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High-level environmental sustainability guidelines for large accelerator facilities

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In the coming decades, numerous designs for new accelerator-based facilities, or potential upgrades to current facilities, have been proposed to support the next generation of scientific advancement. While these facilities have significant scientific, economic, and societal benefits, they also require considerable resources to operate effectively. Amid the ongoing climate crisis, these facilities face the challenge of balancing the need for increased scientific output, size, and/or power with the global need to reduce resource consumption. This challenge presents a unique opportunity to integrate innovative environmental impact reduction techniques into their design.

The presented living document offers high-level guidelines to enhance environmental sustainability across the planning, construction, operation, and decommissioning stages of large accelerator facilities. It consolidates various resources and highlights both existing and proposed practices to inspire more sustainable approaches.

Footnotes

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Author: Dr WAKELING, Hannah (John Adams Institute)

Co-authors: THOMASON, John (Science and Technology Facilities Council); BURROWS, Philip (John Adams Institute)

Presenter: Dr WAKELING, Hannah (John Adams Institute)

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