Muon Collider Coordination Committee

NFMCC Collaboration Meeting

Lawrence Berkeley National Laboratory

January 25, 2009

Harold G. Kirk
Brookhaven National Laboratory

Recommendation

Coordination of MCTF with NFMCC is essential to ensure that the muon collider effort makes best use of limited resources, avoids duplication, and shares infrastructure, codes, and results.

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MCCC Mandate

Formed at the request of MCOG (Muon Collaboration Oversight Group----S. Holmes, J. Siegrist, S. Vigdor)

Purpose: Coordinate the NFMCC and MCTF to assure minimal duplication and optimal effort in U.S. Muon R&D

MCCC Membership

Leadership of the NFMCC and MCTF

NFMCC: A. Bross, H. Kirk, M. Zisman

MCTF: S. Geer, V. Shiltsev

The P5 Report

P5 report recommends that the U.S pursue:

"… R&D for alternative accelerator technologies, to permit an informed choice when the lepton collider energy is established."

MCCC response:

5-year plan--: Establish a path to enable an informed choice by the year 2013 when the expected convergence of LHC discoveries and measurements of the neutrino mixing angle θ_{13}.
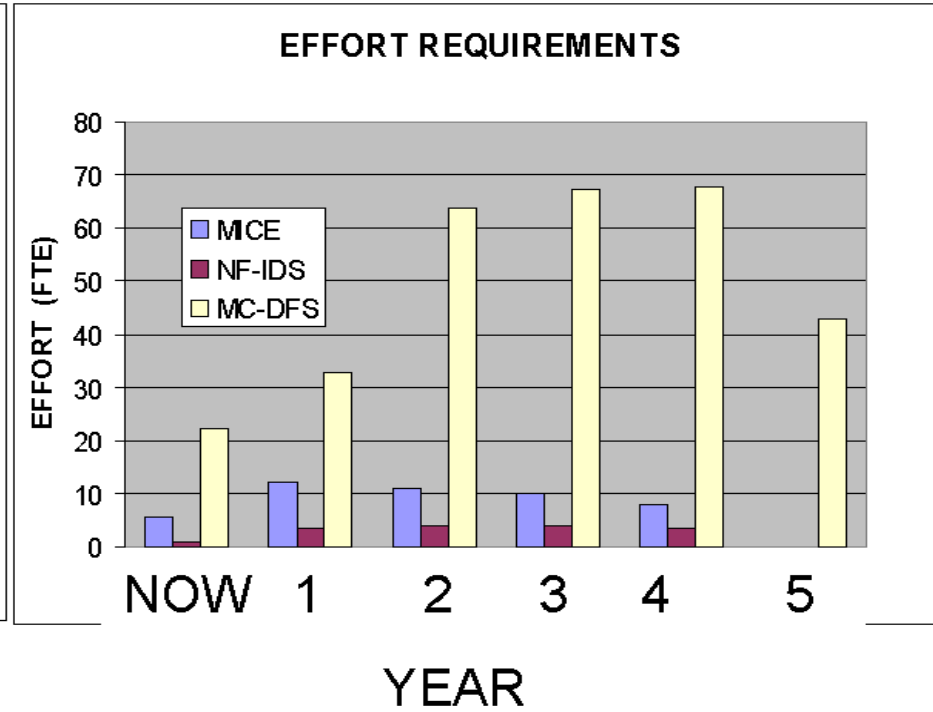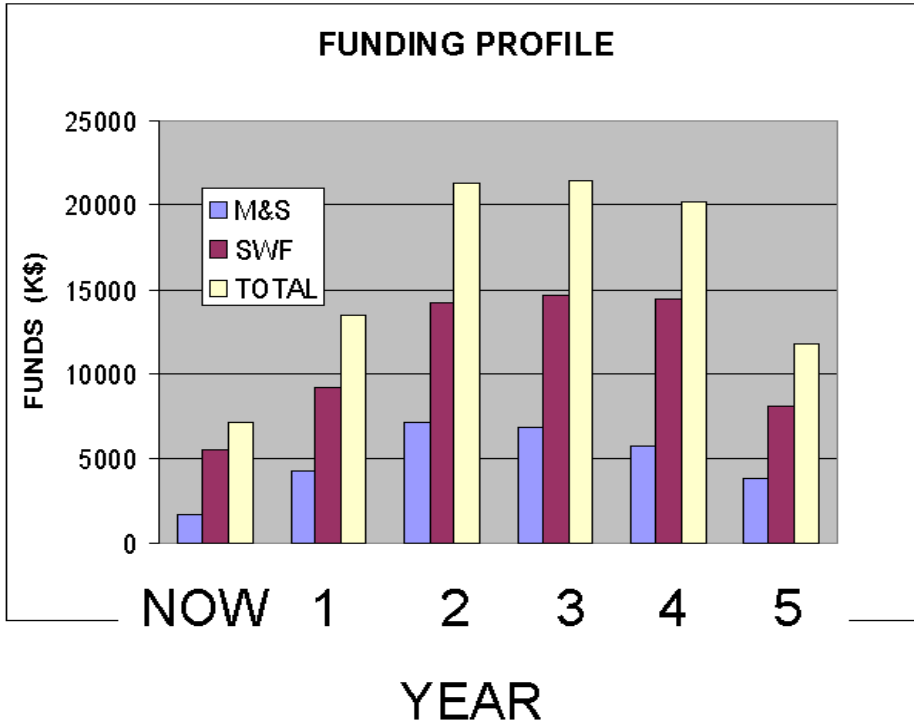
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The 5-Year Plan

Key elements:

● **A Muon Collider Design Feasibility Study (MC-DFS) delivered to the high-energy physics community by 2013**

● **Establish the basis of and make technical choices for the Muon Collider facility**

● **Perform the required R&D to make these technical choices**

● **Establish plans for post-feasibility study demonstration experiments**

● **Participate in the International Design Study for a Neutrino Factory**

Support the successful completion of the MICE experiment
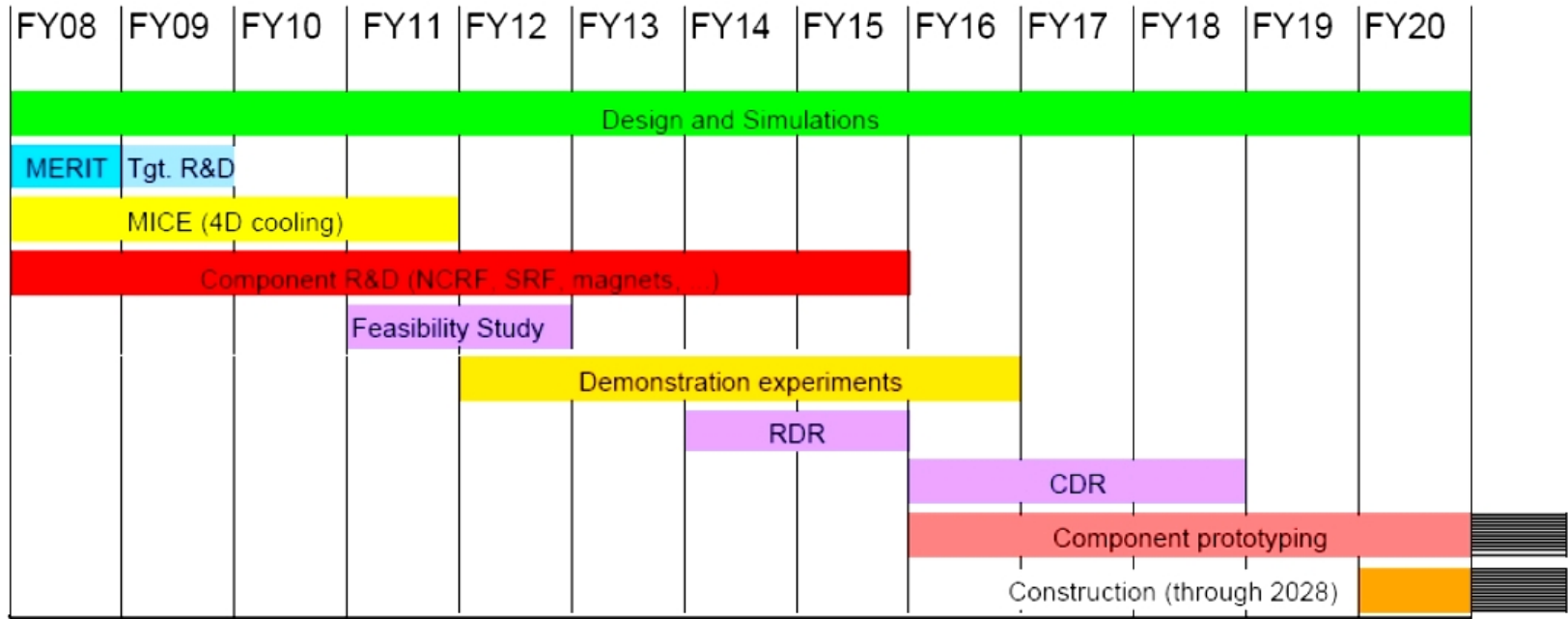
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Required Resources
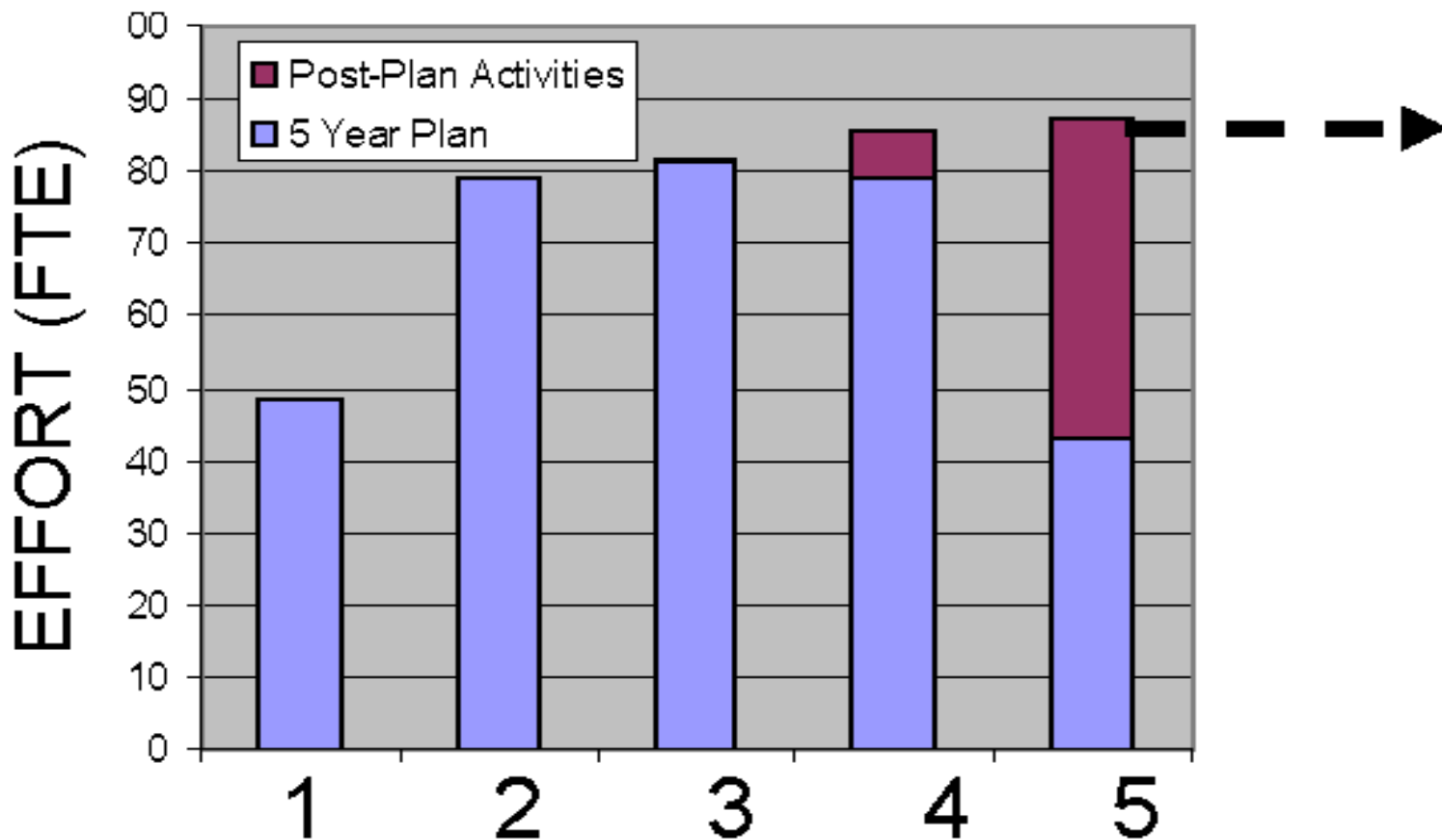
Finally

The last day of our Collaboration Meeting will be devoted to aspects of the 5-year and a discussion of implementation strategies.

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Backup Slides

Palmer's P5 Presentation

| FY08 | FY09 | FY10 | FY11 | FY12 | FY13 | FY14 | FY15 | FY16 | FY17 | FY18 | FY19 | FY20 |

Design and Simulations

MERIT | Tgt. R&D

MICE (4D cooling)

Component R&D (NCRF, SRF, magnets, ...)

Feasibility Study

Demonstration experiments

RDR

CDR

Component prototyping

Construction (through 2028)

▲ CD-0

▲ Choice of staged or direct path

| 8 | 11 | 13 | 20 | 25 | 25 | 25 | 35 | 40 | 40 |

R&D Funds M$/year

- Funding request includes that for Neutrino Factory R&D
- Funding increase $(\approx 3\times)$ needed if Muon Collider is to be credible option by 2012

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The Long-Term Vision