Project Managers' Report

August and September, 2010

ILC Global Design Effort

Project
Managers
Report

In August and September, 2010, we report progress with the ILC-GDE R&D activities in TDP-2, (which started in August), as follows:

Major events and progress in August, 2010:			
Technical Area	Event and/or Progress	held/hosted	Days
SCRF	- TAGL WebEx meeting	webex	Aug. 25 Sept. 22
CFS/GS	- CFS Requirement Meeting - TAGL webex meeting	SLAC	Aug. 2 – 3 (Aug. 4) Sept. 1 Sept. 29
AS	- TAGL webex meeting		Aug. 11
PM / AD&I	- TDP R&D Plan Rel. 5 issued - AD&I webex meeting, preparation for BAW1		Aug. 5 Aug. 27
Major events and progress in September, 2010:			
SCRF	- TAGL WebEx meeting		Sept. 22
CFS/GS	- TAGL webex meeting		Sept. 29
AS	- TAGL webex meeting		Aug. 11 (Sept 15)
PM/ AD&I	- Baseline Assessment Workshop 1 - Single tunnel w/ HLRF - Accelerating Gradient - Interim Report Editor Meeting - IWLC-10 convener meeting	KEK	 Sept. 7-8 Sept. 9-10 Sept. 15 Sept. 16 Sept. 17

<u>TD Phase R&D Plan Release 5</u>

TD Phase R&D Plan Release 5 was released by the Director /EC on August 5, and issued as a formal DGE document, as placed as follows:

http://ilc-edmsdirect.desy.de/ilc-edmsdirect/document.jsp?edmsid=*813385

CFS requirements workshop, SLAC, Aug. 2-3

The second workshop on CFS requirements was held at at SLAC (2-3 August) and concluded the survey of the detector requirements, as well as the HLRF (main linacs), electron source, RTML and BDS. It is expected to iterate these requirements at similar workshops in the future as the accelerator design progresses.

BAW-1 (KEK, September 7 – 10)

The first Baseline Assessment Workshop, BAW-1, was held at KEK on the 8-11 September with more than 50 participants. The BAW-1 focused on the Main Linac accelerator gradient issues and single-tunnel design specifically with the proposed HLRF solutions (KCS, DRFS). The workshop information and the summary are found at:

http://ilcagenda.linearcollider.org/conferenceDisplay.py?confId=4593

A key part of the BAW planning was an understanding of the critical issues and associated R&D, and the workshop was prepared by using webex meetings of:

- SCRF ML TAG leaders meeting on 25 August
- 3rd General AD&I meeting on 27 August.

The key deliverable from the BAW-1 process has been written recommendations to the Director/EC on the proposed baseline modifications, as part of the TLCC process, as follows:

ML Accelerator Gradient

We discussed the optimum Main Linac (ML) operational field gradient based on the current status of the global R&D effort and the evaluation of achieving the milestone cavity performance of 35 MV/m, with $Q_0 \geq 8E9$, and a second pass production yield of 56% in the middle of TDP.

As a result of the workshop discussions, we propose keeping our best effort to realize a ML accelerator operational gradient of ≥ 31.5 MV/m with $Q_0 \geq 1E10$, on average, with a gradient spread of not larger than ±20%.

To accommodate the operation of cavities with the proposed range of gradients, additional installed RF power capacity of 10-15% (for 31.5 MV/m ±20%) is required over that stated in the RDR. (The additional overhead will be

smaller if, after further R&D, the gradient spread can be reduced.) This provides adequate power for the statistically likely possibility of a sequence of high-gradient cavities in a given RF unit. It is assumed that this additional cost is more than offset by the cost-effectiveness of accepting a gradient spread (in terms of mass-production yield and its impact on cavity costs).

ML Single Tunnel Design with HLRF solutions of KCS/DRFS/RDR-backup

The proposal to adopt a single tunnel solution for the Main Linac technical systems remains essentially that outlined in the SB2009 report. The primary motivation was and remains a reduction in project cost due to the removal of the support tunnel for the Main Linac. (The service tunnel for the BDS remains.)The original proposal was based on the utilization of two novel schemes for the HLRF:

- Klystron Cluster System (KCS). KCS has been identified as a preferred solution for 'flat land' sites where surface access (buildings) is not restricted
- Distributed RF System (DRFS). DRFS has been identified as being the preferred solution for mountainous region where surface access (buildings) is severely limited.

It is acknowledged that both these schemes require R&D. Having both R&D programs in parallel can be considered as risk-mitigation against one or other of them failing.

The remaining identified issues were the technical feasibility and cost of the HLRF solutions upon which the single-tunnel proposal was based. Two components to successful adoption were identified:

- Definition of acceptance criteria for TD Phase R&D for successful demonstration of one or more of the novel HLRF schemes.
- Inclusion in the designs of a risk-mitigation strategy, whereby a fall-back to the RDR HLRF Technology solution could be adopted, should the R&D on DRSF or KCS not be considered successful. In this context, *RDR HLRF Technology* is defined to mean the technology based on a 10 MW multi-beam klystron (MBK) and a local rectangular waveguide power distribution system directly feeding a few cryomodules.

Two scenarios have been briefly studied for support of an RDR HLRF Technology solution in a single-tunnel:

1. 10MW MBK + Modulator in the single tunnel
2. XFEL-like solution with modulators (10% voltage) accessible in cryo refrigeration buildings/caverns, with long HV pulse-cables feeding 10MW MBKs (via a pulse transformer) in the single tunnel.

Both are considered technically feasible. (The latter is currently being

constructed and will be operated at the European XFEL in 2014.)

It is proposed that these RDR-like single-tunnel solutions be carried forward in parallel with the proposed baseline configurations (KCS, DRFS), in enough detail to support a cost estimate (incremental). This estimate, together with the scope of the re-design work necessary to adopt one of the scenarios, will be factored into the TDR Risk Assessment. The main R&D and AD&I effort will continue to pursue the preferred baseline solutions, KCS and DRFS. In order to reduce the number of scenarios to be supported, we propose to phase out one of the RDR HLRF Technology scenarios within the next six months.

BAW-2 (SLAC, January 18-21, 2011)

At the close of BAW-1, the second BAW, to be held at SLAC, was announced.

TDP Interim report meeting (Sept. 16)

The TDP Interim report is planned to be published in reasonably good time soon after transition of the TDP -1 to TDP-2, planned in August, this year. The first editor's meeting was organized in September, and the general schedule for the interim report as follows:

- Fist drafts from authors: Nov. 5, 2010
- Editing cycle complete: Dec. 17, 2010
- Final draft available: Jan. 28, 2011
- Final report finished (EC sing-off): February 25, 2011
- Publish at ALCPG: March 19, 2011

IWLC convener meeting (Sept. 17)

The International workshop on Linear Collider is to be held at CERN and Geneva CICG from Oct. 18 to 22, as also the first joint collaboration meeting for ILC and CLIC. The agenda is being established as the information given as follows:

https://espace.cern.ch/LC2010/default.aspx

1.0 SCRF

TAGL meetings and minutes are given as follows:
- Aug. 25,
http://ilcagenda.linearcollider.org/conferenceDisplay.py?confId=4764

- Sept. 22

http://ilcagenda.linearcollider.org/conferenceDisplay.py?confId=4799

The S1-Global cryomodule performance test is getting into the high power RF test, in September, as planned, with global participation. One of 9-cell cavities reached 34 MV/m in long pulse operation (1 ms) with RF feedback.

The general activities in SCRF technical area in August and September are summarized in the minutes of SCRF monthly meetings as follows:

1.1 Cavity

Cavity Gradient

Progress on cavity R&D was described for all regions. See the cavity group meeting Indico pages:

- Aug. 24; http://ilcagenda.linearcollider.org/conferenceDisplay.py?confId=4762 for details.

The Cavity group has started the process of defining an measure of emitted radiation, to be used with maximum gradient and cryogenic loss (Q_0) for cavity qualification. This is a technical goal for TDP2.

For the Asian and Americas region, the group reported a lot of activity concerning grinding, either local, for specific defects, or general, as with tumbling. Testing will prove the effectiveness of this technique in the coming months. Importantly, cavity recovery figures prominently in the cavity production cost models under development.

For the European region, the most important event was the formal release of the XFEL cavity order. (summarized at BAW-1). Two companies have each been contracted to produce 292 cavities, (not including pre-series units), until early 2014. The contract for the remaining 20% of the XFEL cavities will be awarded on the basis of performance.

1.2 Cavity Integration and Cryomodule:

Cavity Integration and Cryomodule: S1-Global Progress

S1-Global work has progressed on schedule, and was reported at the S1-Global webex meetings:

- Aug. 31;
http://ilcagenda.linearcollider.org/conferenceDisplay.py?confId=4773

- Sept. 28;
http://ilcagenda.linearcollider.org/conferenceDisplay.py?confId=4809

for details.

As a highlight, the S1-global high level RF test progress in September was reported

by Denis Kostin participating the test from DESY (as of Sept. 30) as follows:

- S1-Global superconducting module test was started at STF/KEK. Module has 8 TESLA-type cavities, 4 KEK cavies (A1..A4), 2 FNAL cavities (C1, C2) and 2 DESY (C3, C4) cavities.
- Cavities A2 and C2 have stuck tuners.
- Klystron 1 used for the cavities C1..C4 test got a modulator (IGBT switch) problem and can not be used for some time, Klystron 2 (A1..A4) will be used to test cavities C1..C4 after switching the waveguides.
- Cavity A2 (MHI-06) was tested. Cavity reached 34.2MV/m with feedback on, without quench, limited by RF power. Initially FE started at 10 MV/m, cavity was conditioned: FE onset is 18 MV/m after conditioning. X-rays measured about 0.01 mGy/min. LFD was 400+200Hz (FT pulse, 34MV/m).
- Cavity C2 (ACC011) was tested with a short FT pulse 540+100us up to 28 MV/m after 5h coupler on-resonance conditioning. Initially X-rays onset was 15 MV/m, it increased to 20 MV/m after conditioning. At the long pulse, 540+1000us cavity was limited by the quench at 23.8 MV/m with low FE. LFD was 300+300Hz (FT pulse, 23MV/m).
- Cavity C3 (Z108) was tested with a short FT pulse 540+100us up to 25 MV/m after 4h coupler on-resonance conditioning. Initially X-rays onset was 12 MV/m, it increased to 18 MV/m after conditioning. At the long pulse, 540+1000us cavity was limited by the quench at 19.5 MV/m with low FE about 2e-3 mGy/min and very high cryogenic losses (about 10 W) – strong Qo drop from 18 MV/m. LFD was 150+250Hz (FT pulse, 18MV/m).
- Cavity C4 (Z109) was tested with a short FT pulse 540+100us up to 29.5 MV/m after 5h coupler on-resonance conditioning. Initially X-rays onset was 12 MV/m, it increased to 18 MV/m after conditioning. At the long pulse, 540+1000us cavity was limited by the quench at 29.5 MV/m with low FE about 4e-3 mGy/min. LFD was 300+500Hz (FT pulse, 28MV/m).
- Next: cavity C1 coupler conditioning / test.

2.0	CFS/Global Systems		Meeting indico pages: 29 September; http://ilcagenda.linearcollider.org/conferenceDisplay.py?confId=4815 and 4 August; http://ilcagenda.linearcollider.org/conferenceDisplay.py?confId=4739
	2.1	CFS	Milestone: the release of the AAA (Japan) report on the Single Tunnel CF design in Mountainous Region. Some of the work surrounding the report was covered in the 30 September Guest Director's Corner ILC Newsline column. Upcoming Milestone: release of the site study for a shallow tunnel construction, the *Dubna Site Investigation Report.* Related material has been published through the European EU – FP7 programme: Siting Study for European ILC Sites. The CFS group has prepared a parallel session agenda for the IWLC2010 meeting, Geneva, 18-22 October. The agenda includes joint sessions with

			the MDI / Physics and Detector group and the main linac integration and HLRF group. The CFS group will also participate in tours of the LHC cryogenic plant and the Mont Blanc highway tunnel between Chamonix, France and Aosta, Italy. The US-CFS team has arranged contracts with engineering design firms in preparation for the TDR. The work is set to begin soon and the group has worked to define and stabilize criteria for the technical systems. Since the adoption process of the new baseline is not fully concluded, this has taken additional time and effort.
	2.2	Low Level RF	LLRF was a focus of the BAW-1 discussion on optimizing linac performance with a gradient spread (+/- 20%). Generally, additional installed RF capacity and additional operational RF power is required. The first of these is estimated in a simple spread sheet developed from the BAW-1 presentations. The sheet shows a lower net LLRF control overhead, compared to the RDR. We hope that S1 Global and NML operation will provide a suitable test-bed to prove this concept.
3.0	Accelerator Systems		Meeting minutes 11 August: The report from each group is as follows :
	3.1	Sources	Following the CFS meeting at Daresbury last month, Norbert Collomb (STFC) has done a lot of work to provide the detailed information requested by CFS on power utilization and heat loads for CFS. He has already sent an example template to CFS for comment. Modeling work is in progress to study a high-field undulator option based on Nb3Sn technology for running at 100GeV beam energy. Positron yields are being studied for various undulator lengths and K values with periods as low as 8mm and 9mm. Currently, 9mm is believed to be the smallest achievable undulator period. Kiyoshi Kubo has been working on a detailed assessment of the consequence of sending two beams of different energies down the same linac. He has now studied the correct operational scenario of reducing the linac gradient (as opposed to turning sections of the linac off). The results remain essentially the same. Details can be found at *http://lcdev.kek.jp/~kkubo/reports/MainLinac-simulation/alternateoperation-v2.pdf* .
	3.2	Damping Ring	**Electron Cloud** The ECLOUD Working Group, coordinated by Mauro Pivi (SLAC) is developing proposed methods for electron cloud mitigation. The candidate methods are currently being reviewed internally within the WG, with the goal being to have a proposal document ready for ECLOUD-2010 that will be presented at the Geneva workshop in October. Maxim Korostelev has nearly finished writing a technical note on the DC04 lattice, which is the current reference for the 6.4km racetrack

option. This will be released as an ILC-TECH-NOTE.

The proposal for 10Hz operation has a significant impact on the damping ring RF systems, and work is ongoing to evaluate less costly RF system options, including HLRF and numbers of cavities. Nick pointed out that needing to operate the DR RF systems at 50% duty factor is a fundamental issue for the 10Hz operation. Mark would like to invite RF experts from outside the DR collaboration to help brainstorm options. Nick suggested there might be a parallel working session on the DR RF at the upcoming workshop in Geneva.

Eun-san Kim has agreed to make an evaluation of fast ion stability issues associated with SB2009.

The dynamic aperture of the SB2009 ring FODO lattice has been increased to match the injection acceptance (Wang Dou)

A prototype of a 5 kV, 50 ohm DSRD-based kicker modulator pulser has been assembled at SLAC for testing (A. Krasnykh SLAC). There is real concern about reliability issues with the ultra-fast mosfet/adder topology. Fermilab has expressed an interest in collaborating on the kicker development for Project-X on the ultra-fast MOSFET/adder topology.

The ECLOUD 2010 workshop will be held in Cornell from October 8th – 12th. There will be a satellite meeting on Wednesday, October 13th to evaluate the electron cloud mitigation methods for ILC.

	3.3	RTML	
	3.4	BDS	
	3.5	Beam Dynamics	
4.0	Test Facilities		
	4.1	ATF	
	4.2	ATF2	
	4.3	CesrTA	A lot of work was done in preparation for the most recent Run 6b, including - Upgrade of master timing system thermal control, which has improved the stability by an order of magnitude, exceeding spec by almost a factor three. - Upgraded current monitoring for the sextupoles to improve the sextupole distributions and allow control of resonances during multi-bunch operation. - New skew quadrupoles have been installed using secondary windings on existing sextupole magnets. This offers local coupling correction and the ability to add closed coupling bumps in each of the wiggler straight sections. - Magnet alignment has been improved based on a global survey of the CESR network - A quick repair of the SCRF HV power supply had to be done

after a failure at the 13.2KV transformer.

Run 6b studies subsequently focused on

- Operation at 20pm
- Characterization of the rapid electron cloud build-up.
- Work on low emittance transport techniques
- A major effort looking at beam instabilities

Now the run is finished, there is a lot of data analysis underway. It looks as if there is good between the simulations and measurements of the onset of the electron cloud instabilities.

Mark showed one result from the run, which was a effectively a plot of amplitude against bunch bucket number and synchrotron tune frequency, clearly showing the development of the strong coherent instabilities at the resonances along the bunch train.

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Results from Run 6b will be discussed at the DR collaboration meeting next Tuesday, August 17th. There will also be planning discussions for the next run in September. The next two runs are scheduled for September 8th to October 1st and December 7th-23rd.

	4.4	FLASH	Report on status, plans and preparations for FLASH 9mA studies. FLASH is currently being re-commissioned after 6 month shutdown for a major upgrade. Successful lasing with 13 mJ energy at 13nm wavelength have been achieved. However, problems with the RF gun may have serious impact on the long bunch-train programme. Gun is currently limited to ~100 ms pulse due to discharge activity somewhere in the waveguide. Although not clear, suspicion in the RF window. Plans to deal with this situation will evolve over the next weeks and possible scenarios are under discussion. In the meantime, plans for a further 9mA run in January continue. A solution for 6mA beam current to give flat gradient operation has been found that requires only adjustment to the loaded-Qs of the cavities in ACC6 and ACC7. A solution for the full 9mA has been found, with detuning the two lowest gradient cavities. (Simulation) work continues on understanding best way to commission these configurations in practice. Due to the gun crisis and the almost certain lack of long bunch train operation for FEL users in September, the workshop planned for October has been postponed until next February. A smaller focus mini-workshop is expected sometime late this year to plan for the January studies.
5.0	Other		
	5.1	AD&I	
	5.2	Cost Management – AD&I	**<u>Accelerator Design and Integration (AD&I) Activities:</u>** Peter started working on Schedule section for the Project Implementation Plan to be discussed at EC meeting at CERN in October 2010. Peter participated in BAW-1 at KEK (see more detailed notes under

CLIC-ILC Cost & Schedule Working Group, below) and prepared cost impacts for Proposals for the Single Tunnel and Gradient Spread. He also developed several models for the average cost per accepted cavity, based on the cavity test performance data presented by Rong-Li Geng and Jim Kerby at BAW-1. These cost vs. yield models include costs for a second processing and retesting of cavities that do not meet the acceptance threshold for the first vertical test, either with a fixed threshold of 35 MV/m or for a cavity gradient spread, < +/- 20% with an average gradient of at least 35 MV/m. Although we have only meager experience and test statistics on which to base these projections, an obvious conclusion is that raising the lower limit of the cavity gradient test spread will have a greater economic impact than trading a sliding acceptance threshold vs. yield. Peter also continued early conceptualization of the Schedule section for the Project Implementation Plan to be discussed at EC meeting at CERN in October 2010.

ICET

Triad's ILC Cost Estimating Tool (ICET) and applications to ILC RDR Estimate:

Lisa Rials from Triad called and said that Spencer Curtis said not to charge ILC the retainer fee after May 2010. She would have charged us for Kevin Long's time in June and July, but it was so minimal that Triad chose not to bill ILC for this work.

During August, Peter loaded all of the Cost Estimating Files for the RDR into EDMS into the following Teams and associated Communities. This scheme was worked out by Peter and Daniel Szepielak and implemented by DESY-EDMS approximately 1 year ago to preserve confidentiality specifically of the details of the Cryomodule (and Cavity) and RF Power System cost estimates, while allowing the Area Systems Leaders access to the summary Cryomodule and RF Power System estimates.

(see below for cost information access table)

Peter also added key words in the descriptions of the EDMS elements to facilitate the "quick" search at the top of each EDMS window. The key words are:

all RDR cost estimating files include the key word: RDR

for Access Communities searches (use "…" in search to link both words, e.g. SEARCH: "CM experts")

ASL Community (can be shortcut to ASL) = Area System Leaders community

OTSE Community (can be shortcut to OTSE) = Other Technical

System Estimators community

"CM experts" "CM community" "RF experts" "RF community"

for accelerator Areas searches: Electron Positron RTML DR ML BDS Exp Common General

for Technical and Global System searches:

CFS-estimates accelerator-physics simulations computing controls cryo installation instrumentation management LLRF RF vacuum CM cryomodules magnets dumps

"power supply" "power supplies" PS

some examples:

SEARCH: CFS-estimates AND Asia

SEARCH: CFS-estimates AND DR

SEARCH: RTML AND vacuum

SEARCH: Electron AND "CM community"

if one simply did a SEARCH: RTML, one might get swamped by other non-cost-estimating items

all of these RDR estimates are within the four (one redundant) key words for Area System Leaders:

OTSE, ASL (all items with OTSE also include the ASL key word), "CM community", "RF community"

So, all RTML cost estimating files for RDR can be gotten with

SEARCH: RTML AND (OTSE OR "CM community" OR "RF community")

As part of this (brute-force re-) uploading of all RDR estimating files to EDMS in the appropriate confidentiality communities, Peter no longer requires Jasper Dammann to provide a technical tool to move files between communities (or designated access schemes or projects).

An up-to-date graphical status sheet of the loading of the RDR Estimate into ICET is at:

http://www-ilcdcb.fnal.gov/RDR-ICET-Status.pdf

CLIC-ILC Cost & Schedule Working Group:

The CLIC-ILC Cost & Schedule Working Group webex meeting was on Friday, September 17, 1300 GMT. The main topic will be preparations for a parallel meeting at the Geneva Workshop in October, where the main topic will be organization of the "peer review" of the preliminary CLIC cost estimate which is still expected to be available for review in January.

Since Peter was able to load the RDR estimate information into the proper EDMS confidentiality teams (brute force, just loaded them individually again), he informed Jasper Dammann (DESY-EDMS) that a technical file transfer solution was no longer requested.

At the end of September, Peter informed the Project Managers, Cost Engineers, Barry, and Ewan, and the members of the EDMS confidentiality teams that the RDR estimate information had been loaded into the EDMS confidentiality teams and referred them to EDMS ID # 884435 for a description of the teams and access privileges.

Otherwise, no further work on ICET or EDMS this month.
I specifically must place EDMSdirect links in ICET- Cost Estimating Modules (CEMs) to the backup materials recently posted in EDMS.

An up-to-date graphical status sheet of the loading of the RDR Estimate into ICET is at:

http://www-ilcdcb.fnal.gov/RDR-ICET-Status.pdf

Is the CLIC Cost Estimate still on track for peer review in January, 2010?
=> could be some months' delay
Peter is starting to round-up reviewers from the ILC side.
Will CLIC estimate and review be just for Accelerators or also include Experiments? Accelerators only!

ICET-RDR estimates

I completed loading all RDR estimate into ICET, but have not placed CEMs into EDMS

I put all backup materials for RDR estimate: spreadsheets, notes, drawings, etc., into EDMS

this included releasing info only to authorized "confidentiality sub-projects"

I have NOT placed EDMSdirect links in ICET-CEMs to the backup materials in EDMS

ILC-GDE Baseline Assessment Workshop #1 (BAW-1) at KEK, first week in September
response to need for change control for Strawman Baseline 2009 (SB2009) proposed changes in RDR
this included Barry, Project Managers, proponents, and even experimenters (to understand process)
no real impact for experiments on topics of BAW-1, but BAW-2 subjects will have impact on Exps

Two baseline change topics were discussed and conclusions:

1. go to 1 tunnel for Main Linac – either Klystron Cluster or DRFS
   with 2 possible single tunnel backups:
      RDR-like: 10 MW Klystrons & Modulators in tunnel
      XFEL-like: 10 MW Klystrons in tunnel connected by cables to Modulators on surface
   complication with Japan request for a "pilot tunnel" in addition to tunnel with components
      this is for "geologic conditions reconnaissance", water removal, and personnel egress
2. Allow operational spread (< +/- 20%) of gradients with average still 31.5 MV/m
   this will relieve pressure for high yield of cavities above acceptance threshold
      which will reduce overall cost
   but ~ 10-15% extra RF, both High Power RF and Low Level RF are needed for flexibility
   and tuning/operational margin

These change proposals will go to a formal Top Level Change Control board soon.

BAW-2 (SLAC, January) will tackle Reduced Power Options and Low Energy Operations, both of which can impact the Luminosity available for the Experiments.

As part of Technical Design Phase, GDE is working on a Project Implementation Plan which must contain a preliminary overall schedule for ILC. This will likely just be an "excel-like" schedule as in ILC-RDR, XFEL TDR, USLCTOS, etc. However, there were lots of constraints that had not been taken into account, especially the desire to be testing and then commissioning the early sections such as Electron Source, e- Damping Ring, Auxiliary Positron Source, e+ DR, even while RTML/ML/BDS are being completed. This was not a constraint for Martin Gastal's and Katy Foraz' schedules which had all of these sections pretty much finishing together at the same time. What should be the order of tasks to optimize "constructability"? How do all of this interact with the Experimental Hall? We likely will request some professional underground engineering/construction scheduling help here. I don't think either Martin or Katy included DRs, transfer lines, waveguide penetrations, personnel crossovers, tunnel widening for beam dumps, e- Source, e+ Source, etc. Mike Harrison requested a report on plans (and progress?) at the Geneva meeting. Philippe noted that PIP will contain more than just the schedule.

Peter adds PIP chapter topics (no particular order): Introduction, Governance, Funding Models, Project Schedule, Site Requirements,

Host Responsibilities, Site Selection, Industrialization, Project Management Structure, In-Kind Contribution Models, and Remaining Technical Activities.

The IWLC2010 meeting in Geneva starts in < 5 weeks. We should meet face-to-face for at least one block of time, especially to work on preparations for the CLIC Cost Review. We all should try to suggest an appropriate time during the Accelerator Working Groups parallel sessions on Wednesday, or Thursday. Maybe we'll have to meet after-hours. Play it by ear when we see the detailed schedule of Accelerator Parallel Sessions for Wed & Thurs. Philippe will report on CLIC-ILC Collaboration at final plenary on Friday afternoon, back at CERN.

Philippe described the CERN medium-term plan (5 years) –

Finance Committee said too optimistic for available resources

cuts in various programs including CLIC work – wont ramp up as soon as anticipated

revising content of TDR phases, especially experimental part, and stretch-out 2018 => 2020

Preparation of the CLIC TDR is approved project

and High Luminosity LHC (final focus, Nb3Sn quads, crab cavities, etc) is approved.

High Energy LHC is still only a study, no commitment to fund yet (not a threat to Linear Collider).

Contributed by Peter Garbincius

Team	Community	Includes	Accessible by
ILC_Cost_Cryomodule_Experts_Team			
	ILC_Cost_Cryomodule_Internal	CM details	CM Experts Team only
	ILC_Cost_Cryomodule_Community	CM summary	CM Experts Team & AS Leaders Team
ILC_Cost_RF_Power_Experts_Team			
	ILC_Cost_RF_Power_Internal	RF details	RF Experts Team only
	ILC_Cost_RF_Power_Community	RF summary	RF Experts Team & AS Leaders Team
ILC_Cost_Area_System_Leaders_Team			
	ILC_Cost_AS_Leaders_Community	AS details	AS Leaders Team only
ILC_Cost_Other_Technical_System_Estimators_Team (abbreviated OTSE Team)			
	ILC_Cost_Other_Estimating_Info_Community	all teams: ASL, CM, RF, OTSE	Technical and Global Systems details