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Sustainability Considerations for Accelerator and Collider Facilities

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As the next generation of large accelerator-based facilities are being considered at the Snowmass 2021 study high priority has to be given to environmental sustainability including energy consumption, natural resource use and the environmental impact of effluents. Typically, increased performance - higher beam energies and intensities - of proposed new facilities have come with increased electric power consumption. In the following we discuss the most important areas of development for the sustainability of accelerator-based research infrastructures in three categories - technologies, concepts and general aspects. To achieve the goal of increased performance with reduced energy consumption a focused R&D effort is required with the same or even higher priority as the traditional performance-related R&D. Such a recommendation was included in the recent European Strategy for Particle Physics Accelerator R&D Roadmap.

Primary authors: NANNI, Emilio (SLAC); ROSER, Thomas

Presenter: NANNI, Emilio (SLAC)

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