

ESTABLISHING A NEW GLOBAL FORUM OF NATIONAL LABORATORIES TO PROGRESS AN INTEGRATED APPROACH TO DECARBONISATION

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Overview

In January 2022, the world's first global summit of national laboratories working on energy research was convened to progress a holistic understanding of what is needed for net zero and develop an integrated energy systems approach – across borders and energy vectors alike [1].

We seized the opportunity, in the year of the UK's presidency of COP26 – the United Nations Climate Change Conference hosted in November 2021 – to build the foundations of a long-term legacy of collaboration with our global counterparts. With the Global National Laboratories Energy Summit 22, we highlighted the importance of an integrated approach if we are to maximise the efficiency of future clean energy systems.

The summit also signified the part played by national laboratories worldwide in enabling the science, innovation and research and development (R&D) that will be required for net zero, with our unique positioning across the public and private divides. Ensuring the event included national laboratories focusing on energy, all confirming their intent for future collaboration, we have paved the way for greater impact in the policy and technical debate with this new forum going forward.

Methods

National laboratories exist across the world to deliver cutting-edge science to solve some of society's biggest problems; with respect to urgent climate mitigation efforts, working together (one of the four aims of COP26) has the potential to deliver greater, faster outcomes for the planet as a whole.

This first summit therefore brought together national laboratories from UK, Canada, France, Japan and the USA, who are all pioneering clean energy systems but encompassing nuclear, renewables and other low-carbon solutions.

The creation and the planning of the summit involved several months' joint working to determine the best framework and approach to deliver our collective aims, as well as set in motion aims for the forum's legacy. This allowed us to build on existing and new bilateral partnerships as we developed a steering committee to advance the summit's aims.

The event itself saw presentations on existing work streams towards integrated energy systems from each delegate and closed with a document signifying agreement to collaborate across a series of key themes including enabling and preparing for energy flexibility and identifying energy needs across industry sectors.

Results

The summit began to consider what the future integrated energy system will look like and how national laboratories can accelerate countries towards this target. As a new global collective, we have an opportunity to leverage our respective interests to share and develop best practice, so we can evolve technologies to be fit and ready to deliver. Ultimately, we want to ensure countries can maximise the benefits of each form of technology and their mode of operation to provide reliable, sustainable and affordable low-carbon energy for their citizens.

To set this in motion, over the course of 2022, the forum will look to deliver a series of united interventions towards an urgent integrated energy approach. This will include a joint technical workshop, impact study and a presentation of these findings to support an evidence-based view of how low-carbon technologies can deliver in for a global net-zero energy economy.

Further, over the coming months and years, we will look to communicate our collaborative approach across the globe to inspire further partnerships that advance knowledge around integrated energy systems in mitigating climate change. The forum will meet again, formally, with the Global National Laboratories Energy Summit 23.

Conclusions

Following COP26, which saw the UK lead calls for urgent and tangible actions towards net zero, we wanted the summit to represent a continuation of this ambition. In convening thought leaders from across the world, the summit spotlighted not only the issue of energy system integration but also the value of research and innovation in unlocking barriers to deep decarbonisation.

Keynote welcomes from the UK Government's Chief Scientific Adviser, Sir Patrick Vallance, and UK Energy Minister, the Rt Hon Greg Hands MP, helped to set the scene for the value and impact such a summit can have. Reflecting on this in his welcome, Sir Patrick Vallance said:

“Nations are going to have to harness all the resources they have and, particularly in respect of this Summit, to think about the role of national laboratories, which have been absolutely crucial to support translation, adoption and deployment of technologies that will make a difference.

“So with this meeting, it's important that it is international in scope, it's important that it is national laboratories coming together with all the resources and insights they can bring and it's important that it reflects the urgency of the work ahead.”

References

[1] <https://www.nnl.co.uk/innovation-science-and-technology/collaborations/energy-summit-2022/>