

# 06 | Collaboration

Establishing a new **global forum** of national laboratories to progress an integrated approach to decarbonisation.



In January 2022, NNL convened the world's first global summit of national laboratories working on energy research 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.

#### The Global National Laboratories Energy Summit 22 has:

Established a first-of-its-kind global forum of national laboratories working on energy research, combining nuclear, renewables and other low-carbon sources;

Brought the importance of an integrated energy systems approach to the fore, as nations strive to balance decarbonisation efforts with energy demand, security and cost;

Laid the foundations for a long-term legacy of collaboration between national laboratories, following the UK's presidency of COP26, to drive the research and innovation required for net zero by 2050.

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, something which is already recognised in NNL's Science and Technology Agenda and Clean Energy Focus Area.

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 both nuclear and non-nuclear national laboratories, 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.

“With the transition to net zero driving fundamental changes globally to energy supply, demand, transmission, distribution, storage and use, research and innovation is required to help us develop, design and operate the right systems for a net-zero future.

As national laboratories we have a unique role to play in enabling the successful energy transition, by providing global leadership and scientific expertise, bridging the gap between academia and industry and driving the innovation required for future technologies to deliver.”



**Dr Paul Howarth**  
NNL Chief  
Executive Officer  
(CEO)

## Partnerships

### Global collaboration for a global challenge

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 Canada, France, Japan and the USA, as well as colleagues at the UK's Energy Systems Catapult, 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. [Watch a recording of the event here.](#)

## Quality

### An ambitious new forum to progress work

"We know that the very best solutions in history come from collaboration. The S&T infrastructure is pretty impressive in a lot of places around the world and so I think unless we work together, we all won't survive. It's either everybody or nobody."

*Dr Peter Green, Deputy Laboratory Director, US National Renewable Energy Laboratory (NREL)*  
[Video clip of Dr Green.](#)

"If we're to unleash the innovation we need to get to a net zero global economy, it's essential we take an integrated approach that understands the roles of different technologies, of markets, of digital technology and, crucially, of people. That's why we're delighted to support this initiative. It puts a whole system, integrated approach at the heart of our future innovation. COP26 showed what global collaboration can achieve in the push towards net zero – through this initiative we have an opportunity to work together to help deliver our shared ambitions for a cleaner, more affordable energy future." *Guy Newey, strategy and performance director, Energy Systems Catapult*

"We are already partners in nuclear research and innovation to move forward towards a future net-zero carbon society, and we all have solid grounds to design, develop and deploy nuclear-renewable hybrid

systems. This summit will lead us to a shared vision of future integrated energy systems as well as enhanced international collaboration." *Mr. Kentaro FUNAKI, Executive Director for International Affairs, JAEA*

"Canadian Nuclear Laboratories (CNL) welcomes a new era of international collaboration to accelerate the global adoption of clean energy and the critical role of integrated energy systems. [...] Collective knowledge is a powerful tool, and we look forward to sharing our expertise, research and learning to help shape the energy systems of the future." *Dr Jeff Griffin, VP, Science & Technology, CNL*

"Transitioning to a low-carbon energy system is critically important for global sustainability, and integrated energy systems can harness the benefits of clean energy sources working together, including nuclear and renewables. Idaho National Laboratory is pleased to engage with labs around the world to discuss how to achieve this ambitious goal."



**Dr Marianne Walck**  
Chief Research Officer, Idaho National Laboratory



Stills from the Global National Laboratories Energy Summit 22 film.

## Impact

### Sharing science and maximising investment

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 talent and respective investments in S&T 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.

## Impact

### Demonstrating UK leadership

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 – promoting UK interests and strengths whilst engaging global partners. In convening thought leaders from the UK and allied nations, 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.

"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."



**Sir Patrick Vallance**  
Government Chief Scientific Adviser  
[Video clip here](#)

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 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.