



# DR KOM Close-Out

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# DR Design Maturity

- Current lattice appears a solid basis to begin engineering activities
  - **Current design appears to meet performance requirements**
    - One of the goals for the KOM
  - **Remaining critical risks for R&D programme clearly identified and documented**
- Well on-track for our general goal of 'engineering lattice freeze' for Tohoku Univ. meeting
  - **DR 'internal' milestone is end 2007**



# WP structure

- Structure OK
- Resource allocations and coordinating institutes require closer review
  - **Off-line after this meeting**
  - **Concern about ‘distributed’ FTE counts**
  - **(although we acknowledge DR is an effective and established collaboration)**
- Integration Issues need some resolution
  - **CFS/Global interfaces – how this works (formally)**
  - **Who makes decisions?**
    - Responsibilities/authorities are summarised in PMP (Appendix under change control)
    - TAG lead (Wolski) is final authority for DR area.
- Test facilities WP?
  - **Separate out resources primarily aimed at work at test facilities (ATF, CESR-TA) to make clear ‘ED phase’ resources**
  - **(this already exists in BDS, for example)**
  - **To be discussed.**



# Cost Reduction / Value Engineering

- We must look to ways to reduce/constrain the cost across the board
- But we must have a solid conceptual design for the engineering (cost estimation) to proceed
  - **CFS impacting decisions require an early freeze**
- Conceptual cost-reducing design modifications should be evaluated by Tokoku.
  - **Resistance to fundamental changes will be large after this**
- AP&D: We need a 'short-list' of DR 'cost-reduction' action items which can be considered on the time-scale of a few months
- Example: Cost evaluation (including upfront R&D) of adopting higher voltage 2K SRF system
  - **Return to 6mm bunch**
  - **Relaxing many performance issues for RTML and opens up potential to go to a single-stage compressor.**
- Example: reduction of tuning magnets, power supplied etc.
  - **WP-2: recognised as on-going, and that this is unlikely to be resolved by Sendai -> future cost reduction.**

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# Completing the “Preparation Phase”

- Establishing the “Engineering Baseline”
  - **Freezing the lattice**
    - (subject to further cost reduction activities via engineering feedback/iteration)
  - **Documentation (ILC-EDMS)**
    - My impression, DR is in good shape here
    - ILC-EDMS process/plan still needs some definition (meeting tomorrow)
- Conceptual cost reduction studies
  - **Covered on previous slide**
  - **Leading up to “Engineering Baseline”**
- Resource consolidation across WPs
  - **Link top-down with bottom-up resources allocation**
  - **PM/EC and institutional sign-off**



# R&D Plan : Engineering Plan

- Engineering Plan will be CFS driven
  - **Largest ‘inertia’**
  - **Delivery dates/ and milestones to be set from CFS requirements**
    - Iteration with Accelerator Systems clearly will be needed
- On-going (DR) R&D plan well-balanced
  - **Aimed at the S3 identified high-risk items**
  - **Engineering on baseline lattice will continue in parallel**
    - Plan for success
    - Progress on R&D to be reviewed at key intervals to assess status of risk register
- As part of maintaining the risk register, impact of fall-back solutions should be documented early
  - **impact on ED phase activities, as well as project cost**
- Worst case:
  - **For EDR, may need to take a performance hit if ‘cost’ of implementing fall-back solution is high**
    - Capital (design) cost
    - ED phase re-engineering

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# VALUE Engineering

- Two facets (my opinion)
  - **Formal process, primarily focused on CFS engineering aspects**
    - PM driven, implemented as formal workshops
    - CFS to host
    - AS (DR) to 'respond'
      - Note that findings of this process can have an impact on accelerator performance/design. The Accelerator Physicists must be in the loop.
  - **Informal, or continual**
    - Cost awareness
    - Change Control (cost-driven)
  - **No modification or addition to the baseline documentation can be made without an associated evaluation of the cost impact!**
    - Even if that impact is zero
    - Fundamental part of our Change Control (cost-control) policy
    - Maintaining an 'up-to-date' value estimate throughout the ED phase
      - No "big unpleasant surprise" in 2009!
- A general request to all TAG leaders:
  - **How is 'cost awareness' implemented in your WP/Management structure?**
  - **(Read PMP appendix on Change Control)**

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## DR Specific

- The usual suspects
  - **You already know what these are!**

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