



Final Remarks

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For
MCCC



Year in Review



Review and comment on the R&D progress achieved since the last *MUTAC*
MERIT
MuCool
MICE

Year in Review

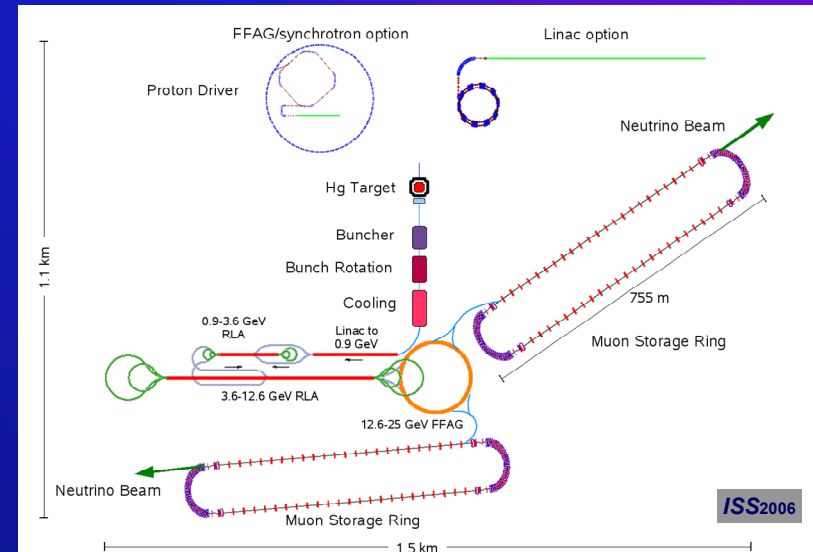
- It has been an **EXTREMELY** productive year for us
 - ◆ MERIT - successful completion of the experiment with unambiguous demonstration of $> 4\text{MW}$ power handling
 - ◆ MICE - First beam, good progress on detector systems and coupling coil
 - ◆ Cooling R&D
 - 19MV/m gradient demonstrated @201 MHz
 - Continue experiments @805 MHz
 - New understanding of B Field effects with extension of modeling of breakdown mechanisms
 - MTA Beam Line Installed
 - HTS conductor R&D launched
 - HCC Model magnet prototyping started



Review and comment on Simulation Group accomplishments and plans
Neutrino Factory design optimization
FFAG acceleration system
International Design Study.
Muon Collider design and technology development programs.

- ◆ ISS was completed (in pre-print) & the IDS has been launched

- NF Baseline has been defined including detector design and physics performance re-assessed



- ◆ MC studies have intensified

- Component design studies (pre-engineering)
 - Cooling
 - Acceleration
 - Simulation - Cooling, Acceleration, Collider ring
 - Beginning new MC Physics and Detector Studies



FY08/09 Funding



Review and give advice on the R&D plans and corresponding budgets for FY08 and directions for FY09.



FY08/09 Funding



- FY 08 (and to the best of knowledge FY09) Funding resources will be applied to
 - ◆ MICE
 - ◆ High-Pressure RF Cell Beam Tests
 - ◆ MuCool
 - ◆ Simulation Studies
 - IDS-NF
 - MC Design
 - ◆ Magnet Design (HCC, Large Magnetic Volumes)
 - ◆ Completing MERIT



The Future

The Planets Will Be In Alignment



Offer comments/advice as appropriate, on longer range strategies for the NFMCC and MCTF



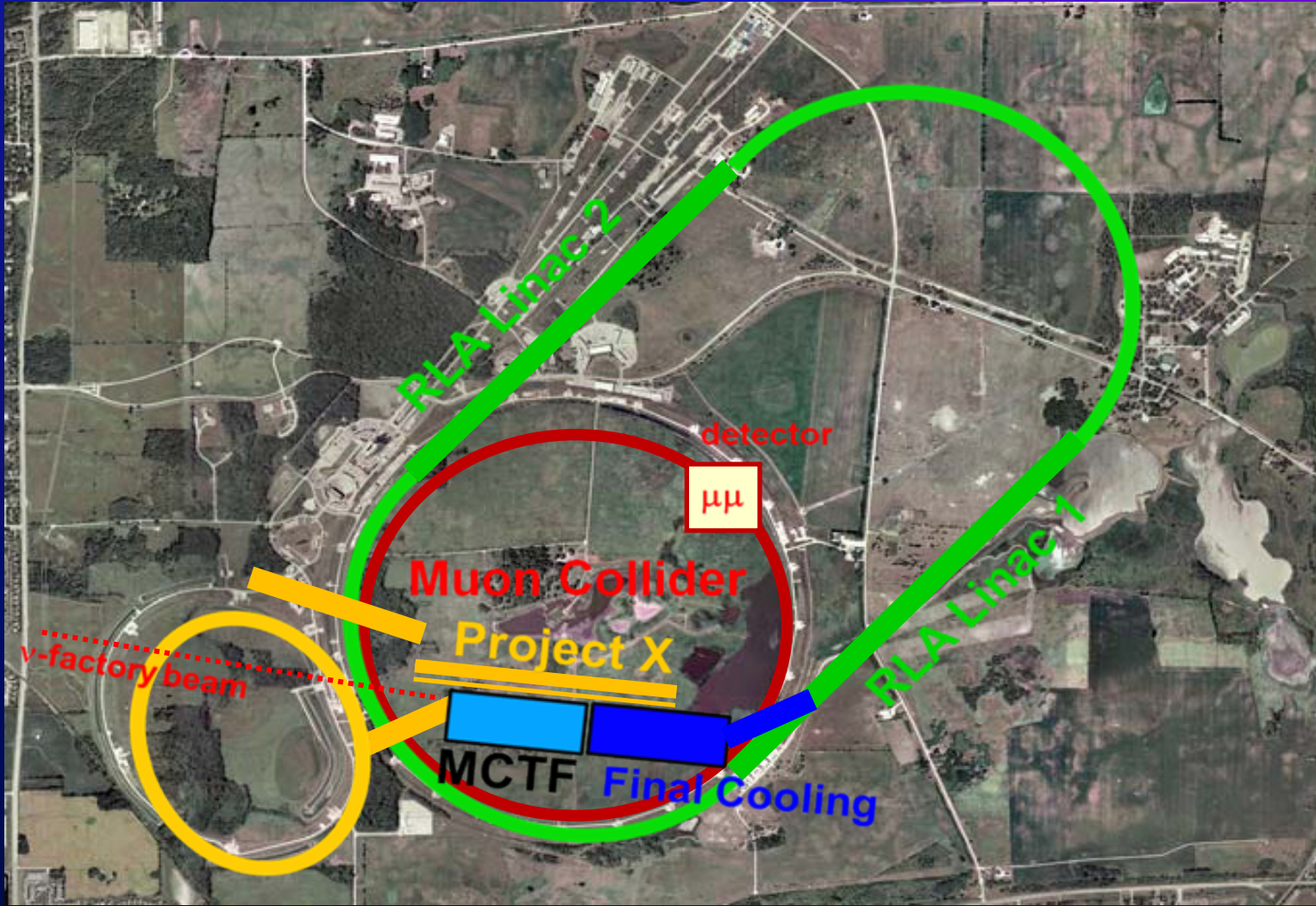
The Future

The Planets Will Be In Alignment



- We believe ~2012 will be a pivotal time in HEP
 - ◆ LHC Physics Results
 - ◆ Neutrino Data from Reactor Experiments
 - Double Chooz
 - Daya Bay
 - ◆ Neutrino Data from Accelerator-Based Experiments
 - MINOS
 - T2K
 - Nova
 - ◆ *Higgs discovery at the Tevatron?*
 - ◆ Machine Studies
 - ILC EDR
 - CLIC CDR
- Many exciting results - Will point us in *Some Direction*
 - ◆ We Don't Know Which One Yet

Fermilab Muon Complex - *Vision*





Muon Collaboration



Aspirational Goals for 2012

- ◆ Simulation Effort
- ◆ Component Development
- ◆ Experimental Studies

Aimed at Delivering

- Completed IDS-NF RDR
- Completed FS for a MC

Road to a Neutrino Factory

- **The ISS**
 - ◆ Made the case for the high-sensitivity programme of neutrino-oscillation measurement
 - **Unprecedented physics reach and precision**
 - ◆ Developed an internationally agreed baseline for the Neutrino Factory accelerator complex
 - ◆ Developed an internationally agreed baseline for the Neutrino Factory neutrino-detection systems
 - ◆ Demonstrated the need to evaluate the performance of cost of the various facilities, and the Neutrino Factory in particular, on the timescale of 2012 (RDR)
- **This is the launch point for the IDS-NF**

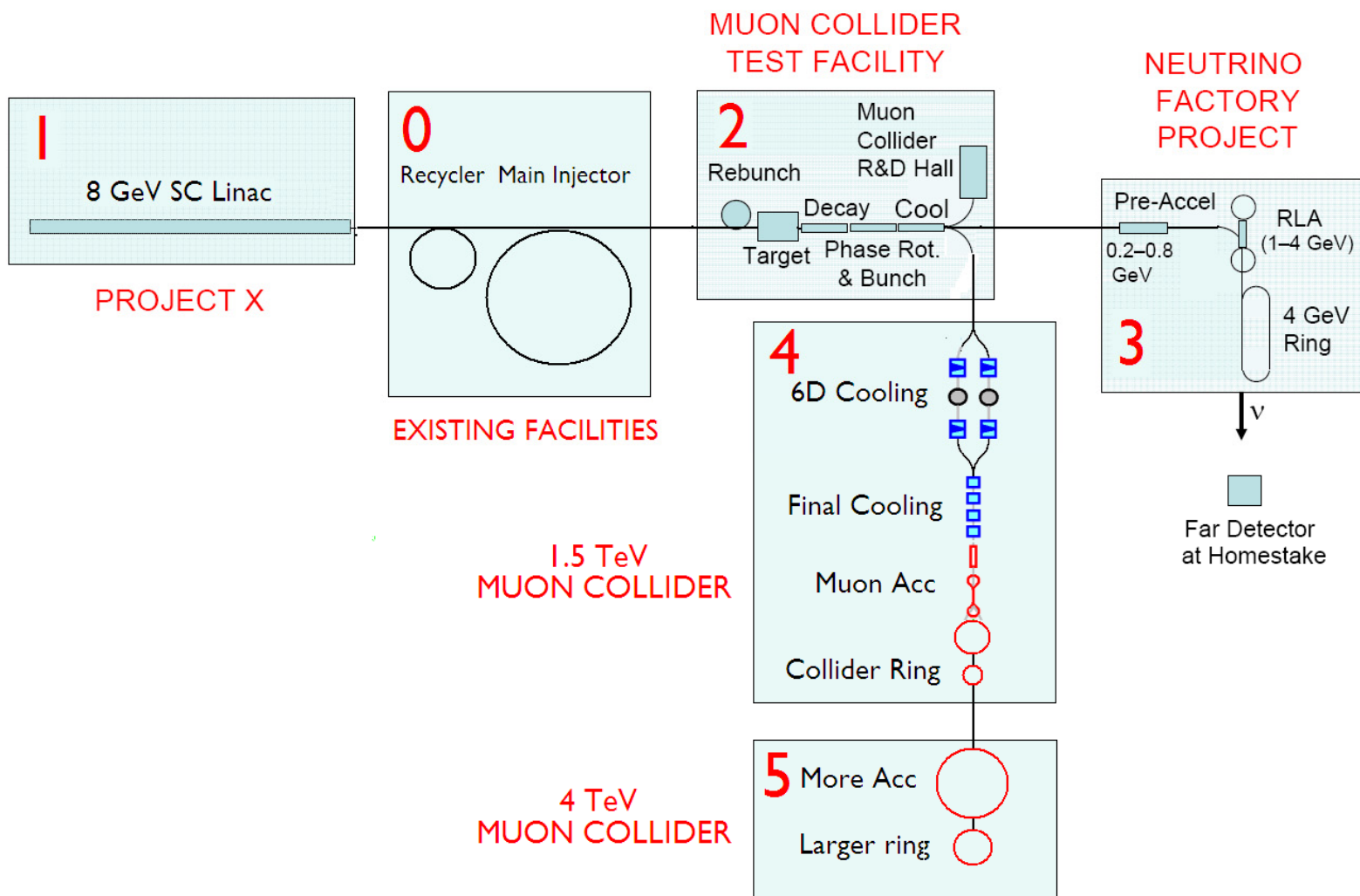
Road to the Muon Collider

- The MC could be the most cost-effective route to the Energy Frontier for a Lepton-Lepton Collider
 - ◆ From Estia's talk you saw its tremendous physics potential
- MC ZDR by 2012 - Ingredients
 - ◆ End-to-End MC design
 - Technology Choice
 - ◆ MICE experiment (successful) results
 - ◆ Key RF questions answered
 - Technology Choice
 - ◆ Prospects of HTS magnets understood
 - ◆ Muon acceleration techniques explored

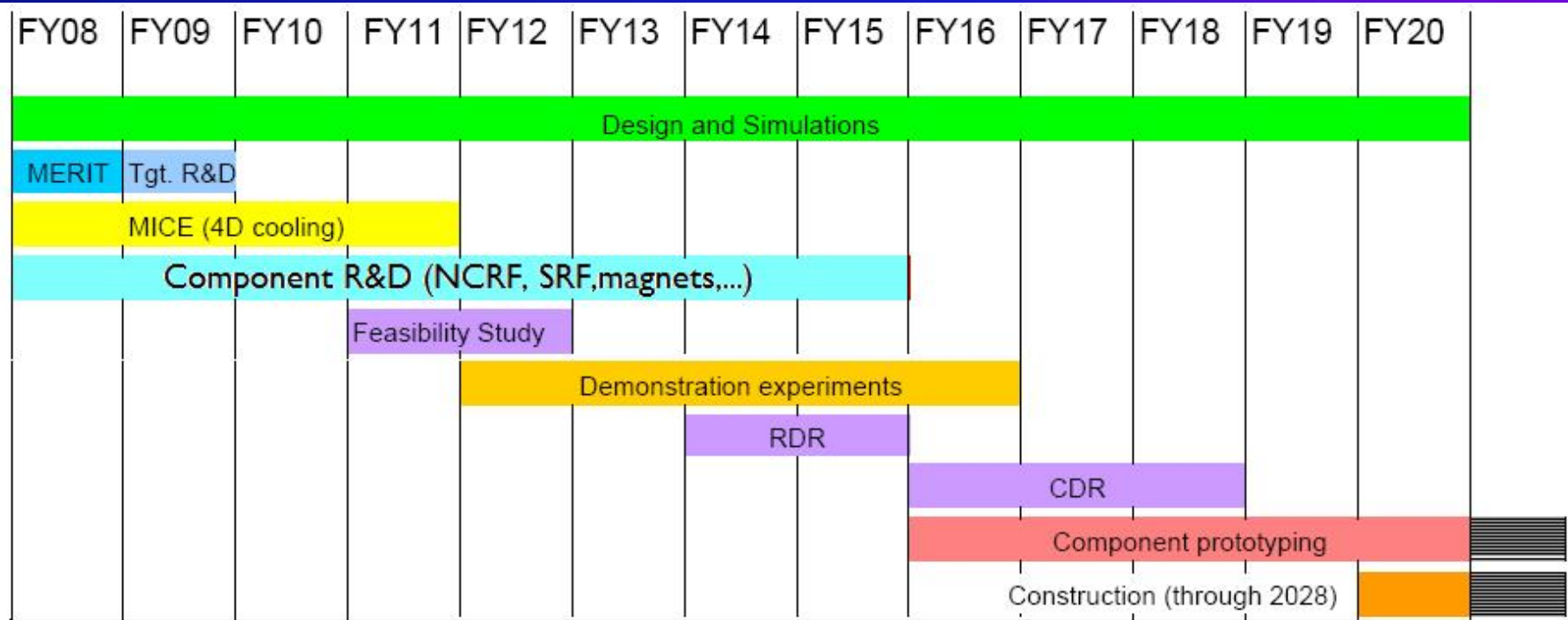
Green-Lighted?

- If we get a Green Light to pursue this R&D path
 - ◆ From Funding Agencies
 - ◆ From Laboratory(ies)
 - ◆ From the User Community
- There is an evolutionary path

Muon Complex Evolution



Timeline and Funding Request To Deliver IDS RDR & MC FS



▲ CD-0

▲ Choice of staged or direct path

8	11	13	20	25	25	25	35	40	40	R&D Funds M\$/year
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- For Over 10 Years we have been studying the Muon Collider and the Neutrino Factory
 - ◆ 1996 Snowmass MC Study
 - ◆ NF Studies 1, 2, 2a/b, ISS
- We have demonstrated that we are
 - ◆ Focused
 - ◆ Well Managed
 - ◆ Able to deliver
- The MCCC is coordinating the development of plans to achieve our 2012 Goals
 - ◆ Preliminary plan Fall 2008
 - ◆ Next MUTAC

If we build it, They will come

