

BNL Snowmass 2nd Retreat

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January 21, 2022



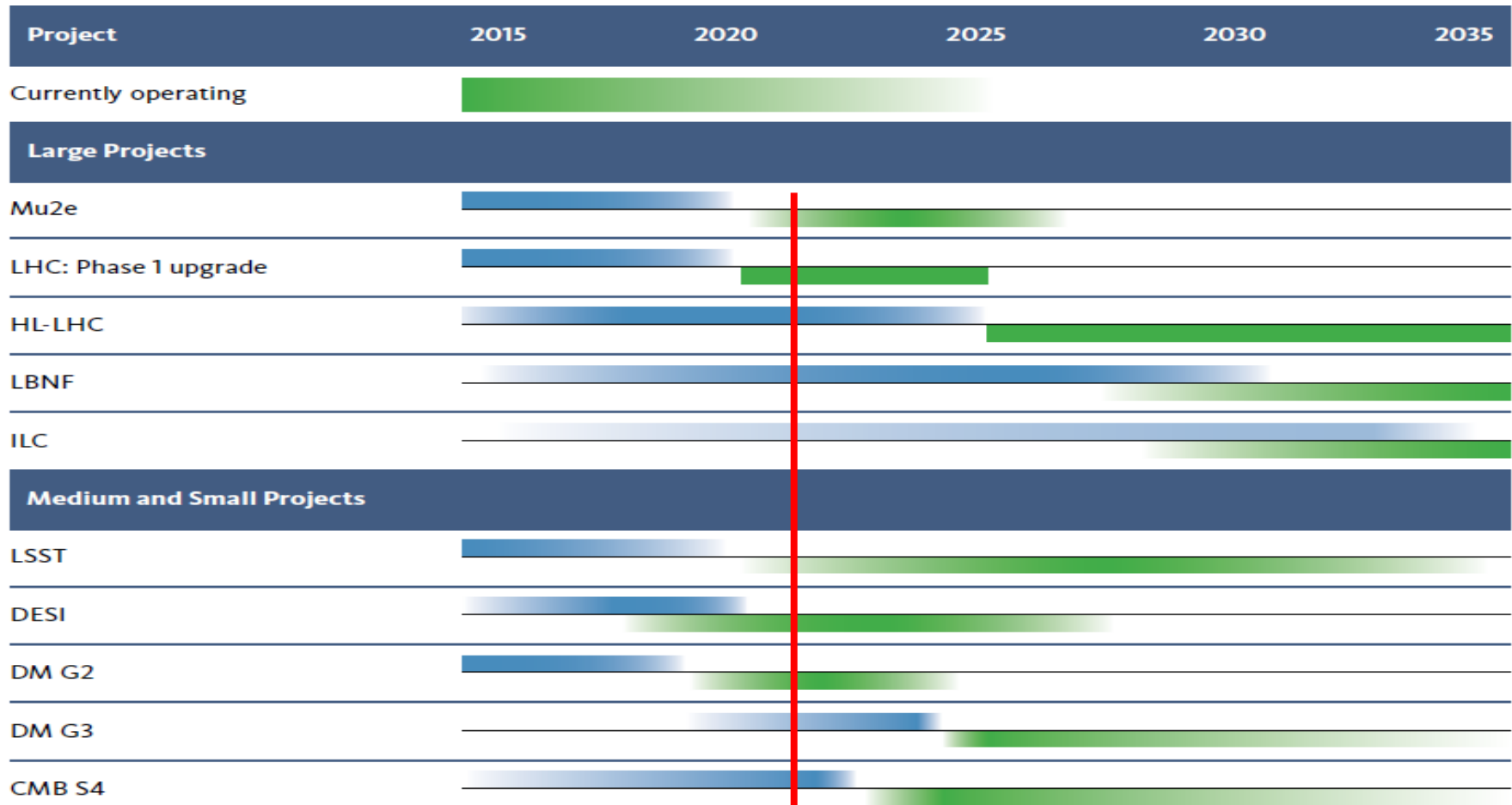
US High Energy Physics Future Planning

- The field of high energy physics developed approach how to decide “what to do next”

We are here now

- Step 1
 - Groups of scientists develop proposals for future facilities/experiments
- Step 2
 - “Snowmass” community wide process discusses proposals, evaluates strong and weak points, physics reach and costs and summarizes outcome in a written form
 - Organized by the Division of Particles and Fields (DPF) – professional organization, not laboratories or funding agencies
- Step 3
 - P5 committee (Particle Physics Projects Prioritization Panel) is formed (by NSF and DOE) consisting of ~25 scientists representing all areas of high energy physics
 - The committee, within about a year, sets priorities based on available funding and on the expected cost of the proposals
 - Recommendation's cover ~10 years time span
- Step 4
 - HEPAP (High Energy Physics Advisory Panel) appointed by NSF/DOE reviews the proposal and recommends it to be considered by DOE
- Step 5
 - NSF/DOE fund recommended projects, assuming funding is available

2013 Snowmass/P5 Plan Stands Well Today



Snowmass 2021/2022



Why next Snowmass

- New science and technological developments accumulated over past ~8 years
- Beyond 2026 funding in HEP is *expected* to become available for “next large/medium/small projects”
- We, as a community, must plan our future

Proposals must be developed in advance

Good proposal includes

- Excellent physics goals
- Technical implementation description
- Cost estimate and schedule

To develop a proposal concentrated effort is required

What is included or not in the Snowmass/P5 discussions

- Projects already listed in previous P5 plan and under execution are not *expected* to be part of the discussion
- While substantial upgrades, such as Mu2e-II, DUNE upgrades, LHC upgrades beyond HL-LHC and others are naturally to be discussed

Timeline for the Progressing Snowmass/P5

- snowmass21.org
- Started at April 2020 APS meeting
- Development of proposals, workshops, interactions inside the community
 - Between April 2020 and July 2022 (delayed by a year due to COVID)
 - Organized by conveners of various study groups
- “Snowmass Meeting”
 - July 2022 at the University of Washington, Seattle
- Snowmass written summary
 - By late 2022
- P5 process
 - During 2023
- P5 outcome and guidance to the funding agencies
 - By late 2023 early 2024

Importance of the White Papers

- The process of papers submission is well described on the Snowmass web site
- **If you don't submit whitepaper with your proposal, it will hardly be mentioned in the Snowmass report and considered by P5**
 - In addition to science and technology provide clear “ask”: what funding is required over 5-10 years and for what, R&D, construction...
- With HL-LHC, LBNF/DUNE and CMB-S4 still to be completed and more expensive due to COVID
 - No new large scale project starts are expected in the coming ~5 years
 - Consider asking for R&D funding in such cases
 - Medium and small-scale projects (below about \$0.5 billion total) might fit into currently expected budget after FY26
- If you need any help or feedback
 - Talk to your colleagues, group and department leaders or myself

Concluding Remarks

- Today we will go over 10 Snowmass proposals, expected to become white papers, under development by BNL staff
- If more proposals to come in the coming weeks/months, we will discuss additional retreats
- There are many, many meetings and workshops related to Snowmass progressing
 - Consider actively participating!
 - Proposals to host such events at BNL (virtually for now) are encouraged

It is exciting time to develop future for high energy physics!