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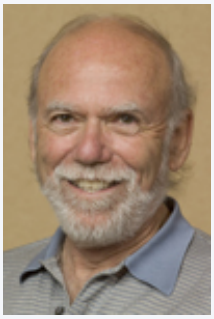
Director's Corner

25 January 2007



Barry Barish

The Machine Advisory Committee Reviews the ILC Reference Design

Our steady march toward completion and release of the ILC Reference Design Report (RDR) continued into the New Year with a Machine Advisory Committee review on 10-12 January. This important review took place in advance of our planned release of the report, which will occur at our upcoming GDE meeting in Beijing on 4-7 February. In contrast to our "internal" costing review in December, described in my 4 January 2007 column, this review covered both the reference design and the costing.

Norbert Holtkamp, ITER Principal Deputy Director-General and Project Construction Leader, participating as a MAC reviewer at the Daresbury meeting.

This last review was the third MAC meeting. As the committee has become more familiar with the issues, and our ability to present our work to them has grown, each meeting has been more substantive and more useful than the previous ones. The committee report begins with a very supportive general comment, " *The MAC applauds that considerable evolution of the design was achieved which was made possible by strong leadership and guidance by the GDE. Together these have resulted in a successful reduction of the total project cost as compared to the status of summer 2006. The numerous design changes that provide considerable cost reductions as compared to the baseline configuration are clear evidence that the performance driven baseline configuration was successfully converted into a cost conscious design. It is also remarkable that the difficult process of implementing these significant changes has not slowed down the momentum of the design effort but rather has strengthened the design team's focus."*

The body of the MAC report contains many substantive comments, some of which we will incorporate into the RDR. Other comments will help guide the work that will follow the RDR phase, as we approach the ILC engineering design. The International Linear Collider Steering Committee (ILCSC) gave the MAC the following charge for this review:

- *Review the soundness of the overall RDR concept, identify any areas of concern, note what R&D is still needed, and comment on whether the performance parameters can be met.*
- *Review the cost methodology and identify any areas of concern.*

The MAC found the two parts of their charge to be strongly interrelated, especially because of the large number of cost-driven design changes we have made over the past six months. In a previous review, the MAC noted, and we acknowledged, that the ILC baseline was performance

driven, in the absence of cost information. Now, following an intensive six-month period in which we considered many possible options for cost reduction, they acknowledged that the present RDR design has been successfully optimised for cost to performance. In the MAC's own words, they conclude:

Don Hartill, Cornell University, participating as a MAC reviewer. Note several GDE members in the background.

"The GDE reported that the first assessment of the ILC cost as discussed in July 2006 resulted in a number deemed too large. A number of design changes aiming at lowering the costs were then proposed and analyzed. After an involved process of checking the consequences, the Change Control process, the changes have been accepted, rejected or delayed. This procedure resulted in cost reductions on the order of 25 % without reducing the scope of the ILC (centre of mass energy of 2 x 250GeV, a peak luminosity of $2 \cdot 10^{34} cm^{-2} s^{-1}$, an integrated luminosity of 500 fb^{-1} in 4 years, an energy spread not larger than 0.1% and the possibility of upgrade to 1 TeV c.m.)."

I believe this says it all! The project has evolved into a cost effective Reference Design that meets the physics goals of the ILC. This design, which we are now documenting, will provide strong guidance for both our R&D program and for the engineering design effort to develop an ILC construction proposal. The ILC design will certainly continue to evolve through our change control process, mainly as a result of value engineering and the results of the R&D program.

-- Barry Barish

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