

# Next Steps Towards the Engineering Design Phase

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## The present structure

WP#	WP Title	ANL	Cornell	FNAL	SLAC	LBLNL	LANL	LLNL	UIUC	UM	CI	DESY	LNF	KEK	IHEP	KNU	Tot. FTE	Potential WP Leader
1	Lattice design and acceptance	X	X			X				??			X		X	X	1.25	Louis Emery
2	Orbit, optics and coupling correction	X	X		X	X				??	X		X	X			7.85	David Rubin
3	Wiggler		X			X											1.90	Mark Palmer
4	Instrumentation, diagnostics, controls		X	X		X								X	X		6.40	Manfred Wendt
5	Impedance & impedance-driven instabs.	X			X	X					X			X	X		3.25	Gennady Stupakov/Chon
6	Fast feedback systems				X	X							X				1.50	John Fox
7	Electron cloud	X	X	X	X	X	??						X		X	X	8.45	Mauro Pivi
8	Power systems		X		X												2.30	Paul Bellomo
9	Other collective effects		X	X	X	X							X		X		1.45	Marco Venturini
10	650 MHz RF system		X		X	X											3.10	Derun Li
11	Magnets and supports					X									X		0.20	Steve Marks
12	Systems integration and availability										??						0.00	Cockcroft Institute (FNAL)
13	Vacuum system				X	X					X		X		X		3.10	Oleg Malyshev
14	Injection and extraction systems		X	??	X	X		X	X				X	X			7.55	Susanna Guiducci
15	Ion effects		X		X	X						X		X	X		4.65	Junji Urakawa
16	Conventional facilities and cryogenics	X		X		X									X			Tom Lackowski/Alan Jac
	<b>Global Systems Work Packages</b>																	
	Conventional facilities																0.00	
	Control systems					X									X		0.50	
	Cryogenics systems	X															0.10	
	Survey and alignment	X															0.25	
	Installation and commissioning plans	X															0.25	
	Polarisation										X	X					0.30	

## Defining the work package interfaces will be essential for success

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Each Work Package Manager needs to specify a set of deliverables for their work package. The Manager will be accountable for the completion of these deliverables by the specified date.

Deliverables will be of two types (though may not be formally distinguished):

- Providing some input for another work package, for example:
  - specification of electron cloud mitigation techniques (WP7) to allow vacuum system design to be “finalised” (WP13);
  - technical design of a vacuum chamber component (from WP13) to allow impedance model to be developed (by WP5);
  - specification of alignment tolerances and stability (WP2) to support technical design of magnet girders/stands (WP11).
- Providing a contribution to the Engineering Design Report
  - technical specifications/designs/costs (e.g. of magnets -- WP11; or vacuum system -- WP13);
  - evidence of ability to meet damping rings performance specifications (e.g. acceptance -- WP1; or orbit stability and low-emittance tuning -- WP2).

Deliverables will depend on resources available: we must be realistic!

## Interfaces must be made completely explicit

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<b>1</b>	Lattice design and acceptance	1	op	ip		op	op	op		op	ip	io	io	op	io	op	op
<b>2</b>	Orbit, optics and coupling correction	2	ip		io							io	io				
<b>3</b>	Damping wiggler design	3	op					io	op				io	io			op
<b>4</b>	Instrumentation, diagnostics and controls	4		io									io	io			
<b>5</b>	Impedance and impedance-driven instabilities	5	ip				op				ip			ip	ip		
<b>6</b>	Fast Instability Control Feedback	6	ip			ip					ip			ip	ip		
<b>7</b>	Electron cloud	7	ip		io									io			
<b>8</b>	Power systems	8			ip							io	io				op
<b>9</b>	Other collective effects	9	ip														
<b>10</b>	650 MHz SRF cavity design	10	op				op	op					io				op
<b>11</b>	Magnets and supports	11	io	io					io				io	io	io		op
<b>12</b>	Systems integration and availability	12	io	io	io	io			io		io	io		io	io		io
<b>13</b>	Vacuum system	13	ip		io	io	op	op	io			io	io		io	io	op
<b>14</b>	Injection and extraction systems	14	io				op	op				io	io	io			
<b>15</b>	Ion effects	15	ip											io			
<b>16</b>	Conventional facilities and cryogenics	16	ip		ip					ip	ip	ip	io	ip			

ip: requires input from

op: provides output for

io: requires input form and provides output for

If things are set up correctly, then (in an ideal world) all information transfer should happen automatically by direct communication between WP Managers. In reality, coordination will be required by the Area System Manager.

## Setting up the interfaces

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In the next couple of weeks, I shall be asking the proposed WP Managers to provide me with a list of deliverables for their work package.

For each deliverable, there should be:

- a brief description (i.e. one or two sentences saying what the deliverable consists of);
- whether the deliverable is an input for another work package, or is an “ultimate” deliverable for the Engineering Design Report;
- a date by which the deliverable should be achieved;
- the names of people responsible for doing the work for the deliverable (or a statement that the people are not yet identified);
- the input required to achieve the deliverable, together with the work package that should be responsible for providing the input, and the date by which the input will be needed.

I shall then collate this information, and arrange a series of WebEx meetings between WP Managers to develop a consistent plan (i.e. a plan in which all the inputs and outputs between the various work packages match).

## Launching the engineering design phase

Once we have assembled a complete and consistent set of deliverables, everyone should know what they have to do...

