team. Twice a year, the Company Risk Register is presented and discussed at the Audit Committee Board Meeting.
- Annually, the most material risks are disclosed in our Annual Report, which is approved by the Leadership Team, Audit Committee and the Board of Directors.

We define Top Risks across seven categories, which consider aspects of climate-related risks – As per Risk Category 4 (Sustainability) set out on page 64, this includes risks relating to consumer expectations on sustainable aviation and risks relating to financial or other challenges to achieving carbon reduction commitments. We clearly define our main controls and mitigations for these key risks, which shape our most significant sustainability-related business, strategy and financial decisions on an ongoing basis.

Priorities and plans in 2022

On completion of our climate scenario analysis outcomes will be mapped across key risk-related roles within the Company, including members of the Audit Committee, to evaluate whether any updates to our existing corporate risk management process, ERM framework and risk governance model could be explored to enhance our processes for identifying, assessing, and managing climate-related risks.

Metrics and Targets

Our progress so far:

In 2020, we became a signatory of Sustainable Aviation's commitment to net zero carbon emissions by 2050 – the most significant climate-related commitment in the history of our company.

- In October 2021 we backed this commitment by announcing a set of interim targets on the pathway to achieving net zero by 2050, as described in the Planet section of the Annual Report.
- These targets clearly define long-term milestones for both absolute and intensity-based emissions reductions, as well as uptake of SAF.

The key climate-related metrics we measure and track, are summarised below and published each year in our Annual Report. Internally, we use these to ensure we're maintaining progress towards our greenhouse gas (GHG) reduction and efficiency targets both in the air and on the ground:

- Aircraft CO_2 (kg) per revenue tonne kilometre
- Total CO_2 emissions (tonnes) from aircraft operations
- Aircraft CO_2 (g) per passenger kilometre
- Aircraft CO_2 (g) per cargo tonne kilometre
- Electricity use (kWh)
- Gas use (kWh)
- Combined Electricity and Gas, (tonnes) CO_2e

We're equally passionate about providing our customers with the information they need to make well informed, climate-conscious decisions about flying. That is why alongside the GHG metrics we publish, we are currently working to improve transparency for our customers on their CO_2 footprint when travelling or transacting with Virgin Atlantic.

Priorities and plans in 2022

To enable our customers to better understand their CO_2 footprint when flying with Virgin Atlantic, we are improving our measurement, monitoring and transparency for customers on their CO_2 impact. As we make progress in areas such as SAF and carbon removals, we aim to reflect the GHG benefits in the information we share with our customers so they can clearly understand and compare the relative emissions performance of Virgin Atlantic.

We aim to use the outcome of our first iteration of climate scenario analysis to explore and develop new metrics, and where appropriate, to support the ongoing assessment of climate-related risks and opportunities in line with our strategy and risk management processes. Specifically, we will focus on developing our capabilities to measure and track metrics for the most material transition risks, physical risks and climate-related opportunities, highlighted during climate scenario analysis.

Greenhouse Gas Emissions Data

Type of emissions	Activity	2019 emissions (tCO_2e)	2020 emissions (tCO_2e)	2021 emissions (tCO_2e)	% of total footprint	YoY change (%)
Direct (Scope 1)	Aircraft fuel	4,190,727	1,597,904	1,768,189	75.6%	10.6%
	Natural gas	2,428	1,808	1,467	0.1%	-18.8%
	Ground vehicles	608	164	235	0.01%	43.2%
	Refrigerant	0	827	309	0.01%	-62.6%
	Other fuels	466	229	232	0.01%	34.9%
	Subtotal	**4,194,229**	**1,600,933**	**1,770,432**	**75.7%**	**10.5%**
Indirect energy (Scope 2)	Purchased electricity[1]	3,225	2,101	1,440	0.1%	-31.5%
	Subtotal	**3,225**	**2,101**	**1,440**	**0.1%**	**-31.5%**
Indirect other (Scope 3)	Cat. 1 -Purchased goods and services	240,503	126,511	103,818	4.4%	-17.9%
	Cat. 2 - Capital goods	211,469	39,009	10,401	0.4%	-73.3%
	Cat. 3 - Fuel and energy related, well to tank (WTT)	869,019	331,601	366,922	15.7%	10.6%
	Cat. 4 - 9[2]	158,433	39,608	60,845	1.8%	53.6%
	Cat. 11 - Use of sold products	249,844	37,676	23,744	1.7%	-36.9%
	Subtotal	**1,729,268**	**574,495**	**565,7319**	**26.4%**	**-1.5%**
Total emissions (tCO_2e)		**5,926,722**	**2,177,529**	**2,337,603**	**100%**	**7.4%**

Sustainability Metric	2019 data	2020 data	2021 data	YoY % change
Aircraft CO_2 (kg) per revenue tonne kilometre	0.723*	0.826*	**0.8250**	-0.1%
Total CO_2 emissions (tonne) from aircraft operations	4,148,970	1,581,962	**1,750,537**	10.7%
Aircraft CO_2 (g) per passenger kilometre	78.9	119	**137.8**	15.8%
Aircraft CO_2 (g) per cargo tonne kilometre	470	496	**494**	-0.4%
Electricity use, kWh	12,409,002	9,011,904	**6,606,327**	-26.7%
Gas use, kWh	8,524,419	8,749,654	**6,415,359**	-26.7%
Combined Electricity and Gas, (tonnes) CO_2e	4,739	3,710	**2,615**	-29.5%
Average aircraft noise (decibels)	95.1	93.3	**92.8**	-0.5%

*2019 and 2020 CO2 per revenue tonne kilometre have been updated to reflect improved methodology

Carbon Footprint Methodology

In line with the Greenhouse Gas Protocol, we compile our carbon footprint by 'Scope'. This enables us to calculate and understand the sources of our direct and indirect emissions and to identify our most important carbon impacts. In order to report greenhouse gas emissions we must convert 'activity data' such as distance travelled, litres of fuel used or tonnes of waste disposed into carbon emissions. Emission conversion factors are used for this purpose and each year we use the published DEFRA emission factors:

www.gov.uk/government/collections/government-conversion-factors-for-company-reporting

Our aircraft carbon emissions are independently verified each year for submission to EU Emissions Trading Scheme (EU ETS) and the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).

For Scopes 1 and 2 we use actual data collated from our operations. However, given that fewer people were actively working in the business during 2021 due to the Covid-19 pandemic, there is some estimated data this year. Where categories have been estimated they have been based on a % of the 2019 consumption. Estimated activities in 2021 are electric consumption in retail stores and natural gas consumption in airport properties which represents <0.5% of our total footprint.

Category	Calculation/methodology
Categories 1, 2 and 11	Financial data and 2019 Comprehensive Environmental Data Archive emissions factors
Category 3	Actual data and the appropriate DEFRA emissions factors.
Category 4	Estimated – 66% of 2019 activity
Category 5	Actual weight data and DEFRA emission factors.
Category 6	Estimated – 14% of 2019 activity
Category 7	Estimated – 11% of 2019 ground staff activity, 23% of 2019 flying staff activity.
Category 9	Estimated – 29% of 2019 activity
Categories 8, 10, 12, 13, 14, 15	Not material /not calculated

Methodology

For our aircraft carbon metrics, we used following methodology:

- **Total CO_2 emissions:** Calculated using the aviation turbine fuel CO_2 conversion factor multiplied by the weight of fuel used from all flights, for both scope 1 (tank-to-wake) and scope 3 (well-to-tank).
- **CO_2/Revenue Tonne km**: As above, CO_2 is calculated using the aviation turbine fuel CO_2 conversion factor (scope 1) multiplied by the weight of fuel used. RTK is calculated from all revenue (paying) passengers and freight (cargo) flown multiplied by the total number of kilometres flown.

The airport to airport distance is calculated using the Great Circle Distance (the shortest distance between two points on a sphere).

Greenhouse Gas Emissions Data *continued*

This is then increased by 8% to allow for 'real world' distances flown. By way of example: including sub optimal routing and queueing to land at airports during periods of heavy congestion. Our methodology for 2019 and 2020 intensity metrics (CO_2/RTK and CO_2/PK) differs from previously published data due to a correction to our GCD calculation.

- **CO_2/Passenger km:** As above, CO_2 is calculated using the aviation turbine fuel CO_2 conversion factor (scope 1) multiplied by the amount of fuel used. PK is calculated from all passengers ("PAX") flown multiplied by the total number of kilometres flown (Great Circle Distance + 8%). A passenger to cargo weighting is also applied so that emissions can be allocated between passengers.

  This takes into account luggage, seats, etc. excluding the emissions associated with transporting cargo. The passenger cargo weighting is calculated as follows:

  Total PAX Weight (100kg per PAX, includes bags) + Total Seat Weight (50kg per seat) divided by the Total Weight (PAX + seats + cargo). We have taken this formula from the ICAO **Carbon emissions calculator methodology**.

- **CO_2/Cargo Tonne km:** As above, CO_2 is calculated using the aviation turbine fuel CO2 conversion factor (scope 1) multiplied by the amount of fuel used. A passenger to cargo weighting is also applied as described above. CTK is calculated from the weight of cargo flown multiplied by the total number of kilometres flown (Great Circle Distance + 8%).

- **Energy use** relates to sites where we are billed directly for our energy use and is derived predominantly from our main sites which are The VHQ, Heathrow and Gatwick Hangers and the Swansea Customer Centre. Electricity also includes smaller airport properties. Gas values differ from our carbon footprint assessment, as for the footprint we also include estimated gas usage associated with our airport lounges.

- **Average aircraft noise** is modelled using the number of flights performed by each aircraft type multiplied by the aircraft noise specifications for take-off, lateral and approach respectively. We then create an average across all aircraft by dividing by the total number of flights performed in the year.

UK Ground and Cabin Waste

	Aircraft cabin waste[11]		Aircraft catering waste[12]		UK ground waste[13]	
	Tonnes 1	% of total	Tonnes	% of total	Tonnes	% of total
Total recycled	6840.9	97%	226.6	24.3%	194.6	56%
Total composted	-	-	-	-	3.1	1%
Total anaerobic digestion	-	-	-	-	-	-
Total incinerated/waste to energy	197.3	3%	690.6	74.1%	147.8	43%
Total landfill	33.8	0%	12.3	1.3%	-	0%
Total waste	7072	100%	932.2	100%	345.5	100%

[11] Cabin waste collected from provider MNH Cabin Services. This data relates to specific cabin waste items collected and returned to MNH for refurbishment and recycling including headsets and amenity kits, plastics, cardboard, paper, fabrics and textiles.
[12] Data is provided by UK caterer Gate Gourmet based on our services at UK airports. Data is estimated apportioning weights based on Virgin Atlantic volumes at operating units. It includes waste generated during meal preparation at Gate Gourmet's facilities, as well as catering waste returned from the aircraft. Cat 1 waste: By law, anything that touches meat or other animal products (such as dairy), which arrives in the UK from outside the European Union, is classified as Cat 1 waste and has to be completely isolated and destroyed.
[13] Data is provided for all sites from our waste contractor based on a mixture of actual weighed bins and industry averages.

Sustainability Accounting Standards Board (SASB)

SASB is a not-for-profit, independent standards setting organisation to assist companies in disclosing financially material, decision-useful sustainability information to investors. We're disclosing metrics in line with their in the Airlines reporting standard, where possible.

Topic	Accounting metric	Category	Unit of measurement	Page ref or data
Greenhouse gas emissions	Gross global scope 1 emissions	Quantitative	Metric tonnes CO_2e	1,770,432
	Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis-	-n/a	-Pages 36-42, 52-53
	(1) Total fuel consumed, (2) percentage alternative, (3) percentage sustainable	Quantitative	Metric tonnes CO_2e, Percentage (%)	(1) 1,770,123[14] (2) 0% (3) 0%
Labour practices	Percentage of active workforce covered under collective bargaining agreements	Quantitative	Percentage (%)	57%
	(1) Number of work stoppages and (2) total days idle	Quantitative	Number, days idle	0
Competitive Behavior	Total amount of monetary losses as a result of legal proceedings associated with anticompetitive behavior regulations	Quantitative	Reporting currency	£Nil
Accident safety & management[16]	Description of implementation and outcomes of a Safety Management System	Discussion and analysis	n/a	Page 58-61
	Number of aviation accidents	Quantitative	Number	0
	Number of governmental enforcement actions of aviation safety regulations	Quantitative	Number	0

Activity metric	Category	Unit of Measure	Page reference or data
Available seat kilometers (ASK)	Quantitative	ASK	14,506,584,453[15]
Passenger load factors	Quantitative	Rate	51% (average)
Revenue passenger kilometers (RPK)	Quantitative	RPK	7,680,440,191
Revenue ton kilometers (RTK)	Quantitative	RTK	2,122,488,263

[14] All fuel consumed, including aircraft fuel (1,768,189 tCO_2e), natural gas (1,467 tCO_2e), ground vehicles (235 tCO_2e) and other fuels (232 tCO_2e)
[15] Based on passenger flights and seats excluding cargo and ferry flights.
[16] IATA IOSA 2021 audit passed.