

GDE Monthly Project Management Report for December 2008

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There were no Technical Area Systems Monthly Meetings in December

Project Manager's Report

December saw critical installation and testing milestones pass at both CesrTA and Atf2. Both expect commissioning and operation to be in full swing in January 2009. Atf and Atf2 preparation and planning was reviewed at the Project meeting at Kek Dec 15-18.

December also saw the first ILC/XFEL CFS meeting, held at Desy early in the month. The Euro-Xfel project civil construction has now begun and we reviewed their system criteria and design choices (tunnel safety, water cooling, electrical power, ventilation and etc) at this meeting.

The Project Managers have started preparations for the Technical Design Phase - 1 Review, to be held in mid-April in Tsukuba. The review is to be done by the 'Accelerator Advisory Panel' (AAP), chaired by Bill Willis and co-chaired by Eckhard Elsen. In contrast to a more familiar review style, where a sitting panel spends a few concentrated days perusing freshly assembled material and listening to a sequence of talks, the AAP will spend several weeks before the review going material we are now starting to assemble. By the time April comes around we will have initial feedback from them, in the form of questions, which we will try to answer in our presentations.

The December monthly report is a short one, consisting only of this text and a short report on project management tool development authored by Peter Garbincius. This is because most of the Technical Area Group Leader tele-conference meetings were not held in December. For January, we will revert to the earlier style of these reports and include minutes and summaries from these tele-conferences.

Marc Ross

Monthly Report for Peter H. Garbincius

Activities included continued progress on the Triad development of the ILC Cost Estimating Tool, first monthly webex meeting of the CLIC-ILC Cost & Schedule Working Group, and beginning to understand the impact of the Initial Gamma-Gamma configuration as proposed by Sugawara.

Triad's ILC Cost Estimating Tool (ICET):

J. Carwardine, T. Himel, T. Shidara, P. Garbincius, and Triad: S. Curtis, L. Lew, and K. Long

Regular WEBEX meetings were held with Triad on Tuesdays: Dec 2, Dec 9, Dec 16, Dec 23.

Progress continues on the templates, specifically finalizing what information is required and superfluous, defining the pull down menus, specifying what tags are needed, useful, and whether there needed to be an imposed hierarchy for the tags. Many of these choices are highly subjective and personal, so we have to be sure that we are not over-specifying which will increase the cost and delay delivery of a useful product. Discussion continues on how something standard on an EXCEL spreadsheet is updated, whether some new item can be immediately defined by the estimator filling in a template, or whether it has to go back to "central team" for approval and global implementation. Our conclusion seems to be that there will always be a current template with pull-down menus available through EDMS. An estimator could add a new element to his local spreadsheet, such as unit = cubic-meters or a new tag, immediately, and the system could handle this. Such additions then must be approved by the "central team" and added by them to the reference starting version logged in EDMS for future use by all. EXCEL templates that were filled out prior to these additions would not be automatically retro-fitted, since they already would have had adequate information to have worked. The data provided by the estimator, including date of estimate and currency, will be specified on the EXCEL templates and carried throughout the database and repots, so the estimator can identify and check his input, but varying reporting inquiries which depend on then-year dates for escalation or currency exchange rates will be done via the database. Triad firmly recommends that scheduling issues (start/end dates) should not be included in ICET, but rather in a scheduling tool (MS Project or Primavera), linked to ICET through the WBS numbers. This will allow a more top-down over-view approach facilitating an integrated schedule. Finally, there was and still continues to be much discussion of how tags are propagated both upward and downward. We feel that we will learn most by playing with a realistic example and learning what questions need asking.

Lars Hagge sent two Applications Programming Interface (API) documents: EDMS WebServices User Guide and REST WebService Interface Specification, which Peter forwarded to Triad. ("REST" refers to the resource-oriented architecture.) So far, Triad has not reported either any successes or failures with interfacing with EDMS. Triad is also waiting on Lars' response on the series of Use Cases (interface specifications) that they sent to him on November 11. Finally, Peter has been trying to log meeting notes and test materials in EDMS,

but the lack of a simple navigational tool leads to difficulty in organizing and retrieving this information.

There was also a meeting with Peter, Tom, John on expansion of role of “tags” as done in SLAC WBS Tool where there is both a tag_name and a tag_value, such as @area=main_linac, @area=electron_source, etc. Its main utility in the SLAC WBS Tool is a shorthand to produce displays. By selecting the @area tag_name, pie charts and tables are instantly available showing distributions for @area over the tag_units for Electron Source, Positron Source, Damping Rings, RTML, Main Linac, BDS, etc. Similar information and displays will be available through the ICET data base. In order not to impede convergence, we decided not to ask Triad to add such independent roll-up capability at this time

Peter presented a simplified risk methodology for use at the cost estimating template level in ICET. In addition to the most probable cost estimate, this process also carries along a single 84th-percentile (+ 1 sigma for symmetric gaussian) “cost with risk” term for each item, as commonly done in US DOE project management. The cost probability distribution parameters (shape, limits, sigmas, etc.) are preserved in the database so fancier methods could be applied later. Note that there is no methodology in ICET to specify cost correlations on an item by item basis. This feature would have to be added top-down later.

As a Christmas present, Triad sent a set of networked cost estimating template files for us to play with and expand and to generate questions and suggestions. (Due to an e-mail overload, I just received this package and have not had a chance to exercise it yet. I’m writing this report instead...)

In order to exercise the system, we are still working with “toy” WBS and tags, realizing that the ICET system is general enough to be able to be loaded with our choice WBS and tags, and to be incrementally modified for evolution or specific studies.

Kevin Long promised to provide an ICET implementation guide in early January which will specify the requirements on the database. We cannot have the database reside behind the US DOE computer security requirements, so we will likely need off-site commercial hosting, as is done for the ILC document data base.

Just for reference, about ½ of the hours and about ½ the costs authorized for Triad have been spent, so one would hope that we are at least half-way done with the ICET development. Given that Triad has sent the first cost estimating template modules for us to play with, I think they are reasonably far along on this topic. They still have to get the raw and processed data from EXCEL estimating templates and configuration files into the database, but the claim is that they will use the same methods and tools they have used in previous applications, i.e. the MSU FRIB costing tool. They will be able to provide simple reports, but ILC will likely need to request additional more custom reports. Apparently, the interfacing to EDMS still hasn’t started.

The next WEBEX meeting with Triad is scheduled for Tuesday, January 6, at 1400 GMT. Main topics will be responses to the Christmas example and discussion of the flow of tags by Kevin Long.

CLIC-ILC Cost & Schedule Working Group:

Hans Braun, Germana Riddone, John Carwardine, Tetsuo Shidara, and Peter Garbincius

News item is that Philippe LeBrun has joined the CLIC Cost & Schedule Group

The first monthly WEBEX meeting was held on Thursday, December 11.

Peter reported on Risk analysis as done for the ILC RDR (same as Peter's pre-review presentation at Orsay in May, 2007) and plans for the Triad ICET (simple "cost with risk" terms as commonly done in US DOE Project Management methodology).

Germana distributed and discussed a revised CLIC Cost Estimating Template with format changes, starting/stopping dates in months from project start date (Triad suggests this best be done in a scheduling tool like MS Project or Primavera rather than in cost estimating tool, relating the elements through WBS numbers), and uncertainty classes.

On the next day, Germana sent two spreadsheets: a Parts Breakdown Structure for rolling-up the power needs and specifying the power coordinator for each area, and a power estimating template.

CLIC reported that Fabio Corsenego (mostly, with some help from Sylvain Weisz) is working on the CLIC safety note. This will be discussed at the CLIC-CES meeting on January 14, 2:30 PM CERN time. Peter later checked with Vic Kuchler who reported that the US team is keeping informed of what Fabio is doing, but they are working in parallel on US-specific safety standards. The ILC-CFS group idea is for multiple chapters, one for each region, in a common CLIC-ILC Safety note – so much for commonality! In any case, ILC-CFS normally participates in the CLIC-CES meeting, and Peter, John, and Tetsuo are invited.

Hans reported on cost estimating methodology for magnets. He is processing some information, is looking for more. After Jim Volk's presentation on Fermilab's Recycler ring, CLIC is starting to investigate permanent magnets for its transfer lines. There is the big question of flexibility in energy and tuning versus overall cost (probably the major factor for project approval). Peter asked Ewan Paterson if permanent magnet solutions for transfer lines, turn-arounds, and maybe even damping rings warrant re-consideration for the ILC Minimum Machine studies. Ewan asked Cherrill Spencer to dig out the references to arguments and cost from prior discussions for the NLC, for review before re-opening this issue.

The next CLIC-ILC Cost & Schedule Working Group WEBEX meeting is scheduled for January 15, 2009, the 2nd Thursday of each month at 1400 GMT. Frank Lehner will report on the latest

treatment of risk by XFEL. He will also try to follow-up on the “full costing” methodology developed by FAIR, to which John Carwardine referred.

Understanding Impact of Sugawara’s Initial Gamma-Gamma Configuration:

Barry Barish commissioned a team consisting of Bill Willis, Eckhard Elsen, Michael Peskin, Sakue Yamada, and Peter Garbincius to produce a statement on this suggestion for the early February ILCSC meeting. Michael has brought in Tim Barklow (SLAC) and Andrei Seryi and his BDS/γγ team have been investigating the technical implications. There are also considerable questions on the scheduling the operation of an early gamma-gamma collider with minimal facilities, and then upgrading to the 500 GeV e+e- collider. Once a hardware configuration is settled, the ILC RDR Estimate will provide enough information to assess most of the cost impacts. Some outstanding questions that must be decided include: what e-e- energy margin is needed above the Higgs mass, how many Damping Rings are needed (0, 1, or 2), can we get by with a single electron source (with additional injection/extraction and tunnels to/from DRs), how much can the BDS be shortened and simplified for lower energy operation, how much expansion capability, e.g. building the undulator/target station/beam dump hall for the positron source, will be initially installed under this γγ phase, and how much additional effort and costs (like abandoned low energy RTML turn-around tunnels) will be incurred for the 500 GeV e+e- collider. These are fairly simple to quantify. More problematic is the cost of the laser system. Jeff Gronberg of LLNL cannot provide an estimate of the cost range for a multi-terrawatt γγ laser (time-average ~ 15 kW per beam) compared to the $\geq \$ 1$ B National Ignition Facility (NIF) (with an time-average only 55 watts – one 1.8 MJ every 8 hours). LLNL is working on developing high average power lasers (~ 1 kW). Is this laser system a \$ 100 M, or \$ 500 M, or \$ 1 B cost? Andrei has suggested a relatively economic Free-Electron Laser based on TESLA/ILC technology, but can it do the job? Quite a bit of R&D is needed before a realistic estimate can be produced. We’ll do our best to produce an estimate with whatever information we have available.

Peter Garbincius