



Recent news from CLIC C&S WG and CLIC-ILC WG on General Issues

Ph. Lebrun

CLIC Project Meeting
1 June 2011



CLIC Cost & Schedule WG

Mandate, Membership, Reporting line



- **Mandate**
 - Establish and optimize the cost of the CLIC complex at the nominal colliding beam energy of 3 TeV, as well as that of an optional first phase with a colliding beam energy of 500 GeV
 - Define and optimize the general schedule for the 3 TeV and 500 GeV projects defined above
 - Estimate the electrical power consumption of the 3 TeV and 500 GeV projects defined above
 - Identify possible modifications of parameters and/or equipment leading to substantial capital and/or operational cost savings, in order to define best compromise between performance and cost
 - Develop collaboration with ILC project on cost estimate methodology and cost of common or comparable systems, aiming at mutual transparency
 - Document the process and conclusions in the CDR
- **Membership**
 - CLIC PBS domain/sub-domain coordinators
 - J. Turunen
- **Reporting line**
 - CASC
- **Next milestones**
 - Define for which CLIC sets of parameters the value estimates should be published
 - Organize peer review prior to publication in CDR Vol.3



CLIC Cost & Schedule WG

Situation of CLIC value estimate



	Domain resp.	Cost estimate	Level of estimate	Update available	Estimate method	Comments	
1. Main Beam Production							
1.1.	Injectors	L. Rinolfi	Yes	3		Scaling with existing machine	Needs confirmation
1.2.	Damping Rings	Y. Papaphilippou	Yes	3-4	After June	Mainly analytical	Small details missing
1.3.	Beam transport	L. Rinolfi	Yes	3		Scaling with existing machine	Needs confirmation
2. Drive Beam Production							
2.1.	Injectors	JB Jeanneret	Yes	4-5	Done	Analytical	
2.2.	Frequency Multiplication	JB Jeanneret		4		Analytical	
2.3.	Beam transport	JB Jeanneret		4		Analytical	
3. Two-beam accelerators							
3.1.	Two-Beam Modules	G. Riddone	Yes	5-6	Done	Analytical	
3.2.	Post decelerators	JB Jeanneret	Yes	4	Done	Synthetic	
4. Interaction Region							
4.1.	Beam Delivery Systems	L. Gagnon	Yes	4		See L. Gagnon's presentation in #33 CSWG	Still missing some parts (e.g. dumbs)
4.2.	Experimental Area	L. Gagnon	Yes	4-5			
4.3.	Post-collision Line	L. Gagnon	Yes	4			
5. Infrastructure and Services							
5.1.	Civil Engineering	J. Osborne	Yes	5	Done	Analytical/synthetic	2010 estimate
5.2.	Electricity	J. Osborne	Yes	2		Analytical/synthetic	2011 estimate
5.3.	Survey and Alignment	J. Osborne	Yes	2	Done	Analytical/synthetic	2011 estimate
5.4.	Fluids	J. Osborne	Yes	3	Done	Analytical/synthetic	2011 estimate
5.5.	Transport / Installation	J. Osborne	Yes	2		Analytical/synthetic	The old estimate from 2007
5.6.	Safety	J. Osborne	Yes	2		Analytical/synthetic	The old estimate from 2007
6. Machine Control and Operational Infrastructure							
6.1.	Machine Control Infrastructure	M. Jonker	Yes	3-4		Scaling	
6.2.	Machine Protection	M. Jonker	Yes	3-4		Scaling	Masks and dumps missing
6.3.	Access Safety & Control System	M. Jonker	Yes	2		Analytical	
6.4.	Technical Alarm System	M. Jonker	Yes	2		Analytical	



CLIC Cost & Schedule WG

CLIC electrical power consumption



E_CM	TeV	TeV	TeV	'cosphi'	network losses
	0.5	1.5	3		
	[MW]	[MW]	[MW]		
MB injectors magnets	1	1	1	0.92	0.05
MB injectors RF	24.3	16.5	16.5	0.98	0.05
MB PDR+DR magnets	5.1	5.1	5.1	0.92	0.05
MB PDR+DR RF	17.6	17.2	17.2	0.98	0.05
MB Transport	16.5	16.5	16.5	0.92	0.05
MB Long Transport Line	0.1	0.3	0.5	0.92	0.05
DB injectors Sol+Mag	3.4	3.4	6.8	0.92	0.05
DB injectors RF	66.8	127.6	255.2	0.98	0.05
DB FM	9.3	9.3	18.5	0.92	0.05
DB transport to tunnel	0.1	0.1	3.0	0.92	0.05
DB transport in tunnel	8.1	19.6	39.1	0.92	0.05
DB Long Delay Line	2.0	2.3	0.0	0.92	0.05
TBM MB	1.0	2.5	4.9	0.85	0.05
TBM DB	2.8	6.7	13.3	0.85	0.05
Post Decel	2.2	5.3	10.6	0.92	0.05
BDS	0.9	1.2	1.6	0.92	0.05
Interaction area	16.3	16.3	16.3	0.92	0.05
Dump Line	1.1	1.7	3.3	0.92	0.05
Instrum. Main tunnel	2.1	5.0	10.0	0.60	0.05
Instrum. other	3.0	3.0	4.0	0.60	0.05
Control Main tunnel	0.4	1.0	2.0	0.60	0.05
Control other	0.8	0.8	1.0	0.60	0.05
Experiment	15.0	15.0	15.0	0.95	0.05
Cooling + Ventilation	33.1	45.9	76.4	0.95	0.05
TOTAL [MW]	233	323	538		
TOTAL Network [MW]	245	339	565		
TOTAL Network [MVA]	256	355	591		

B. Jeanneret



CLIC-ILC WG on General Issues

Mandate, Membership, Reporting line



- **Mandate**
 - Promoting the Linear Collider
 - Identifying synergies to enable the design concepts of ILC and CLIC to be prepared efficiently
 - Discussing detailed plans for the ILC and CLIC efforts, in order to identify common issues regarding siting, technical items and project planning.
 - Discussing issues that will be part of each project implementation plan
 - Identifying points of comparison between the two approaches to the linear collider
- **Membership:**
 - CLIC: Ph. Lebrun (co-chair), K. Peach, D. Schulte
 - ILC: E. Elsen, M. Harrison (co-chair), K. Yokoya
- **Reporting line**
 - The conclusions of the working group will be reported to the ILCSC and CLIC Collaboration Board with a goal of producing a joint document.



CLIC-ILC WG on General Issues Activities



- Interim Report on activities 2010
- Address remaining elements of the charge by 2012
 - Issues part of project implementation plans
 - Siting
 - criteria and constraints
 - CLIC specificities
 - Preparation of technical procurement
 - Considerations of mass producing hi-tech components
 - QA, industrial follow-up
 - Decision point for the LC
 - Points of comparison between the two approaches
 - Physics reach
 - Maximum energy: in relation to first LHC results
 - Energy staging and upgradeability
 - Luminosity (incl energy spread & background) & polarization
 - Lower-energy operation, energy fine scans
 - Accelerator technology
 - Explore (& compare ?) strength/weaknesses of the two approaches
 - Comparative reliability
 - Future technology development?
 - Cost & power estimates
 - Topical joint WGs
 - Follow-up of existing ones
 - New topics?
 - RF power sources
 - Surface cleanliness in an industrial production
 - Beam instrumentation