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ORGANISATION EUROPÉENNE POUR LA RECHERCHE NUCLÉAIRE
CERN EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

Appendix to CERN/FC/5450Rev

Following questions during the Scientific Policy Committee meeting on 24 August 2010, the Management has prepared this appendix with additional information (in yellow) concerning the CLIC and High Field Magnets Fact sheets.

24. CLIC / Linear Collider (old fact sheet 16.a)

Goal	<p>Design of a e⁺/e⁻ multi-TeV Linear Collider based on a novel Two Beam Accelerator scheme and address all feasibility issues documented in a draft CLIC Conceptual Design Report (CDR) by 2011. A test facility (CTF3) is built and run by a multi-lateral collaboration of 34 institutes providing additional (M&P) resources. Due to reduced funding, the possible Technical Design report is postponed to 2020.</p> <p>Develop a close collaboration with the International Linear Collider (ILC) based on RF Superconducting Structures for a LC in the TeV energy range aiming at:</p> <ul style="list-style-type: none"> - an optimum use of resources, - developing by the CLIC and the ILC teams a set of complementary Linear Collider technologies in preparation for the next HEP facility best adapted to the favoured Physics scenario based on LHC physics results as soon as they will become available, - fostering a common Linear Collider Community.
Approval	Accelerated CLIC R&D by CERN Council in 2004
Start date	July 2004, Rome
Costs	<p>Total from 2004 to 2010: 112.1 MCHF.</p> <p>Spent from 2004 to 2007 = 56 MCHF (24.9 MCHF Materials + 31.1 MCHF Personnel).</p> <p>Spending from 2008 to 2010 = 56.1 MCHF (27 MCHF Materials + 29.1 MCHF Personnel).</p> <p>The amounts earmarked for 2011 beyond were kept constant instead of increasing as presented in June which will significantly delay the possible achievement of the Technical Design Report .The collaboration is invited to increase external its contributions to compensate as much as possible for the reduced resources from CERN.</p>
Running conditions	CLIC/CTF3 Collaboration of 34 Institutes from 19 countries organised like a physics experiment with members represented in a Collaboration Board and by a Spokesperson. The contribution of each member is described in a specific MoU addendum with a total external contribution of 15 MCHF and 110 FTE.
Competitiveness	Collaborative competition with the International Linear Collider (ILC) based on RF Superconducting Structures for a LC in the TeV energy range. CLIC design complementary to ILC by extending LC into the multi-TeV energy range. A constructive collaboration between CLIC and ILC has been launched with 8 common working groups on subjects with strong synergies between the two studies. This collaboration is evolving towards developing common strategy and synchronised scenarios concerning Linear Colliders. Both CLIC and ILC workshops will be joined in a common Linear Collider Workshop hosted by CERN in October 2010.
Organisation	CLIC nucleus study team hosted at CERN and reporting to the CLIC/CTF3 Collaboration Board with representatives of all collaborating institutes. Distribution and follow-up of work packages by the CLIC Steering Committee to CERN groups and external collaborators. Overall organization under the Directorate for Accelerators and Technology .
Risks	Failure to address all CLIC technical issues by 2011.
2011 targets	<p>Complete CLIC Test Facility (CTF3) installation to address major CLIC technical issues and demonstrate performances of accelerating structures with nominal parameters (100 MV/m at 10-7 breakdown rate) and fully equipped.</p> <p>Complete final version of Conceptual Design of a 3 TeV Linear Collider in stages for presentation at CERN council mid 2011.</p> <p>Develop plans for a future phase of CLIC Technical Design for proposal at CERN by 2011</p>
Future prospects	Technical Implementation Report in 2016, followed by a full Technical Design Report later.
Longer term	Possible construction of a Multi-TeV Linear Collider based on CLIC technology once a TDR will have been completed
Specific Health and Safety issues	High beam power and radiation issues.
CERN contribution	<p>Overall coordination of the CLIC study and CTF3 project.</p> <p>Host of the CLIC/CTF3 Collaboration.</p> <p>Validation, distribution and follow-up of the work-packages.</p> <p>Contribution to the ILC design through the CLIC/ILC collaboration.</p>
CERN budget for 2011	Personnel: 14.2 MCHF, Materials: 12.9 MCHF.

Additional information concerning CLIC on p.41 of the MTP2010 Rev (CERN/FC/5450Rev):

The foreseen additional resources have been taken out and the project has been stabilized at around 30 MCHF per year, so this heading is reduced by some 106 MCHF compared to the June MTP. This leads to a postponement of the CLIC Technical Design Report (TDR) and its replacement in 2016 by a CLIC Technical Implementation Report, unless the shortfall can be compensated by external resources.

Additional information concerning High Field Magnets on p.41 of the MTP2010 Rev (CERN/FC/5450Rev):

High field magnets (High energy LHC, HE-LHC): The R&D and prototyping for the high field magnets aims on focused research of Nb₃Sn superconductors to allow for the construction of high field dipole and quadrupole magnets which will be necessary for both HL-LHC for new inner triplets and possible HE-LHC at a later stage. The remaining resources from the former NbTi phase 1 quadrupole project were integrated into this heading.