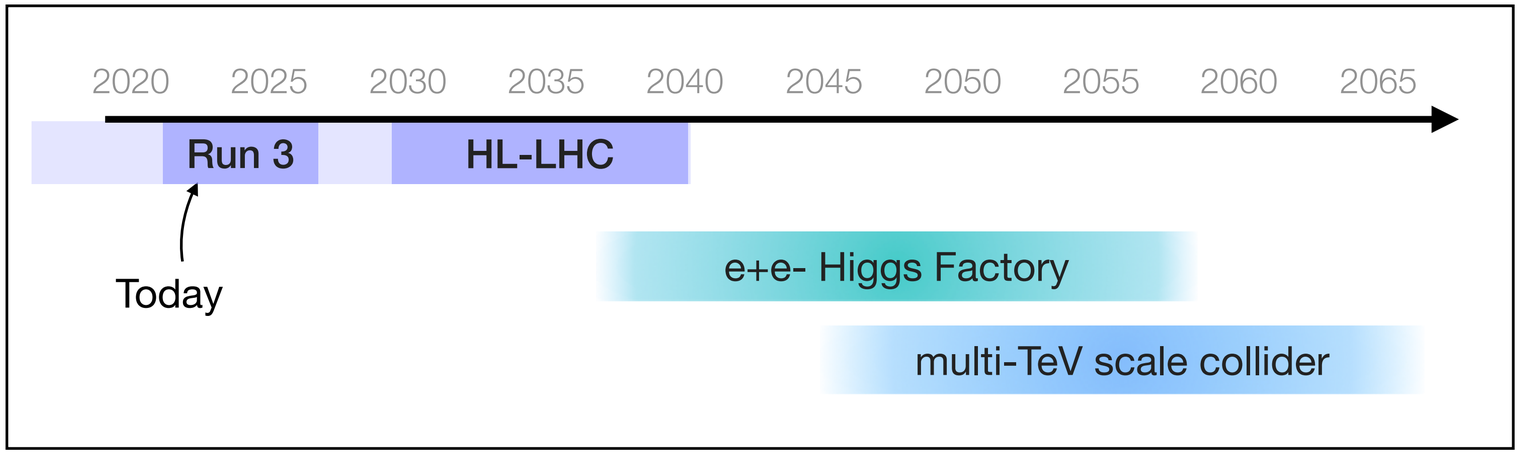
Accelerating Discovery at the Energy Frontier

EF Report

We agree on the physics case

The Higgs is central to most fundamental questions in particle physics

→Cannot uncover the microscopic nature of the Higgs and understand electroweak symmetry breaking without future high energy colliders



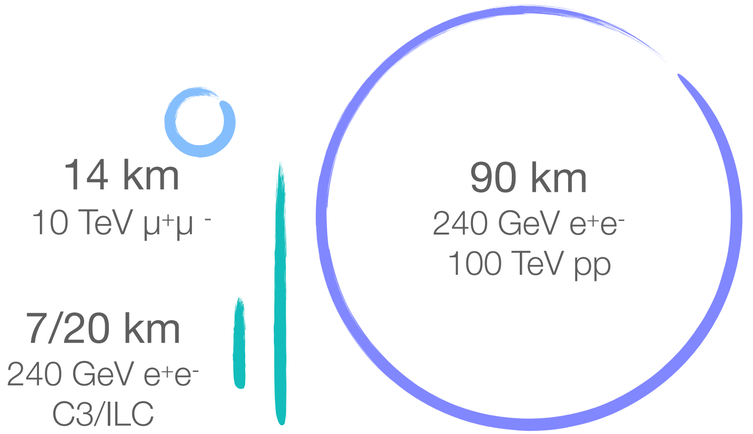
We also want

- Compact
- Power-efficient
- Cost-effective
- Synergistic
- Timely

Realizing this vision is impossible without accelerator physicists
We urgently need to grow the US accelerator workforce

A robust collider R&D program

We need a success oriented R&D program to set the stage for future discoveries and inspire the next generation of physicists

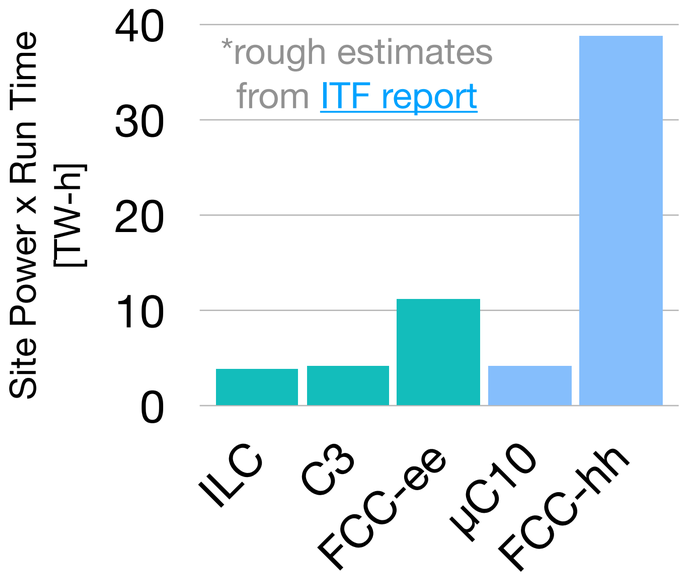


1. Develop key technologies & full design concepts
   - In close partnership with experimentalists and theorists
   - Complementary to GARD
   - Multifaceted and selective to converge on viable options

2. Investigate US specific options and areas of focus
   - Multiple host-sites can reduce gaps between projects & grow workforce
   - Collaboration & competition with global partners → strongest science

3. Emphasize compact & power-efficient options
   - Essential step towards sustainability as advocated by ITF
   - Attract new talent with opportunities for innovation!

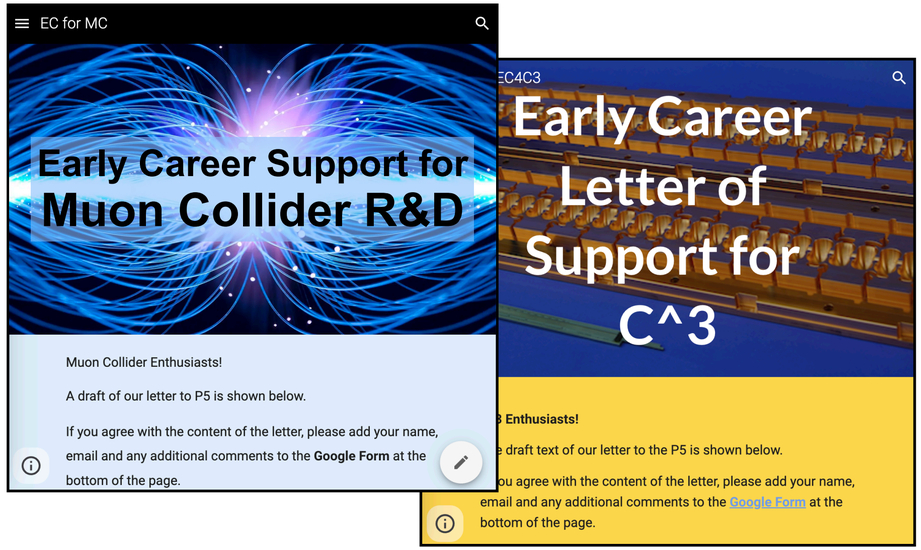
4. Explore synergies with other areas of physics & industry
   - Dark matter, neutrino physics, flavor, etc



A robust accelerator workforce

We need new training opportunities to leverage early career excitement and grow the US accelerator workforce

Hundreds of signatures for compact collider options!



1. Strengthen existing programs
   - USPAS, DOE Traineeship, Center for Bright Beams
2. Create & support new accelerator PhD programs
   - Enable current faculty to transition into accelerator physics
   - Co-advise in close partnership with national labs
   - Enable labs to support more trainee students
3. Support new outreach & recruitment efforts
   - Colloquia/public lecture series at universities
   - Fellowships to recruit & train postdocs from adjacent fields
   - Events/classes to recruit undergraduates

Give early career physicists the opportunity to make future colliders a reality!
Modest ask: support R&D and workforce development so we can make the big ask at the next P5 with progress in hand