

# A Flexible Strategy for the Future of Particle Physics at CERN

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# A Flexible Strategy for the Future of Particle Physics at CERN

## Overview

- main author: Simone Pagan Griso, co-authors from LC / MuonCollider / WFA communities
- “now”: linear collider as Higgs Factory + R&D on MuonCollider and WFA
- depending on when MuonCollider or WFA collider is decision-ready:
  - either upgrade linear collider (550 GeV, 1-3 TeV) and continue R&D
  - - or switch to MuonCollider or WFA collider for next energy step

## A Flexible Strategy for the Future of Particle Physics at CERN

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### Abstract

This document outlines a strategy to ensure CERN remains at the forefront of particle physics by addressing the most pressing questions of our field in a timely and effective manner. The strategy balances ambition with feasibility—financially, logistically, and environmentally—while ensuring a robust path to exploring fundamental interactions at energies far beyond those of the LHC.

This approach prioritizes rapid progress toward the 10 TeV frontier and beyond, while maintaining a seamless continuity in frontier-physics experiments to maximize scientific output and preserve expertise in experimental operation. The plan also recognizes the need for a next-generation collider with a rich physics program that engages the young scientists currently involved in the LHC era.

This requires a strategic compromise: an optimized near-term solution that is cost-effective yet scientifically compelling, leaving room for future accelerator innovations. The vision leverages decades of breakthroughs in accelerator technology, combining proven methods with new creative advancements to overcome the challenges ahead. By pursuing a flexible and forward-looking program, we aim to meet both the immediate and long-term needs of the global particle physics community in its search for a deeper understanding of nature.

# Example Timeline

