University of Surrey Net Zero Carbon Plan *(updated 29/09/2022)*

The University's Executive Board agreed to a target that will take the University to Net Zero carbon emissions by 2030 for scopes 1 and 2. This target requires the University to reduce absolute carbon emissions by 46 per cent over the subsequent 10 years. In 2030, the University will purchase carbon offsets to cover the remaining 54 per cent. The University will continue to reduce its carbon emissions after 2030 to reduce the amount of offsetting it must do.

The target follows the Science Based Target Initiative methodology. This methodology allows a business to assess the annual carbon reduction it must make if it is to contribute its 'fair share' to limiting global warming to 1.5°C in line with the Paris Agreement. The University of Surrey was only the second UK university to use this internationally recognised methodology in setting a carbon target.

This target will require action on a number of fronts. This will include improving the energy efficiency of buildings, more on-site renewable energy generation, the purchasing of our power from clean sources and investing in transparent and verified offsetting schemes. Our new buildings and refurbishments will also need to contribute positively to achieving this target.

What does the target cover?

All the University's Scope 1 and 2 emissions are covered by this target.

Scope 1 emissions are defined as direct emissions from the burning of fuels on-site. This includes gas for heating, plus petrol and diesel used in University owned vehicles.

Scope 2 emissions are defined as indirect emissions. This category includes the electricity that is generated off-site but purchased by the University.

Our target also includes emissions associated with refrigerant gases used on-site (fugitive emissions).

At present our target does not include Scope 3 emissions. Scope 3 emissions are defined as emissions associated with supply chain and staff and student vehicle travel (commuting and business use in non-university-owned vehicles).

---

1 Intergovernmental Panel on Climate Change (2018), Special Report: Global Warming of 1.5°C

The University is committed to taking action to reduce Scope 3 emissions and will be bringing forward a revised sustainable procurement policy this year. The policy prioritises the setting of a Scope 3 baseline within the next year and work is already underway to collect data and build the framework in which this will be done

The University is already acting to reduce its scope 3 emissions. In the last year we have:

- Started to improve the processes by which we assess new and existing suppliers in terms of sustainability and carbon performance

- Begun to review the available data from our travel provider for non-owned business travel including flights
- Introduced alternative sustainable transport options to reduce the number of staff driving to site.
- Introduced a new waste policy to cover project works by third parties
- Significantly reduce our water consumption

We recognise that Scope 3 emissions form a significant proportion of the University's impact and will be working with suppliers to establish shared responsibility for their reduction.

What happens now?

The current target gives us a 'carbon budget' for each year. We must reduce our emissions to meet this budget in order to do our part in limiting warming to 1.5°C. We are already taking the following action:

Energy reduction

• Our work to increase energy efficiency across the estate is underway. In each building we aim to make an average 15 per cent reduction in our energy demand in order to meet the target. The sustainability and EFCS teams are working on optimising heating, ventilation, and air conditioning systems with the help of key stakeholders. We are also reviewing our operating times and behaviours to reduce consumption.

• The University is committed to the long-term purchase of electricity from a renewable energy generator and will work with our energy broker to secure this.

Solar

• We are undertaking a solar project on our adjoining land and are scheduled to submit a planning application in October 2022 for a 21ha solar farm that will provide 12.2MW of green energy. This increased capacity means SSE have made an application for export capacity if the peak solar output exceeds the University's peak demand. The programme is set to deliver power from December 2023.

We are also installing roof top PV panels on some of our buildings to provide additional power to provide localised green energy.

EV Charging

- As part of its plan to reach Net Zero emissions by 2050, the UK government has brought forward the date for the phasing out of new ICE car sales to 2030. By 2032 the commission on climate change estimates that 55% of all cars on UK roads will need to be electric if the UK is to meet its 2050 target.

  The University has already made progress in the electrification of its owned fleet used for day-to-day University operations. This year, further electric vans added to the fleet will mean that almost half of the fleet are electric. The University has set a target of 100% of its fleet being electric by 2025.

  There is currently no provision for students, staff or visitors to charge their EV or PHEV vehicles on campus, we are therefore looking to install a range of chargers in 2023 eventually utilising the solar farm power where possible.

Heat Decarbonisation

- We have partnered with SSE to develop a heat de-carbonisation programme for our district heat system that supplies heating and domestic hot water to many our accommodation blocks and our research areas at Stag Hill.
- This project is closely aligned with local and national policy, it refurbishes and refreshes an existing heat network to allow flow temperatures to be reduced from 115'C to 80'C. In combination with the proposed Solar Farm on Blackwell Farm the Stag Hill Campus would be able to be self-sufficient for its electricity needs running from the output of the solar farm, not only the Campus buildings but also the Energy Centre which is supplying the major source of the Universities heat. We have successfully trialled operating the boilers at 80' over the summer without incident.
- The 6,000 MWh annual heat load met by the heat pump is expected to use approximately 2,100 MWh of electricity which will displace approximately 7,500 MWh/yr, of gas or 150 GWh over the next 20 years. This is a reduction of campus gas use of ~73% and a significant reduction in Scope 1 & 2 emissions.
- Depending on the rate of gird electricity decarbonisation, this will reduce the carbon emissions associated with heat provision by ~19,000 - 26,000 tonnes CO2e.
- Prior to execution of this project, we are reviewing the technical aspects to ascertain if the project can proceed if we completely remove the gas boilers and move across to only green energy sources, this is on-going.