



UK Sustainability Report

2021 - 2022

A message from TEL's Director

"For more than 50 years, the team at TEL has been working to improve the energy efficiency of our customers' operations and this has given us a unique insight into the need to use our planet's finite resources considerably and respectfully.

I firmly believe all businesses in the UK must reduce the impact their operations have on both the local and global environment and here at TEL we are committed to finding better ways to achieve this.

We're applying the same problem solving philosophy and hunger for innovation to making our business more sustainable as we do to our customers'.

This report details the work we are doing here in the UK. But we know there is always more to be done. So, we choose to make the pursuit of sustainability and the reduction of our carbon emissions a key priority in the years ahead."

– Richard Eady, Director at TEL



Index

| | | | |
|----|---------------------------------------|----|------------------------------|
| 3 | About TEL's Vision for Sustainability | 14 | Sustainability in the Future |
| 4 | TEL's Sustainability Strategy | 15 | Case Studies |
| 7 | The Proof | 16 | More Examples |
| 13 | Our Carbon Footprint: 2021 | 17 | Sustainability in Numbers |
| 14 | Room for Improvement | | |

About TEL's Vision for Sustainability

At TEL we understand that we are custodians of a world that is increasingly under threat because of the way humans interact with it, and we believe that all governments, businesses and individuals should do what they can to prevent the devastating impact of climate change on wildlife, agriculture, healthcare and political and economic systems around the world. How we as a business respond to and manage that threat is a complicated and evolving issue that requires the continual attention of our management team.

Our core business is the design and development of products to minimise energy consumption and improve safety in laboratories. In addition, the airflow monitors and controls we supply also reduce our customers operational costs and shrink their carbon footprint.

However, we know that to operate as sustainably as we can, we need to think beyond the products and services we provide and consider the impact of our operation both on the local environment and further afield. That means looking at a range of issues from our suppliers' green credentials through to the way we work, our own supply chain, right through to how we behave individually.

Our vision is clear:

- To **build our knowledge** about what we as a business can do to make our business more green
- To **raise awareness** of sustainability issues among our staff, suppliers, customers and stakeholders
- To always **consider the environmental implications** in the decisions we make as a business. From choosing which office stationery to buy through to planning how we intend to grow in the long-term
- To **recognise** that any short-term costs associated with being more sustainable are outweighed many times by the benefits to the wider society in which our business exists and the competitive advantage it will give us in the long term

TEL's Sustainability Strategy

The UK is committed to reaching net zero greenhouse gas emissions by 2050, and businesses large and small have been called upon to play their part. While there are likely to be new and more stringent regulations designed to deal with climate control in the years to come, at TEL we've always been forward-thinking, and we've already implemented a strategy to ensure we're doing all we can.

It addresses the following issues that we know play a role in our carbon footprint.



What our products are made of

We embrace the latest technology to create products and solutions that support sustainability but in the spirit of transparency on which our strategy depends, we acknowledge that the nature of the air flow controls and monitors we specialise in (and the environments in which they are used) means some non-sustainable materials are required in their manufacture including plastic and solder.

From an environmental perspective this is not ideal, so we have implemented initiatives to offset their necessary use including recycling all our paper and cardboard waste and re-using it where possible as product packaging.

In addition, the monitors are as small and light as they can realistically be so they don't use any excess materials and therefore don't require as much packaging or freight as they would do if they were bigger. In addition, the job they go on to do reduces the end user's energy consumption significantly, by up to 75%.

What our products do

For more than 50 years, TEL has been designing and developing products that give laboratory managers greater control of fume cupboard airflow, reducing energy usage by up to 85% and cutting operational costs, while enhancing lab user safety. And because our solutions can be retrofitted, they negate the need to purchase new equipment, reducing wastage by extending the life of laboratory assets.

We are continually developing and adding to our product range in response to our customers' needs - which are increasingly focussed on making their labs greener and reducing their carbon footprint.

More detailed information about the energy savings our products deliver can be found on pages 7 and 8.

*Reduce energy usage
by up to 85%*



Knowledge transfer

We've used our expertise to create products for multiple sectors - products such as our Kitchen Hood Control System which was developed in response to the need of the food services sector to reduce their energy consumption.

Although most kitchen hoods only require full exhaust performance for a small part of the day, they run at 100% continually and as a result represent around 25% of a food service operation's energy costs.

The kitchen hood VAV system we developed automatically varies exhaust and supply air as cooking demands change or when the presence of smoke or cooking effluence is detected. Consequently, it can reduce energy usage by up to 75% as well as reducing cleaning costs, noise, and equipment wear and tear.



The carbon footprint of our operations

A businesses' premises makes a significant contribution to its overall carbon footprint, so we are continually looking for ways to reduce the impact our premises has on the environment. This includes how we heat and light it, how and where we source supplies for it and how we dispose of our waste.

The TEL offices are heated via underfloor heating, a more energy efficient way to heat a building, using between 15-40% less energy than standard radiators. The large surface area means it doesn't have to be a high temperature to warm the room – only a couple of degrees warmer than normal room temperature. There are also individual temperature gauges in each office, and when not in use, or over weekends and seasonal closures, they are turned right down to ensure no energy is wasted. The warehouse is heated with electric heaters and the building is double glazed throughout. There is also an electric car charging port in the TEL car park for staff and customers to use.

Vehicle emissions

We strive to keep vehicle mileage to a minimum across all aspects of our operations, thus reducing emissions. This includes our own business travel, our choice of suppliers and how our employees get to and from work.

Our individual behaviours

We recognise that it is people that make the changes that will make a difference to our ability to control climate change, so we encourage awareness around sustainability issues wherever we can. We communicate its importance internally and externally and strive to promote the actions that can be taken and the changes needed in our behaviour in a positive and progressive way highlighting the science behind our thinking and the benefits being more environmentally friendly brings.

Our intent (Key Performance Indicators)

Short term

- ✔ Where recycled cardboard packaging isn't appropriate, TEL intends to introduce biodegradable – rather than polystyrene - packaging peanuts
- ✔ TEL plans to use eco tape and strapping for securing boxes instead of single-use plastic tape

Long term

- ✔ We aim to reduce our water usage by 5% over the 12 months from January 1st, 2022
- ✔ We aim to reduce our energy usage by 5% over the 12 months from January 1st, 2022
- ✔ Move to a fleet of electric vehicles by 2025

The Proof

AT TEL our Sustainability Strategy is constantly under review and that means identifying and celebrating what we've achieved, as well as being open and honest about areas where we know we could be doing better.

Here are some highlights:

Science is at the forefront of efforts to combat climate change but it is also part of the problem because the laboratories where research is conducted are extremely energy-intensive, consuming 10 times more energy and at least four times more water [per unit area] than office spaces.¹ This is largely due to the energy-intensive equipment required by modern research methods and the amount of ventilation labs required to operate safely.

The most energy intensive equipment in the laboratory is the fume cupboard. Vital to protecting lab users from splashing substances and shattering equipment, it also prevents the development of an explosive or toxic atmosphere – which requires it to exhaust between 750 and 1,000 cubic feet of conditioned air per minute.

TEL has developed a range of products that minimise energy consumption and improve safety in laboratories.

Four of them are listed on the Carbon Trust ECA Energy Technology List (ETL).

They are:

1. Airflow VAV Controller AFA1000/E/MK2
2. Airflow VAV Controller AFA1000/E/MK3
3. Auto Sash Closer with VAV Controller and the Airflow VAV Controller
4. Auto Sash AFA4000/E/AS



"The ETL is a UK Government backed energy-efficiency scheme that encourages private and public sector organisations to procure market leading energy efficient plant and machinery. Products on the Energy Technology Product List (ETPL) must meet strict criteria relating to functional specification, energy-efficiency and other performance measures. It aims to identify and promote the top 10-25% performing products in each of its product types."

¹ <https://physicsworld.com/a/leading-by-example-going-green-in-the-lab/>

TEL VAV Airflow Controllers

Many fume cupboard ventilation systems operate on a Constant Air Volume (CAV) basis regardless of sash position, wasting significant energy when the fume cupboard is not in use. TEL's Variable Air Volume (VAV) airflow controller reduces the volume of air taken from the fume cupboard when it's not being used and the sash is closed, **reducing energy usage by up to 85%** and substantially reducing energy bills.

AFA4000 Airflow Controller

The AFA4000 airflow control and monitoring system is designed to **reduce energy usage** while ensuring the safety of users working with industrial and educational fume hoods and biological safety cabinets. Recognised by the Carbon Trust, the AFA4000 airflow control and monitoring system offers a range of benefits including:

- ✓ reduced carbon emissions
- ✓ improved energy efficiency
- ✓ reduced energy costs by up to 85%
- ✓ improve safety

AFA5000 Room Space Controller

The AFA5000 intelligent touch screen room controller offers demand-control ventilation for up to 64 fume cupboards per room. It communicates directly with fume cupboard systems, measuring their precise airflow requirements to ensure air is directed exactly according to need, maintaining volumetric or room pressure requirements and controlling temperature, humidity, CO₂ and VOC levels. It can be optimised for **maximum energy savings** with occupancy and out of hours' setback, reduced flow rates and comfort/air quality settings.

Auto Sash Controller

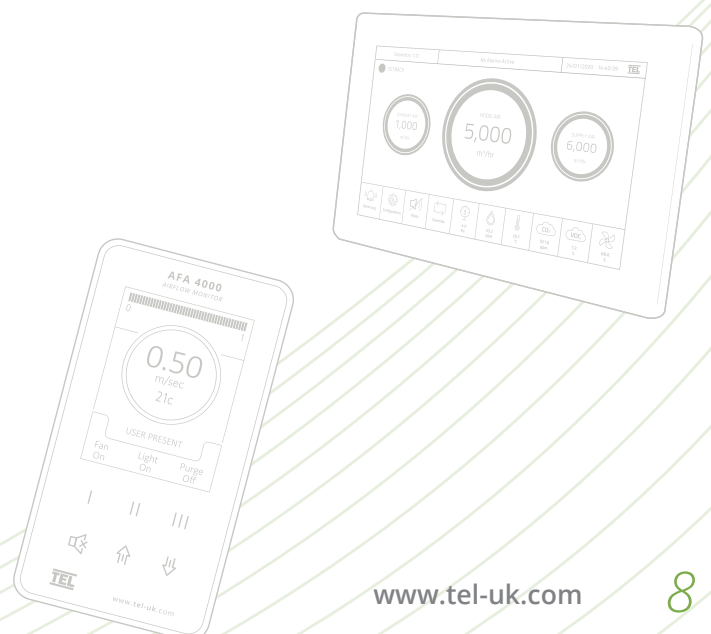
The TEL auto sash controller closes the sash automatically when the operator moves away from the fume cupboard to **maximise energy and cost savings** and provide the safest environment possible for fume cupboard operators.

Airflow Terminals

TEL's series of airflow terminals for the wider market enables the **sustainable generation of clean air** in any building space, not just the laboratory.

Consultancy

Sustainability requires a long-term view and it has the greatest impact when it's built in to the fabric of the laboratory building. Our specialist knowledge means we are often called in as professional consultants to building contractors and engineers, helping them ensure their new build and refurbishment projects are designed with **sustainability as a priority**.



Our work at the University of Glasgow in conjunction with Laboratory Specialist Services Ltd was recognised with an International Sustainability Award. The scheme which consolidates of its medicinal chemistry and chemical biology laboratories into a single 500m² open plan laboratory, won the refurbished laboratory category of the S-Lab Awards.

The international S-Lab Awards scheme recognises excellence in the design, operation and management of laboratories that has resulted in improved performance and enhanced sustainability and safety.

We were also shortlisted for a Green Gown Award for a fume cupboard energy efficiency upgrade project with the University of Reading.



Vehicles and emissions



Company vehicles

TEL retains as few vehicles as possible, currently one company van, one company car and one lease car. It is our policy that older company cars are passed down to reduce wastage and our company lease car is renewed every four years to ensure we have the most efficient model.



Business mileage

We restrict business mileage to an absolute necessity. Where business travel is required, we encourage staff to travel together to reduce emissions. We also use local suppliers for goods and services where possible to reduce the mileage to us from other companies. For example, we use local marketing company FIG for their marketing expertise and printing services, as well as a local cleaning company in order to keep travel costs down.



The daily commute

In order to reduce emissions where possible, one team member walks to work, two travel together in the van and two travel together in the lease car and we have an ongoing car share scheme with two members of staff travelling in together in the van, and two staff members travelling in together in the hire car. We estimate that

the car share scheme saves 432 miles of emissions / 68.256kg of CO₂ per week, or a staggering 819.07kg of CO₂ on average each year.



Homeworking

Two members of the TEL team - who would otherwise commute from Sheffield to Glossop separately - work from home 50% of the time. This arrangement saves 200 miles of emissions / 22.94kg of CO₂ per week, which over the course of a year prevents the emission of 275.29kg of CO₂.²



Training

When staff training is required, we generally ask the trainer comes to our office avoiding the need for multiple team members to travel in multiple vehicles to one location, significantly reducing CO₂ emissions.

TEL's Health & Safety training is delivered to the whole team at the TEL office, by a local trainer who travels less than 15 miles in order to get here. Two of the team attend First Aid training refresher courses once a year, which has to be delivered at an external location. We ensure each staff member who takes the training attends the training facility closest to their home to keep emissions as low as we can.

Our supply chain

TEL's products are manufactured from a range of materials which are sourced from different brokers within the UK. Whilst the companies we use work to be as sustainable as they can (for example, one of our suppliers has set four global goals that they intend to reach by 2030 focused on advancing sustainability; championing education and innovation; empowering our people; and doing business responsibly³), we recognise that each of their supply chains may not be as environmentally friendly as we would like. Therefore, we are committed to discovering more about where our raw materials come from, and working towards making their journey to us as energy efficient as possible.

² www.carbonindependent.org ³ uk.rs-online.com/web

The carbon footprint of our operations



Computers

We have 10 computers in the office which are switched off after use to prevent being left idly on standby.



Furniture

TEL is committed to repairing, reusing and recycling to prevent unnecessary landfill, so when we moved into our new office premises ten years ago, we brought much of the furniture from the old office with us and it is still in use today.



Cleaning

TEL employs a local business JPC Services to clean our premises. Located less than a mile from the TEL office which minimises the emissions required for them to get to our premises. JPC Services works within the audited controls of BS EN ISO 9001:2000 which refers to quality management systems and BS EN ISO 14001 which puts environmental management at the heart of an organisation's operations. Its website states:

*"JPC Services takes its environmental responsibilities seriously and is currently reducing all its carbon emissions and saving energy wherever possible to help the environment by following its EMS programs."*⁴



Recycling

TEL uses Veolia for its waste removal and recycling, which delivers carbon savings of 20% and cost savings of up to 20% on average.

TEL also repurposes all cardboard products from our deliveries, by shredding it to create 100% eco friendly packaging for our own shipments.

In addition, the pallets that TEL receive deliveries on are donated to the local community who use them for a range of activities including being upcycled into a herb garden and used by a local farmer for small building and repairing projects on their farm.



Water

Our water coolers are provided by the leading company in the sector, Eden Springs, a carbon neutral company whose bottles are used 50 times before being recycled. The entire production process is closely monitored, and complies with the highest safety standards.



Stationery

We use Lyreco, an award-winning, socially and environmentally responsible company for our stationery and office supplies. Lyreco is committed to becoming the first company in the workplace solutions industry to switch to a circular model for their products and services and intends to achieve this by 2025. In addition to this, we also work closely with the team at FIG, an award-winning marketing agency, located just a five-minute walk away from the TEL office, for our design, web, marketing and PR activity.

⁴www.nepis.epa.gov.

Our individual behaviours



Content

We live and breathe the importance of improving energy efficiency when we are communicating about our products and frequently publish blogs, articles and social media posts on the topic including practical advice about how laboratory managers can make their laboratories more energy efficient.



Saving energy

Staff are encouraged to save energy in the workplace, turning off lights and electrical equipment when it's not in use and using water only as needed - mainly not overfilling the kettle for the brew round!



Reducing emissions

TEL is fitted with an electric vehicle charging station to help not just staff and customers, but also the wider community, achieve its climate change goals.



Taking care of the team

At TEL we believe that respecting the planet starts with looking after the people who work inside our business, and we work hard to maintain a happy, healthy workforce through a range of policies and initiatives.

With this in mind, the staff room is fitted with water coolers so that the team have constant access to fresh water, there is a dart board and pool table in the break room and staff are encouraged to take regular breaks away from their workstations to rest and recharge.

Because we manufacture equipment for medical laboratories, our staff were deemed key workers throughout the Covid-19 pandemic. Recognising the impact this was having on their personal lives, the management team reduced working hours for all staff which enabled them to spend more time at home with their families without any impact on their pay. During the Christmas period at the end of 2020, staff were also given an extended holiday period in recognition of their hard work and dedication throughout the pandemic.

All staff have access to a scheme via Simply Health where they can access six face-to-face sessions with a counsellor if they are struggling with any mental health or wellbeing issues.

Our Carbon Footprint: 2021

Total emissions: **60,586 kgCO₂e**

Readings from Jan 1st - Dec 31st, 2021



Electric: **32,372 kWh**



Gas: **101,279 kWh**



Fuel: **13,996 litres**

The Greenhouse Gas Protocol

The Greenhouse Gas Protocol (GHG Protocol) is an accounting tool used by organisations and governments to understand, quantify and manage their greenhouse gas emissions. It provides the world's most widely used greenhouse gas accounting standards.

It was created in 2001, when the World Resources Institute and the World Business Council for Sustainable Development identified a need for consistency in how organisations accounted and reported emissions, and together introduced the new standard.



Room for improvement

- ⊗ We intend to replace the car with a more eco friendly vehicle as soon as we are able and preferably way before our target to switch to a fleet of electric vehicles by 2025.
- ⊗ We recognise that much of our product line is made up of plastic, so we pledge to hold annual meetings to determine if there are any alternatives to the raw materials we use at present, or any design changes that we could implement to reduce waste.

Sustainability in the Future

TEL is constantly developing new, energy-saving airflow monitor and control products, to help our customers rise to the growing challenge presented by accelerating climate change. We look forward to working closer than ever in the years to come to develop more sustainable and intuitive innovations that minimise energy consumption while optimising air quality.

TEL's Office Manager will be responsible for ensuring TEL remains and becomes actively more sustainable in the future.

This includes:

- ✓ Introducing biodegradable packaging peanuts in place of polystyrene ones
- ✓ Switching to eco friendly tape and packaging
- ✓ Moving to a fully electrical fleet of company vehicles by 2025
- ✓ Reducing electricity and water usage by 5% throughout 2022

Case Studies

Manchester Metropolitan University

Overview & Challenge

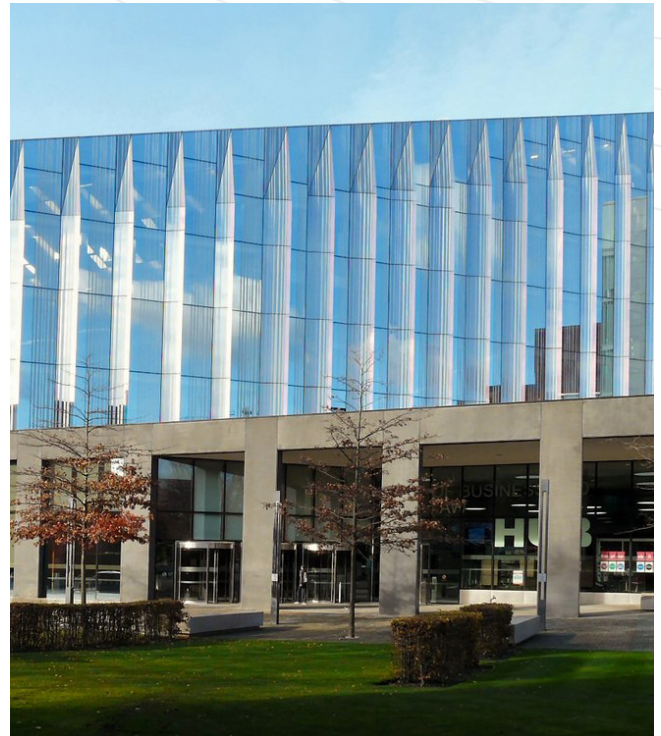
Manchester Metropolitan University's John Dalton Tower contained 48 fume cupboards that were in operation 24 hours a day, 365 days a year. The fume cupboards were Constant Air Volume units, continuously extracting air from the building and replacing it with conditioned air, a system that cost approximately £50,000 per month in electricity alone. Managers commented: "it was worse than having the heating on with the windows open."

TEL were commissioned to devise a retrofit solution to convert MMU John Dalton Tower's fume cupboards into a Variable Air Volume scheme.

Solution

The upgrade plan involved the installation of a controls system that recognises when the cupboards were not in use, significantly reducing the use of the fans and resulting in substantial savings on both fans and heating/cooling. The project focussed on 32 cupboards across two floors, modifying the existing constant air volume (CAV) system to a variable air volume (VAV) without compromising the safety of laboratory users.

The project was successfully completed in short timescales and importantly with only minor disruption to laboratory use including teaching, exams and research functions.



Benefits

The benefits were immediate, with fan electrical usage reducing by 62% during term time and 77% during vacation periods and gas consumption drop by 23%.

Pre project electricity consumption was 320 kWh/day/fan and post project that consumption was halved to 118kWh/day/fan. There was also a considerable reduction in gas required to heat the air supply. Pre project boiler consumption was 7,247

kWh a day and this reduced to 5,909 kWh a day. The reduction in energy usage as a result of the project is estimated to reduce MMU's CO₂ emissions by nearly 300 tonnes a year and prompted cost savings of £1,104 a week.

The success of this carbon reduction and cost saving initiative also saw Manchester Metropolitan University nominated at the Green Gown Awards.

More examples

TEL upgraded 44 fume cupboards at Reading University which is expected to generate annual energy savings of 694 CO₂ tonnes per year. This equates to £223,958 in cost savings and the project will pay for itself in less than four years.



Our technology helped Sygnature Discovery achieve an 'Excellent' BREEAM rating at their Nottingham BioCity hub. We supplied 78 AFA1000 variable airflow volume (VAV) airflow controllers and six of the UK's first AFA5000 room space controllers to give Sygnature Discovery complete environmental control of their laboratories.

BREEAM®

"BREEAM (Building Research Establishment Environmental Assessment Method) is the world's leading sustainability assessment method for masterplanning projects, infrastructure and buildings including laboratories."




TEL contributed to Liverpool John Moores University's commitment to meet the Higher Education Funding Council for England's (HEFCE) Carbon Reduction Strategy targets of a 43% reduction in emissions by 2020. The project involved the refurbishment of the first and fourth floor laboratories of the James Parsons Building, a total area of 14,000 sq ft. We supplied 41 energy-efficient AFA1000 VAV controllers which automatically adjust airflow according to laboratory demand.




TEL supplied the VAV controllers for the University of Nottingham's Centre for Sustainable Chemistry – the UK's first carbon neutral laboratory. Constructed largely from natural materials and using renewable energy sources, the £24m building was to feature a plethora of sustainable technologies, including a green fume cupboard system. TEL supplied 52 TEL AFA1000 controllers for the (VAV) fume cupboard solution for the 4,500m² two-storey carbon neutral laboratory building.

Sustainability in Numbers

 **5%:** the amount by which TEL intend to **reduce** its **energy and water usage** in the **next 12 months**


TEL's **homeworking** arrangements save **986,400 grams** of CO₂ per year




 **5:**
*number of **green objectives** set out in this report*

 **University of Reading**

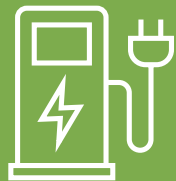
694 tonnes:
the amount of CO₂ saved as a result of TEL's upgrade of **44 fume cupboards** at Reading University

0: *the amount of **heavy machinery** used by TEL*
 All products are assembled individually by our technical team

1,094.36 
kilograms of CO₂ emissions saved per year by TEL's car share and work from home scheme

85%:
the **potential energy saving** possible by converting from a **CAV to a VAV fume cupboard system**

100% 
of incoming **cardboard produce** repurposed as **eco friendly packaging**

1 
Electric vehicle **charging station**

Further information

For more information about TEL's sustainability commitment, please visit www.tel-uk.com