



Controls LLRF EDR Kick Off Meeting

View from the Project Management Office

Fermilab / ANL

August 20, 2007

Global Design Effort



Engineering Design Activity:

- Builds on the:
- BCD – the baseline description (12.2005)
- RDR – contains the backbone of our design and the ‘value’ estimate (08.2007)

- The EDR:
- will have the next update for these, based on ‘value engineering’ and more in-depth understanding, and
- Will include a plan for project execution
 - **Including how to build the tunnels and high technology components**
- 08.2010



Scope of ED Activity

- Resources provided (almost all) by participating institutions and their funding agencies
 - (small ‘common fund’)
 - Limitations known for the coming 3 years
 - Project control over resources may increase during EDA
- Duration is known,
- Resources known,
- Scope is ?
 - **Decreased ED resources → increased risk**
- Design and R & D prioritization based on ‘return for investment’



RDR Completion:

- Success of the GDE – a ‘grass-roots’ organization without a strong institutional center
 - (opposite of CERN)
 - Capitalize on this and
 - Lay groundwork for a stronger – yet still de-centralized - ‘ILC Engineering Design Project’
 - Critical Mass
- Our community ‘votes with its feet’...
 - given the structure and the
 - opportunity to contribute to their labs future and the future of the science.



Near-ness of ILC

- Is the ILC infinitely far off?
 - How do we attract the technology/scientific community?
 - What about Orbach's Feb 2007 statement?
-

- By completing R & D and Design milestones
 - **Some formality needed to confront political process**
- and bringing in strong new faces
 - **Akira Yamamoto, KEK; Jim Kerby, Fermilab; etc**
- organizing and *aligning* intellectual, engineering resources in labs
 - ***enabled through regional financing.***
- Exciting technology → SRF-based accelerator projects
 - **XFEL; Fermilab Proton linac; ERL**



Path to Get Started on the EDR

- *Plan:*
 - ***ED Activity is a 'Project' subject to accountability/transparency***
 - ***Deliverable is a documented strategy and plan***
- *Resources*
 - ***Common Fund***
 - ***Negotiation with regional/institutional managers***
- *Staffing*
 - ***Need engineering management***
- *Schedule*
 - ***Planning Milestones due: Fermilab 22.10.07 and Tohoku 03.03.08***



Top Priority: Push the Technology AND Control the COST

- fundamental → containment of the current RDR Value estimate.
- potential cost-reduction via good engineering practices
 - **clearly identified in the RDR.**
- Together with the risk-mitigating prioritized R&D program
- the focus of the EDR work.



Industrialization

- Second focus: → increasing direct involvement of industries
 - **Engineering development / cost saving through industrial partnerships**
- Preparation for mass production
 - **is a critical issue for key technologies,**
 - **understanding how individual countries can contribute in-kind**
- This must be achieved on a truly worldwide basis,
 - **Intend to follow free-market**
 - **including seeking out and developing potential (new) industrial bases**



Our Community – global basis:

- The GDE is committed to these goals
 - as a **global project**, ← *this is a major ILC strength*
 - **building on the success of the RDR.**
- We must also:
 - **ensure that internal momentum is maintained and**
 - **foster continued growth in the enthusiasm and commitment of the international ILC community.**
 - **grow the resources: funding; new institutions; universities**
- Challenge →
 - **maintain effective communication paths between co-workers separated by great distances.**
 - **ensure strong overlap between GDE/ED activities and priorities of the major institutions/stake-holders.**
- Strength →
 - **diverse technical expertise**
 - **wide ranging laboratory infrastructure**
 - **(result of years of hard work and preparation.)**

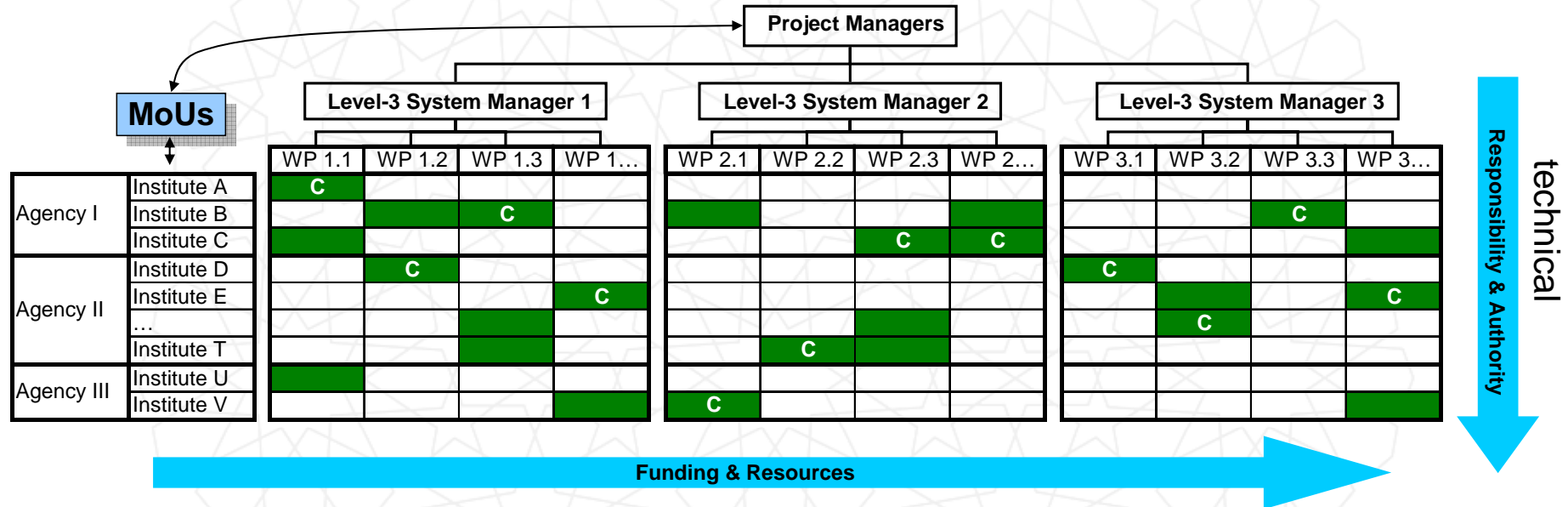


Access to Resources

- **Common Fund Support**
 - **Administrative Staff for Director and PM**
 - **Cost & Schedule**
- **Regional Support**
 - **Technical Management Staffing**
 - **R & D Financial Resources**
 - **The Regional Directors have an important role**
 - Authorize the plan
 - They connect the ILC EDR Project to technical expertise



Managing a non-centrally funded project:



- green indicates a commitment:
 - **institute will deliver**
- MoUs facilitate connection: (see Shekar)
 - **Project Management (authority and responsibility) and institutions (funding and resources).**
- The 'C' → coordinating role in a WP
 - **Each WP has only one coordinator.**



Example Work Package Coordination →

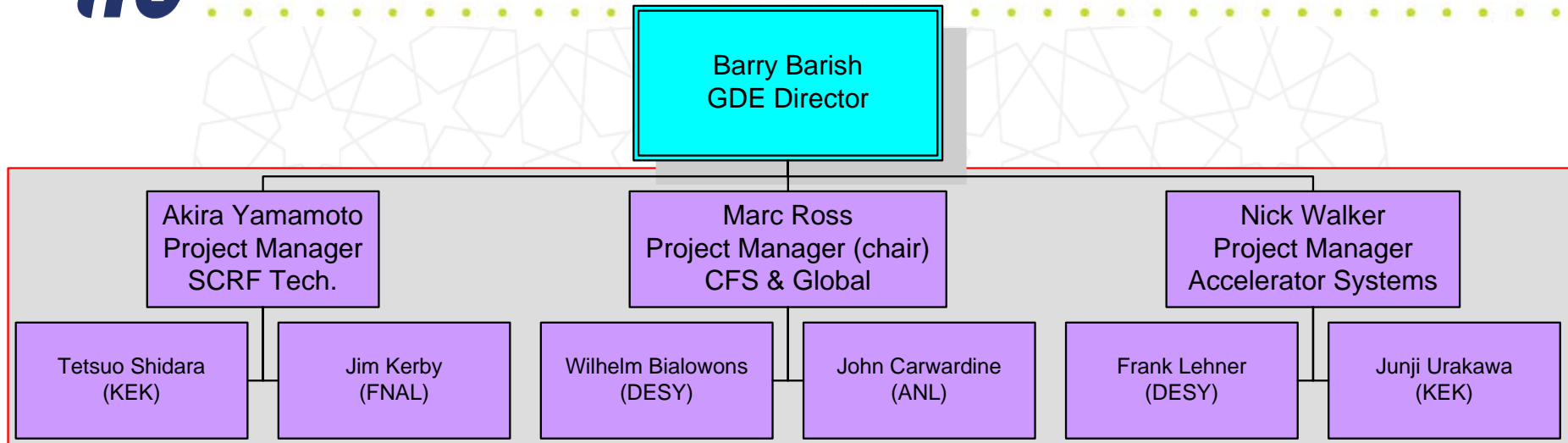
Area: Main Linac Technology (draft)

Regional/Intsitutional Effort:			Technical Effort (MLT):					
- Director-US: Mike Harrison - Director-EU: B. Foster - Director-AS: M. Nozaki			- Project Manager: A. Yamamoto - Associate Managers:: T. Shidara , J. Kerby, * Group leader, ** Co-leader					
Regions	Institutes	Institute Leaders	Cavity (Process) - L. Lilje*	Cavity (Prod./Int.) -H. Hayano*	Cryomodule -N. Ohuchi* -H. Carter(tbc)**	Cryogenics - T. Peterson*	HLRF -S. Fukuda*	ML Integr. - C. Adolphsen*
US	Cornell Fermilab SLAC ANL TJNL	H.Padamsee R. Kephart T. Raubenheimer	H.Padamsee	C.Adolphsen	H.Carter	T.Peterson	R.Larsen	Adolphsen
EU	DESY CERN Saclay Orsay INFN Spain	R.Brinkman J. Delahaye O. Napoly A.Variola C. Pagani			Parma	Tavian		
AS	KEK Korea Inst. IHEP India Inst.	K.Yokoya	Noguchi Saito	Hayano	Ohuchi	Ohuchi	Fukuda	

Not all slots assigned – *WP/ WP coordinators under consideration*



EDR Project



- and Technical Area Group Leaders
 - Total 25 (!) → 7 from Fermilab
 - *Margaret Votava (Fermilab) for Controls*
 - **Responsible for:**
 - Work Package definition & draft allocation
 - Area baseline
 - Organizing / drafting decision process



Technical Milestones: SCRF

- 'S0' cavity processing R&D
- high -gradient cryomodule, 'S1'
- phased completion of each region's SCRF test facilities: ILCTA_NML, STF, XFEL support systems
- ILC project cryomodule production plan including definition of cost -reduction and cost -containment design and R & D efforts
- development and identification of qualified vendors for cavity and cryomodule production
- beam testing to support ILC parameters
 - **cryogenic load testing,**
 - **higher-order-mode extraction and**
 - **flexible, precise, high level RF controls**



Planning Phase (July 07 - March 08)

- Milestones
 - **Project Management Team releases all necessary project guidance, tools, and organizational information to Level-3 Managers.**
 - **Level-3 Managers provide WBS dictionary, preliminary list of work packages, and preliminary list of issues, decision points, and resource requirements.**
- Interim Deliverables (Oct 07)
 - **Engineering Design Project Management Plan version 1**
 - **WBS template and guidance document for Level-3 Managers**
 - **Change control template and guidance document for L3 Managers**
- Deliverable (March 08)
 - **ED Project WBS dictionary for Levels 1-3**
 - **Preliminary outline of Engineering Design Report**
 - **Preliminary list of final deliverables for the Engineering Design phase**
 - **Preliminary resource plan**
 - **Prioritized list of issues and decision points to be addressed during ED Phase**