



Contribution ID: 977 Contribution code: THPB053

Type: **Poster Presentation**

## **Compiling a life cycle inventory of a large accelerator facility: the ISIS-II neutron and muon source life cycle assessment**

*Thursday 5 June 2025 15:30 (2 hours)*

The ISIS-II Neutron and Muon Source, the proposed successor to the ISIS Neutron and Muon Source at the Rutherford Appleton Laboratory, UK, presents a unique opportunity to integrate environmental sustainability practises from its inception. A Life Cycle Assessment (LCA) was performed during the early feasibility and design stage to evaluate the potential environmental impacts across construction, operation, and decommissioning phases, and to identify opportunities for impact reduction.

With many accelerator components, elements and systems still in early optioneering stages, numerous assumptions were required to model the facility. This work explores these assumptions and the use of a simplified LCA framework, focusing on bulk material selection, future operational resource management, and strategies for managing non-radioactive and radioactive materials at decommissioning. Updated results of the LCA and identified strategies to minimize and mitigate negative environmental impacts are presented, emphasizing the role of LCAs in embedding sustainability into decision-making for large-scale scientific facilities.

### **Footnotes**

### **Paper preparation format**

LaTeX

### **Region represented**

Europe

### **Funding Agency**

United Kingdom Science and Technology Facilities Council via the John Adams Institute, University of Oxford, STFC Grant code ST/V001655/1

**Author:** Dr WAKELING, Hannah (John Adams Institute)

**Presenter:** Dr WAKELING, Hannah (John Adams Institute)

**Session Classification:** Thursday Poster Session

