Survey of resource needs in ILD

2014/10/8

Yasuhiro Sugimoto

@ILD session at LCWS2014

Committee under MEXT

ILC Task Force in MEXT

Academic experts committee

http://www.mext.go.jp/b_menu/shingi/chousa/shinkou/038/index.htm

Particle-Nuclear physics WG

Members are physicists from;

HEP(6), Nuclear physics, Cosmic-ray, Astronomy, Accelerator(2), Particle theory, Nuclear theory, Cosmology, Science communication

TDR validation WG

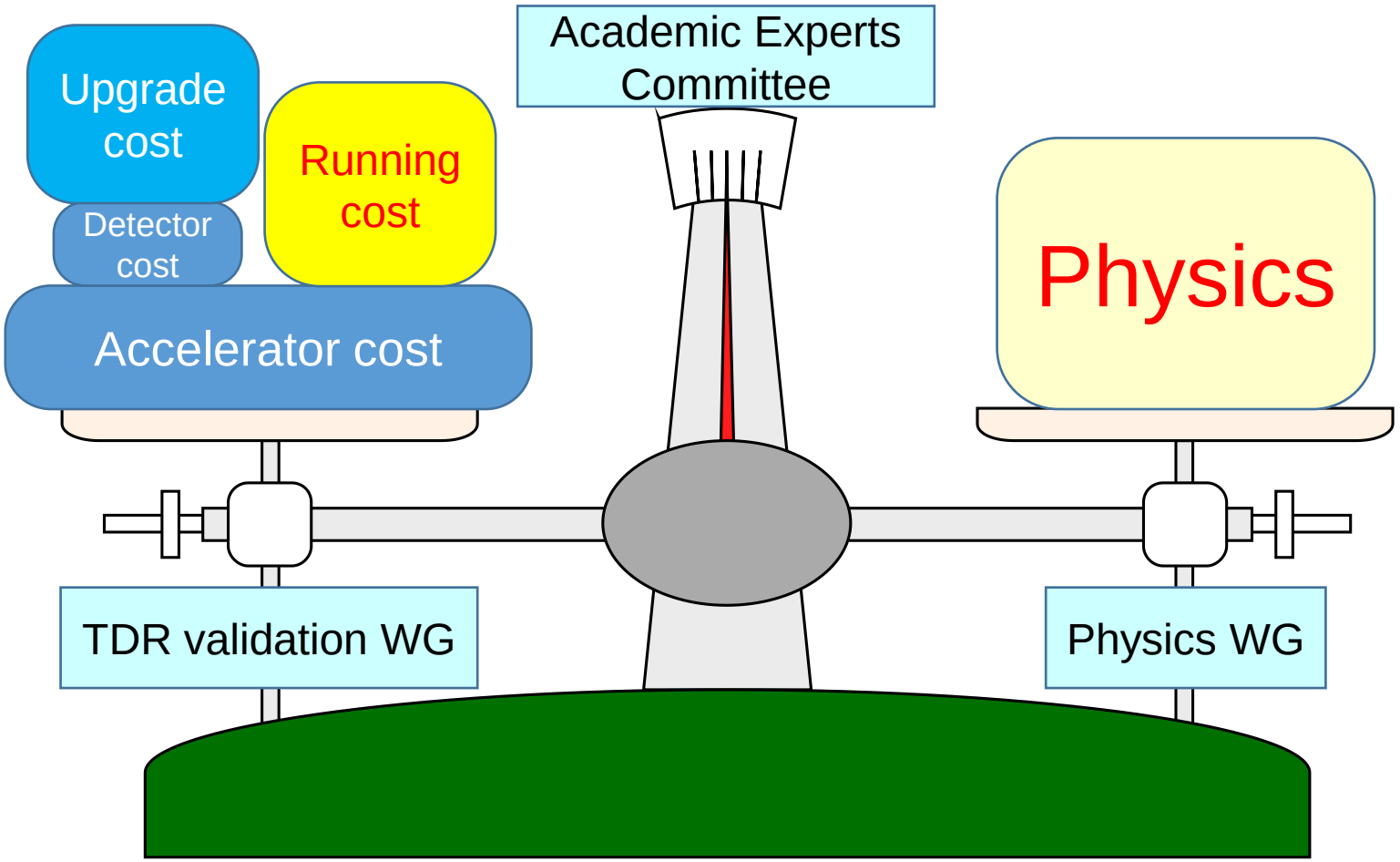
Members are accelerator physicists from;

KEK(3), JAERI, Riken(2), NIRS, HiSOR, JASRI/Spring8, CROSS-Tokai

We need information from detector groups

What MEXT wants to know

- Investment
- Profit



Schedule of TDR validation WG

- 2014 Jun. ILC TDR overview
- 2014 Jul. Main linac, SCRF
- 2014 Sep. SCRF Q&A, CFS
- 2014 Nov. 4. Schedule & Project management (including cost and human resources)
- (2014 Nov. 14. Academic Experts Committee)

Involvement of LCC

- Accelerator and CFS
  - Akira Yamamoto consults with LCC members
- Detector
  - LCC P&D Associate Director (Hitoshi Yamamoto) set up working groups;
    - Physics WG (Convener: K.Fujii, C.Grojean, M.Peskin)
    - ILC Infrastructure & planning WG (Convener: S.Yamada)
  - Physics WG prepares materials for Particle-Nuclear Physics WG
  - ILC Infrastructure & Planning WG prepares materials for TDR validation WG

Survey of resource needs in ILD

- Very premature study had been done and presented at ILD session of AWLC2014
- More information has been collected from sub-system groups
- Human resource needs for operation period also has to be clarified

- Excel file (and Word file for instruction) has been sent to sub-system contacts to survey manpower needed for construction and operation period
- Rough estimate of time profile of budget is also asked

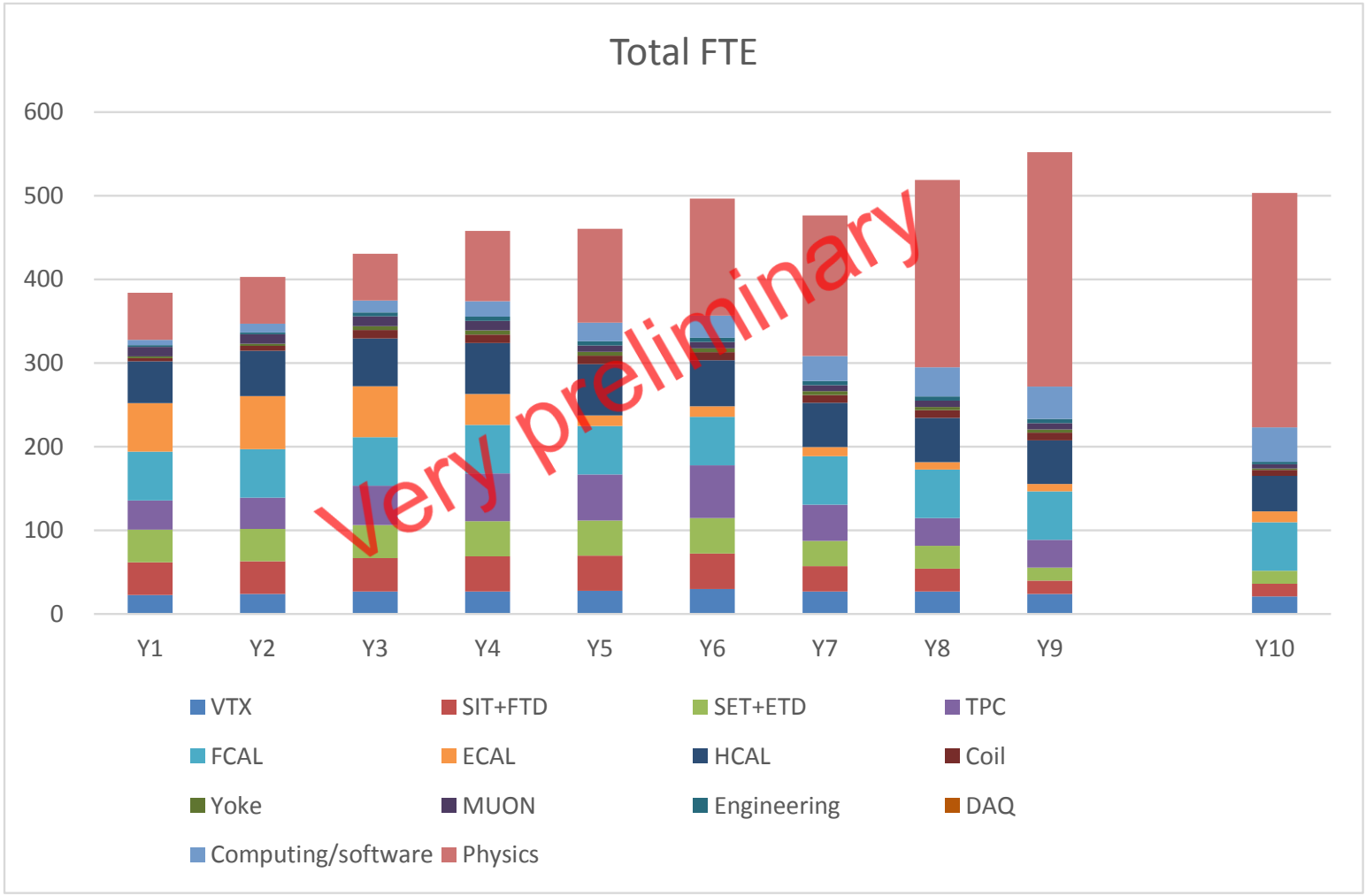
- Newly proposed detector hall scheme (Hybrid-A') and CMS style detector assembly is assumed for the schedule
- Detector construction period of 8 years is assumed to cope with possible early start with 250GeV CMS energy

- Very preliminary results were shown at ILD meeting at Ohshu city

Status of the survey

- Inputs from most of sub-systems have been collected so far, except for
  - Central DAQ
  - FCAL
  - Coil
  - Muon detector
- Some issues
  - For ECAL and HCAL, average values for two technologies are used
  - There is no responsible person for ETD/SET → Same numbers as FTD/SIT are used
  - It was suggested “Common engineering” sheet should be added: safety, detector integration and infrastructure, detector hall issues, etc. → New sheet is added
  - Categories of “Computing” and “Physics/Software” are re-combined as “Computing/Software” and “Physics”
  - Cost (infrastructure) for the central computer should be taken care by the ILC Labo, and excluded from ILD cost

Status of the survey



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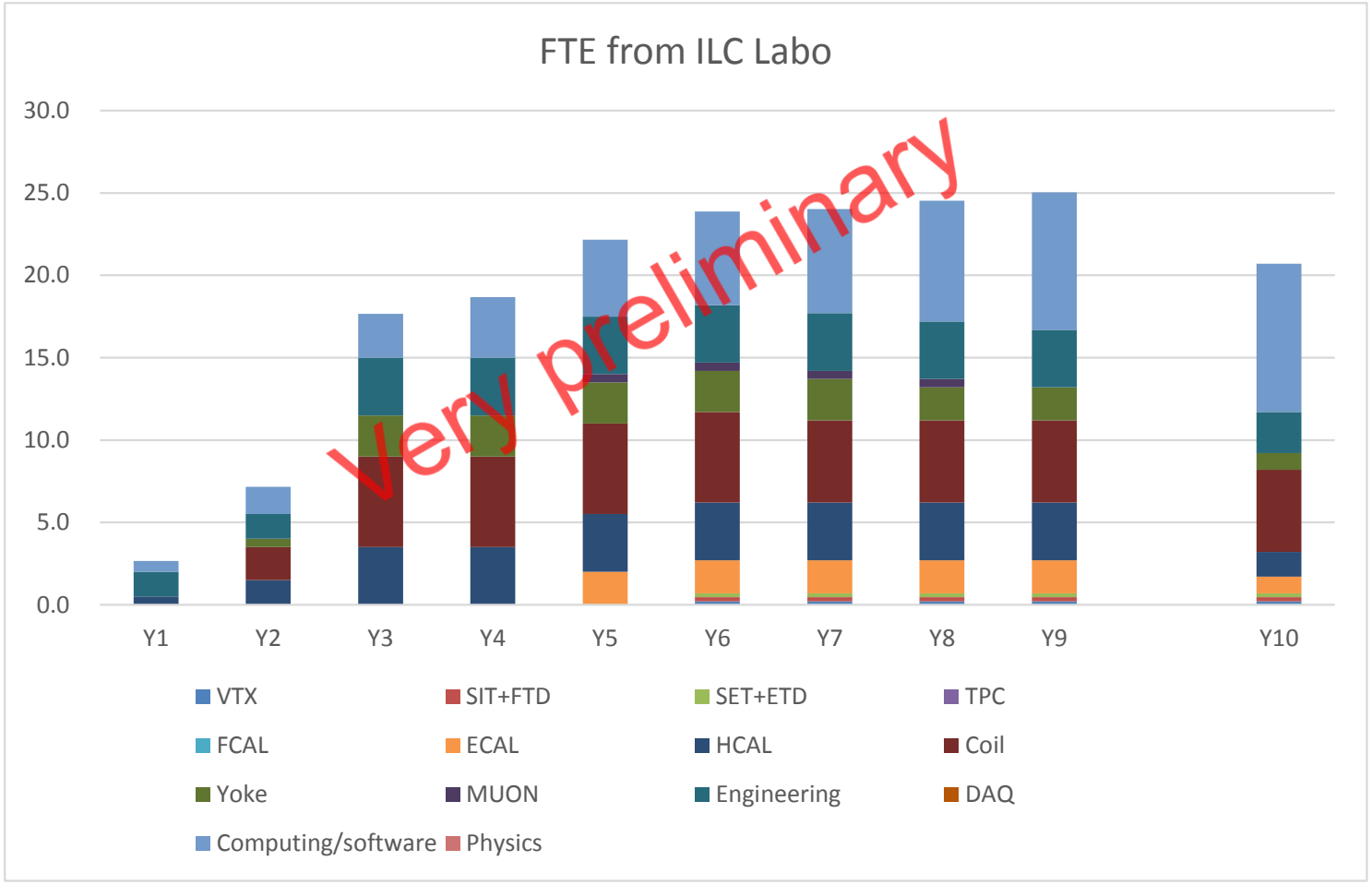

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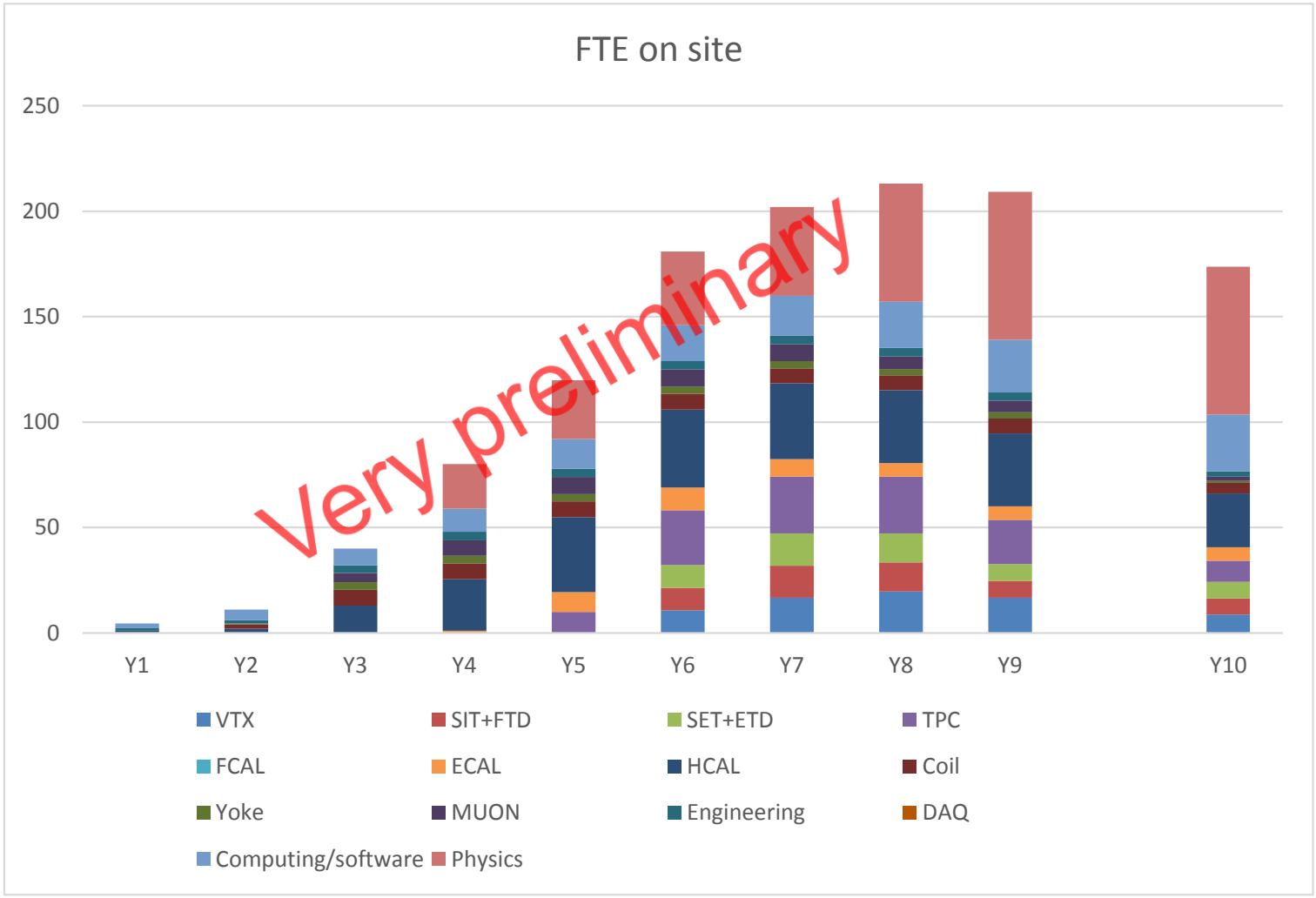

Request for additional information

- Time profile of “Labor”
  - “Labor” is direct employment or contract by institutes or universities for mass production, assembly, and installation
  - Numbers used for DBD (Total 1400 MY);
    - Magnet: 500 MY
    - ECAL: 200 MY
    - HCAL: 200 MY
    - MUON: 100 MY
    - TPC: 100 MY
    - Si tracking: 200 MY
    - Miscellaneous: 100 MY
  - A new excel file has been sent to sub-system contacts
- Running cost (Y10)
  - Some sub-detectors do not have entry in Y10
  - Running cost cannot be zero (Don’t forget about travel money)
  - Detector upgrade cost can be included here
  - Some FTE must be needed for maintenance
- Annual budget needed for R&D after ILC approval

Prospects

- In the next MEXT TDR review meeting on Nov. 4th, cost will also be reviewed
- Akira Yamamoto wants to get information by Oct.20
- So, please send me the additional information of sub-systems by Oct. 17

- Detectors will be reviewed in 2015 Feb.

Back Up Slides

ILC I&P WG

- Members
  - Convener: Sakue Yamada
  - ILD: Karsten Busser, Frank Simon (, Mary-Cruz Fouz)
  - SiD: Marty Breidenbach, Marcel Stanitzki
  - Local: Kiyotomo Kawagoe, Yasuhiro Sugimoto
- Mandate
  - Study of the human and budgetary resource needs during construction and operation
  - The time profile of the resources and their reality to quire
  - The organizational structure to interact with the ILC laboratory (Not relevant to MEXT review)

Resource survey in ILD

- Timeline
  - Time line was drawn based on the schedule in TDR (Figure 14.10. in Vol.3-II) and recent CFS study
  - Assembly hall is assumed to be built in 2 years from ground breaking
  - Duration of “Assembly on site” can be modified by sub-system groups

ILD assembly timeline for Hybrid option (CMS style assembly))

Sub-detector	Y-3	Y-2	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
Detector Hall				Excavation/Utilities									
Assembly Hall				Construction					Extention				
VTX				TDR	Construction off site					Assembly on site	Ins	Detector commissioning	Accelerator commissioning
SIT				TDR	Construction off site					Assembly on site	Ins		
FTD				TDR	Construction off site					Assembly on site	Ins		
TPC		TDR			Construction off site					Assembly on site	Ins		
FCAL		TDR			Construction off site					Assembly on site	Ins		
ECAL (Barrel)		TDR		Construction off site				Ass. On site	Install		Detector lowering		
ECAL (End cap)		TDR		Construction off site			Ass. On site	Install					
HCAL (Barrel)		TDR		Construction off site				Ass. On site	Install				
HCAL (End cap)		TDR		Construction off site			Ass. On site	Install					
Coil		TDR	Bid	Modules construction off site	Modules const. off site/assembly on site			Ins		FM			
Iron Yoke		TDR	Bid	Modules construction off site	Modules construction off site/ring assembly on site								
Muon det		TDR		Construction off site			Ass. On site	Install					
DAQ				TDR	Construction off site			Assembly on site		Commissioning		Operation	
Computing					TDR		Bid	Delivery on site		Operation			
Physics/software	Simulation				TDR		Simulation						Analysis

Ins: Install

FM: Field mapping