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CERN PS Booster Upgrade Working Group

The LHC Injectors Upgrade (LIU) should plan for delivering reliably to the LHC the beams required for reaching the goals of the high luminosity LHC (HL-LHC). This includes LINAC4, the PS Booster, the PS, the SPS, as well as the heavy ion chain.

Within the LIU project the PS Booster upgrade project (LIU-PSB) coordinates all activities related to an upgrade of the PS Booster in order to deliver ultimate LHC beams. This had included the study of two scenarios to replace the PS Booster by a new PS injector : PSB Energy Upgrade and Rapid Cycling Synchrotron (RCS). In August 2011, it was decided not to go further in the RCS study (a link to the study remain here), and to go for the PSB Energy Upgrade.

Mandate: Study of an Energy Upgrade of the CERN PS Booster

Study leader: K. Hanke, BE/OP

The aim of the study is to evaluate the technical feasibility of an increase in beam energy of the CERN PS Booster from presently 1.4 GeV to about 2 GeV as proposed at the Chamonix 2010 workshop[?].

The study comprises:

- Confirm the potential gain in terms of intensity and brilliance for LHC-type beams as presented at the Chamonix 2010 workshop.
- Confirm the technical feasibility. Identify accelerator components and equipment that need to be upgraded or exchanged. Identify potential showstoppers and point out solutions. Assign the responsible groups/units. Provide first rough time estimates for the various interventions needed.
- Provide a first estimate of material and personnel resources needed to complete the upgrade. Draft a project break-down into work packages, in preparation for a project to be launched by the director of accelerators.

Project Break-down

	CERN Coordinator	K. Hanke	
	CERN Deputy Leader	B. Mikulec	
	Scientific Secretary	V. Raginel	
	US LARP Representative	E. Prebys	

	Work-Package	Responsible	Unit
2.	Beam Dynamics	C. Carli	BE/ABP
3.	Magnets	D. Tommasini, A. Newborough	TE/MCS
4.	RF Systems	A. Findlay, M. Paoluzzi, M.E. Angoletta, A. Blas, A. Butterworth	BE/RF
5.	Power Converters	S. Pittet, D. Nisbet	TE/EPC
6.	Instrumentation	J. Tan	BE/BI
7.	Beam Intercepting Devices	O. Aberle, A. Massi	EN/STI

8.	Vacuum System	J. Hansen	TE/VSC
9.	L4-PSB Transfer and PSB Injection	W. Weterings, C. Carli	TE/ABT, BE/ABP
10.	PSB Extraction and PSB-PS Transfer	J. Borburgh, W. Bartmann	TE/ABT
11.	Controls	S. Jensen	BE/CO
12.	Electrical Systems	D. Bozzini, S. Olek	EN/EL
13.	Cooling and Ventilation	M. Nonis	EN/CV
14.	Installation, Transport and Handling	I. Ruehl, C. Bertone	EN/HE
15.	Civil Engineering	L.A. Lopez-Hernandez	GS/SE
16.	Radiation Protection	J. Vollaire	DGS/RP
17.	Interlock Systems	B. Puccio, P. Dahlen, B. Todd	TE/MPE
18.	Alarms		--/--
19.	Access Systems - Doors		--/--
20.	Survey	T. Dobers	BE/ABP
21.	Commissioning and Operation	B. Mikulec	BE/OP
22.	Dismantling		--/--

		Linkpersons	Unit
	Safety	N. Gilbert	EN/MEF
	Design Office	S. Mathot	EN/MME
	Integration	Y. Muttoni	EN/MEF
	Optics Database		--/--
	Layout Database	S. Bartolome, P. Le Roux	EN/MEF, BE/CO
	Technical Coordination	P. Bonnal	DG/DI
	HSE Correspondant	A. Jorge Henriques	DGS/SEE
	Consolidation and Shut-Down Work	N. Gilbert	EN/MEF
	PS	S. Gilardoni, R. Steerenberg	BE/ABP, BE/OP

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Topic revision: r49 - 2012-01-18 - VivienRaginel



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