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With the UN Climate Conference, COP26, coming to the UK in November 2020, what actions would you propose to decarbonise one of the following sectors:

- Industry
- Aviation
- Energy

In July 2019 the UK government committed itself to achieve net-zero carbon emissions by 2050 in order to combat climate change and try to limit the global temperature rise to 2-degrees. Electrification of the UK economy will allow for decarbonisation of transportation, heating and other energy-intensive industries. This Will require an increase in energy production and new more intelligent ways to manage demand and supply while reducing carbon emissions. This makes low and zero-carbon energy production key to achieve this target.

To achieve the 2050 target, an increase in energy production will be required. The national grid predicts that by 2050 an increase of 50% of peak energy production will be needed in its “2-degree scenario”, which models the UK energy response and behaviour changes needed to limit the global temperature rise to 2-degrees.

In the face of such a tough challenge, the transition to safe, clean and reliable energy production should be one of our top priorities but paradoxically one of the best low-carbon energy sources is set to decline just as we need it the most. According to the national grid FES-2019 all modelled future scenarios show a decline in energy production from nuclear energy. Though nuclear energy does have its critics, nuclear power currently produces about 10% of the world's electricity but contributes one-third of all low-carbon electricity and avoids 2-gigatons of carbon-dioxide (CO₂) from being emitted in the atmosphere annually.

IAEA Director General Rafael Mariano Grossi speaking at the 2019 COP25 stated: “Nuclear power offers a steady, reliable supply of electricity. It can provide continuous, low-carbon power to backup increasing use of renewables. It can be the key that unlocks their potential by providing flexible support -day or night, rain or shine.”

Many critics of nuclear power believe that we can achieve our targets and goals with renewables and energy storage. Fundamentally due to the intermittent nature of renewables such as wind and solar and the diffuse low energy density of these sources combined with the technical and cost challenges of creating large scale and efficient energy storage means renewables will always need to be backed-up by a more reliable energy source. The danger of dismissing and minimising the role of nuclear from the UK energy mix is that renewables could end up perpetually being backed-up with fossil fuel energy sources leading to a point where we no longer reduce our carbon emissions and miss our net-zero goals for 2050.

A case in point is Germany, who invested massively into renewables but at the same time was shutting down nuclear power plants, the result was that large parts of the CO2 savings from renewables was wiped-out by the need to burn coal, a highly-polluting fuel to make up the shortfall. The need for energy-dense and low-carbon producing power generation such as nuclear fission is not only desirable but likely unavoidable if we want to hit our goal of net-zero carbon emissions by 2050.

14 out of 15 operating nuclear reactors in the UK are set to close by 2030 with only Hinkley point-C under construction at the moment to replace that capacity. If no other nuclear power stations are built to replace the lost capacity, it will most likely be replaced with natural gas and not with low-carbon generating sources and the UK will miss its 2050 target.

The UK needs to invest in nuclear energy research such as fusion and start building new nuclear power stations to replace what is going to be lost in 2030 and to expand beyond that to ensure we fulfil our commitments to combat climate change. The single greatest step that can be taken is actively engaging the public and educating them about the needs for energy sources like nuclear and why a purely renewable energy mix is not feasible with the likely outcome being continued fossil fuel use. Nuclear power is a highly emotive subject and for many environmentalists, the opposition is mixed in with identity politics. The issues of climate change are not going away and honest dispassionate open discord is needed. We can't afford to turn our backs on such a clean safe energy source, one that has been tirelessly generating clean, low carbon energy for decades.