

Decadal Overview of Future Large-Scale Projects		
Frontier/Decade	2025 - 2035	2035 -2045
Energy Frontier	U.S. Initiative for the Targeted Development of Future Colliders and their Detectors	
		Higgs Factory
Neutrino Frontier	LBNF/DUNE Phase I & PIP- II	DUNE Phase II (incl. proton injector)
Cosmic Frontier	Cosmic Microwave Background - S4	Next Gen. Grav. Wave Observatory*
	Spectroscopic Survey - S5*	Line Intensity Mapping*
	Multi-Scale Dark Matter Program (incl. Gen-3 WIMP searches)	
Rare Process Frontier		Advanced Muon Facility

Table 1-1. An overview, binned by decade, of future large-scale projects or programs (total projected costs of \$500M or larger) endorsed by one or more of the Snowmass Frontiers to address the essential scientific goals of the next two decades. This table is not a timeline, rather large projects are listed by the decade in which the preponderance of their activity is projected to occur. Projects may start sooner than indicated or may take longer to complete, as described in the frontier reports. Projects were not prioritized, nor examined in the context of budgetary scenarios. In the observational Cosmic program, project funding may come from sources other than HEP, as denoted by an asterisk.

- In the Cosmic Frontier, a coordinated multi-scale dark matter program would combine direct, indirect, and cosmic probe experiments to explore the large dark-matter landscape (and, in total, rise to the “large” project category). Note that an expansion of underground facilities at SURF may be required as a component of this program. In the observational Cosmic program, projects may leverage funding from sources outside of HEP itself, as denoted by the asterisks in the table. Both CMB-S4 and Gen-3 WIMP searches (previously DM-G3) were endorsed as promising future directions by the previous Snowmass/P5 process.
- In the case of the Energy Frontier, and as emphasized by the Accelerator and Theory Frontiers as well, the goal should be to position the U.S. HEP program to support construction of an Higgs Factory as early as 2030, and to subsequently be prepared to host or participate in the construction of a multi-TeV (muon or hadron) collider. In total, these investments (referred to as a “U.S. Initiative for the Targeted Development of Future Colliders and their Detectors” in Table 1-1) rise to the level of a large-scale project. In the early phase accelerator work should prioritize an e^+e^- Higgs Factory (such as ILC, CLIC, FCC-ee, CEPC, C³, or HELEN), a parallel effort should focus on multi-TeV colliders for the longer term, and some work on advanced accelerator R&D should continue. Targeted detector R&D for the Higgs Factory is required in the early phase, with a smaller detector R&D component related to multi-TeV colliders. In the later phase, as an e^+e^- Higgs Factory construction is taking place, accelerator and detector R&D effort on multi-TeV colliders will need to increase.
- For the Neutrino Frontier the highest priorities are the completion of LBNF/DUNE Phase I in the coming decade (with the corresponding PIP-II upgrade), and the construction of DUNE Phase II (with the corresponding proton source upgrade) in the decade following. DUNE Phase I and Phase II are described briefly in section 4.7 and more completely in the Neutrino Frontier report. The completion of the DUNE science program was identified as a high priority of the previous Snowmass/P5 process.
- For the Rare Process and Precision Measurements Frontier, the “Advanced Muon Facility” for studies of muon decays, muon conversion, and muonium transitions, may require coordinated improvements or modifications to the FNAL proton complex.