

## **BDS EDR kick-off meeting SLAC, ROB A/B, October 11-13, 2007 Tentative agenda and goals**

The BDS EDR kick-off meeting will address the goals set by ILC PM, to plan for creating of an updated ILC value estimate and a of a project execution plan, and for prioritization the Engineering Design activities in support of EDR based on risk mitigation, cost reduction and project preparation.

To address the goals, the work of BDS EDR kick-off meeting will be organized in three iterations: understand the present status; understand the derivatives and dependencies (or plan for that); and then, after discussion of the options, plan the EDR work. The meeting will correspondingly have the following sessions:

- Goals and introduction
- RDR completeness
- System optimization discussion
- Options and alternatives
- EDR planning

The goals of these sessions, in more details, are:

- Goals and introduction
  - Introduction to the agenda and goals; the overall status of design; performance risks; R&D planned by S4; cost split of subsystems; cost drivers.
- RDR completeness
  - Assess technical maturity of RDR design and completeness of the value estimate. Evaluate performance acceptability. Examine each (Tech./Global) cost and check for inconsistencies, inaccuracies, cross check with existing machines.
- System optimization discussion
  - Quantify the worth/cost value, discuss cost drivers, evaluate performance/cost derivatives, review design decisions in terms of cost impact and discuss possibilities of further refinement.
- Options and alternatives
  - Evaluate existing options and alternative designs and discuss their merits for the project, needed resources for development and possible timeline.
- EDR planning
  - Present the work packages that would cover the EDR goals of updating the ILC cost estimate, reducing the risk, reducing the cost, and preparation of the project execution plan.

Specific instruction for each session

- Goals and introduction
  - Explained above.
- RDR completeness

- Should include (following the cost split order): beamline tunnels and facilities; experimental hall and facilities; magnet system; installation; dumps and collimation; cryogenics; instrumentation; control; vacuum system.
- System optimization discussion
  - Aim to identify the performance driven specifications for accelerator components and especially CFS and discuss how engineering cost-performance trade-offs will be performed.
  - Should include updates and findings happened between writing the RDR and kick-off meeting
  - Should include discussion of machine-detector connection and optimization, and specifically include discussion of the integrated engineering of push-pull IR, based on IRENG07 workshop, aimed to reduce the risk of performance and cost of this solution.
- Options and alternatives
  - Discussion should include e-e-, gamma-gamma, head-on and 2mrad IR designs, permanent magnet and Rutherford cable design for 14mrad IR, fixed target, muon shield, other diagnostics, crystal collimation, etc.
- EDR planning
  - Develop sub-work packages, forming WBS, and reflecting available resources.

The planning of presentations, shown below, assume that such meetings will be regular. The first meeting would address the leading cost driver systems, or the systems for which significant activity is foreseen in EDR time (e.g. for R&D), while discussion of some other systems might need to be delayed until the second BDS EDR meeting.

The sessions will include the following presentations, prepared and/or lead by corresponding people:

- Goals and introduction
  - PM goals introduction M.Ross, B.Barish
  - Overall RDR status and goals A.Seryi
- RDR completeness
  - Beamline tunnels V.Kuchler
  - Experimental hall and surface buildings J.Osborne
  - BDS facilities T.Lackowski
  - Magnets, warm, DC J.Tompkins, C.Spencer
  - Magnets, pulsed T.Mattison
  - Magnets, SC M.Anerella, B.Parker
  - Power supplies P.Bellomo
  - Installation F.Asiri
  - Dumps and collimation C.Densham, T.Markiewicz
  - Crab cavity P.McIntosh, L.Bellantoni

- *These systems below may be reviewed briefly, or skipped until the second meeting (TBD):*
- Cryogenics T. Peterson
- Instrumentation M. Wendt
- Control system J. Carwardine, C. Saunders
- Vacuum system Y. Suetsugu
- System optimization discussion
  - Introduction and status and plans of design study in support of requirement specification and optimization of beamlines and of the IR design D. Angal-Kalinin, N. Mokhov, H. Yamamoto
  - Detector design optimization for push-pull IR and for surface assembly T. Markiewicz, T. Sanuki, Y. Sugimoto
  - IR magnets and cryo system optimization for push-pull IR B. Parker, K. Tsuchiya
  - Optimization of conventional construction of IR hall and external systems for push-pull IR Vic Kuchler, A. Enomoto, J. Osborne
  - Power supply and cooling facility optimization P. Bellomo, T. Lackowski
  - Optimization of beamline tunnels and facilities V. Kuchler
  - Optimization of installation F. Asiri
  - Optimization of magnets J. Tompkins, C. Spencer, V. Kashikhin
  - Optimization of crab cavity P. McIntosh, L. Bellantoni
  - *The following might need to be skipped until the second meeting, due to time limitation:*
  - Optimization of instrumentation, control, crab cavity, vacuum M. Wendt, J. Carwardine, C. Saunders, Y. Suetsugu, VacName (SLAC), P. Burrows, M. Woods
  - Alignment R. Ford, R. Ruland
  - Operation and MPS T. Himel, N. Terunuma, E. Elsen
- Options and alternatives
  - Physics goals and value of options H. Yamamoto
  - Design status of head-on IR O. Napoly
  - Design status of 2mrad IR P. Bambade
  - *The following might need to be skipped until the second meeting, due to time limitations:*
  - Rutherford cable for 14mr IR A. Zlobin
  - Permanent magnets for 14mr IR Y. Iwashita
  - Facilities and hardware needs for gamma-gamma V. Telnov, J. Gronberg
  - Hardware needs for e-e- L. Keller
  - Alternatives for muon spoilers and crystal collimation N. Mokhov
  - Alternatives for beam diagnostics K. Moffeit, B. Morse
  - Facilities and hardware needs for fixed target Y. Kolomensky
- EDR planning

- Introduction to EDR structure and planning A.Seryi
- ATF2 construction, commissioning & operation T.Tauchi  
(may need to be delayed till the second meeting)
- Accelerator and physics requirements and design integration  
D.Angal-Kalinin, SysEngName (SLAC)
- Interaction Region & IR integration B.Parker, T.Markiewicz
- Crab cavity system P.McIntosh, L.Bellantoni
- Beam Dump system C.Densham, R.Arnold
- Collimation system N.Watson, N.Mokhov
- BDS magnet & PS J.Tompkins, C.Spencer
- BDS instrumentation P.Burrows, M.Woods (might  
need to be delayed till the second meeting)
- BDS Vacuum system Y.Suetsugu, VacName (SLAC) (may  
need to be delayed till the second meeting)

Assuming that the meeting is concentrated on the highlighted topics, we have about 29 presentations, including three  $\frac{3}{4}$  hour talks; other talks are 20min in average. The EDR talks are  $\frac{1}{2}$  hour each. Discussion is 15min in average per each talk. This gives about 19 hours in total, which should fit into two and a half days, leaving half a day for executive discussion if needed. Fine tuning of the talk duration may be done based on relative relevance of the topic. Combining some of the talks in RDR completeness session may be also possible.

As shown above, in some cases the same topic may be touched three times, even by the same people: during the RDR completeness, System optimization and EDR planning sessions. It is important to follow the guidelines to separate the presented information for each of these sessions. One can consider a specific example of magnets and power supplies. In this case, in RDR completeness session one would discuss the work done for RDR, describe the assumptions, assess its completeness, etc. In the System optimization session one would discuss, for example, how the design is affected by water delta temperature, number of penetrations to service tunnels, power supply model, the assumed energy range and 1TeV PS upgrade plan, etc. And in the EDR session, one would discuss how the observed derivatives and dependencies are incorporated and will be further studies and used during the EDR phase.

Participants connecting to the EDR kick-off meeting remotely could gather at some local places (e.g. Daresbury) for convenience; however there will be only one centralized agenda for the work and only one flow of discussion. Any significant issues discussed at remote gathering sites during off-agenda-hours (e.g. lunches), should be promptly brought to attention of the host and re-discussed.