PC Procurement and Sustainability

As I think about the goal that we have set for ourselves at Lancaster University, to reduce our scope three emissions to net zero by 2035, I realise that a relatively small number of the decisions we make can have substantial impact on our ability to meet that goal, and moreover, we make those decisions a relatively small number of times. If we re-procure our end-user computer provision for the university every five years, we'll only do that two or three more times before we need to be at net zero. So the selection of the manufacturer; the specification of the computers and the carbon footprint of that PC provision are critical decisions.

## Net Zero

When total emissions reduced or offset so that there is no net increase in atmospheric greenhouse gases

From the perspective of pure spend, choice of computer supplier is already a critical decision to ensure value for money; but how do we add value-for-carbon into the equation? There's much research to be done to ensure we're making the best possible decision followed by careful comparisons between manufacturers. However, there is no standard applied by all manufacturers to the way in which they represent their carbon footprint data. For example, for the scope two emissions, manufacturers may assume US, or Europe or UK energy figures. They may assume the lifetime of the PC is three, four or five years. So we can't take the raw data from manufacturers web site and assume that we can compare them.

## Scope 2 Emissions

The consumption of purchased energy like electricity or gas.

The electricity usage of the computer during its lifetime (scope two) is a significant factor in its overall carbon cost, but the carbon used in the design and manufacture of that computer along with its delivery (scope three) is a larger proportion of the overall carbon cost. Scope three is anything between 60 and 80 percent of the overall carbon cost of computer ownership depending on the length of its useful life. Clearly then, the longer we can eek out the life of a computer the more use we make of the embodied carbon in its manufacture and distribution.

Over 450 million new devices are manufactured every year. Their carbon footprint requires a forest the size of Argentina to remove the carbon from our atmosphere.

At the point of procurement it is important to establish for how long the computer's parts will be available, and how modular its construction (to allow the replacement of those parts) so that you can determine whether your target for the lifespan of the computer fleet you are buying is realistic. You may also ask if there are multiple uses for the computers you are buying that might vary across their lifespan. For example, a laptop that starts life as a member of staff's daily use computer (running office applications) might, five years

## Scope 3 Emissions

Greenhouse gases generated through all university activities aside from energy generation or use. Examples are travel and supply chain.

later be used for students taking exams (when it needs to run only a secure browser). Extending the lifespan of computers in this way represents a carbon saving only if the alternative was to buy a dedicated fleet of computers for exams. The goal here is to maximize the use of the computers we have bought, not expand the use IT or its budgets.

Eventually though, computers need to be recycled when they're past their useful life for your institution. That still might not mean that they don't have a useful life for others: there are recycling firms who guarantee the secure deletion of any data on a computer; the electrical safety of those computers through refurbishment and resale to charities and schools.

Currently, eco-label and energy certifications can be awarded to devices of the same type, such as notebooks, that can still differ by as much as 500% in GHG emissions. As such, while checking for certificates is necessary, without comparing product carbon footprints you may be missing an opportunity to significantly reduce computer GHG emissions and to accelerate net zero computing.

All these strategies can help you maximise the usefulness of a computer during its lifetime. The other side of that coin is to procure computers with the smallest carbon footprint (scopes two and three) in the first place. As I said earlier, doing such comparisons can be challenging: it is easy to end up comparing apples and oranges. What is needed is a tool that allows us to compare computers by make a model, with data that is normalised so that you can:

* Stipulate the expected lifespan of the computer (to get the appropriate mix of scope 2 and scope 3
* Identify where the computer will be used (to reflect the carbon cost of the energy used by the computer)
* Understand which, if any, sustainability standards are met by the computer (e.g. TCO: [TCO Certified - the world’s leading sustainability certification for IT products](https://tcocertified.com/))

The good news is that such a tool is available. It has been developed by Px3 ([Px3 Ltd – IT Carbon Footprint Experts](https://px3.org.uk/))--a research consultancy "in the field of IT carbon footprint calculation, reporting and strategic modelling". It is free to use by organisations in the public sector, and Lancaster University are planning to use it in the future when it comes to computer procurement.

Px3 have worked with manufacturers to ensure that the methodology for comparison is robust and can be relied upon. If you want to make sure that your next big computer procurement decision is ensuring value-for-carbon as well as value for money, then using the Px3 tool should save a lot of time and energy you might otherwise spend trying to work out how to compare the published figures direct from PC manufacturers.

You can find it here: <https://dcf.px3.org.uk>

Simply register using your name and academic email address and the PX3 team will authorise access within 24 hours.

There’s lots more to do to manage the carbon footprint of our IT hardware, but this is a great place to start.