Climate Change Adaptation Webinar Series
Jan/Feb 2025

Q&A Document

Climate Change Adaptation Overview Webinar

Q: Are we underestimating the use of Fusion Energy and small nuclear devices for the Food and Agricultural Industry?

A: In consultation with our Nuclear Energy Lead at Innovate UK Business Connect, Ray Chegwin, he notes: “Nuclear fission, whether it be large Gigawatt stations or small modular reactors (SMRs), are now being seriously considered for the production of hydrogen and SAF; anywhere that a 24/7 output of heat / thermal energy is required. Similarly, fusion energy plants may also be considered.” It is also worth noting that our own Transport team has been in discussions with Fly Green Alliance and Equilibrion regarding nuclear-derived SAF.

https://flygreenalliance.org/smrs-synergies-between-aviation-and-the-nuclear-sector/

https://equilibrion.co.uk/eq-flight/

Q: As we electrify heat & transport, the power network distribution systems to mitigate Net Zero power distribution have not been designed to support this increased demand. This demand pressure translates into voltage sags + harmonics which can trip water utility processes and manufacturing facilities. This threat is not widely understood as EV penetration in GB is still low as are heat pumps. How do we focus on mitigating these risks?

A: While the electrification of heat and transport is essential for achieving Net Zero, there are significant challenges in terms of power network resilience. By focusing on grid modernisation, active power quality management, accurate demand forecasting, and the adoption of smart technologies, we can reduce the risks posed by increased demand and ensure that critical industries, like water utilities and manufacturing, are protected from the power quality issues associated with voltage sags and harmonics.

Q: When considering AI models in the infrastructure environment, do we expect there will be immediate benefits and opportunities given the often limited nature of water company data sets that could be assessed against e.g. historic met office data and future projections. Or is it more likely that we will need to do some additional data collection to achieve the adaptation outcomes that will benefit customers/operations

A: While it is likely that there will be immediate benefits from AI models in the water sector, these benefits may be somewhat limited by the current constraints of data availability. Initially, the focus will likely be on predictive maintenance, demand forecasting, and anomaly detection, utilising available historical data combined with external data like weather projections.

To fully capitalise on the adaptation opportunities and ensure AI delivers transformative outcomes (e.g., improving long-term resilience to climate change), there will likely be a need for additional data collection, especially for real-time monitoring and more granular climate data. Over time, investments in data infrastructure, as well as collaboration with external

data sources, will be critical to achieving the desired adaptation outcomes and benefiting both customers and operations.

Biodiversity Webinar

Q: For Edward - when you engage with landowners to make changes do you try and link this to funding available via the Sustainable Farming Initiative?

A: Where applicable we seek to align nature-based interventions with all applicable public funding sources.

Q: For Edward - what channels do you use to engage stakeholders e.g. landowners and communities that might be resistant to change

A: It depends a lot on the context. We work with local NGOs and others to help with introductions and coordination. Community consultation is best done face-to-face in small groups. We engage landowners individually to show them the potential of their land and to understand their needs and preferences.

Q: What is the view of the panel on offsetting BNG on construction projects. EG planting a wood 10 miles away, or establishing an artificial reef 30miles or more away from the site

A: BNG seems to be doing a good job of motivating developers to minimise the impact of their projects, and to mitigating that impact. However, it is not in its current form doing much to finance large scale offsite nature restoration.

Q: Kelly - Where does the UK stand competitively in this vital field?

A: The UK is highly competitive in the use of technology for biodiversity conservation, particularly in the integration of advanced tools like remote sensing, AI, and machine learning to monitor and protect biodiversity. However, it faces significant competition from other global leaders, and there are areas where improvement is needed, which include the enforcement of regulation, investment in long-term solutions and better alignment post-Brexit.

Q: Now that Biodiversity Net Gain needs to be demonstrated in building projects/ new developments, what are some of the challenges in making this meaningful beyond 'planting a few trees' on a development?

A: We will require a shift towards holistic, long-term planning, ecologically sound design, and an ongoing commitment to management and monitoring. Developers and regulators need to work together to create a framework that goes beyond superficial measures, integrating local ecosystems into the fabric of development projects and ensuring lasting benefits for biodiversity. Collaboration, innovation, and thoughtful integration are also essential for the successful implementation of BNG.

Q: Are we likely to see funding for 'nature tech' from Innovate UK in the future to support innovation in this area?

A: Innovate UK and IUK Business Connect are currently in planning stages to advocate for Climate Resilience related funding in some form, but it is too early to say what shape this may take and how much funding, if any, will actually be made available. Watch this space!

Q: Isobel - is your company able to add to and improve the school and University curriculum in this vitally important new NatureTech field?

A: This isn't something we're currently considering, but we do sometimes give guest lectures, etc. on other engineering topics at universities so perhaps this is something we could consider in the future.

Q: For Edward - does the opportunity mapping you undertake consider future trends such as changes in food production, changing diets, climate resilience in the landscape with accompanying changes in habitats / species?

A: We don't have a crystal ball. However, we are seeking to take account of climate resilience, such as scenario modelling on aspects such as flood, drought, fire etc. We are also looking at nature networks (bigger, better, more joined up) and trade-offs between different land uses (nature, food, timber, housing, recreation, etc)

Q: For Edward - How long does an assessment take to complete. Would you have an indicative cost associated with an assessment.

A: It depends on what we are doing and how much depth is required. A property-scale opportunity assessment to inform a landowner takes a few minutes. Catchment or national scale analytics depends on the scope and scale of what is being assessed. Costs vary considerably – reach out if you want to discuss any particular project.

Cooling Systems Webinar

Q: After watching California leading the way to decarbonize the transport sector , what issue do we think the new Trump administration will have on the retraction of grants to support change, as most of the main TRU OEMS are USA based. Will this delay the UK EU transition to non-diesel and non HFC systems?

A: We can't comment on foreign Government policy.

Q: Graeme - Are we underestimating the rapid melt of polar ice, which is raising sea levels in the North Sea, etc. Can this be mitigated e.g. with a new (v. expensive!) Thames Barrier?

A: This webinar is about the need for cooling in homes and industry so I can't comment on the need for a new Thames barrier.

Q: Are you aware of floating projects for large scale storage and cooling and what is the potential for tidal waters within the UK for this?

A: I am not aware of this technology so I'd be interested in more information on it.

Q: Graeme - does the Architect profession have plans for very different house designs, learning from tropical countries like Australia, California, etc. - are we sufficiently prepared?

A: Passive cooling is an important part of adapting homes for rising temperatures. Skills and training will be required to ensure it is adopted in new home design.

Q: Can we use offshore deep-sea cooling, i.e., a pipe offshore, to cool homes? Many island nations are using this in the tropics.

A: It is a novel idea but I think the scale of the infrastructure required to cool 23million homes in this way could be prohibitively expensive for the UK.