



# Parliamentary and Scientific Committee



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## Transition to Net Zero

Anthropogenic climate change is one of the greatest challenges our society faces. In this discussion we heard about the UK's plotted journey to net zero, and the many challenges we may face along the way.

Prof Jason A. Lowe OBE, the Head of Climate Services for Government at the Met Office, gave us an overview of the evidence behind climate change and how climate models predict the evolution of the climate throughout this century. Professor Jim Skea CBE from Imperial College London and who's the Co-Chair of IPCC Working Group III gave us a presentation on the different mitigation the globe and the UK can take to restrict warming. Dr Jane Strachan, the Head of International Applied Science at the Met Office, gave us a presentation on Resilience and adaptation with regards to the climate and how the Met Office is leading international research into these topics. Lastly, Dr Alex Archibald from the University of Cambridge explained the many co-benefits of climate action to the economy and public health. The Q&A at the end covered a broad range of topics aimed at all the guest speakers, with notable topics being science and scientists role in deciding policy and the technologies being developed to help fight the threat of climate change.

The climate has changed at an alarming rate over the past century. The last decade had a global average temperature of around 1.1 degrees Celsius higher than that of the pre-industrial period. That may seem to be a small increase but it has dramatic effects on the climate. In the UK, extreme weather events are becoming more likely, such as the heatwave of 2018 or the floods in Southern England over the winter of 2013-14. Prof Lowe explained to us how the best climate models predict how the climate will change over the 21st

century. In order to stay below a temperature increase of 1.5 degrees Celsius, as outlined in the Paris Agreement, there must be a rapid reduction in emissions, and we must be looking a negative net carbon output in the second half of the century.

Prof Skea outlined the major changes to our society required for us to achieve the Paris Agreement's goal. Net zero greenhouse gas emissions by 2050, as outlined in the Government's pledges, would require net zero carbon dioxide emissions by around 2040. This requires a series commitment to reach certain milestones, such as all new buildings being zero-carbon-ready by 2030 and overall net-zero emissions for electricity in advanced economies such as the UK's. Carbon removal techniques will also be necessary, such as planting more trees and maintaining existing forests, or restoring peat bogs. Prof Skea explained how earlier action to reduce emissions results in less carbon extraction methods being necessary, and so earlier action is more cost effective.

These actions to move to net zero have co-benefits for our society's health and the economy, as Dr Archibald explained to us. In the winter of 2016-17 there were 11,000 excess deaths attributed to energy inefficiency. Improving the efficiency of our energy usage will be vital for reducing emissions but will also have a very positive effect on health in the winter months. 40,000 excess deaths each year in the UK can be attributed to poor air quality, and so reducing emissions and improving air quality will have a very obvious benefit on public health.

Even if we take the action necessary to avoid the very worst effects of climate change, changes to our environment and weather will still occur and so it's vital that we find methods to adapt and improve resilience. Dr Strachan's team at the Met

Office find ways to mitigate climate risks both in the UK and internationally. Identifying climate risks, looking at adaptations to mitigate against these risks and then relaying these to services enables our society to become more resilient to environmental change. This could be with the agricultural sector by identifying how flooding and increasing temperatures are affecting crop growth, then finding methods to combat this in order to create a more resilient sector.

The Q&A section involved a discussion about whether we can rely on future technologies to help us achieve our goal of net zero. Prof Skea explained how even though technologies like carbon capture and storage will help us a great deal in the future, if they develop as expected, there's a lot we can be doing now with our current technological level. Another discussion was around whether the science and scientists are being listened to enough during policy making. All guest speakers held that climate science cannot be the sole factor in deciding policy but there is a growing awareness of the science within government and our society. The message is being heard but action must follow.

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