



Positron Source KOM

Opening remarks/comments from EDR Project
Management

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Goals of the KOMs

- Review the RDR baseline design
 - **Does it meet performance requirements**
 - **What are the outstanding critical issues which must be addressed**
 - R&D priorities
 - Engineering priorities
 - Beam Dynamics (simulations)
 - **Make an 'inclusive list' (not everybody has the same opinion)**
- Review consistency of RDR baseline cost estimate
- Understand cost drivers and interfaces
 - **Focus: CF&S drivers!**
- Understand/review the existing Alternative (ACD) designs
 - **Criteria for 'upselect'**
 - **Time-lines**
- RDR →Baseline Configuration (in EDMS)



Positron Source Specific

- Cost perspective: system ~6.3% RDR TPC (~420 MILCU)
 - **Not insignificant!**
 - **CFS dominant at 45% system cost (186 MILCU)**
 - **SRF (5GeV linac) and Magnets/Power Supplies come next (both ~85 MILCU)**
- Must balance EDR activities/priorities with this in mind.



Positron Source Specifics

- Given potential cost impact, primary focus will be on producing ‘conceptually engineered’ solution, which minimises CFS costs while maintains required performance:
 - **System integration**
 - **Some suitable level of magnet and vacuum engineering**
 - **Beam dynamics issues**
- Goals:
 - **detailed layout of beamline components in housing (3D CAD) → particular underground space requirements**
 - **Improved specification of (warm) components to consolidate/verify value estimate**
- Defining exactly what “conceptually engineered” and “Improved specification” mean given the associate cost should be part of the KOM agenda.
- System Integration Critical!
 - **E+ source ‘interferes’ with virtually every other Accelerator System.**
 - **Layout needs to be carefully reviewed – further possible cost-driven integration considered.**

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Specifics (real goals)

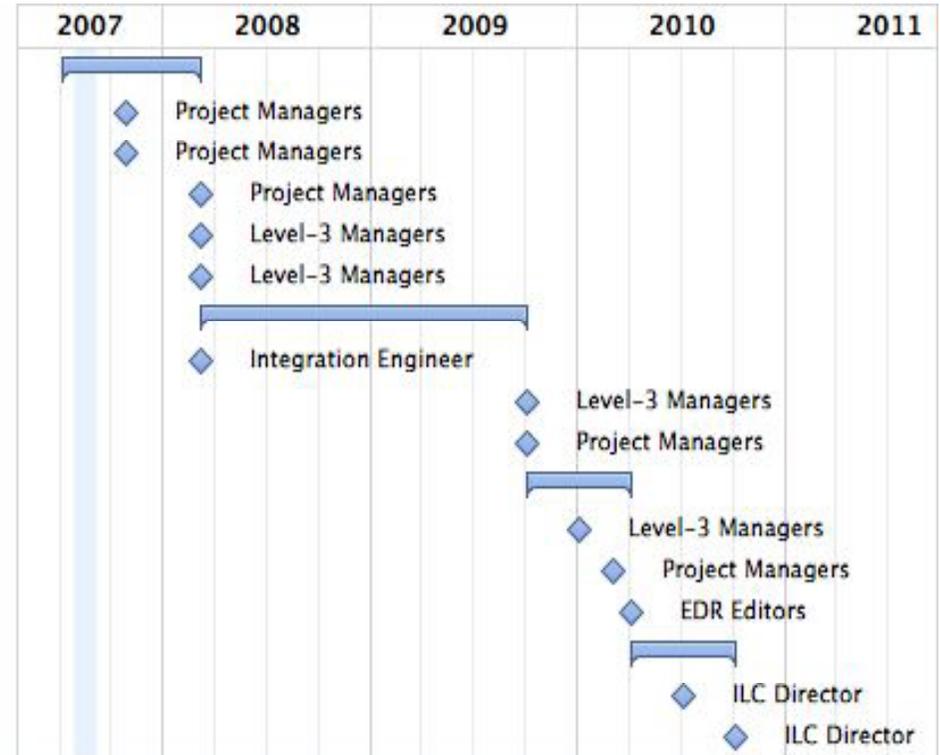
- Step 1: consolidate the RDR
 - **Bring RDR system design/specification/costs into ILC-EDMS Baseline Document**
 - (This should be much more detail than the RDR text)
- Step 2: Identify critical engineering path
 - **WPs, milestones etc. to achieve level of engineering design we want.**
 - (Will include necessary beam dynamics WPs)
 - **Identify early the need for prototyping (real money!)**
- Step 3: R&D (←not the focus for the KOM)
 - **Define WPs, milestones, schedule for critical (high-priority) R&D (if any).**
 - **Must be realistic given our predicted resources**
 - Eg. How critical/urgent is it to prototype the target?
 - Note the RDR says there are no show-stoppers.



Top-Level EDR Project Schedule

Task

- **1) Planning Phase**
 - 1.1) Release project guidance, tools, organizational info
 - 1.2) Release Engineering Project Management Plan
 - 1.3) Change Control template released
 - 1.4) Release accelerator areas WBS dictionaries
 - 1.5) Release preliminary list of accelerator area work packages
- **2) Execution Phase**
 - 2.1) WBS Level 1-3 Responsibilities & Interfaces reconciled
 - 2.2) Key technical issues answered for Engineering Design
 - 2.3) Completion of integrated value engineering exercise
- **3) Report Preparation Phase**
 - 3.1) First draft of EDR content provided by Level-3 managers
 - 3.2) Complete internal review of draft EDR
 - 3.3) Draft EDR released for external review
- **4) Review & Approval Phase**
 - 4.1) International Independent EDR Review
 - 4.2) Final EDR released



- Need to understand exactly what Planning Phase and Execution Phase mean for e- system.
 - i.e. filling in the details and e- specific milestones



Project Definition / Management

- WP structure
 - **Should aim for well-defined 6-10 WPs**
 - **(WPs have a start, middle, end and deliverable)**
 - **WP definition template has been distributed**
 - Will generate a lot of work (and questions!)
- Schedule
 - **Identify relationships and constraints between WPS**
 - May cause an iteration in WP definition
- WP allocation
 - **Statement of our policy, specifically concerning magnets, vacuum etc.**
- Relationship to CFS and ML Tech:
 - **How best to manage the cross-connects**



WP Allocation Process

- WP Allocation must be a clear and transparent international process
 - *What does this mean?*
- We are very short of resources
 - **Institutes with existing resources must be included (credited)**
- Existing funding / programmes must be acknowledged
 - **This is a constraint, but not necessarily a rigorous one.**
- R&D on alternatives as well as baseline must be integrated into the project.
- We must endeavour to maintain a healthy global project/collaboration



EDR Policy on Alternative Designs

- RDR Baseline must take priority
 - **We must identify critical path for baseline and find adequate resources**
- Alternative (ACD) must also be supported
 - **'most promising' R&D should be priority**
 - **Again, R&D groups bringing resources to the table should be accommodated**
- What consolidates ILC-related R&D
 - **EDR policy being developed**
 - **Will probably demand some level of activity on baseline**
 - **(details being discussed)**



EDR, Beyond EDR

- Begin of construction is currently unknown
 - **Technically driven timescale of 2012**
- Only know and well-defined deadline (for us) is EDR publication mid 2010
 - **We must focus on this date.**
- EDR must reflect the state of the technology at time of publication
 - **Baseline must be 'engineering ready'**
 - **Better (more accurate) cost estimation required**
- Promising ACDs will go beyond EDR publication
 - **We will construct the machine with the most mature cost-effective state-of-the-art technology available to us when the time comes**

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