Policy on the use of natural gas in new build & refurbishment projects

The aim of this policy is to set out clear principles to deliver the environmental expectations and aspirations set by the university. Intended for all scales of project, whether new-build, refurbishment or minor works, it sets out expectations that align with the university's overall Strategy and Environmental Sustainability Strategic Delivery plan and all projects are expected to adhere to this project.

Background

There are about 30 million buildings in the UK. In total, these buildings are responsible for around 30% of our national emissions with, the vast majority of these emissions from heating using fossil fuel based sources.

In 2019 the UK became the first major economy to pass laws to reduce its greenhouse gas emissions to net zero by 2050. In April 2021, it enshrined an ambitious target to reduce emissions by 78% by 2035 on 1990 levels into UK law.

In March 2020 the university recognised the climate emergency. To enable the delivery of the University Strategy, an Environmental Sustainability Strategic Delivery Plan has been published. In March 2021 the university endorsed the Science-Based approach to setting carbon reduction targets for our UK operations. This effectively requires us to reduce our scope 1 and scope 2 emissions by 63 % by 2030, on a trajectory in line with the Paris Agreement.

The published Estate Development Framework provides the framework for how we will invest in and develop our estate over the coming years to meet the needs of the University Strategy. Carbon reduction and energy resilience are key principles of this.

We have seen a rapid decarbonisation of the national electricity grid over the last decade as a result of government interventions and investment in renewable energy generation such as wind and solar. However, the national gas grid has seen no reduction in its carbon intensity during this time as the vast majority of currently installed boiler and heating technology are designed to be fuelled by 100% natural gas only.

As an organisation, we cannot wait for actions of the Government alone and in order to reach our ambition and we must invest in projects that can deliver ultra-low carbon heating and cooling to our Estate.

Gas use on the University of Nottingham UK Estate

Currently the vast majority of the heat the university generates for space and water heating uses natural gas. **The emissions from gas consumption make up around 50 % of our total scope 1 and 2 carbon emissions**. In 2019 / 20 our total scope 1 and scope 2 carbon emissions were 39,200 tonnes, with our consumption of gas contributing 21,600 tonnes to this figure. Over the last 5 years gas use across the estate has remained relatively static, costing us in the region of £3million per annum.

Whilst the carbon intensity of the UK electricity grid has reduced and will continue to do so, gas supply is more difficult to decarbonise and not expected to decarbonise significantly over the next 20 years. Therefore, **to ensure our total scope 1 and 2 emissions continue to reduce in-line with our Science Based Target, we need to take action to significantly reduce the use of gas across our estate.**

The reduction in gas use will need to be delivered through a variety of measures over coming years including:

1. Reducing demand for heat by improving the insulation levels of our buildings;
2. Optimising the use of our buildings through occupancy and controls; and
3. Moving towards lower carbon/zero carbon solutions for heating spaces and hot water, and moving away from the use of natural gas.

Principles

The university aspires to reduce energy related carbon emissions and all estates related projects must contribute to achieving this target. This means exemplary levels of energy efficiency, eliminating fossil fuel as an energy source, and maximising opportunities for renewable energy generation.

The varied nature and age of our building stock means that there will need to be a phased and hierarchical approach to reducing our reliance on gas and the following principles should be adopted for all new build and refurbishment projects.

New Build Projects

All new build projects should be designed without natural gas supplies. Modern construction techniques and materials offer the opportunity to design out the use of gas from the outset and to achieve the necessary space and water heating requirements with alternatives to natural gas.

Deep 'back to shell' refurbishment projects

Deep refurbishment must include high levels of thermal insulation to all the main building elements including, for example, much improved (triple) glazing so as to allow heating systems to operate at low temperatures to enable a no gas low carbon heat source (such as heat pumps) to operate effectively. Domestic hot water generation options should be assessed in relation to demand, and the priority should be electric point of use or, where appropriate, centralised high temperature heat pump systems.

Light refurbishment

Where light-touch refurbishment is being undertaken opportunities to install alternative solutions for space and water heating should be given serious consideration and will be expected to identify those opportunities.

Replacement of boiler plant

It is recognised that due to the age of buildings, age of boiler plant and also the schedule of any deep refurbishment that there will be a need, in the short term, to replace failing gas fired boiler plant in line with the Capital Backlog Replacement Programme. Any replacements should also prioritise the provision of a supplementary low carbon heating source to work alongside the traditional gas boilers so as to support the transition away from gas. Newly installed boilers should be able to tolerate alternative gases to natural gas, e.g. hydrogen to ensure future flexibility.

Catering gas

Any new projects of major refurbishments to catering premises should not include the provision of gas for catering purposes, all should transition to electric appliances.

Laboratory gas needs

Consideration should be given to using alternatives to natural gas within laboratory spaces.

Implementation of this policy

It is recommended that this policy comes into effect from 1 February 2022 and will be subject to annual review.

Project Managers shall ensure that their project teams are aware of and adhere to the principles as outlined within this policy. Any variations from these principles needs to be presented to the respective Project Management Group and include a full low carbon assessment of technologies including projected whole life carbon, financial assessment and costs.

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