Crab Cavities

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Charge questions:

1. Can the proposed project scope fit within the schedule and budget guidance given?

Yes, but only if the required budgets are forthcoming. It will be challenging to meet the 2015 schedule for the prototype cryomomodule, and it's likely the schedule contingency of up to one year will be needed.

The down selection on the cavity choice drives the schedule and should be made as soon as possible.

2. Are the proposed cost, cost profiles and schedules reasonable?

Schedule: see comments above.

Costs & cost profiles: these are not unreasonable at this point in the project.

3. Is the plan to mitigate external schedule changes within the constraint of a fixed budget adequate? [Are external risks adequately considered?]

LARP funding, CERN schedule, GARD funding & priorities, and SBIR performance are all external risk elements. They have been considered. Uncertainty on how to mitigate them remains. It will be important to closely monitor and - where possible - guide these elements to ensure success.

4. Is the technical plan proposed by each sub-project optimally developed? Are there additional technical risks that should be considered?

* The SPS test should be viewed as a technical test not just a beam test – a set of technical risks for the final LHC installation should be developed and the SPS test should be optimized with the goal to retire as many of the most challenging risks as possible:
  + Consider incorporating one vertically deflecting and one horizontal deflecting cavity
  + Consider extra CM diagnostics and cavity diagnostics to investigate beam/cavity interactions
  + Can SPS beam modes be modified to replicate certain LHC beam conditions ?
* The bare cavity prototyping is well advanced – the ODU rf dipole had an outstanding first test while the DQWR requires further processing and retesting .
* Conceptual thinking about the helium jacket design are progressing for both approaches and SLAC is involved with multipacting and HOM mitigation techniques –further work for optimizing both designs is required in terms of HOM dampers and multipacting mitigation.
* A plan for a final cavity down select process should be developed. The overall cryomodules design schedule should be included in the analysis.

5. Is the proposed management structure appropriate for the scope and scale of the project?

The management structure is appropriate at this time. It will need to evolve as the project proceeds and becomes more “projectized.” The recent update to the org chart is an improvement.

6. Are there additional comments the Committee feels are relevant, regarding either individual tasks or the project as a whole?

It is desirable that CERN and DOE come to agreement regarding the scope, schedule, and funding for the LARP program.

The project needs clear guidance from DOE regarding scope, schedule, and funding.

Exactly how things will proceed with the UK team is unclear. There is a risk of inefficiency. Parallel developments of two different solutions may not be affordable.