

ISSUE 05  
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NET ZERO

# SPRING WISE **FUTURE NOW**

**THE TOP 10**  
IDEAS TO HELP  
BUSINESSES  
MEET NET  
ZERO GOALS



# WHAT NEXT FOR NET ZERO?

I was at an event recently – The Sustainability Live conference in London – and the focus was on Net Zero, and how we can get there. As ever with these things the candid conversations were had around the coffee stand. The gist was this: businesses are talking a good game when it comes to net zero goals but few are making any real inroads into meeting them. Chief Sustainability Officers are still all too often fringe figures, who spend half their time relationship-building in order to get a fraction done of what they need to. This is borne out by research. A report from Bain & Company released last year at The World Economic Forum, used data from the CDP (see page 2) to show that businesses globally are missing decarbonisation targets, the majority by a huge margin: a quarter have missed 2020 targets by 80 per cent.

This edition of Future Now is not all about bashing big business. Building out a holistic net zero strategy that encompasses Scope 1 and 2, and Scope 3 emissions is extremely complex, and potentially harder now that many carbon offsetting schemes have been discredited. This month we share 10 innovations, across four key themes, that can broadly support net-zero strategy.

Keep an eye on the near future, it can help inform your present. For even more innovations explore our database on [Springwise.com](https://springwise.com)

**Angela Everitt, Content Director, Springwise**

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### ABOUT FUTURE NOW AND SPRINGWISE

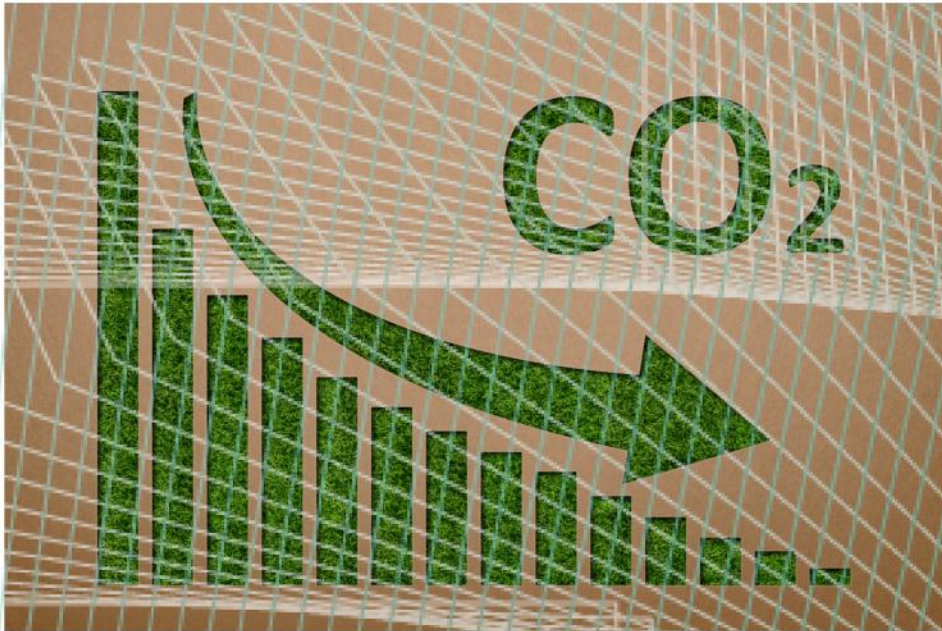
In 2020, the United Nations dubbed this the 'decade of action' in order to foster greater urgency around meeting the Sustainable Development Goals by 2030. Decisions that drive change can no longer be kicked down the road. The future is now.

Solutions require innovation, and the hunt for those that make a real impact is the lifeblood of Springwise.

We publish three new innovations every day across our ecosystem. And each month we curate 10 of the most pertinent to create this report, Future Now, which is designed to inspire and catalyse action.



# MEASUREMENT & IMPACT



## TRACK EMISSIONS IN ONE PLACE

**A single source of truth to make hitting targets easier across an organisation**

In 2019, Spanish software company [APlanet](#) created a single, customisable dashboard for companies to track their environmental, social and governance (ESG) measures in one place, including global standards as well as internal, local, or regional measures. The company now offers a product called Neutrality, which allows companies to comprehensively track emissions across multiple offices and locations. The functionality allows for versatile data collection, whether that be via an API connection or simply uploading spreadsheets, which immediately creates efficiencies at a time when many organisations still share critical information via email, creating silos and bottlenecks.

APlanet is by no means the only platform of its kind available. We also like UK firm Green Places, designed to help SMEs. It collects and analyses data from energy, water, and natural gas utilities, and combines this with industry expertise to provide personalised recommendations for the best way to save energy. The platform also integrates common tools such as Netsuite, and Quickbooks.

## TRACKING MADE EASY

The non-profit organisation CPD (formerly the Carbon Disclosure Project) has been collecting data on environmental performance since 2002. Currently, 18,700 corporations globally voluntarily report performance on activities relating to climate change, water security and forests – plastic reporting was introduced earlier this year.

Each year, the CDP scores companies and cities based on its proprietary set of criteria, including emissions-based targets. At the last count, two-thirds of the companies included in the tracker analysis are not on track to achieve their emissions targets.

This year, the CPD launched its [Corporate Environmental Action Tracker](#) – an interactive tool drawing on nearly 20 year's worth of data, that allows for a user-friendly way to track the state of corporate disclosure and action.





Photo credit: Canva

## EMBED CLIMATE ACTION IN COMPANY CULTURE

**One way to meet the challenge to cut emissions targets is to encourage employees to make changes at work and at home**

Canadian startup [Carbon Neutral Club](#) has spotted a gap between corporate intentions to reduce emissions and results that are slowing down progress. One of the reasons many companies are not meeting their goals, researchers say, is down to a lack of agreement on what to do and how to take action. Carbon Neutral Club helps reduce that uncertainty by turning employees into the driver of a company's climate change work.

The Club's Sustainable Behaviours Platform supports workforce Climate Culture through personal carbon footprint measurements, Scope 3 measurements, team action goals, carbon offsets, and sustainable rewards. Scope 3 measurements help employees choose the most sustainable travel and food options while providing detailed company-wide emissions reports. Carbon offsets support science-backed, third-party verified carbon emission reduction projects, and the Club provides a database of sustainable brands that give participants discounts on products. Carbon Neutral Club is available to individuals as well as companies of all sizes, and although currently available only in North America, the company plans to expand globally as quickly as possible. A recent CA\$1.4 million (around €975,000) funding round will be used to support that expansion.

Another app that hopes to encourage citizens to act more sustainably in their day-to-day lives is [AWorld](#), the official platform for the United Nations Act Now campaign. Users can calculate their carbon footprint in a series of simple steps and then decide on their favourite challenge to take part in, with each action logged and an equivalent carbon saving shared. AWorld also works with businesses to embed its platform in their employee engagement strategies to positively impact Scope 3 emissions.



# SCOPE 3 EMISSIONS



## SUPPLY CHAIN DECARBONISATION

**This startup uses data and expertise to guide corporations towards net-zero emissions**

Supply chains are saturated with carbon. In fact, supply chain emissions are estimated to be 11.4 times higher than the operational emissions of an average company. Industries must cut these emissions drastically to meet worldwide sustainability targets like the Paris Agreement, but for many companies, this is easier said than done. Enter The Climate Choice, a climate-based intelligence software platform set to decarbonise industrial supply chains.

By combining an assessment with its software, The Climate Choice can show companies how climate-ready they are before generating a specialised, cost-effective, action-oriented solution. The startup also invites suppliers to be a part of the solution too, offering its intelligence and guidance to meet net-zero needs.

Earlier this month, the company announced \$2 million (around €1.8 million) in pre-seed funding and is planning to use this to grow further and expand its Climate Intelligence Platform.

### BE STREAMLINED

Consumer need continues to rise while pressures mount for companies to cut their emissions. Marrying these demands would mean that consumer-packaged goods companies need to lower carbon intensity by more than 90 per cent between 2015 and 2050. However, achieving this is difficult when supply chains are opaque, and companies lack the right climate-based expertise.

“There is still a large disconnect between the aspirational climate targets and the reality of actions taken – and yet every company now requires a clear and effective approach for reducing their emissions. Data-informed, streamlined processes are key for monitoring, tracking and engaging suppliers in their decarbonisation journey for any large supply chain,” said Yasha Tarani, Co-founder & CEO at The Climate Choice.



# SHARING SENSITIVE SUPPLY CHAIN INFORMATION VIA BLOCKCHAIN AND DIGITAL PASSPORTS FOR PRODUCTS

For many companies, more than 70 per cent of their carbon footprint is composed of scope 3 emissions – those that occur in an organisation's wider value chain. But keeping tabs on these emissions is a hard task, as it can be difficult to trace materials through every stage of the supply chain.

When most people hear the word 'blockchain' they think of cryptocurrency. But, the technology has a wide range of potential uses across sectors. One area where blockchain could make a big difference is in supply chain traceability, with one study forecasting that the global blockchain-enabled supply chain market will reach \$17.15 billion (around €15.67 billion) by 2030.

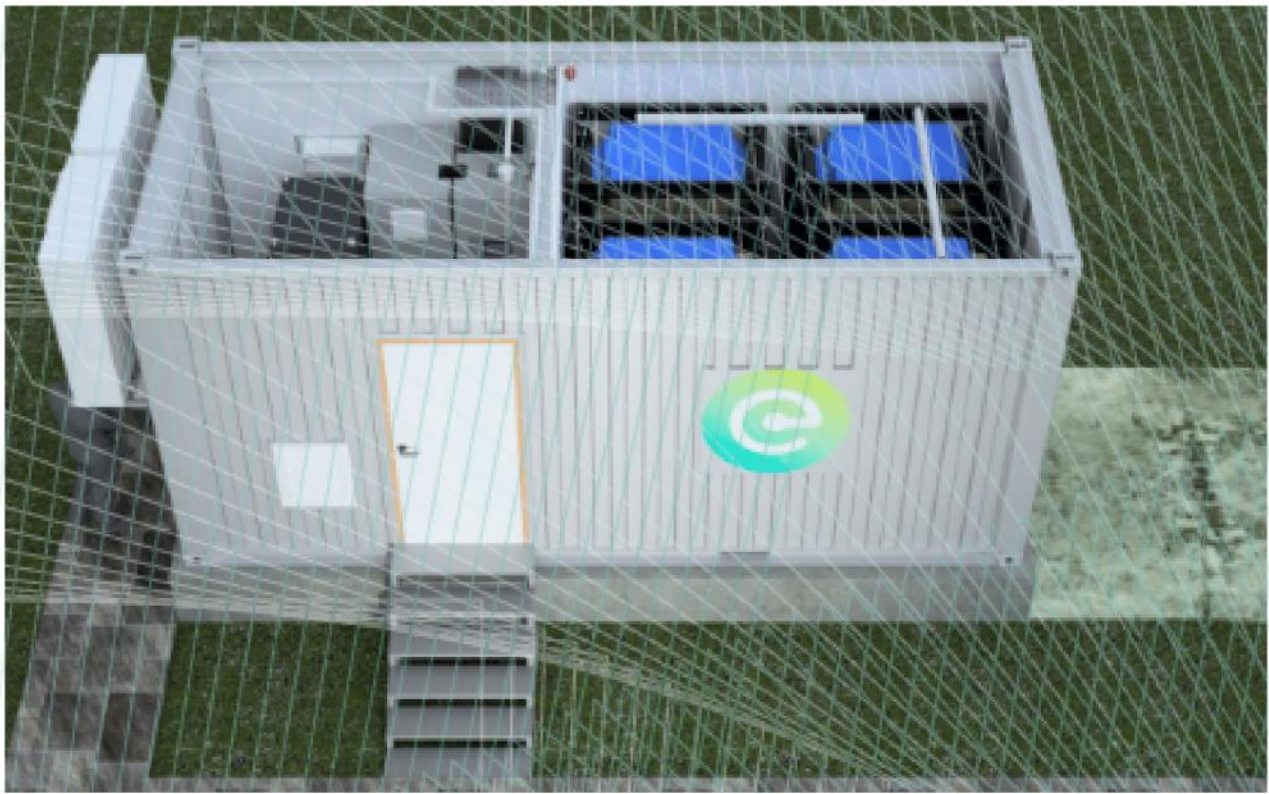
One company at the forefront of this trend is UK-based Circular, which has developed technology to track materials from extraction to final product. At each step, information on the material, such as its weight and mass balance, is logged on the company's private, permission-based blockchain. Once inputted, this information cannot be altered or erased, and it is this immutability that makes the data collected secure and trustworthy.

The whole system is designed to be easy to use for all supply chain stakeholders – both upstream and downstream – with mobile and desktop applications. Information is fed to the blockchain through APIs equipped with security and authentication protocols, with stakeholders scanning tags attached to the physical materials. This, in effect, creates a digital twin of the material. Circular's technology also easily integrates with existing enterprise platforms. To begin with, Circular has focused on raw materials, particularly in the automotive industry. For example, it recently partnered with one of the world's largest lithium producers to provide lithium traceability information for electric vehicle manufacturers, including Volvo.

But despite the initial focus on automakers, Circular sees applications for its technology across a broad range of sectors, such as the extractive, recycling, and construction industries.



# ENERGY EFFICIENCY



## REUSING EV BATTERIES COULD SOLVE A BIG RENEWABLE ENERGY CONUNDRUM

**Second-life batteries housed in shipping containers offer modern commercial and industrial sites more control over energy use**

When it comes to on-site renewable energy, a key challenge facing many businesses is that sources such as solar and wind are intermittent, generating power only when the sun shines and the wind blows. Energy-storage solutions are therefore crucial for ensuring sufficient power is available when it's needed most.

Enter Connected Energy, a UK startup that has created E-STOR, a commercial-scale, energy-storage system that leverages 24 second-life Renault EV batteries. Easily installed at modern commercial and industrial sites within a 20-foot shipping container, E-STOR can optimise a site's energy use, reducing costs and carbon emissions. Another key benefit of the system is that it's completely modular. Units can be installed individually or as multiple systems working together, meaning storage can be scaled up as the client requires. Servicing businesses across the UK and Europe, the company even offers free feasibility studies to ensure that battery energy storage is the right solution for any given site.

Clients use E-STOR for active load management. The system can be charged from existing building supply or from solar panels and on-site wind, flexibly storing surplus energy generated when demand is low for use at peak times. Companies can also use E-STOR to generate revenue by offering load-balancing services to the grid.

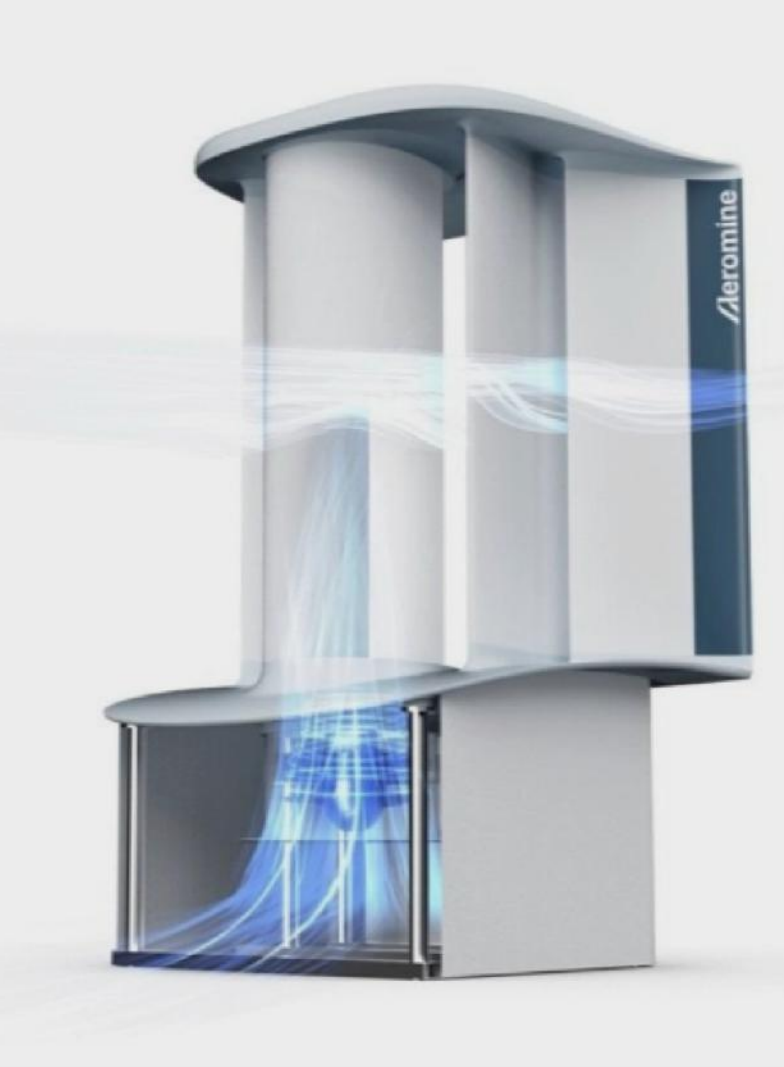


## ROOFTOP WIND TURBINES COULD POWER A WAY TO NET ZERO

Just like sunshine, wind suffers from variability as an energy source. Now, a small, sleek wind turbine that generates power from winds as low as five miles per hour could tackle this issue and be a swift way for buildings to become carbon neutral.

Created by [Aeromine Technologies](#), the bladeless turbines take up a fraction of the footprint of traditional wind farms and produce the same amount of power as that of 16 solar panels. Designed specifically for use on top of large buildings with flat roofs, the turbines are easy to install and maintain, as they do not have rotor blades. The turbines connect directly to a building's electrical system and work much like a racecar does, using aerodynamic designs to amplify the flow of air away from the structure. Despite working constantly, the turbines are completely silent.

Aeromine generally installs 20 to 40 of the turbines on the side of a building's roof that receives the



most consistent wind. That is usually enough to provide all of the power required by a large commercial or residential building. When combined with solar, a building could run completely on renewable energy.

## OFF-GRID HYDROGEN GENERATION

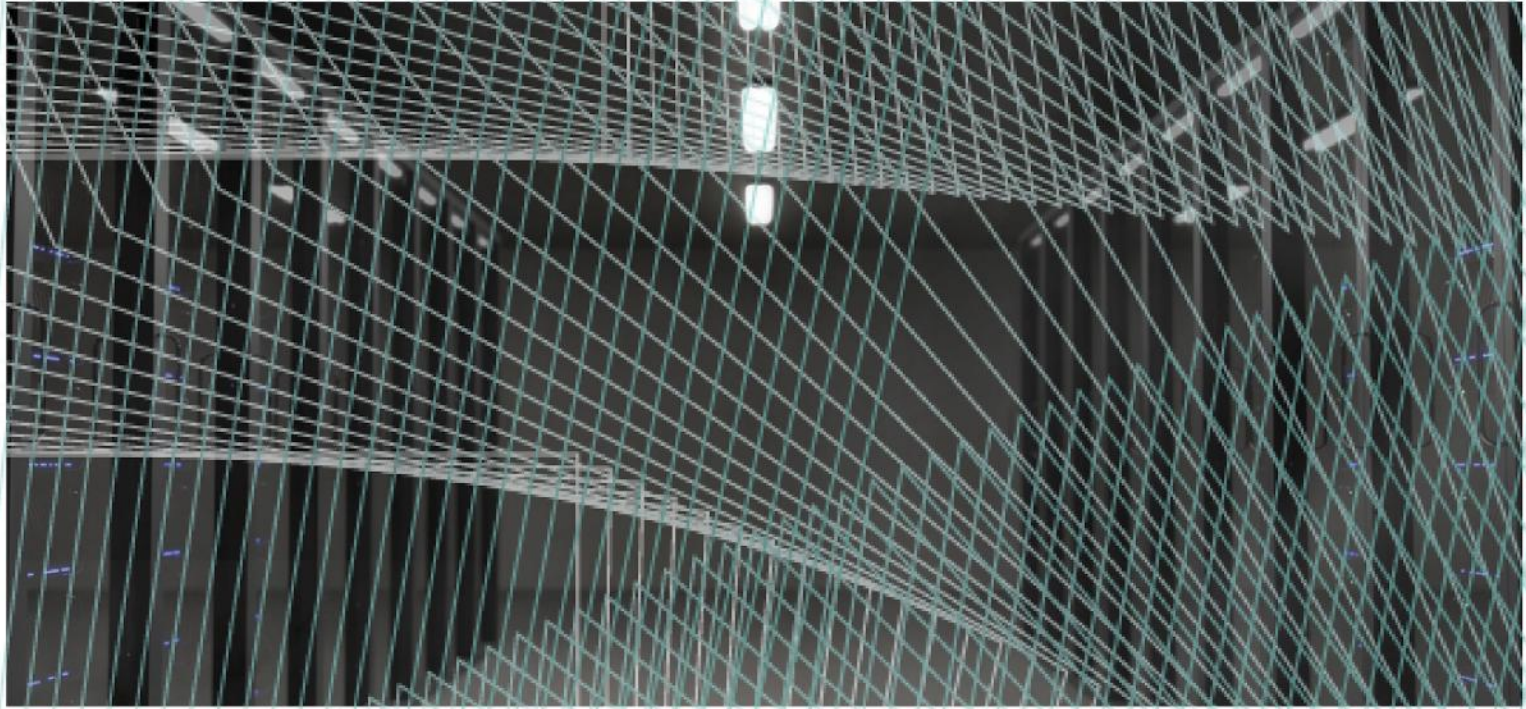
Although relatively expensive to produce at present, and with storage often cited as a concern, green hydrogen fuel production is increasing. A naturally occurring and superabundant element, hydrogen is popular for several reasons, including the ability to produce it using renewable energy sources. And now, [Element 1's](#) modular, grid-independent hydrogen generation technology is making the fuel even more accessible.

Designed to efficiently convert methanol to hydrogen to electricity, the technology supports both hydrogen fuel cell vehicles and electric vehicles. The company's catalytic reactor heats a methanol and water feedstock mix before sending it through a membrane purifier for almost 100 per cent fuel-cell-grade hydrogen. Because the modular system produces the fuel as needed, the risk of combustion is nearly eliminated, and speciality storage facilities are redundant. This is because the only material that needs to be stored and transported is the methanol and water feedstock. The hydrogen is then produced on-site. Element 1 provides both small and large-scale solutions, as well as a mobile version specifically for refuelling electric vehicles.

Further development of the technology includes a sea-going business spinoff e1 Marine, as well as continued refinement of the systems, materials, and deployment options through on-site collaborations with industrial partners and as infrastructure back-ups.



# CUTTING DATA CENTRE EMISSIONS



## CUTTING EMISSIONS FROM THE CLOUD

**This platform helps organisations track and reduce their scope 3 emissions**

The digital world has an environmental impact on the real world. Climate analysts The Shift Project estimates that emissions from cloud computing alone are now around 4 per cent of all global greenhouse gas emissions, more than emissions from commercial flights (around 2.4 per cent). Now, London-based [Greenpixie](#) hopes to do something about this.

The startup's flagship project, called Cloud NetZero, is a platform designed to aggregate data from all of an organisation's cloud providers, such as AWS (Amazon Web Services), Google Cloud, and Microsoft Azure, into one comprehensive account. The platform provides transparency and actionable data on cloud-based greenhouse gas emissions across organisations.

The emissions data highlighted by Cloud NetZero can be exported into ESG reporting systems and used to analyse Scope 3 carbon emissions. These are all the emissions that an organisation is indirectly responsible for, such as buying products from suppliers, and the use of data centres and cloud computing. Scope 3 emissions account for more than 70 per cent of the carbon footprint of most organisations, and yet are often the hardest to track and address.

There are currently around 150 companies signed up to trial the Beta version of the software.





## MEASURING THE IMPACT OF IT

### A tool to measure the environmental and social impact of organisations' IT systems

For many companies, digital applications and information technology (IT) platforms are responsible for a significant proportion of their total carbon footprint.

The environmental impact of IT quickly adds up. For example, according to the World Economic Forum, every email equates to 4 grammes of carbon emissions – rising to 50 grammes if a photo is attached. But keeping track of a complex organisation's digital footprint can be a challenge, and manual assessments of digital assets are cumbersome and limited in scope. Startup Fruggr aims to tackle this issue by automating the process of digital impact assessment. The company's website describes its platform as "deeptech software at the service of a more efficient, more responsible digital [environment]". The platform measures data collected on factors such as equipment usage, network, servers, analytics, and source code – analysing 120 indicators in total. Social and ethical considerations, such as accessibility and inclusiveness, are taken into account in addition to environmental factors.

Organisations can use the data gathered to analyse and improve the footprint of their IT. This, in turn, can help them to improve their return on investment by reducing their budget and offering more accessible and ethical digital services.

## THE AI PARADOX

Artificial Intelligence (AI) underpins much of the innovation in clean technology we see on a daily basis. The United Nations Environmental Program (UNEP) cites it as a crucial tool in gathering, analysing and acting on the wealth of climate data we're accruing worldwide.

However, AI comes with its own environmental cost. The carbon footprint of AI is difficult to measure precisely, but several things need to be taken into account: the mining of raw materials to create the hardware; the energy required to power the data centres and to train the AI, and the amount of freshwater required to cool the data centres (some estimates put it at 700,000 litres). Then there are the carbon emissions.

Speaking at The London Climate Technology Show 2023, John Abel, Technical Director at Google Cloud gave three tips for mitigating emissions, particularly Scope 3 in supply chains:

- Source a data centre in a region that uses carbon-free energy, it's possible
- Use an accelerator, e.g. a GPU
- Use an AI assistant
- Use a public cloud





Photo credit: NTU Singapore

## SPRAY COOLING TO LOWER CO2 FOOTPRINT OF DATA CENTRES

**A new enclosed system promises energy savings**

According to the International Energy Agency (IEA), data centres are responsible for up to 1.5 per cent of global electricity consumption, with the average hyperscale facility consuming enough energy to power 37,000 homes.

Most of the energy used by data centres goes towards cooling. However, researchers from Nanyang Technological University (NTU) in Singapore have recently invented a more sustainable method for cooling servers. The hottest component in a server is the central processing unit (CPU), which normally requires a dedicated air-cooled heatsink for heat dissipation. The team, led by Associate Professor Wong Teck Neng, developed a spray made up of non-conductive fluids that cools the CPU directly, without a heatsink.

The spray cools by using a combination of evaporation and boiling. The gases and excess fluids produced are collected in an enclosed system, condensed into liquid at temperatures of around 30 degrees Celsius, and recirculated back into the system for reuse. This method can also carry away more heat than air cooling, allowing CPUs to run faster. Future plans include a larger pilot plant system to demonstrate the potential of spray cooling in an industrial setting.

# 10

### INNOVATORS FEATURED

**1. APlanet**

[aplanet.org](http://aplanet.org)

**Green Places**

[greenplaces.com](http://greenplaces.com)

**2. Carbon Neutral Club**

[carbonneutralclub.com](http://carbonneutralclub.com)

**AWorld**

[aworld.org](http://aworld.org)

**3. The Climate Choice**

[theclimatechoice.com](http://theclimatechoice.com)

**4. Circular**

[circular.com](http://circular.com)

**5. Connected Energy**

[connected-energy.co.uk](http://connected-energy.co.uk)

**6. Aeromine Technologies**

[aeromine technologies.com](http://aeromine technologies.com)

**7. Element 1**

[e1na.com](http://e1na.com)

**8. Greenpixie**

[greenpixie.com](http://greenpixie.com)

**9. Fruggr**

[fruggr.io](http://fruggr.io)

**10. Nanyang Technological University**

[ntu.edu.sg](http://ntu.edu.sg)



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