Climate change and Net Zero – the basics

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Climate change[1]

Our planet is getting hotter, with global average temperatures now 1.2°C higher than in the pre-industrial era. 1.2°C doesn't sound like much, but the reality is that we're already feeling the effects of incremental warming, including erratic weather patterns – such as heatwaves, floods and severe storms – loss of polar ice, acidification of our oceans and rising sea levels.

Global temperatures are on track to increase by as much as 2.7°C by the year 2100 based on current policies worldwide, which could render parts of the planet uninhabitable.

How can we prevent climate change?[1]

In the Paris Agreement of 2015, global governments recognised that warming of the earth must be limited to well below a 2°C increase and ideally not more than 1.5°C above pre-industrial levels. In order to limit this global warming, a significant reduction of greenhouse gas emissions, such as CO_2, will be required within a set period.

That's where Net Zero comes in; by ensuring that the amount of greenhouse gas emissions being released into the atmosphere are equal to the amount being removed from it, we'll be

[State of the Climate in 2018 shows accelerating climate change impacts](#) © World Meteorological Organization

helping to significantly reduce the amount of harmful emissions that contribute to global warming.

The 2021 Glasgow Climate Pact, forged at the COP26 climate change conference, recognised that reaching Net Zero emissions by 2050 is essential and the key to keeping temperatures to 1.5°C of warming, with all countries involved pledging to pursue this limit.

What does "Net Zero" actually mean?[2]

The term "Net Zero" means achieving a balance between the carbon emitted into the atmosphere, and the carbon removed from it. This balance – or "Net Zero" – will happen when the amount of carbon we add to the atmosphere is no more than the amount removed.

To reach Net Zero, emissions from homes, transport, agriculture and industry will need to be cut. In other words, these sectors will have to reduce the amount of carbon they put into the atmosphere.

Residual emissions will need to be removed from the atmosphere, either by changing how we use our land so it can absorb more carbon dioxide, or by being extracted directly through technologies known as carbon capture, usage and storage.

The ACB Green Champions group was formed in late 2022 in recognition of the need for diagnostic laboratories to support the move towards a Net Zero NHS. Clinical laboratories process large numbers of samples, consume significant amounts of energy and produce staggering amounts of plastic waste. Our aim is to develop and promote best practices with ACB Members and beyond, addressing some of these lab inefficiencies affecting the environment as a whole. We want environmental sustainability to be embedded into diagnostic laboratories.

What can I do?

We can all play our part in creating a Net Zero NHS by reducing waste and saving energy.

SWITCH IT OFF

One of the simplest methods for reducing energy consumption is to switch off lights, PCs and other electrical equipment at the end of the day or when not in use. Electrical equipment left in 'standby' mode continues to draw small amounts of electricity, so-called 'Vampire Devices'. PCs, printers and scanners are classic examples, as well as televisions, gaming devices, speakers and chargers in your home. Think about items that don't need to stay switched on 24/7 and get into the habit of turning them off when not in use.

PCs: Shut down PCs that are not needed to run equipment at the end of the day. Not only will this enable all necessary updates to be installed, it could save up to 64 kWh of energy over a year – enough to charge a first generation Nissan Leaf car one and a half times, and drive almost 240 miles! At current domestic electricity rates, this is equivalent to around £20 a year per PC.

A PC in 'working' mode can use between 30 and 300 watts per hour. In 'sleep' mode, it uses between 3 and 10 watts per hour. Check the sleep setting on your PC and ensure it is active to optimise energy saving throughout the working day.

Monitors: Remember to turn off your monitors overnight. In one year this could save over 5 kWh of electricity, which is enough to run an electric oven for over two hours (almost five hours, if you have two monitors).

Try turning down the brightness on your PC monitor to 70%. You're unlikely to notice a difference. This can save up to 20% of the energy used by the monitor.

Lights: Turn off lights in offices when you leave for the day. Consider if lights need to be on all day if there are large windows and adequate sunlight for you to work.

Turn off lights in store rooms and other rooms, offices and labs not permanently occupied when you leave.

Laboratory equipment: Turning off equipment when not in use or at the end of the working day may take a little thought. Much of our equipment needs to remain turned on for service needs or to maintain performance. Identify equipment that is used infrequently but draws energy even when not in use.
Consider what equipment remains on for convenience, i.e. to eliminate start up time in the mornings. Could daily routines be adjusted slightly to account for this, enabling the equipment to be turned off overnight? Could a timer plug be used for e.g. water baths and heating blocks? Timers ensure that equipment is ready for use when needed but does not remain on for long periods of time unnecessarily.

Consider implementing a 'traffic light sticker system' on electrical equipment. Agree which equipment can be turned off and when. For example, Green – switch off equipment when not in use; Orange – turn off overnight; Red – must remain on.

The Green Champions group are keen to hear from ACB Members about examples of good practice and suggestions for meaningful change. Please contact us via the **ACB Green Champions – good practice submission form** with your suggestions.

References

1. **Why is Net Zero so important? | National Grid Group**
2. **What is Net Zero and how can we get there? – Energy Saving Trust** ∎