

ILCSC MEETING

CERN

9 February 2006

Present: Torsten Akesson, Robert Aymar, Barry Barish (via telephone), Hesheng Chen, Jonathan Dorfan (via telephone), Sachio Komamiya, Shin-ichi Kurokawa (Chair), Won Namkung, Satoshi Ozaki, Francois Richard, Roy Rubinstein (Secretary), Richard Wade, Albrecht Wagner, Ferdinand Willeke

1. Shin-ichi Kurokawa introduced Richard Wade, the Chair of the FALC Resource Group, who will be invited to all future ILCSC meetings. Also introduced was Ferdinand Willeke, the nominee for Chair of the ILC Machine Advisory Committee (MAC).

2. GDE Report

Barry Barish presented the GDE report. He first described the Baseline Configuration Highlights (Attachment I), noting that contentious issues included the positron source (helical undulator with a keep-alive source is in the BCD), the cavity (BCD uses 35 MV/m gradient) and the path to 1 TeV (beam delivery system will go to 1 TeV; all dumps are 1 TeV; initial tunnel for 500 GeV, but site long enough for 1 TeV). The BCD includes attractive alternatives, which are guidance for further R&D.

In response to ILCSC questions, Barry gave examples of how the BCD change control system will work. The BCD does not give details of a 1 TeV tunnel, but the Reference Design Report (RDR) will give 1 TeV tunnel costs. He described the process for costing; 3 cost engineers have been appointed, and costing will be on value, not specific currencies. For the RDR, costing will be based on whatever sources are available, with as much checking as possible. Barry felt that he still needed advice on the strategy for cost presentation. He noted that the additional tunnel to go to 1 TeV from 500 GeV will increase the cost by ~20%.

Barry then presented a GDE Progress Report (Attachment II). He felt that GDE is on track, and described the process undertaken to produce the RDR. The current GDE Executive Committee consists of Barry, the three regional directors (Dugan, Foster, Takasaki) and the three accelerator leaders (Raubenheimer, Walker, Yokoya); it meets weekly. The GDE has been reorganized towards the design/cost effort. The RDR is scheduled for release in December 2006.

Barry presented a GDE organization diagram. In addition to GDE reporting to ILCSC (and ICFA), it also reports to the FALC Resource Group (and FALC) on resources. Currently, GDE has 61 members, equivalent to ~30 FTEs. Barry has sent a request to the Regional Directors for sample site information; he is still concerned about the sensitivities associated with site issues.

The International Accelerator School for Linear Colliders looks very promising, with over 400 student applications for the 80 positions.

In the following question period, Barry said that the 3 WWS co-chairs are in the GDE, as GDE needs very good communication with the detector collaborations. For example, shielding the detectors from muon background is expensive and interacts strongly with the accelerator. He is aware that WWS reports to ILCSC, and does not wish to run the detector programs. Barry has avoided commenting on whether the correct balance has been achieved between accelerator and detector R&D, although he understands that detector R&D is an important issue at present, with no global prioritization mechanism in place.

Barry noted that in the RDR, costing information will be used from the TESLA design, XFEL, and GDE internal costing; some will come from industry. The Willis Panel will list R&D needs. Barry said, in reply to a question about why the RDR will include costs, that governments want a cost number; it is important to be able to say that the machine is affordable.

Barry agreed that a bottom-up baseline is unusual, but should not be a fatal flaw. He said that the current GDE matrix organization, which may be confusing to some people, is necessary because many questions cross several system boundaries.

The GDE input to the Orsay meeting of the CERN Council Strategy Group is given in Attachment III.

3. FALC

Shin-ichi Kurokawa described the November 2005 FALC meeting held at Fermilab. FALC agreed to a common fund for the GDE, to be provided equally by the three regions. In order to minimize GDE reporting and increase communication, the Chair of FALC will be invited to ICFA meetings, and the ICFA and ILCSC Chairs will be invited to FALC meetings. The Chairs of ILCSC and FALC-RG will be invited to each other's meetings.

FALC felt that it was not appropriate that ILCSC be the sole oversight body of GDE, and FALC should also be involved in this. A subgroup of FALC will discuss a model of how FALC will evolve.

Shin-ichi's remarks are in Attachment IV.

Richard Wade commented that there had been much discussion of overlapping ILCSC and FALC roles, and the cross-membership should allow good communication. ILCSC is responsible for the project and its technical aspects; FALC monitors the project so that the funding agencies are well informed.

4. FALC-RG

FALC-RG met on 8 February 2006, reported Richard Wade; it heard a report from Barry Barish. The main discussion item was the GDE common fund; an MOU for funding agencies is close to being signed, and provides for equal contributions from the three regions (although this is not to be considered a precedent). The MOU will have annexes on how each region will collect the funds and deliver them to a GDE account at Fermilab. The fund will initially be small, but will grow; among items to be supported by it are software support, costing activity, and support for those MAC members who are not from major labs.

Richard said that FALC-RG feels that there is much work to be done between FALC meetings, and that some should be delegated.

In response to a question on uses for the common fund, Richard said that GDE should propose a budget, and ILCSC and FALC review it. Representation on FALC is complicated, since each country and region has different funding agency systems, and it is difficult to define a common representation. FALC may not be perfect, but it is doing well in pushing the ILC project forward.

5. MAC

Shin-ichi said that at the last ILCSC meeting, a MAC nominating committee was set up, consisting of Jonathan Dorfan, Won Namkung, Albrecht Wagner and Shin-ichi. The committee's recommendation for Chair of MAC is Ferdinand Willeke (DESY); ILCSC unanimously agreed to this recommendation. The nominating committee and Ferdinand will propose 10-12 MAC member names to ILCSC for approval. Shin-ichi would like the first MAC meeting to be within two months if possible. He will attend MAC meetings ex-officio, and Roy Rubinstein will be MAC Secretary.

6. ILCSC Executive Committee

Torsten Akesson commented that ELCSG had discussed this topic recently. It would be good to create an ILCSC subcommittee to prepare the agenda, etc., for ILCSC meetings, but it should not have executive functions.

ILCSC agreed to the idea of such a subcommittee. Shin-ichi, Roy and Maury Tigner will propose a name, mandate and membership for the subcommittee, and will circulate this to ILCSC members for comment.

7. GDE MOU Membership

Two comments on inconsistencies in the MOU were pointed out, and will be rectified.

Some suggestions were made for additions to the MOU signatories, including IN2P3, INFN and NIKHEF from Europe; Kyungpook, RRCAT, BARC and IUAC from Asia. The MOU says that new signers are subject to agreement of the existing parties. The regional steering groups should write to ILCSC with their suggestions, which will be considered at the next ILCSC meeting.

8. Report from Europe Region

Torsten described the CERN Council Strategy Group activities. The open symposium at Orsay had close to 400 attendees, and 70-80 attending by web at any one time. Discussions took up more than 50% of the time, and were lively. Information from this symposium will be input to the May 2006 retreat at DESY Zeuthen. The final recommendations will be presented to the CERN Council in Lisbon in July.

9. Report from Americas Region

Satoshi commented that the Steering Group meets every two months. There have been some recent membership changes. Maury Tigner is now Chair, and Satoshi is Deputy Chair. The group's name has been changed to Linear Collider Steering Group of the Americas (LCSGA). LCSGA feels that outreach is

very important, and an earlier US outreach group, set up by Michael Witherell, is now an LCSGA subcommittee which will specialize in communications in the US.

An ILC industrial forum was formed in 2005, and had a very successful first meeting. The ILC contact in DOE is Paul Grannis, and it is Randy Ruchti in NSF. ILC R&D funding is up by a factor of 2 in the 2007 President's Budget, and includes an increase for detector R&D.

10. Report from Asia Region

The ALCSC mandate was renewed, Won said, and he was reappointed as Chair. Two meetings were held earlier in 2006, with a third scheduled following the Bangalore meeting. A presentation on ILC was made by Masatoshi Koshihara to the Committee of Science and Technology of the Japanese governing party.

11. Worldwide Study

Francois reported that WWS detector R&D and machine/detector interface panels have been formed, the latter in conjunction with GDE. Preparations are underway for a Detector Conceptual Report, part of which will be in the GDE RDR.

The detector R&D panel (under Chris Damerell) has produced a 70 page status report, describing 53 projects (Europe 19, Americas 28, Asia 6). So far there is only regional/national reviewing of projects. The report commented:

- (i) There is currently insufficient overall support, and early R&D is needed on challenging concepts
- (ii) Europe had an early R&D start with TESLA
- (iii) Korea is in good shape
- (iv) A first attempt has been made to identify missing R&D

The detector R&D panel presented preliminary urgent and important items, but did not prioritize. Histograms were given of costs and man years of R&D needed. In the next four years, investment should increase by a factor of two; US \$31M per year is needed. The question now is how to go from the R&D panel report to a strategy. The current panel is not appropriate to review proposals.

Regarding the machine/detector interface panel, Francois said that the particle physics community wants to be involved in ILCSC and GDE discussion on this topic. Hitoshi Yamamoto is Chair of this panel, which interfaces with WWS and GDE, and reports to both.

WWS will write a ~200 page detector conceptual report, based on ~100 page reports from each of the 4 detector concepts. Only one cost will be made public, by averaging the concepts. Options ($\gamma\gamma$, etc.) will be included.

Francois gave the following WWS summary:

There has been progress by the Detector R&D Panel – what comes next?

The MDI Panel has begun work.

An organization has been set up for the Detector Conceptual Report.

Links have been tightened between detector and machine activities.

Francois' report is given in Attachment V.

In the following discussion, it was noted that detector R&D funds in Americas and Asia should be increased. There is a need for a correct balance in detector/accelerator R&D funds. Detector performance gains are equivalent to luminosity gains.

The WWS is independent of GDE, not inside it, and reports to ILCSC. The particle physics community wants two interaction regions.

12. Future ILCSC Meetings

The next ILCSC meeting will be held at DESY Zeuthen on Monday 8 May 2006. The following one will be during ICHEP06 in Moscow, on Sunday 30 July 2006.