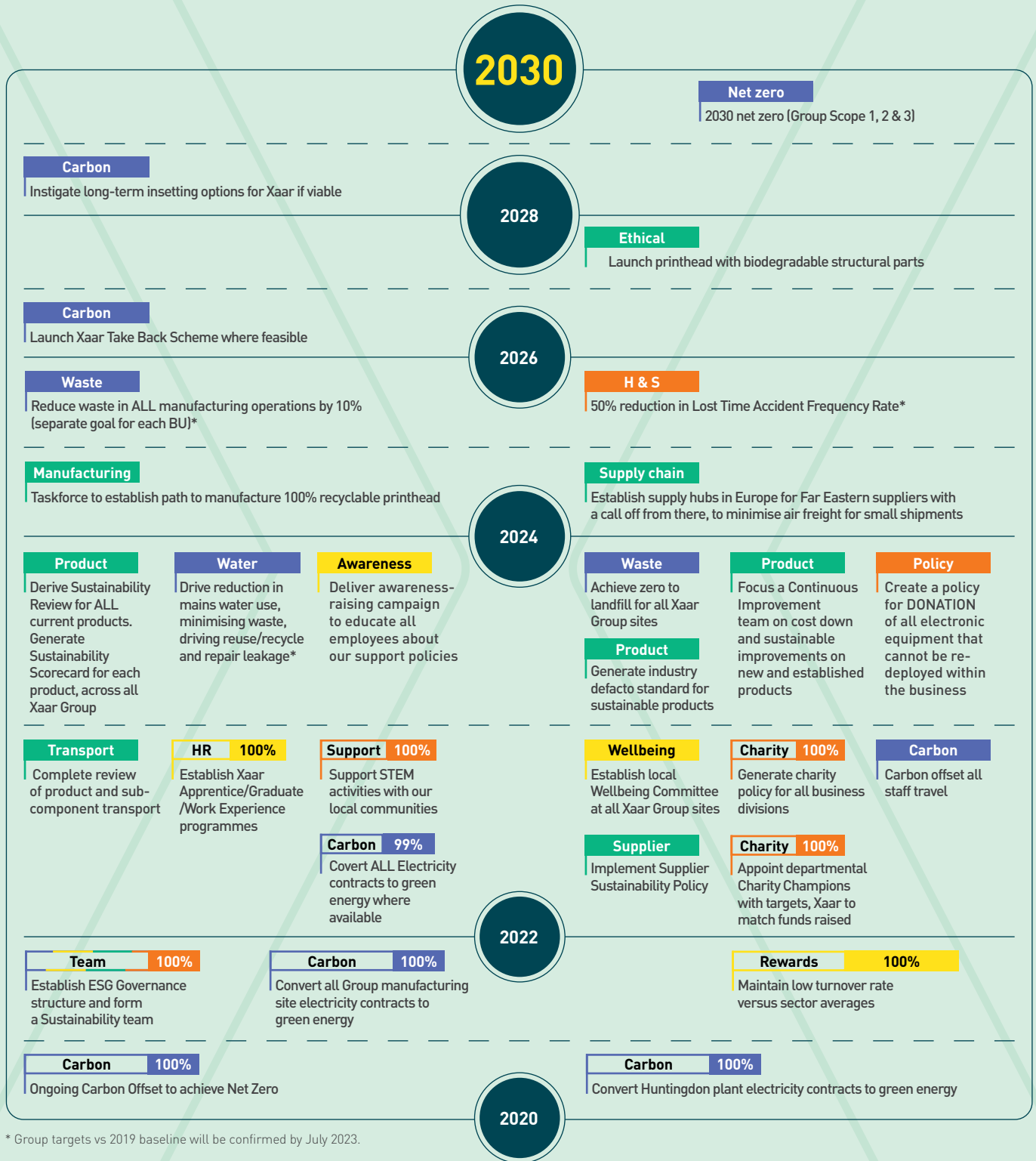


# Sustainability Roadmap

We all need to play our part to reach our goals



\* Group targets vs 2019 baseline will be confirmed by July 2023.

## Our Sustainability Pillars

### Environment

Leading the way in environmental sustainability for the industrial inkjet technology sector.

### People

An employer of choice by putting our people, their potential and wellbeing at the heart of all we do.

### Innovation

Encouraging more sustainable approaches to design, manufacture, technology and collaboration across the whole product lifecycle.

### Community

Actively engaging with our communities to provide practical, lasting support that benefits society.

## Sustainable and responsible business

The Group strongly believes that effective management of the ESG agenda is integral to business success.

The Group is not only compliant with all relevant regulation and legislation but has increasingly focused on enhancing the working environment for our employees and minimising the environmental impact of our manufacturing processes.

There is internal reporting of key metrics to ensure continuous improvement throughout the business, and each member of staff is expected to take individual responsibility for their contribution and to work together to achieve shared goals.

Digital print methods are inherently more environmentally friendly than the analogue techniques we seek to replace.

Our research shows that, compared to analogue alternatives, digital has a significant impact in reducing energy consumption (by as much as 55%), water consumption (by up to 60%) and CO<sub>2</sub> emissions (by up to 95%), in addition to reducing pollution and waste materials.



### Sustainability governance structure

Xaar benefits from a strong ESG governance structure. Our cross-functional Sustainability team has accountability to the Board. This group brings together a wide range of skill sets as well as a shared determination and passion for a more sustainable future. This team developed our ESG Roadmap and continues to take a leading role in driving internal change and progress to ensure we meet our ambitions by the timeline we have set ourselves.

The Roadmap has four key pillars – Environment, People, Innovation and Community; its purpose is to drive our ESG goals beyond the energy reduction scope to a broader Group wide activity. Our Roadmap will provide an essential backbone for much of Xaar's future investment and activity.

Xaar is committed to reducing its impact on the environment wherever possible, with Senior Independent Director Alison Littley having specific responsibility for ESG matters.

#### Board and Executive Management

**Alison Littley, Senior Independent Director**

Define corporate strategic vision for ESG and sustainability, approving Group goals

#### ESG Committee

**Global Operations Director, Group People Officer, Company Secretary & Legal Counsel, Head of Marketing, External Sustainability Comms Advisor Group Quality Systems & Sustainability Manager**

Review, assess and track Roadmap and established goals

#### Sustainability team

Selected cross function team, meetings as required to identify, develop and update Roadmap, with external support

#### Carbon Net Zero team

Cross functional team tasked with looking at opportunities and executing these

#### Energy Efficiency team

Facilities and EHS site team which drives completion of projects

## Environment


**Environmental best practice, our investment in sustainable manufacturing and improving operational efficiencies remain key areas of business focus.**

The Group fully complies with local and national regulatory requirements in respect of the environment relating to its use, storage, handling and disposal of materials, chemicals, and waste products.

Xaar maintains a Certified Environmental Management System that meets the requirements of ISO 14001:2015, helping us to manage our environmental aspects and impacts, which complements our commitment to continual improvement. It is readily available to view for interested parties. We carry out environment management reviews and audit programmes designed to measure our progress in relation to our policy statement and objectives.

### Climate change

We have escalated climate change from an emerging risk to a principal risk as part of our risk management process. Working with an external partner we have investigated, and now understand the climate risks at all Xaar sites and our top ten critical supplier sites. Our Corporate Risk Register has been updated with mitigation plans based on this new understanding.

 [See Risk management on pages 48 to 57](#)

Our aspiration is to lead our industry in environment and sustainability, in order to minimise the impact we and our products have on the world around us. We have set the aspiration to be 'Net Zero by 2030' and to drive sustainable growth and innovation for the zero carbon economy.

 [See Innovation on pages 38 and 39](#)

In 2022 we started the process of assessing the risks and opportunities of climate change to deliver activities that improve our resilience by either mitigating or adapting against physical and transitional risks. We are pleased to report that with our appointed external partner to support us with Scope 3 and TCFD Climate Modelling, we have now completed climate assessments and expect to complete Scope 3 assessments by early 2023.

Our ESG Roadmap has been evaluated against the UN Sustainable Development Goals (SDG) and we believe we touch almost all of the SDGs through our operations, our research and development and our sustainability vision and have mapped and ranked our focus to the SDGs to where we have the greatest potential to positively contribute.

Our major contributions are to SDGs 9, 12 and 13, however we have significant impacts on SDGs 3, 4 and 8.



In 2023 we will review our decision on making a commitment to an external validation methodology such as Science Based Targets initiative, UN Global Compact, B-Corp or Climate Disclosure Project (CDP).

### Carbon/greenhouse gas emissions

A key Group activity at Xaar has been to identify opportunities and drive continual improvement in energy efficiencies. We have seen reductions in non renewable energy usage and the related greenhouse gas emissions of the Company recorded in Scope 1 and 2 since 2015.

 [See Greenhouse gas emissions statement on page 45](#)

In 2021 Xaar entered into a supply contract for the supply of green electricity from a renewable source in the UK. The target was to achieve 100% from renewable sources in the UK and to investigate methods to roll this out to other subsidiaries and locations throughout the Group.

All Group UK manufacturing locations with the exception of the newly acquired Megnajet facility are now supplied with certified carbon free electricity. All UK locations, along with the Megnajet site, are expected to move over to a single green power contract in September 2023. EPS, our US manufacturing site, is supplied with power generated from renewable sources.

### Energy resilience

We are very conscious that social and political factors are impacting the energy markets. To help mitigate the increase in energy prices and enhance our business resilience, we are working hard to implement projects that will deliver a reduction in electricity demand. This includes a major reconfiguration of our PHBU cleanrooms in Huntingdon. This should yield a 40% electricity reduction by end of Q1 2023, and an overall Group reduction of around 35%.

To further reduce our reliance on the Grid, discussions have been initiated to drive the installation of a solar array at Huntingdon before September 2023.

# Sustainable and responsible business continued

## Carbon offset

In our printhead business, we are extremely proud to be a carbon neutral inkjet manufacturer, thanks to the offset of regulatory 2020 Scope 1 & 2 carbon impacts (1,815 tCO<sub>2</sub>e). We continue to offset our residual 2021 Scope 1 & 2 carbon emissions (212 tCO<sub>2</sub>e) and are committed to offsetting our Scope 1 & 2 emissions for 2022 whilst we investigate the full extent of our Scope 3 emissions, which may be added to the offset in the future.

As outlined above, to achieve carbon neutrality for 2021 we offset supported biomass power generation in Brazil and solar power generation in India.

We are pleased to confirm the appointment of an external consultant to support us with Scope 3 and TCFD Modelling. This has helped us to identify key hot spots for action, we have also started a programme of Supplier engagement on Scope 3.

## Decarbonisation

A major win for our decarbonisation journey this year has been to switch our UK pool cars to electric. In addition we are facilitating the same electric vehicle switch for employees through a salary sacrifice scheme which is proving popular. At the time of writing, ten electric vehicles (EV) have already been delivered and eight more are on order.

As more of our staff move to EVs, we recognise the need to invest in charge-points infrastructure. We now have ten chargers in place at our printhead sites. The two charge-points available at FFEI are under review for upgrade in 2023.

## Waste

We have set out to set, measure and disclose a zero waste to landfill target – with any waste not recycled being sent to a waste to energy recovery process.

Our PHBU and FFEI operations are certified zero waste to landfill by our waste treatment partners Veolia/Crawleys, with any non-recycled waste being sent to waste to energy recovery.

In 2023, we will undertake a review of our other business units to drive this goal. We are aware that the new acquisition, Megnajt, is not a zero to landfill site and it will be a priority to correct this situation in 2023.

## Waste diverted\*

# 34,320 kg

## Waste recycled\*

# 21,540 kg

\* These are the combined figures for Printhead and FFEI businesses.

## Plastics and packaging

Reducing plastics in our packaging was achieved in 2022; and all secondary printhead packaging is now fully recyclable. We removed plastic adhesive tapes and have removed plastic bubble wraps, replacing these with recyclable paper alternatives. As a result, plastic consumption has reduced by more than 1.2 tonnes since 2020.

In 2023 we are going to eliminate as much as possible of the primary printhead protection while maintaining Electrostatic Discharge (ESD) protection in the packing. In doing so, we hope to remove more than 50% of the plastic ESD packaging in 2023 and are looking for alternatives that do not use plastic.

## Biodiversity

We recognise the relationship between biodiversity and the wellbeing and health of our colleagues. We are looking to support and promote local employee campaigns, starting with the introduction of beehives on site in Huntingdon, UK, and the distribution of wildflower seeds to employees.

In 2023, having introduced two beehives on site in Huntingdon, UK, we hope to offer a training course in managing bees to a few of our employees. We also look forward to the production of Xaar branded honey by summer 2023.

In the coming years, as part of the Great Place to Work scheme, we will develop outside spaces and garden areas for employees to actively promote physical and mental health.

None of our sites are located in or adjacent to protected areas.

## Water

Our operations are considered as low water usage, and we do not have any operations in any regions with high water stress. However, within our Huntingdon factory location we need to be cognisant of the risk of flooding in the North of the Cambridgeshire region and the Fens, as well as the stress on the chalk streams and water aquifers in the South Cambridgeshire region. Xaar therefore considers water management throughout all activities of the Company and that water should be treated in a manner that will protect it for future generations.

We regularly monitor and record water usage and utilise water efficient taps and cisterns.

- **Emissions:** Xaar has a permit to discharge issued by Anglian Water; the effluent discharge is checked monthly by external consultants to ensure conformity to site discharge levels and content and reports show discharges are below permitted levels. There are no reported incidents in the last 12 months with regards to emissions to water.

## Air

- **Quality:** We regularly monitor the air quality, temperature and relative humidity levels within the Huntingdon cleanroom facility. All cleanroom air supplies are fitted with HVAC filters. Xaar also remains conscious of the need for good indoor air quality, working hard to ensure adequate air circulation and routine maintenance of the systems.






There are smoking areas located away from Huntingdon building entrances.

- **Emissions:** Xaar has a permit issued by Huntingdon District Council due to the business using more than two tonnes of solvent for surface clean down each year. To comply with the permit any waste gases must not exceed total VOCs per room of 75mg/Nm<sup>3</sup>. This has been audited and confirmed via an external UKAS accredited company. There are no reported incidents in the last 12 months with regards to emissions to air. There are no significant air emissions in relation to NOx/SOx.

Printhead water usage	2022	2021	2020
Freshwater usage (m <sup>3</sup> )	6,180	5,000	5,087
Intensity ratio (m <sup>3</sup> /£m turnover – excl. royalties)	158	127	146
Effluent and waste water (m <sup>3</sup> )	4,649	4,542	4,984

## Hazardous materials

All substances handled and used by Xaar are in accordance to the CoSHH regulations and industry best practice, by risk assessment and evaluation in their usage, storage and disposal. Care is taken to look for any less harmful alternative substances where possible to minimise any potential impacts in their use beforehand.

Environmental summary	
Focus, commitments and action	Progress in 2022
<b>Offsetting:</b> Offset all UK regulatory Scope 1 and 2 carbon impacts	In 2022 we completed the offset of the Scope 1 and 2 emissions of our 2021 footprint and we plan to do the same next year.
<b>Climate risks:</b> Identify targets, metrics and climate risks applicable to Xaar Group	Travel Scope 3 emissions are now being tracked monthly. SBTi and other validation methodologies are being considered for 2023 implementation. Climate risks have been assessed for all Xaar Group sites, and at our top ten critical supplier locations.  <b>Please see Risk section on pages 53 to 54</b>
<b>Scope 3 GHG impacts:</b> Examination of Xaar Scope 3 emissions	We have undertaken an examination of Xaar Scope 3 emissions from our supply chain by identifying key Tier 1 suppliers and their GHG emission disclosures. Travel Scope 3 emissions are now being tracked for the Printhead business unit (PHBU). Plans are in place to offset the travel carbon impact as part of the booking process for PHBU and Megnajet travel. We are delighted to add the option of booking train travel for business use, thereby lowering impacts from traditional air or road travel options. Modelling of our Scope 3 impact is underway. This will help us to identify key hot spots for action, and we have also started a programme of supplier engagement on Scope 3.
<b>Xaar Product Return Policy:</b> Assessment of opportunity for used printheads to enable reclaim	We aim to enable responsible consumption in production and remanufacturing of products, reduction in plastic use, reclaiming raw materials, recovery of any heavy metals, copper, lead etc. This was identified as part of Sustainable Roadmap activities and these significant actions are planned as part of sustainable product development and circular economy. A focused activity will define actions in 2023.
<b>Waste management:</b> Set, measure and disclose a zero waste to landfill target	We have set out to set, measure and disclose a zero waste to landfill target – with any waste not recycled being sent to a waste to energy recovery process. PHBU and FFEI operations are certified zero waste to landfill by our waste treatment partners Veolia/Crawleys, with non-recycled waste being sent to waste to energy recovery. In 2023, we will undertake a review of other business units to drive this goal.
<b>Energy efficiency:</b> Upgrade(s) to LED lighting & reconfiguration of cleanroom spaces	Energy reduction projects at our PHBU facility in Huntingdon include a conversion from fluorescent tubes to LED lighting in all buildings where this is not already completed. We expect a 70% reduction in energy associated with lighting. A major energy reduction project at the PHBU facility in Huntingdon is planned for January/February 2023. This should yield a 40% electricity reduction by end of Q1 2023, and an overall Group reduction of around 35%.
<b>Energy resilience:</b> Investigate solar panel installation in Huntingdon	A renewable energy project to install roof mounted solar panels is expected to add resilience and further reduce reliance on grid generated power through a planned PPA. Discussions have been initiated with District Network Operator (DNO) and contract discussions have started between our landlord, PPA supplier and Xaar to drive the installation of a solar array before September 2023.
<b>Greener fuel use:</b> Remove natural gas as an energy and heat source	We have worked with our landlords to complete an assessment of opportunities to reduce gas consumption for heating of our UK sites. At FFEI, the central heating controllers have been updated to allow more efficient use of the system to control temperature in the offices in Hemel Hempstead.
<b>Greener transport:</b> Launch EV charging & incentive schemes	We have installed ten new EV chargers at our Huntingdon and Waterbeach sites. This adds to the two charge-points already in place at FFEI. Our Salary Sacrifice EV scheme continues to grow in popularity – with ten EVs delivered and eight more on order for delivery in 2023/24.
<b>Plastics and packaging:</b> Identify and eliminate non-product based single use plastics	Reducing plastics in our packaging was achieved in 2022; and all secondary printhead packaging is now fully recyclable. We removed plastic adhesive tapes and have removed plastic bubble wraps, replacing these with recyclable paper alternatives. As a result, plastic consumption reduced by more than 1.2 tonnes in 2022.
<b>Focus areas for 2023</b>	<ul style="list-style-type: none"> <li> Drive all UK sites to a single green energy framework deal, minimising cost increases and maximising energy flexibility.</li> <li> Install solar at Huntingdon facility to reduce reliance on the grid.</li> <li> Achieve 10% reduction in mains water use.</li> <li> Plan Bee: Beekeeping training for in-house volunteers.</li> </ul>

## People

### Human rights

The Group respects all human rights and regards those rights relating to non-discrimination, fair treatment and respect for privacy to be the most relevant and to have the greatest potential impact on its key stakeholder groups of customers, employees and suppliers.

The Group undertakes extensive monitoring of the implementation of all of its policies and has not been made aware of any incident in which the organisation's activities have resulted in an abuse of human rights.

Xaar is committed to only supplying products that contain conflict free materials. Suppliers of parts containing tin, tantalum, tungsten or gold to Xaar are sent and required to complete an EICC- GeSI declaration providing evidence that parts supplied do not contain minerals sourced from areas of conflict – DRC or adjoining areas.

The Board has overall responsibility for ensuring that the Group upholds and promotes respect for human rights. The Group seeks to anticipate, prevent and mitigate any potential negative human rights impacts as well as enhance positive impacts through its policies and procedures, in particular, through its policies regarding employment, equality and diversity, treating customers fairly and information securely. Group policies seek both to ensure that employees comply with the relevant legislation and regulations in place in the UK and other operating locations and to promote good practice. The Group's policies are formulated and kept up to date by the relevant business area, authorised by the Board and communicated to all employees.

### Code of Conduct


All new employees complete an induction process that outlines the expectations of the Company, its employees, customers and suppliers for the way in which business is conducted and helps to avoid situations that might lead to adverse legal issues or damage to our reputation.



The Group's most important corporate policies are incorporated into the Xaar Code of Conduct, and should be complied with at all times:

- Anti-bribery and Corruption Policy
- Confidential Information Policy
- Corporate Criminal Offence Policy
- Data Protection Policy
- Employee Share Dealing Code
- Email and Internet Policy
- Gifts, Entertainment and Hospitality Policy
- HS&E Policy Statements
- Sanctions Policy
- Whistleblowing Policy.

Each year the Group requires all employees to read and confirm that they understand and comply with these policies.

 See Group policies outlined in the Non-financial information statement on page 58

### Whistleblowing

We have a Whistleblowing Policy that encourages open and honest communication where incidents of non-compliance are seen in our business. Whistleblowing issues are reported directly to management, and any significant issues, should they arise, are reported to the Audit Committee. In each instance, cases are investigated in detail and appropriate action taken. There have been no whistleblowing incidents or reports by senior management to the Audit Committee.

### Modern slavery

The Group is committed to acting ethically and with integrity in all our business dealings and relationships, implementing and enforcing effective systems and controls to ensure modern slavery in all its forms (including human trafficking, forced labour and child labour) is not taking place anywhere in our Group businesses or in any of our supply chains. The Group has published a Group-wide Modern Slavery Policy and a statement on the steps taken to prevent slavery, which is available on the Group's website.

## Health & safety and environment

Xaar has manufacturing sites in Huntingdon, Hemel Hempstead, Kettering and the USA, supported by R&D laboratories in Cambridge and Sweden, alongside head office functions in Cambridge, plus sales offices worldwide.

It is always Xaar's intention to conduct business in a manner that protects the public, the environment, and employee safety.

Xaar's Environmental and Health and Safety policies provide a framework for the setting and reviewing of Occupational Health, Safety and Environmental Objectives. This demonstrates Xaar's continued commitment to the prevention of injury and ill health and also the continual improvement in our Environmental and Occupational Health and Safety Performance. Xaar believes that the combination of a safe place of work and safe working practices, together with a productive and innovative environment, are critical to the continued success of the Company.

UK Health & Safety reports	2022	2021
RIDDORs*	0	0
Accidents	22	9
Incidents	11	11
Near misses	8	5

\* Reporting of Injuries, Diseases and Dangerous Occurrences Regulations.

The Group undertakes R&D activities and manufactures products in the UK and the USA. The Group complies with all local and European legislation. The Group's manufacturing facility in Huntingdon is both ISO 9001:2015 and ISO 14001:2015 certified and as a minimum complies to HSG65. It is the Group's policy to maintain this level of certification for its Huntingdon manufacturing facilities and to comply at all times with all relevant environmental and other legislation in the territories in which the Group operates. The Group is compliant with REACH ('Registration, Evaluation, Authorisation and restriction of Chemicals'), WEEE ('Waste Electrical and Electronic Equipment') and RoHS ('Restriction of the Use of Certain Hazardous Substances') directives, as required under UK and European legislation. The Group has a proactive Health and Safety System modelled on OHSAS 18001/HSG65 in Cambridge, Huntingdon and Hemel Hempstead.

## Equality and diversity

The Group is committed to providing a working environment in which employees feel valued and respected and are able to contribute to the success of the business. Employees are requested to co-operate with the Group's efforts to ensure that the policy is fully implemented.

The Group's aim is that its employees should be able to work in an environment free from discrimination, harassment and bullying, and that employees, job applicants, customers, retailers, business introducers and suppliers should be treated fairly regardless of:

- race, colour, nationality (including citizenship), ethnic or national origins;
- gender, gender reassignment, sexual orientation, marital or civil partnership status;
- religious or political beliefs or affiliations;
- disability, impairment or age;
- real or suspected infection with HIV/AIDS;
- membership of a trade union;
- pregnancy, maternity and paternity;

and that they should not be disadvantaged by unjust or unfair conditions or requirements.

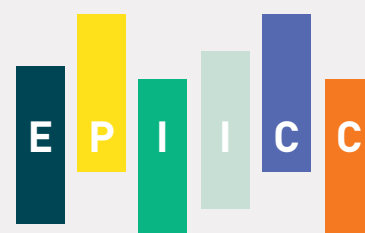
The Group aims to ensure that applications for employment from people with disabilities, and other under-represented groups, are given full and fair consideration and that such people are given the same training, development and job opportunities as other employees. Every effort is also made to retrain and support employees who suffer from disabilities during their employment, including the provision of flexible working to assist their re-entry into the workplace.

The Group places considerable value on the involvement of its employees and has continued to keep them informed of the various factors affecting the performance of the Group. This is achieved through written communications shared through the Company intranet and email, and formal and informal meetings. All employees participate in a bonus scheme based on individual performance and Group business targets and, in the UK, have the opportunity to participate in an HMRC approved Share Save Scheme.

Based on the closing headcount at 31 December the split of employees (excluding the Non-Executive Directors) by gender was as follows:

	2022 Male/Female	2021 Male/Female
All employees	346/98	350/105
Executive Directors	2/0	2/0
Managers	39/15	39/7
Employees	305/83	307/97

## A value-led culture



### Everything with Passion

We care about our technology, our products, our partners and each other.

### Innovative

We always look for new, better solutions.

### Integrity

We deliver on our promises.

### Creative

We push the boundaries of what's possible.

### Collaborative

We work together as a team and with our clients.

## CEO pay gap ratio

The following table sets out the ratio of the CEO's total remuneration in respect of FY22 (taken from the single figure table on page 96) to the 25<sup>th</sup> percentile, 50<sup>th</sup> percentile (i.e. the median) and the 75<sup>th</sup> percentile full-time equivalent (FTE) of the Group's UK employees. In line with the applicable regulations, the corresponding ratios for 2021 are also included.

	2022	2021
Method	Option A	Option A
25 <sup>th</sup> percentile	61:1	16:1
Median pay ratio	40:1	11:1
75 <sup>th</sup> percentile	28:1	7:1

Further information is provided in the Remuneration Committee report on pages 101 and 102

## Gender pay gap

Gender pay reporting is required for companies with over 250 employees. Xaar is reporting as Xaar plc, including all UK subsidiaries. The snapshot date for Xaar's data is 5 April 2022. At that point Xaar had 320 relevant employees: 255 male and 65 female.

It is fundamentally important to understand that a gender pay gap does not necessarily mean men are paid more money for doing the same job. At Xaar we are committed to ensuring we pay based on merit not gender and we regularly monitor our pay awards to ensure that we pay the same rate for similar roles.

# Sustainable and responsible business continued

## Gender pay gap continued

Xaar's mean gender pay gap stands at 13.61% (2021: 14.38%). As with many companies we do have a gender pay gap, though our results are consistent with other companies who operate within the technical, manufacturing or engineering sector.

There has been a shift across the quartiles with more movement for female employees from lower middle quartile to higher middle. This is a reflection of more female employees being promoted and appointed to senior roles.

We appreciate that improving our diversity will improve our results, and we continue to work on improvements over the longer term. A large part of Xaar's gender balance gap is due to the challenges of recruiting women into science and technology roles. Nevertheless we are continuing to work on increasing our gender balance in the following ways:

- Xaar operates in a male dominated industry and we are working to ensure that our hiring managers are trained to understand and recognise gender bias. We do, however, receive significantly fewer applications from females for technical roles.
- Our Talent Acquisition team assists hiring managers by giving practical advice, support and monitoring for gender bias. We seek to have both female and male candidates as part of the hiring pool whenever possible and we constantly review our processes to ensure we are encouraging more female applicants.
- Xaar is supporting Cambridgeshire *Engineers of the Future* by sponsoring local schools' Imagineering Clubs, which is designed to introduce children to engineering and hopes to inspire young people and especially girls to take up STEM subjects. A number of our women from Engineering participate in these endeavours.
- We support all employees to achieve their potential with a talent management programme and we offer flexible working arrangements to support working parents.

## Pension

The Group Personal Pension scheme is administered by Scottish Widows. The Company pension contribution for Directors (or cash allowance equivalent) does not exceed the contribution available to the majority of the workforce, currently 6% of base salary.

All the equity assets in the Pension Portfolio Funds now track indices, which exclude certain stocks on environmental, social and governance (ESG) grounds.

The funds, managed by their strategic partners State Street Global Advisors (SSgA) and BlackRock, track new benchmarks, which reflect exclusions policies, aligned with Scottish Widows' own policy introduced in 2020. The new benchmarks are amended versions of existing FTSE indices. They incorporate all of the stocks in the original indices, for example the FTSE All-Share, minus the excluded stocks.

Companies excluded from the indices include those that are severely violating international standards in relation to human rights, labour rights, the environment and corruption, known as the UN Global Compact (UNGC), controversial weapons manufacturers and those involved in thermal coal or oil sands.

## Flexible benefits

In addition to the pension contributions, employees are also offered a range of flexible benefits each year, against which they can obtain individual and family cover including income protection and life assurance. Within the UK, there are a number of salary sacrifice schemes for employees including an electric vehicle scheme for employees to lease a new electric vehicle and a cycle to work scheme where employees can obtain finance and discounts on new bikes including electric options.

## Employee health and wellbeing

Employee health and wellbeing remains a keen priority for the Group.

In line with this approach, the businesses within the Group have prioritised different initiatives that best reflect their workforce, such as volunteering and employee wellbeing policies, regular wellbeing weeks, step challenges, weekly Yoga sessions, qualified mental health first-aiders and other activities to encourage and promote a healthier workforce.

As part of the Flexible Benefits programme, employees have access to:

- **Health Shield**, a health benefit solution offering access to discounts and reimbursement of healthcare costs such as dentists, opticians, physiotherapists and health checks.
- **Fitness**, employees can pay for gym membership or gain access to gym discounts via a website, that also offers discounts on items such as fitness trackers, experience days and sports clothing.
- **Wellbeing** via an **Employee Assistance programme**, a positive preventative programme of information, advice and services that can help individuals deal with events in their everyday work and personal life, including bereavement assistance, manager consultation and coaching, and immediate crisis intervention, through telephone counselling teams 24/7.

## Training, development & retention

The role of Training and Development Manager was added to the HR function in 2022 with key enhancements to the offering including:

- An updated suite of Learning and Development tools being developed to ensure key skills are developed and enhanced.
- 1,850 hours of professional development being undertaken.
- Internal courses are developed in conjunction with the Institute of Learning and Management (ILM) to support key manager development.

- An Apprenticeship Programme was embedded with four engineering apprentices joining the programme across the Group.

The Group operates an online performance management and appraisal system providing opportunity for individual discussions on training needs and career planning. This is supported by a talent management and succession planning process from which the Executive Management Team assesses the outcomes, formulates action plans and reviews progress. Two talent Development Cohorts have been established with individual and group learning planned for 2023.

The Board is kept informed of the results. The loss of key personnel is identified by the Board as a key risk and is set out in further detail in the principal risks and uncertainties table on page 51. Voluntary labour turnover was 10.4% across the Group in 2022 (2021: 5.5%).





## People summary

Focus, commitments and action	Progress in 2022
<b>Early years engagement</b> Proactive engagement with young people	<p>We continue to support activities that promote STEM subjects amongst young people. Next year, we plan to expand our activities to reach out to multiple schools (primary, secondary and higher education).</p> <p>Our Apprenticeship Programme in PHBU, FFEI and EPS is working well – and we can report that we now have a Framework across the Group. We enrolled four new apprentices onto programmes in 2022 bringing our total to 13 live apprenticeship programmes in Xaar Group.</p> <p>Our graduate framework is in place, however we have no active graduate participants this year.</p> <p>We have three new industry placements across the Xaar Group in 2022 from Huddersfield University, Queen Mary University of London and Leipzig University.</p> <p>We have entered into three Sponsorship Programmes, supporting an A-Level and two PhD level individuals at Kings school, Peterborough, Oxford and Sheffield respectively.</p>
<b>EPIICC:</b> Relaunch of Xaar Values across the Group	<p>Following the launch of our EPIICC values in 2021, these were further embedded across the Group during 2022.</p> <p>During the year there were 598 peer nominations for an EPIICC award with the winning employees receiving Group-wide recognition for their commitment to living the values.</p>
<b>Talent attraction &amp; retention:</b> Prioritising our focus on people	<p>Attraction and retention remain critically important in a challenging employment market. In 2022 voluntary turnover remained low at 8.2% which resulted in relatively low levels of external recruitment. In 2023 we will be updating our employee value proposition, refreshing our careers website and looking at using additional channels to attract future employees. To focus on retention, two future talent cohorts have been launched to support the development of future leaders and managers. Throughout 2022 we have continued to engage with our employees by running Exec Exchange sessions and Meet the NEDs sessions to ensure all employees have the opportunity to discuss areas of the business and the strategy directly with leaders.</p>
<b>Wellbeing:</b> Supporting our employees' physical & mental health	<p>We continued through 2022 to embed a positive intervention programme with advice and support available to all employees.</p>
<b>Health &amp; Safety:</b> Ensure zero harm across our operations	<p>New accident and near miss reporting process has been integrated into all the Xaar Group locations.</p> <p>No RIDDOR level accidents have been reported this year.</p>
<b>Investing in our people:</b> Learning, development & skills building	<p>We supported Learning at Work Week in May 2022 through several initiatives - which were attended by 109 of our colleagues across the nine events. This resulted in 131 hours of learning.</p> <p>We have achieved 1,850 CPD (continuous professional development) hours for Xaar. Tracking of the wider Group hours will start in 2023.</p>
<b>Communications:</b> Establishing regular dialogue with internal stakeholders	<p>We continue to use a wide range of channels to communicate with our internal stakeholders. This includes:</p> <ul style="list-style-type: none"> <li>• Xaar Connected (fortnightly)</li> <li>• CEO's email update (weekly)</li> </ul> <p>We plan to undertake an Employee Survey in 2023 as part of the work we are doing for the Great Places to Work Programme.</p> <p>We also communicate our sustainability and ESG progress through a regular series of blogs (shared internally and externally). We have commissioned a Group level sustainability video which will be completed in Q1 2023.</p>
<b>Equality, Diversity &amp; Inclusion</b>	<p>We continue developing policies and practices in all areas of our business to ensure that our values in this area are fully embraced.</p>
<b>Focus areas for 2023</b>	<ul style="list-style-type: none"> <li>✔ Complete Great Place to Work Programme and roll out key actions.</li> <li>✔ Continue to amplify internal communications around our Roadmap.</li> <li>✔ Examine Xaar Group working patterns to drive a more diverse applicant pool.</li> </ul>

## Innovation

**Xaar recognises that innovation is key to achieving many of the sustainability goals across all four pillars that support our Sustainability Roadmap. For 30 years, we've been reinventing inkjet and reimagining what's possible for printheads.**

In 2022 we relaunched the Product Lifecycle Management process in all parts of the Xaar Group. It is used to develop new and innovative print related products; this now includes Design for Environment as part of the development considerations. Eco-design is the systematic application of environmental lifecycle considerations at the product design stage. The aim of eco-design is to avoid or minimise significant environmental impacts at all stages of the lifecycle of a product, from sourcing of raw materials and purchased components, design and manufacture, to distribution, use and end-of-life disposal.

We are researching ways to use biodegradable structural parts in the manufacture of our products. An area of focus is to find an alternative, more sustainable material than Polylactic Acid (PLA) which is a biodegradable plastic used to print the majority of our jigs and fixtures. Our Operations team has successfully trialled the use of recycled PLA filaments generated from returned and waste PLA. These are supplied in 100% plastic-free sustainable packaging with easy to recycle cardboard spools.

We are also examining the properties of Fishy Filaments, a printing filament manufactured from end of life fishing nets recovered from Cornish fishery fleets.

In addition, we have high hopes that a new material in development at Fishy Filaments may be resistant to ink fluids, and therefore be a candidate for manufacture of printheads.

### Precautionary principle

The Company supports the precautionary principle by avoiding materials and production methods that pose environmental and health risks when suitable alternatives are available.

Xaar continues to review changes in the Restriction of Hazardous Substances Directive (2011/65/EU). As a result we are working hard to eliminate Substances of Very High Concern (SVHC) from the manufacturing process.

### Resource efficiency and circularity

Our products and processes are designed in such a way that energy and raw materials are used efficiently, and waste and residual products are minimised over the product lifecycles.

We have implemented a successful circular and resource efficient approach to the recovery of key electronic and piece parts from printheads that do not meet our high standards. This innovative approach, along with considerable sourcing efforts, has enabled us to continue production despite global shortages and has enhanced our business resilience.

### Environmental performance

The Company routinely audits, follows up and reports on its environmental performance, with particular emphasis on evaluating the potential risks of present and future products and operations.

### Product quality

We issued a number of Technical Bulletins throughout the course of 2022, advising customers on product updates, system improvements and product end of life announcements. No product recalls were initiated in 2022.



## Innovation summary

### Focus, commitments and action

### Progress in 2022

#### Sustainable supply chain:

Undertake supplier review, sustainability policy and partnership to enhance sustainable opportunities

In order to baseline our Supplier Scope 3 GHG emissions we have partnered with external consultancy CO2A. Their experts will model our carbon footprint due to upstream activities. The model is based on financial transactions but includes typical transport carbon impacts from the countries each supplier works within.

In addition, we have started discussions with our key suppliers to validate the model and to enable actions for what we foresee as our likely highest carbon impacting supply chain partners.

As part of all new part supply contracts we are now looking for the carbon footprint to allow a selection on the basis of quality, cost and sustainability for all future decisions.

We have already taken the decision for some Far East suppliers to order months in advance and ship by boat to dramatically reduce the carbon impact of transport, where previously we used air.

#### Sustainable materials:

Investigate & explore new opportunities

While we transition to recycled PLA for all of our jigs and fixtures the use of the current Fishy Filaments materials is proving difficult. Development by this innovative company continues and we remain hopeful that a new material may provide an easier option for printing jigs and fixtures, and potentially structural printheads parts.

#### Critical supplier climate risks

Undertake full review of top ten suppliers

With our partner CO2A we are undertaking a climate risk analysis of each of the Group's top ten critical supply partners. Our intent is to work with each to mitigate the perceived risk as climate temperatures increase and the environment becomes more susceptible to extreme weather events.

### Focus areas for 2023

- ✔ Develop a generic Printhead Sustainability metric that can be used across the industry to inform customers and allow comparisons between competitors.
- ✔ Establish Continuous Improvement team to look at cost down and Sustainable Improvements on New and Established products.
- ✔ Develop a future roadmap towards a sustainable printhead.
- ✔ Investigate rationale and business case for projects that explore participation in circular economy of printhead reclaim and solvent recycle.

## Community

### Xaar is proud to play an active role in the communities in which it operates.

As part of our commitment to social value and community we have an active programme of sponsorship for projects and initiatives that are aligned to our business values.

For example our Printhead business sponsors an Imagineering Club within a local primary school (Stukeley Meadows School). Imagineering Clubs are designed to introduce children to engineering through fun activities. Our employees provide their time to support these within work hours.

In June 2022 we welcomed ten pupils from Stukeley Meadows School in Cambridgeshire on site for a day of activities and learning. This was not simply a great way to add value and connect with our local community, it was a valuable and energising way to inspire the next generation of youngsters through STEM-based activities ('Science, Technology, Engineering and Mathematics').

## Charities

At a strategy and policy level, we have updated and published a Group Charity Policy. Moving forward, it will help us to define how we select and work with our charity partners. We think this is an important part of our ESG/Sustainability agenda and will be a useful framework.

Xaar contributes annually to charitable causes through three funds:

**A chosen charities fund:** with our three-year affiliation to Break the chosen charities fund in the UK has promised to match-fund up to £20,000 raised by staff each year from April to April.

In the US, EPS continues to support Manchester Machine Makers, a club that is dedicated to promotion of STEM subjects.

**A Sponsorship fund:** for staff and their families engaging in charity events or team activities, Xaar will provide up to £100 towards an event (e.g. charity golf days, sporting events, donations to community foodbanks) or team sponsorship. Wherever possible the Xaar logo should be incorporated (e.g. in a team sports kit). There is a fixed annual budget to cover all sites.

**A Central fund:** Xaar will donate monies as appropriate to disasters and emergencies or other local causes not covered by the other funds. This will be at the discretion of the executive team. In total, the Group made charitable contributions to local and national charities during the year totalling £2,966. (2021: £5,060).



## Charitable sponsorship

Chosen with input from our colleagues, our charity work inspired us to enter into a three-year partnership with the East Anglian children's charity 'Break' to help change the lives of vulnerable young people on the edge of care, in care and leaving care ([www.break-charity.org/charity/](http://www.break-charity.org/charity/)). We have set ourselves a fundraising target of £20,000 – we aim to reach this figure with the help of our internal Charity Champions and Break.

While our fundraising activities are clear we hope that mentoring and potentially employment opportunities may also be offered as a result of this longer-term union.

## Volunteering

Our senior leadership team recognises the benefits to Xaar, our employees and to the wider community of a framework within which volunteering can take place. Managed well, volunteering can raise our profile within the community and support our social responsibility plans.

Xaar supports employees' voluntary work/ activities by providing 'holiday matching' of up to two and a half days a year. We believe this will help them get involved in their community, support employee mental health and wellbeing through positive activities and additionally assist them in developing new skills and hone existing ones.

Xaar has donated and grant matched time off to an employee in 2022 to travel overseas and support construction of a school/facilities building in Africa. That employee was so enthused by the effect of his contribution that Xaar intends to support grant matched time off for a follow up project in 2023.

## Political donations

The Company has a longstanding global policy against making contributions to political parties, political committees or candidates using Company resources (including monetary and in-kind services), even where permitted by law.

No political donations were made in the current or previous year.

## Taxation

We aim to manage our tax affairs in accordance with national legislative provisions and within the guidelines set down by the Organisation for Economic Cooperation and Development (OECD). Our objective is to structure our operations tax efficiently and take advantage of available incentives and exemptions provided by governments for eligible capital investments, R&D and similar expenditure.

We do not enter into any artificial tax arrangements.

We have not received any fines or penalties from any government tax agencies.



## Community summary





Focus, commitments and action	Progress in 2022
<p><b>Charity partnerships:</b> Alignment of values &amp; fundraising activities</p>	<p>This year, we released a new Group-wide Charity Policy. This is designed to help us align our chosen charity partnerships with our Company values. This policy clarifies our commitment to work with organisations that support young people and vulnerable groups in society.</p> <p>Our Charity Champions network is now established across the Xaar Group with several fundraising activities completed and more planned.</p> <p>In the UK, we have established a three-year partnership with East Anglia based charity Break. In the USA, we continue to support Manchester Machine Makers.</p> <p>Xaar has committed to match-fund up to £20,000 of our fundraising activities in the UK.</p>
<p><b>Volunteering:</b> Increase volunteering opportunities</p>	<p>Our Volunteering Policy has been fully rolled out across the Group. This allows a matched period for time taken by an employee to volunteer with a recognised charity up to 2.5 days a year.</p> <p>In 2022, one of our team volunteered to help build a school in Africa, and will return in 2023 to continue this valuable work.</p>
<p><b>Supporting STEM subjects:</b> Working with local communities &amp; schools</p>	<p>In the UK, we are working with Stukeley Meadows STEM Club. Ten of their students visited Xaar Huntingdon for the day in 2022 to take part in tours and activities to inspire their interest in technology-focused careers. We plan to run taster sessions in a second primary school and support a STEM activity day in a third primary school in January 2023. We also intend to support industry focused lessons to support the curriculum in a local secondary school in 2023.</p>
<p><b>Electronic equipment reuse:</b> Exploring options for redeployment for schools &amp; local social projects.</p>	<p>Xaar Group has taken delivery of our first 15 remanufactured laptops from our partner Circular Computing. This order has avoided over 4tCO<sub>2</sub>e when compared with ordering new laptops. It is hoped that in three years' time this will form a closed circular route with these laptops being remanufactured and reused again.</p> <p>Any waste electrical equipment that is beyond use for schools and local social projects is being sent for precious metal recovery. We continue to review all end of life electronics for opportunities to support schools or local projects.</p>
<p><b>Focus areas for 2023</b></p>	<ul style="list-style-type: none"> <li>✔ Continue to increase awareness of the work of UK Charity Partner Break and provide support for fundraising in 2023.</li> <li>✔ Drive quarterly site-based activities through Charity Champions network, and support Break by promoting additional activities such as firewalks and skydiving.</li> <li>✔ Initiate mentoring support for Break's young people with help and engagement from our UK staff.</li> <li>✔ Create a Volunteering Diary to encourage staff engagement and publish this across UK Xaar Group.</li> </ul>

# Task Force on Climate-related Financial Disclosures (TCFD)



## In meeting the requirements of Listing Rule 9.8.6 R, the Board has concluded that:

We comply with the recommended disclosures across each of the provisions. See below for details.

Disclosures	Recommended disclosures	Response
<b>A. Governance</b>		
<b>Disclose the organisation's governance around climate-related risks and opportunities.</b>	1. Describe the board's oversight of climate-related risks and opportunities.	<p>The Xaar plc Board reviews key climate-related risks and opportunities and oversees mitigation strategies as part of the bi-annual review of principal and emerging risks.</p> <p>Alison Littley, Senior Independent Director, has specific responsibility for ESG matters, including climate change and sustainability.</p>
	2. Describe management's role in assessing and managing climate-related risks and opportunities.	<p>Executive management receives reports from an ESG Committee whose members consist of senior managers across the Group.</p> <p>The ESG Committee meets on a quarterly basis to assess the opportunities and proposals developed by the Sustainability Working Group.</p> <p>The Sustainability Working Group meets regularly and is driving our roadmap whilst also receiving information from both the Carbon Net Zero team and Energy Efficiency team.</p> <p> <b>See governance structure on page 60</b></p>
<b>B. Strategy</b>		
<b>Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning where such information is material.</b>	3. Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term.	<p>We completed climate scenario planning out to 2100 across two climate scenarios (e.g. RCP 2.6, RCP 8.5).</p> <p>The review examined all Xaar sites globally and our top ten critical supplier sites using 12 separate climate models, in each case the RCP 8.5 model was used to assess risks at the most extreme expected temperature rises (4.5oC).</p> <p>The report concluded physical risks are low to very low in almost all cases.</p> <p>There are two Xaar sites at risk of flooding:</p> <ul style="list-style-type: none"> <li>• Bayes Street Kettering – surface water high risk</li> <li>• Fuzhou Avenue, Bao'an District Shenzhen – one metre above sea level</li> </ul> <p>There are three supplier sites of ten analysed with risks:</p> <ul style="list-style-type: none"> <li>• Site 1 IPRO PID five metres above sea level near coast</li> <li>• Site 4 Fabrinet five metres above sea level protected by Bangkok (7km inland)</li> <li>• Site 5 CTS Tianjin China 0 metres above sea level near coast</li> </ul> <p><b>Mitigations</b></p> <p>China is expected to create one metre coastal defences to protect its major population centres and both the Xaar and CTS sites are part of major population centres and should be part of these coastal actions.</p> <p>IPRO PID at five metres will not be affected for a long time, so there is plenty of time to monitor actual sea level rise before making any risk judgement.</p> <p>Fabrinet at five metres, and 70km inland will not be affected for a long time, so there is plenty of time to monitor actual sea level rise before making any risk judgement. We expect coastal defences to be put in place to protect Bangkok which will also protect Fabrinet.</p> <p> <b>See Risk management on pages 53 to 54</b></p>

Disclosures	Recommended disclosures	Response
<b>B. Strategy continued</b>		
	4. Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning.	<p>In managing these financial climate-related risks our business model would not require material change, except for increasing inventory levels of components to account for transport delays arising from exceptional weather events, and to consider mitigation for potential business disruption, e.g. flood defences.</p> <p>Opportunities exist in the transition to a low carbon manufacturer, by reducing both energy usage and utilising renewable energy sources to deliver lower costs to the business. Product development will incorporate sustainability as a central objective, to transition manufacturing from a linear to a circular process and to being a process to reduce, reuse and recycle materials, all to be undertaken as part of Xaar's overall Sustainability Roadmap.</p> <p> <b>See Risk management on pages 53 to 54</b></p>
	5. Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	<p>We have undertaken a high-level review of the likely impact of 2°C and 4.5°C global warming scenarios (see section 3 above), an independent external climate related scenario review in 2022 to identify physical and transition risks and opportunities in delivering carbon neutral manufacturing leading to 'Net Zero by 2030'. The review identified very low to low risks in most cases with five sites identified with slightly higher risk scenarios.</p> <p> <b>See Risk management on pages 53 to 54</b></p>
<b>C. Risk management</b>		
<b>Disclose how the organisation identifies, assesses, and manages climate-related risks.</b>	6. Describe the organisation's processes for identifying and assessing climate-related risks.	<p>The Group has processes in place for identifying, evaluating and managing the principal risks, which could have an impact upon the Group's financial performance. Climate change has been disclosed as an emerging risk in recent years, and has been escalated to a principal risk category in 2021.</p> <p>With new inputs from an independent report the Board has considered the potential impact of climate change that could occur in the short, medium and longer term.</p> <p> <b>See Risk Management on pages 53 to 54</b></p>
	7. Describe the organisation's processes for managing climate-related risks.	See above – A. Governance – Xaar has introduced a new structure to identify climate-related risks to be reported to the Board bi-annually including making decisions to mitigate, transfer, accept, or control those risks.
	8. Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.	As part of the Group's risk management, within the detailed risk register, climate-related risks are determined alongside other principal risk areas, e.g. manufacturing facility, inventory and supply chain risks. The assessment is quantified via a Likelihood/Magnitude matrix to determine the overall net risk after mitigation.
<b>D. Metrics &amp; Targets</b>		
<b>Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.</b>	9. Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.	<p><b>Metric updates for 2022:</b></p> <ul style="list-style-type: none"> <li>Investigate metrics and targets to be defined as part of Science Based Targets initiative</li> <li>Continuing improvement/reduction in Scope 1 &amp; 2 emissions along with intensity measurement</li> <li>Scope 1 &amp; 2 emissions are being offset to become 'carbon neutral'</li> <li>Analysis completed to recognise and begin to action travel, commute and upstream Scope 3 emissions</li> <li>Set, measure and disclose waste to landfill target, any waste not recycled being sent to a waste to energy recovery process. We are aware that the new acquisition, Megnajet, is not a zero to landfill site and it will be a priority to correct this situation in 2023.</li> </ul> <p> <b>See page 29 for Sustainability Roadmap</b></p>

## Task Force on Climate-related Financial Disclosures (TCFD) continued

Disclosures	Recommended disclosures	Response
<b>D. Metrics &amp; Targets</b> continued		
	10. Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	<p>GHG emissions are disclosed as per the SECR requirements for Scope 1 and Scope 2.</p> <p>An initial assessment has been completed for Printhead business unit Scope 3 emissions, and a boundary developed.</p> <p>We have recognised Scope 3 emissions arising from employee travel and commuting; a model has been generated to allow an estimate of the upstream value chain and direct interaction with suppliers to validate the quality of this modelled data has been initiated. Downstream value chain activities have not yet been examined, and with the initial upstream results being approximately 100 times our own internal Scope 1 &amp; 2 footprint we intent to focus on upstream value chain activities for a number of years before moving to downstream review.</p> <p> <b>See GHG/SECR disclosure on page 45</b></p>
	11. Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.	<p>Xaar has committed short-term targets:</p> <ul style="list-style-type: none"> <li>• To achieve a net zero target by 2030</li> <li>• 100% renewable (green) electricity at UK facilities by Sep 23</li> <li>• Zero waste to landfill</li> <li>• Offset of all Scope 1 &amp; 2 Group emissions as we continue to drive reductions in energy use.</li> </ul> <p> <b>See page 33 for progress summary</b></p>



# Greenhouse Gas Emissions statement

Xaar plc has calculated its global greenhouse gas (GHG) emissions statement using an operational control consolidation approach

## Scope 1 emissions

Scope 1 emissions occur from sources that are owned or where Xaar plc has operational control. This includes direct emissions from gas combustion in our buildings, fuel used in leased Company vehicles and for the first time we have chosen to include impacts from refrigerant leaks (not currently required).

Actual and estimated gas consumption data has been collected from each of the leased properties under the control of the Xaar Group, from data sources including direct meter readings, meter readings from suppliers included on invoices and estimations where required based on available information from property management suppliers and other sources. Actual mileage data has been collected from the leased Company vehicle fleet.

## Scope 2 emissions

Scope 2 refers to indirect emissions from the consumption of purchased electricity (also including any purchased heat, steam or cooling) from facilities owned or under the operational control of Xaar plc. Actual and estimated data has been collected from each of the leased properties under the control of the Xaar Group, from data sources including direct meter readings, meter readings from suppliers included on invoices and estimations where required based on available information from property management suppliers and other sources.

## Scope 3 emissions

Scope 3 emissions are all indirect emissions – not included in Scope 2 – that occur in the value chain of the reporting company, including both upstream and downstream emissions.

Scope 3 CO<sub>2</sub> emissions currently represent calculated and estimated CO<sub>2</sub> emissions from travel and employee commuting as well as modelled totals from our upstream emissions. Our financial records were reviewed to extract purchased product data which was then used to calculate the carbon footprint of the matched products using MRIO data from CenSA (now University of Leeds as used by DEFRA). As the Group's Sustainability Roadmap progresses, we aim to collaborate with the supply chain to validate our upstream model data and reduce CO<sub>2</sub> emissions. We will continue to disclose ongoing progress in our Annual Report. Activities on downstream Scope 3 have not yet been initiated, but plans are in place to understand these in the future.

 Please refer to page 32 for actions that Xaar is undertaking to offset its carbon emissions

Assessment parameters	
Baseline year	1 January 2013 to 31 December 2013
Consolidated approach	Operational control
Boundary summary	All entities and all facilities under operational control included subject to the materiality threshold applied
Consistency with the financial statements	The only variation is that leased properties deemed to be under operational control have been included in Scope 1 and 2 emissions
Materiality threshold	Materiality has been set at Group level at 5%*
Assessment methodology	Greenhouse Gas Protocol and ISO 14064-1 (2006)
Intensity ratio	Emissions per £'000 turnover exc. royalties

\* The total of any excluded emission sources is estimated to be less than 5% of Xaar plc's total reported emissions.

Greenhouse gas emissions		Renewable	Non-renewable	2022 Total	Renewable	Non-renewable	2021 Total (restated)
Global energy use	KWh	10,525,987	1,022,484	11,548,472	10,610,069	1,741,835	12,351,905
	%	91.1%	8.9%		85.9%	14.1%	
UK	KWh	10,292,374	509,164	10,801,538	10,205,766	962,135	11,167,901
Non-UK	KWh	233,613	513,321	746,934	404,303	779,701	1,184,004
<b>Absolute values</b>							
Scope 1	tCO <sub>2</sub> e	–	220	220	–	98	98
Scope 2	tCO <sub>2</sub> e	–	21	21	–	116	116
Scope 3	tCO <sub>2</sub> e	–	479	479	–	150	150
<b>Total</b>	tCO <sub>2</sub> e	–	720	720	–	364	364
– Scope 1 & 2 emissions of which UK	tCO <sub>2</sub> e	–	156	156	–	198	198
<b>Normalised values</b>							
Scope 1	tCO <sub>2</sub> e/£'000	–	302	302	–	165	165
Scope 2	tCO <sub>2</sub> e/£'000	–	29	29	–	198	198
Scope 3	tCO <sub>2</sub> e/£'000	–	658	658	–	254	254
<b>Total</b>	tCO <sub>2</sub> e/£'000	–	989	989	–	617	617

\* UK energy certified by EON, by Guarantees of Origin from renewable wind sources. US energy (Green Mountain) 100% carbon free, 68% renewable (balance being nuclear). Significant site based emissions improvements since 2021. The Nottingham site (carbon impact of 35 tCO<sub>2</sub>e) was sold in 2021. A 45 tCO<sub>2</sub>e reduction as FFEI moved to a green electricity source. Our 2022 figures show an emissions increase because we have chosen to disclose refrigerant leaks across the Group. The leaks generated a total Scope 1 impact of 124 tCO<sub>2</sub>e (2021 0). 2021 energy figures have been updated to include gas kWh.

Historic greenhouse gas emissions	2020	2019	2018	2017	2016	2015
Scope 1 – tCO <sub>2</sub> e	75.0	108.3	124.8	147.7	167.0	162.2
Scope 2 – tCO <sub>2</sub> e	1,741.0	2,622.8	3,128.1	4,088.0	4,432.0	4,475.2
<b>Total – tCO<sub>2</sub>e</b>	1,816.0	2,731.1	3,252.9	4,235.7	4,599.0	4,637.4