

## **UNITING SCIENCE TO ADDRESS CLIMATE CHANGE** **The engagement of US and European Big Science facilities**

**26 October 2021** – Key leaders and researchers from major US and European big science laboratories, namely EIROforum (Europe's eight largest intergovernmental scientific research organisations, including CERN, EMBL, ESA, ESO, ESRF, EUROfusion, European XFEL and ILL) and the US Department of Energy's seventeen National Laboratories (Ames, Argonne, Brookhaven, Fermi, Idaho, Jefferson, Los Alamos, Lawrence Berkeley, Lawrence Livermore, NETL, NREL, Oak Ridge, Pacific Northwest, PPPL, SLAC, Sandia and Savannah River), met by videoconference ahead of the United Nations Framework Convention on Climate Change Conference of Parties (COP26).

Sharing the same values, and convinced that science performs best through collaboration, the EIROforum's directors and NLDC (comprised of directors from the US National Laboratories) affirmed their common commitment to unite science towards a sustainable and resilient global society and economy:

- **By stepping up their scientific collaboration on carbon-neutral energy and climate change**
- **By sharing best practices to improve the climate sustainability and carbon footprint of Europe's and US's big science facilities**
- **By sharing knowledge and fostering public engagement on clean energy and climate change research**

The 2021 United Nations Framework Convention on Climate Change Conference of Parties (COP26), which will take place in a few days' time in Glasgow, will be a pivotal moment to agree coordinated actions to align with the needs of a sustainable and resilient society.

The rapidly accelerating loss of biodiversity across the globe and the impacts of climate change are becoming increasingly visible in the form of outbreaks of zoonotic disease, and progressively extreme heat waves and storms, droughts and flooding.

Throughout history, fundamental research has been a source of scientific breakthroughs, leading to paradigm shifts that have had a profound impact on our lives. The COVID-19 pandemic has thrust science to the centre stage. Thanks to state-of-the-art scientific knowledge and exceptional global scientific collaborations, the development of vaccines to provide a path out of the coronavirus pandemic happened far more rapidly than expected. Therefore, on a complex and wide ranging issue like climate change, science has without any doubt a key role to play, and in particular at big science facilities, where we are constantly pushing forwards the frontiers of knowledge and technology to the highest levels of excellence and inventiveness.

From world-leading environmental science and bio-environmental engineering, geological research and Earth observation to the development of state-of-the-art materials, advanced particle detectors and accelerators, and new, clean energy sources, the research and datasets produced by Europe and United States' big science laboratories provide a foundation on which to build innovative technologies and solutions that not only mitigate the impact of climate change, but also help us protect the Earth's ecosystems, including the human populations around the world vulnerable to a wide array of environmental threats.

As Big Science facilities in Europe and United States, sharing the same values for scientific excellence to the benefit of humankind and our planet, we must act together to address the complex and pressing climate crisis that we are already seeing worldwide, but also to reduce the carbon footprint of our research activities.

These topics were at the heart of an online workshop, co-chaired by Doon Gibbs, Director of Brookhaven National Laboratory and Chair of the NLDC, and Francesco Sette, Director General of The European Synchrotron (ESRF) and Chair of EIROforum, and which included the directors and scientific experts from the eight EIROforum big science facilities and the seventeen DOE National Laboratories, through three round-tables:

- Approaches to Decarbonization: “Reducing the carbon footprint of big science facilities in Europe”, and “Net Zero Carbon and Net Zero Labs”
- Carbon-neutral energy and climate change research and technology at Big Science facilities
- Fostering public engagement on clean energy and climate change research