

**CEA and CNRS contribution  
to the 2026 update of the European strategy for particle physics**

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The future of CERN is a crucial challenge for France, which hosts this institution together with Switzerland. As a solid international organization already operating a truly global project such as the LHC, CERN has proven to be the best place worldwide to conduct forefront research in high-energy physics. It is important that CERN maintains its strength and international recognition: scientific excellence, especially in the field of high energy, innovative instrumental developments, and academic openness to the whole world. To anchor this leadership, the definition of the next flagship project at CERN, post LHC, is crucial.

The previous European Strategy for Particle Physics (ESPP) session led the CERN Council to adopt the principle of a technical and financial feasibility study for a future hadron collider with an energy of at least 100 TeV, at CERN, with, as a possible first phase, the construction of a Higgs factory in the form of an electron-positron machine. As the host state, France, in strong coordination with Switzerland, has been involved in this feasibility study, within its scope of responsibility, entrusted by the Prime Minister to the « Préfet de Région ». Careful consideration of the final conclusions of this feasibility study, in all its components, is very important as part of the new ESPP session, that begins.

France CEA and CNRS wish to contribute to this ESPP session, by highlighting the following points:

- The immediate priority for CERN remains the HL-LHC program, whose scientific exploitation must be maximized once the experimental facility is operational
- The French particle physics community confirms the scientific interest of the FCC project, with its two phases — FCC-ee and FCC-hh — with FCC-ee offering a unique opportunity for high-precision electroweak and Higgs physics, while paving the way to the energy frontier. CERN is perfectly positioned to lead this ambitious project.
- The current R&D efforts on accelerator components, in particular on accelerating RF systems and on high-field superconducting magnet technology (underlined as a top priority in the previous ESPP session), must be reinforced, as they will benefit both the next flagship program and a wider range of scientific and technological fields. These developments should help to reduce CERN technologies environmental impact.
- Given the major uncertainties underlying the feasibility of the FCC project (environmental issues, financial sustainability in a particularly complex financial context, ...), it is important to consider alternative scenarios to the FCC, so that CERN can be guaranteed to present a scientific program at the best level, if it were not ultimately decided by the CERN Council to launch the FCC project. The discussion on those alternative options, based at CERN, even if they present a reduced scientific potential and attractiveness, should be triggered and coordinated by CERN, with the active participation of the European scientific community, including of course representative from the French community.