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# Net Zero: A \$7 trillion open data problem

## Two open source companies rise to an existential challenge



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**John Leonard**

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**Image:** The road to Net Zero will be paved with open technology

**Reaching Net Zero will require innovation and investment**

**Collaboration using open and shared data and open source**

An estimated \$7 trillion of annual global investment will be

zero goals are to be realised. But will this money flow to wh

by projects with no hope of success or scams? How will inv

technical and logistical frameworks will be needed? To support sound decision-making, trustworthy

data must be accessible to those who need it.

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This weighty issue was tackled from both ends of the spectrum by two presenters at OpenUK's [StateofOpenCon2023](#) on Wednesday.

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Despite the urgency of the climate crisis and the 2030 [net zero](#) targets, we are only just starting this journey. Most organisations have no idea about the resources they consume, and while larger ones are required to report [Scope 1 to 3](#) emissions, even they struggle to get the right data. For SMEs, which make up 99% of companies in the UK and emit 50% of the CO2, compiling this information is extremely challenging.

Since this radical transformation will require a new level of transparency and innovation, open source hardware and software and open and shared data are a must.

## Decarbonising SMEs

Tim Telford, CTO of test and measurement company [Devtank Ltd](#), previously worked as an aerospace engineer at Rolls-Royce, before "seeing the light and realising there's a better way to design products." His company offer IoT sensors, monitors, software and services that allow SMEs to track in real time their use of electricity, water, and gas as well as humidity, air quality, noise levels and other metrics. The information, which also includes carbon emissions and costs, is presented on a dashboard.

"Costs are extremely important when you're running a business," and a vital motivator, Telford noted. A clear graphical demonstration of how money is literally escaping through poorly insulated roofs can be a great call to action. One SME the company worked with was able to save about 25% of its electricity costs once wasteful infrastructure and practices said.

Devtank has been working in conjunction with Derby Unive at reducing carbon emissions from businesses in the East M wastage is occurring.

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"The UK has a clear strategy to reduce carbon emissions and has targets to reduce it by 2050. But we need to improve efficiency," explained Bruno Gallotta, researcher and business consultant from the University of Derby. ADVERTISEMENT

Unusually, both the company's software and hardware are entirely open source. Sensor hardware connects wirelessly to a gateway then to a local Influxdb-based cloud and a dashboard, typically Grafana. The hardware is sold under the [CERN OHL-W v2](#) open source licence, which is designed to promote collaboration among hardware designers, whereas the software is adapted from other work.

"We're not about reinventing the wheel," said Telford. "We're about taking the best of what's out there already on the marketplace, bringing it all together under one roof and making a solution that works really well."

Success in open source requires focused and rapid innovation, and building on the success of others. Both will be needed in great quantity as we look to tackle climate change. Bluntly, unless innovations are shared and collaboratively improved, there's no way net zero can succeed.

Fortunately, the trust open source engenders is also good for business, said Telford.

"A lot of [customers] have been burned by vendor lock in. They're just so tired of being screwed over. So you say we're not going to do that, and they're just like, 'Oh, thank God.'"

## A trusted data network for investors

At the other end of the scale is an initiative fronted by Gavin Starks, co-founder of the Open Banking Institute and co-chair of the Open Banking Standard, where customers' consent, via APIs. Starks' current venture is an initiative called [One](#), an attempt to enable organisations to share data securely.

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The ambition of this venture is huge. Given the complexity of the modern world and its supply chains, the data needed to accurately report emissions and energy use comes from power companies, industry, transport, agriculture and many other sources. It's not that there's a shortage of

data, said Stark, but a multitude of standards, together with uncertainty about confidentiality and security, get in the way. The data is simply not joined up.

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This means investors lack a clear way to prioritise funding, which given the physics-imposed timelines and \$7 trillion figure is a major problem. Worse, perhaps, it gives politicians another opportunity to kick the can down a road that is rapidly running out of room.

Any solution to the data sharing issue needs to be quick, and it needs to be massively scaleable. It also needs to be set in a robust legal framework so that organisations are held accountable and trust can be built.

Starks pointed out the many similarities between Open Banking - which opened up closely guarded proprietary datasets to promote competition and innovation - and the data sharing needs of low carbon investment. It's a business proposition, he said.

"Data increases in value the more it's connected in a digital age. So the idea of putting everything in one place in one place and putting a paywall up against it is an outmoded way of thinking about value creation. You can monetise the value exchange that is generated from sharing data."

Launched to a sceptical reception in 2015, the Open Banking market is now worth \$23 billion and is expected to grow five-fold in the next 10 years. Moreover, it has been replicated in other countries.

Starks expects environmental data to take follow a similar trajectory, with sharing data via APIs becoming a viable income stream.

"What Open Banking does is it says to an entire sector, we will use the same processes will have the same licencing have ways of suing each other."

Indeed, in this vision banks play a role as custodians of data which typically lack resources to calculate their carbon footprints. Compliance and assistance will be measurable and costed in.

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"We need SMEs to share their energy data seamlessly with their bank. Now, if they can do that, the bank can start to de-risk their loan book. The bank can then go back to the SME and say actually, we could give you a preferential loan for some low carbon technology, let's say a heat pump. And if we've got this wired up properly, then the bank will be able to see the impact of that investment the month after the heat pumps been switched on. And the auditors can come along and assure that we say we can prove that this shift has happened in a way that they cannot do today."

This will require an agreed common standard to allow organisations to easily share data that might be commercially sensitive in a way that protects its confidentiality. Importantly, the data is never centralised and the consent for its use lies with its owner. If the bank wants to share the data with the energy company, for example, they must the SME first.

It's a major challenge, but Starks said Open Banking has shown the way forward.

"Trusted data is essential to delivering net zero. If we don't, money will not flow, or the money will flow to the wrong things. If we can't hold people to account, we're not going to get to net zero. Access to net zero data must be open."

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