

CLIC ACE

MTP 2010--2014

- The overriding goal during the next years is to exploit the LHC physics potential as well as to bring CERN into a position to bid for the next large project in particle physics. This goal concerns all areas of CERN's activities, from science to infrastructure and user-friendliness, as well as governance and membership status.

MTP 2010--2014

- This MTP is science-driven, firstly by the **LHC**, i.e.:
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- first-stage luminosity upgrade of the LHC through construction of new focusing elements in the interaction regions of ATLAS and CMS and through the construction of LINAC 4; the latter will also reduce the risk to LHC operation by replacing the ageing LINAC 2 which came into operation in 1978;
- the R&D necessary for a second stage of the luminosity upgrade of the LHC if necessitated by physics and/or running experience, i.e. development of the PS2 and of the SPL; these two new accelerators will also greatly reduce the risk to operating reliability associated with the the ageing PS (in operation since 1959) and of the PS booster (in operation since 1976);
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MTP 2010--2014

- This MTP is science-driven thirdly by the preparations for the future of CERN as the main global accelerator laboratory in the following areas:
 - R&D for CLIC;
 - enhanced CLIC – ILC collaboration;
 - linear collider detector R&D in the framework of a world-wide collaboration, mandatory to arrive at a CDR for CLIC, potentially followed by a TDR for the linear collider.

Priorities		Q4	2010				2011				2012				2013				2014				Comments
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
1	LHC Operation assumed	O	O	O	O	O	Sh	Sh	O	O	Sh	O	O	O	Sh	O	O	Sh	Sh	Sh	O	O	Proposal from Chamonix
1	SPS operation and exploitation	O	O	O	O	O	Sh	O	O	O	Sh	O	O	O	Sh	O	O	Sh	Sh	Sh	O	O	
1	PS Operation and Exploitation	O	O	O	O	O	Sh	O	O	O	Sh	O	O	O	Sh	O	O	Sh	Sh	Sh	O	O	
1	Booster Exploitation and Operation	O	O	O	O	O	Sh	O	O	O	Sh	O	O	O	Sh	O	O	Sh	Sh	Sh	O	O	
1	Source/LINAC2 op and exploitation	O	O	O	O	O	Sh	O	O	O	Sh	O	O	O	Sh	O	O	Sh	Sh	Sh	Sh	Sh	
1	LHC 3-4 magnet repair for spares		C	C	C	C																	
1	Consolidation all accelerators	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
2	LINAC4 assumed	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	Sh	Sh	Sh	O	O	Completion delayed by one year
2	Inner Triplets assumed	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	Sh	Sh	Sh	O	O	Delayed (1y) due to S34 repair
1	AD assumed	Sh	Sh	O	O	O	Sh	O	O	O	Sh	O	O	O	Sh	O	O	Sh	Sh	Sh	O	O	2.4MCHF consolidation granted
1	AEGIS		C?	C?	C?	C?		O?	O?	O?		O?	O?	O?		O?	O?				?	?	RB to confirm approval
1	ELENA						??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	Pending Diversity workshop
1	CNGS	Sh	Sh	O	O	O	Sh	O	O	O	Sh	O	O	O	Sh	O	O	O	Sh	??	??	??	4.5. 10^19/y for 5 y (committed)
1	East Hall (PS)	Sh	Sh	O	O	O	Sh	O	O	O	Sh	O	O	O	Sh	O	O	O	Sh	??	??	??	
1	ISOLDE (REX)	Sh	Sh	O	O	O	Sh	O	O	O	Sh	O	O	O	Sh	O	O	O	Sh	??	??	??	
1	nToF	Sh	Sh	O	O	O	Sh	O	O	O	Sh	O	O	O	Sh	O	O	O	Sh	??	??	??	
1	North Area (Compass etc)	Sh	Sh	O	O	O	Sh	O	O	O	Sh	O	O	O	Sh	O	O	O	Sh	??	??	??	
2	CAST/OSQAR	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	
2	CTF3 Operation	O		O	O	O	O	O	O?	O?	??	O?	O?	O?	??	O?	O?	O?	??	??	O?	O?	paid by CLIC project funds
2	CLIC/ILC	St	St	St	St	St	St	St	*St?	St?	Td?	Td?	Td?	Td?	Td?	Td?	Td?	Td?	Td?	Td?	Td?	Td?	Proposal to shift end 2010 to mid 2011
2	Collimation Phase 2	St	St	St	St	St	St	St	St	St	C?	C?	C?	C?	C?	C?	C?	C?					Feedback needed from Ralf Assmann
2	PS2 Study	St	St	St	St	St	St	St	St	St	St	St	*										End 2011, work finished, write up 1/2012
2	PS2 Construction														C?	C?	C?	C?	C?	C?	C?	C?	
2	SPL (LP)	St	St	St	St	St	St	St	St	St	St	St	*										End 2011, decision mid 2012 ? TDR or C
2	SPL Construction														C?	C?	C?	C?	C?	C?	C?	C?	
3	HIE ISOLDE																		C?	C?	C?	C?	Pending Diversity workshop
3	High Field Quadrupoles R&D	St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	
3	Medical Applications		St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	
3	Radiation Facilities (HiRadMat)						??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	
			O	Operation			C	Construction				Sh	Shutdown			St	Studies						
			O?					* Council decision															

Physics beyond 2009

Beyond 2009

- LHC results will indicate the way to proceed at the energy frontier
- hope for first discoveries at LHC around 2010/12
- T2K, D-Chooz...will have first results on (limits of) Θ_{13} around same time scale, as input to the roadmap for neutrino physics
- R&D on new projects ongoing world wide

→ time window for decision on next project(s) 2010-2012

Physics beyond 2009

Strategy and Objectives for CERN (I)

1) Full exploitation of the LHC physics potential
(positive SPC statement concerning sLHC)

→ Phase I

LINAC4 and Inner Triplet construction

ready for earliest installation 2012/13 **now 2013/2014**

→ Phase II

preparations (R&D) for improvement/consolidation of injector chain,
in particular PS2 and SPL

to be ready for decision around 2011/2012 **now mid 2012**

→ also other applications besides LHC possible

Important: international collaboration

Physics beyond 2009

Strategy and Objectives for CERN (II)

2) Preparations for a Linear Collider

→ CLIC study and increasing CLIC/ILC collaboration

aims: (different types of) design reports 2010/12

now CDR mid 2010 for work on TDR to start 2011

3) Detector R&D for energy frontier experiments

sLHC Detector R&D (within PH LHC teams)

LC Detector R&D Project (in PH)

4) Excellent non-LHC accelerator based program beyond 2011

strategy workshop April/May

5) Closer cooperation with astroparticle physics

Important: international collaboration

Global Collaboration

Clear message in CERN Council Strategy Document 2006 :

Future major facilities in Europe and elsewhere require collaborations on a global scale; Council, drawing on the European experience in the successful construction and operation of large-scale facilities, will prepare a framework for Europe to engage with the other regions of the world with the goal of optimizing the particle physics output through the best shared use of resources while maintaining European capabilities.

→ European sessions of Council on a regular basis

BUT

- We have severe manpower shortages to carry out all the work we have on our plans
- We will need to get increased resources (?) or prioritize our plans (delays?)
- We will rely heavily on recommendations made by advisory committees like this one
- I am looking forward to the report of Tor on your findings at the CLIC/CTF3 collaboration meeting at the end of the week

Thank you for your help