

# *CDR Preparation*

*Why a module review?*

- CDR-what?
- CDR-when?
- why module review?
- Summary

## **Present layout of CDR**



**Vol1: Executive Summary: target 20 pages, value estimate**

**Vol2: Physics at CLIC**

write-up progress will depend on LHC results; presently we use the report from 2004

**Vol3: The CLIC accelerator and site facilities**

**Vol4: The CLIC physics detectors**

→ [https://edms.cern.ch/file/1001132/CLIC\\_CDR-LAYOUT\\_08.xlsx](https://edms.cern.ch/file/1001132/CLIC_CDR-LAYOUT_08.xlsx)

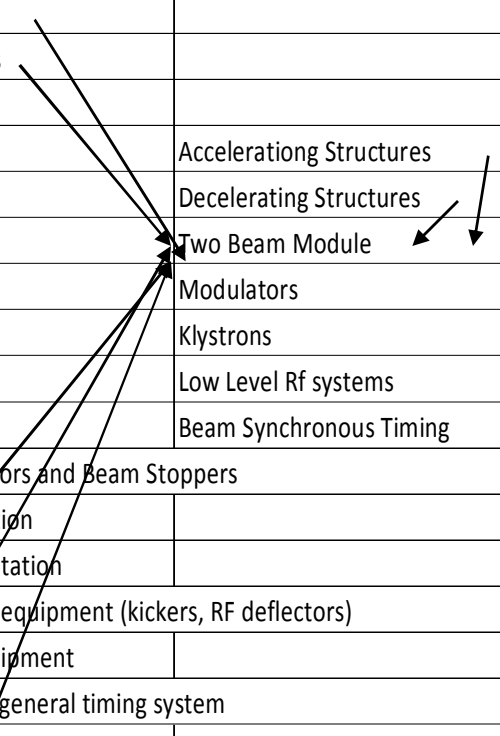
# Basics of CDR



- 3 TeV option for CLIC as baseline for the optimization of the parameters.
- Construction staging starting from the lowest demanded energy (let us say 500 GeV) as indicated by LHC results up to the full 3 TeV machine.
- Parameter changes and optimization for the “500 GeV” machine plus additional consequences for later energy upgrades in a separate chapter
- 4 volumes
- Volume 3:
  - Detailed description of the CLIC machine most critical subjects
  - Description of the physics and beam dynamics of all machine components following the order in the CLIC PBS.
  - Technology chapters grouped together by disciplines.


# Present layout of technical systems part

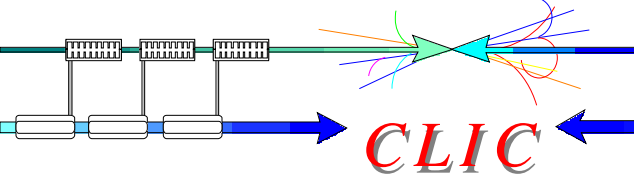
subject	details	author
<b>3) technical systems detailed descriptions; organized by technologies</b>		
	e- source	Louis Rinolfi
	e+ source	Louis Rinolfi
	e+ polarization	Allesandro Variola
	Magnet systems	Michele Modena
	Vaccum Systems	Miguel Jimenez et al.
	RF systems	
	Accelerating Structures	Walter Wuensch
	Decelerating Structures	Igor Syrathev
	Two Beam Module	Germana Riddone
	Modulators	Carlos de Almeida Martins
	Klystrons	Erk Jensen
	Low Level Rf systems	Erk Jensen et al.
	Beam Synchronous Timing	Erk Jensen et al.
	Dumps, Collimators and Beam Stoppers	Roberto Losito
	Machine Protection	Michel Jonker
	Beam Instrumentation	Rhodri Jones/Alan Burns
	Beam Transport equipment (kickers, RF deflectors)	Volker Mertens et al.
	RF feedback equipment	Giulio Morpurgo
	Control System, general timing system	Eugenia Hatziangeli et al.
	Stabilization equipment	Claude Hauviller
	Power Converters and DC network	Andre Beuret



## CDR- why end 2010?

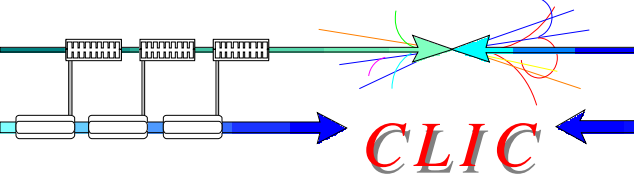
- “window of opportunity” after first LHC results
- CDR = starting point for an increase in the CLIC study resources for TDR phase
- Motivation to show CLIC feasibility or have the R&D path for feasibility demonstration laid out
- Timing for CDR is part of the CERN medium term plan as agreed by council in June 2009 → next page

		2010				2011				2012				2013				2014				Comments	
Priorities		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3		
1	LHC Operation assumed	O	O	O	O	O	Sh	Sh	O	O	Sh	O	O	O	Sh	O	O	O	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	O	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	O	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	O	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	O	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	O	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)						??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	
6		O					C								Sh				St				
		O?																					* Council decision



## Sort of CDR planning

Q3/2009	Freeze Baselines	Feasibility R&D, Extra Studies, Finalization of concepts			Abstracts and keywords from authors	
Q4/2009				Parameter Rebalancing		
Q1/2010			Feedback from Cost WG			
Q2/2010						Progressive Redaction
Q3/2010						
Q4/2010						



## *Several reviews in preparation of CDR*

- Following the above planning, until end 2010 we want to freeze the major parameter and hardware baselines:  
in order to:
    - Continue all detailed studies on feasibility within a coherent context
    - Have time to do the individual designs
    - Be able to evaluate the cost
  - Further “completely new options” will probably not be considered in the CDR, but their follow up will be left for the TDR phase (2011-2016)
  - 1) beam instrumentation review: June 2009
  - 2) module review: September 2009
- proposed:
- 3) FF review: winter 2009/2010
  - 4) machine protection: spring 2010
  - 5) stabilization: summer 2010