Configuration Control – Change Control Board (CCB) Report

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What is CCB? (Just a reminder)

- CCB (Change Control Board) is one of the three "Boards" that was launched by GDE around the time of Frascati Meeting in Dec. 2005.
- Its main function is to act the "gate keeper" role for maintaining the Baseline Configuration (BC) and Alternative Configuration (AC) of ILC for GDE.
- Two other boards in GDE are
  - Design and Costing Board (DCB), chaired by P.Garbincius
  - R&D Board (RDB), chaired by W.Willis

Ref: BC and AC

- **BC –** A forward-looking configuration which we are reasonably confident can achieve the required performance and can be used to give a reasonably accurate cost estimate by mid/end-2006 ($\rightarrow$ RDR).

- **AC –** A technology or concept which may provide a significant cost reduction, increase in performance (or both), but which will not be mature enough to be considered baseline by mid-end 2006.

  – Note: Alternatives will be part of the RDR. Alternatives are equally important.

BCD and RDR (Barish at FNAL RDR Meeting in Feb., 2006)

- The document defining the ILC configuration details at any given time is the BCD. It will evolve through change control actions.

- The RDR will have a different audience, goals and structure. The configuration descriptions in the RDR ***must be completely consistent*** with those in the BCD. (Some narrative from the BCD may be appropriate for the RDR, but this is not required).

- The RDR will emphasize the overall design and performance, project issues (costing , siting, etc.) and especially costing.

- Check: http://ilcagenda.cern.ch/conferenceDisplay.py?confId=14

Mission Statement (from B.Barish) - 1

- The Change Control Board is responsible for maintaining the baseline configuration as defined in the Baseline Configuration Document.

- The first action of the CCB will be to finalize the BCD and put it under configuration control.
  - Finalize = Control so that it does not get changed without CCB approval. This is already being done.

Mission Statement (from B.Barish) - 2

- In addition to maintaining the baseline, the CCB will assess R&D projects defined in the BCD that potentially can lead to improvements over the baseline in cost or performance.
  - **This is not yet done.**

- The CCB will define what needs to be demonstrated in these R&D projects, in order to be considered for a CCB action to replace the baseline.
  - **This is not yet done.**

Mission Statement (from BB, cont.) - 3

- The CCB will work with the GDE EC to formalize levels for taking change control actions.
  - **This is done.**

- Major changes in the baseline defined as changing costs by more than $100M or make significant changes in performance, schedule or risk will be recommended to the Director and GDE EC for final approval.

- For all other changes, the CCB will be the final authority.

CCB Members

C. Pagani (INFN, Milan)
G. Blair (RHUL)
D. Schulte (CERN)
T. Markiewicz (SLAC)
S. Mishra (FNAL)
W. Funk (JLAB)
K. Kubo (KEK)
M. Kuriki (KEK)
N. Toge (KEK)

We can be reached via email address:
ML-CCB at lcdev.kek.jp

Baseline Configuration Document

- http://www.linearcollider.org/wiki/doku.php?id=bcd:bcd_home

- Links to ALL materials related to BCD and CCB are available here.

- Conversion to MSWord files is completed → Easy editing and tracking changes now possible, *in principle*.

Change Procedure (1/2)

- http://www.linearcollider.org/wiki/lib/exe/fetch.php?cache=cache&media=bcd:ccb-procv0.5.pdf
  - **updated on Feb.3, 2006.**

- Area Group and Global Group leaders, besides board chairs and EC, may submit Change Requests.

- Change classifications: Classes 0 (minor), 1 (light, <100M$), 2 (heavy-weight, >100M$) with increasing impacts.

Change Procedure (2/2)

- All CCB members participate in the review.
- Some external opinions are asked, as found useful.
- Assign 2-3 CCB members to draft the report.
- Then announce the decision to all members of GDE and AG/GG/TS-G.

Change Records

- http://www.linearcollider.org/wiki/doku.php?id=bcd:bcd_history

	Date Submitted	Area	Status
#8	3/22/2006	WhitePaper	Fixed 3/23/2006
#7	3/20/2006	RTML	Accepted 3/28/2006
#6	3/4/2006	CF/S	Accepted 3/16/2006
#5	2/28/2006	Params	Accepted 3/3/2006
#4	2/24/2006	RTML	Accepted 3/3/2006
#3	2/7/2006	DR	Accepted 2/27/2006
#2	2/4/2006	OPS	Accepted 2/11/2006
#1	1/27/2006	RML	Not accepted 2/3/2006
#0	12/20/2005	CF/S	Accepted 12/23/2

- So far, ~8 instances.
- Typical turn-around-time is 1-2 weeks.
- Additional record of related public communication:
  http://lcdev.kek.jp/ML/PubCCB

Example of BC Evolution
ILC Layout (1)

- **Early ILC layout (as of Dec. 2005 – Jan. 2006)**
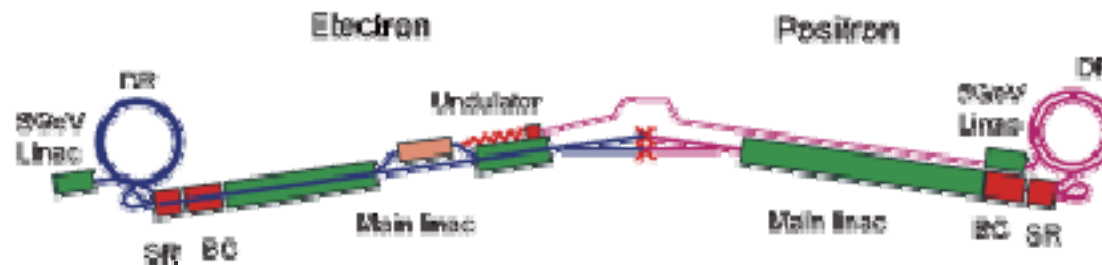
- **RTML change requests**
  - Jan: Update RTML-DR and RTML-ML boundaries, removal of skew correction, introduction of 610m-long RTML insert →
    - **CCB suggests some wording refinement, questions adequacy of "610m", noting issues associated with "beam collision" constraints.**
  - Feb: resubmission of request except "610m" spec of RTML insert and pending descriptions of RTML emittance diagnostics →
    - **CCB accepts the request as is.**
  - March: resubmission with refined logic for RTML emittance diagnostics in the RTML upstream end →
    - **CCB accepts the request as is.**
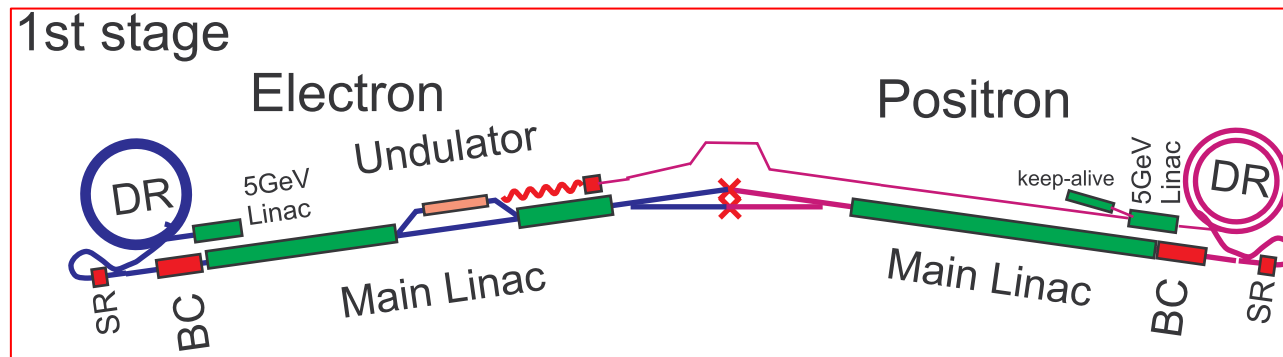
Example of BC Evolution
ILC Layout (2)

- DR Change Request (Feb. 2006)
  - **Use 650MHz RF (=1/2 of ML RF at 1.3GHz) instead of 500MHz for**
    - Improved flexibity in fill pattern footprint, including
    - Bunch train gaps to ameliorate fast-ion stability challenges particularly in case of "low-Q" operation
  - **CCB accepted this, but points out some provisional remarks for record and reminder sake**
    - Needs for disciplined, systematic kicker development efforts (nominal bunch spacing becomes shorter).
    - Needs for development of 650MHz RF system.
    - Issues with electron-cloud instabilities with shorter bunch spacing.
- Parameter Section Change Request (Feb. 2006)
  - **Two MLs are at an angle of 20mrad**
    - Clarifying statement of what many of us assumed but was not really explicitly stated.
  - **CCB accepts this, as is.**

Example of BC Evolution
ILC Layout (3)

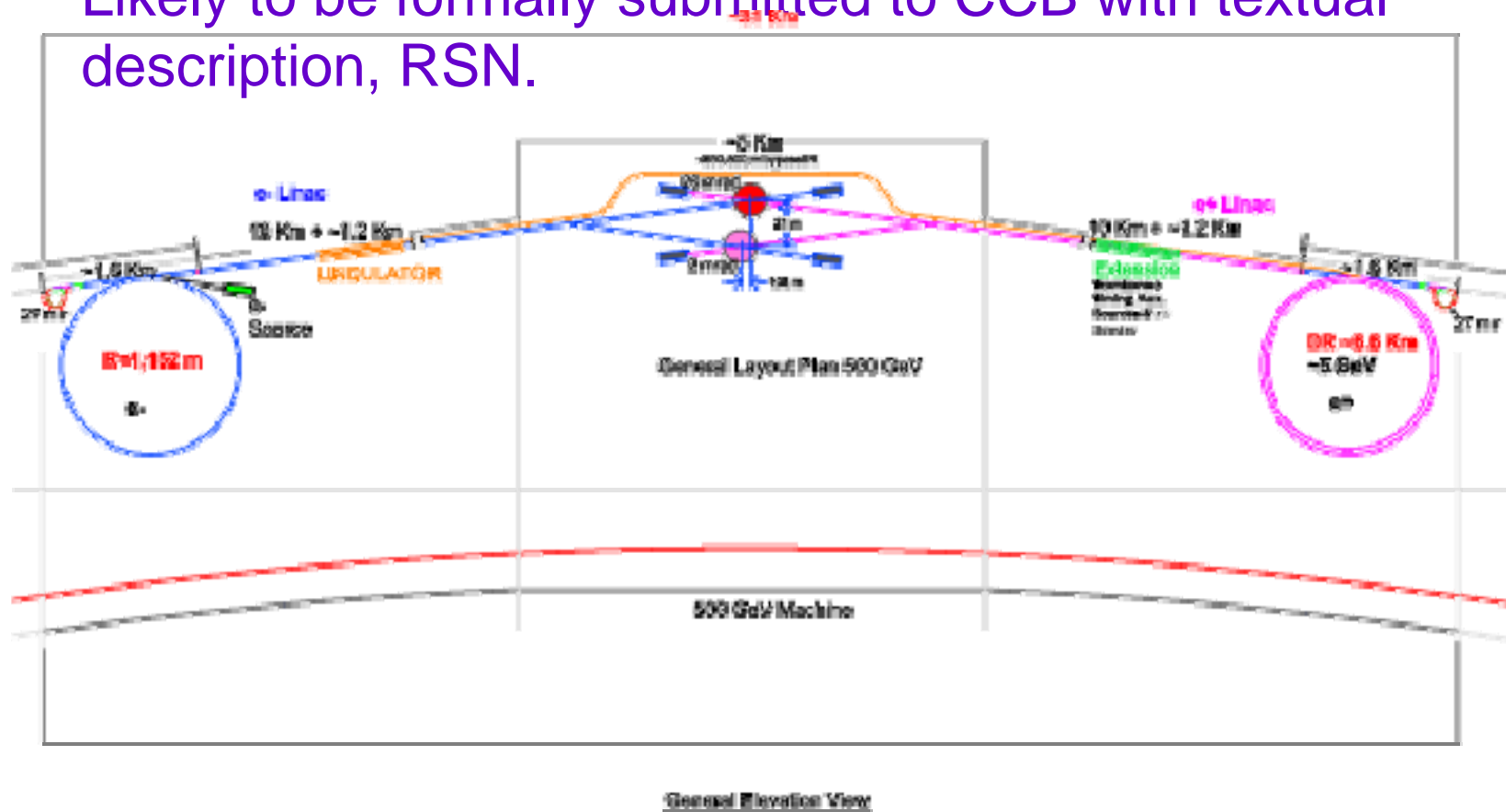- **As of Bangalore (March, 2006)**

- **Then, after Bangalore,**

  - Better understanding of the layout constraints was put together in the "Timing Taskforce Report"
  - Work by RDR leaders (DR, ML, RTML, I&C…) → (see next page)

Example of BC Evolution
ILC Layout (4)

- New draft ILC layout is presently under discussion. Likely to be formally submitted to CCB with textual description, RSN.

Points that CCB Pays Attentions to:

- Reasons for each configuration change –
  - Performance improvement
  - Risk mitigation
  - Cost reduction
    - Hard to quantify the relative weights of these attributes, though. We develop our value system as we "run".

- Logical consistency –
  - Within each area
  - For ILC as a whole

- Propagation of knowledge and information –
  - Ensure that all who are affected know for sure.

In the Near-Future

- CCB feels that we should work with GDE to sharpen further -
  - What should be in BCD and what should not.
  - Procedure for inserting new AC.
  - Criteria for judging how/when AC may be promoted to BC.
  - What to do when BC development is found not making *good enough* progress.
  - Better integration with GDE EDMS.

- All these, without getting in people's way doing RDR, so this work comes out somewhat slowly (or quietly).

Conclusions

- **CCB** -
  - Is in place to do its job.

  - Has begun its CC operation, acting in response to AG/GG's requests in efforts towards RDR.

  - Tries its best to maintain open communication on change requests and updates to BCD.

  - Appreciates all inputs from any parties concerning the change control processes and information exchanges therein.

  - Will try to address some remaining "homework" issues (see p.18) at the same time.