Project: HPC JEEP

HPC job efficiency and energy usage: monitoring and reporting (HPC JEEP)

Abstract

Traditionally, resources on high performance computing (HPC) services have been granted in units of compute time (core-hours, node-hours, etc.) with users not informed, nor paying much attention to their energy use; and services not generally reporting breakdowns of energy use other than for total electricity charges. Without an understanding of how research areas, projects and users use energy and how efficiently they use resources it is difficult to plan future procurements or service strategies towards a net zero goal.

This project will look at what level of energy and efficiency information can be extracted from current and historical per-job data from ARCHER2 and DiRAC services; and how this data can be analysed and synthesised to provide the information required for funders (who procure and set service strategy and objectives) and researchers (who make decisions about how best to use the resources they are granted) to make informed decisions about how to manage HPC resources to extract the maximum research benefit in the most energy efficient way.

Institutions and representatives for the project

Durham University - Alastair Basden

University of Edinburgh - Andy Turner

Funding information

This project has been awarded a total of £20755.28 by the UKRI Net Zero DRI Scoping Project (NERC project NE/W007134/1). This funding is split between the institutions listed above.

Additional information

The UKRI Net Zero DRI Scoping Project will produce clear evidence and recommendations for a roadmap for the UKRI and their community to deliver carbon neutral DRI by 2040 or sooner.

Thie HPC JEEP sub-project was selected for funding via a sandpit event in May 2022. The proposals from teams were assessed on three factors; their excellence, potential to produce conclusive evidence and clarity of planning.

To read more about the UKRI Net Zero DRI Scoping Project visit our website.