

## Meeting Note: Climate Change - a Risk Assessment

### A UK Government Policy Report - London Stock Exchange, 14 July 2015

The London Stock Exchange opened the event by announcing the launch of several green bond markets within the LSE. This has now made the UK one of the largest issuers of green bonds in the world and the overall market is expected to top \$100 billion this year.

Baroness Joyce Anelay launched the [report](#) explaining that government needs to “plan for worst case scenarios” and that managing climate change should be the same as for other, “more normal” security threats like nuclear proliferation, earthquakes and pandemics. This requires analysing the interconnectedness of climate change (i.e. scientific, social and economic factors). Unlike other normal threats, with climate change time is the most crucial element to avoid outcomes that are highly unlikely but potentially catastrophic. Already the effects of greenhouse gas (GHG) emissions today will last for generations. The UK has committed to an 80 percent reduction in GHGs by 2050, while the G7 has committed to decarbonising the global economy by the end of the century. The transition could be an exciting one - stimulating growth and jobs - while the introduction of new technologies could be “unprecedented”.

Sir David King introduced the first half of the report that mapped the likely trajectory of GHG emissions. This is hard given future uncertainties - such as the safety of nuclear energy, the elimination of fossil fuels, whether carbon capture and storage is feasible at large scales, and the implementation of energy efficiency policies. Key systemic risks and unpredicted impacts need to be addressed, such as large scale bio-mass fuel production impacting food security. The report concluded that the likelihood of hitting net-zero CO<sub>2</sub> emissions this century appears to be low. The more likely scenario is a rise until mid-century before levelling off.

The role of government is to assess the worst case scenarios, and work backwards from there. Sir King worried that consideration of worst case scenarios, regarding climate change, is not standard. He gave the example of the Global Challenges Foundation, which explored the effect of climate change on human health, focusing on a two degree warmer world which is the best rather than worst case scenario. However, unlike other hazards (like earthquakes) the threat of climate change changes over time making it harder to assess what the worst case scenario is. There is only a one per cent chance of not exceeding a 4°C world by 2060. This will impact the probabilities of key risks such as:

- Exposure to human heat stress likely to increase to a 40 percent likelihood in some areas.
- 50 percent risk of crop failure in the US that would be frequent and serious in a 4°C warmer world.
- 100-year flood events becoming a 1-in-2 year event in New York and a 10-in-1 year event in Kolkata

Trevor Maynard then spoke of food system shock that could exacerbate social unrest. This is caused by an environmental disruption to supply chains that lead to a spike in economic pressures, that then impact on society and business. He noted that the Arab Spring was, in part, expedited by the 2010 heat wave, causing crop failures and so a spike in bread prices. Rear-Admiral Neil Morisetti described the threats to geo-political instability and that much of this is linked to environmental pressures and is a problem for both developing and developed nations. Georgina Mace concluded by outlining the need for a more systemic approach to research, such as aligning the UN Sustainable Development goals with research on climate change risks.

**Summary:** This helps to reinforce the non-linearity of climate change and how, by simply focusing on ways to reprice risk, insurers face an increasingly uninsurable market in some regions (e.g. flooding)

[tom.Herbstein@cisl.cam.ac.uk](mailto:tom.Herbstein@cisl.cam.ac.uk)  
[@ClimateWise](#)