

# LINEAR COLLIDER FORUM OF AMERICA

## ISSUES FOR INDUSTRY IN A MULTI-REGIONAL PROJECT

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# **WHAT IS THE ILC?**

**GDE DIRECTOR**

**BARRY BARISH, HAS STATED THAT  
“THE ILC IS A PROJECT NOT A LABORTORY”**

**THE LCFOA BELIEVES THAT THE ILC  
IS A PROJECT NOT A BUSINESS**

# PRINCIPLE ISSUES IN INDUSTRY FOR A MULTI-REGIONAL PROJECT

- ◆ Collaboration on the design i.e. ONE DESIGN.
- ◆ Standardization of drawings, specification etc..
- ◆ Distribution of technologies between regions.
- ◆ Limitation on ability to bid between regions.

## ◆ Can companies deal with different engineering and design standards?

Companies deal with different standards all the time, but it would make a lot of sense to decide on drawing and specification standards up front. There are several existing models in the National Lab system. Pick one and stick to it.

◆ Build to performance specification vs.  
build to print?

Build to print, it's the only way you'll get interchangeable equipment.

# OPEN COST ESTIMATES

- ◆ Except for proprietary corporate internal rates, we see no problem with the sharing of cost estimates such as from industrialization studies.
- ◆ The use of incentive fee contracts are acceptable depending on the details of the contract.
- ◆ One should consider a contract form similar to that for the RHIC magnets where the company built 30 magnets under a cost plus fixed fee contract and the remaining magnets under an incentive fee contract.

## ◆ How will technical equipment requirements be split between the regions?

Risk assessment and project capacity would lead us to believe that critical components have to be split between a number of vendors. The regions would be a natural split.

# INDUSTRIAL INVESTMENT

- ◆ For industry to make investments in infrastructure the size required for the ILC there would need to be a large follow on market.
- ◆ What follow on market? The ILC is a project not an ongoing business. There will exist a huge world wide over capacity for manufacture of cavities, cryomodules etc. It makes absolutely no sense to maintain this capacity over the decade immediately after the construction of the ILC.
- ◆ There will be a market for the knowledge and fabrication techniques and skills developed.
- ◆ Demand will not support the continuation of the infrastructure need for the ILC.



◆ The US DOE has stated that the RHIC Program is the model for lab/industry projects.

- ◆ TECH TRANSFER
- ◆ INCORPORATE INDUSTRIAL FEEDBACK
- ◆ STATISTICAL PROCESS CONTROL
- ◆ PAPERLESS FACTORY
- ◆ GOVERNMENT SUPPLIED TOOLING

# **INFRASTRUCTURE INVESTMENTS** **AND THE IMPACT OF THEIR TIMING** **ON THE ILC SCHEDULE**

- ◆ It is very unlikely that any industry will invest in infrastructure prior to approval of the ILC and prior to the award of contracts. No one that remembers the SSC will make significant investment except on a pay as you go basis. This includes human resource investments which can be built up in the R&D Programs.
- ◆ As we have stated in the previous slide it is most unlikely that industry will invest in any significant infrastructure.
- ◆ It will probably take at least 2yrs to equip a plant to produce 7,000 cavities, with the necessary long lead items such as special electron beam welders, chemical processing equipment & ovens.

- ◆ The Government will most likely have to await authorization for the project before it can invest in capital equipment.
- ◆ The Government could conduct industrial competitions prior to ILC project approval. This would help with the ILC schedule.
- ◆ On ILC project approval the government could commence infrastructure investments consistent with the recommendations from industrialization studies performed in 2006. The selected industries could work with the government on these issues. In this way production can begin about 2yrs after ILC project approval.
- ◆ If the government could begin infrastructure investments prior to ILC project approval then this would help impact the schedule positively.

# INTELLECTUAL PROPERTY (IP)

- ◆ If all companies are to bid on a common design from the GDE then one has to ask where are the IP issues.
  - ◆ It can't be the drawings.
  - ◆ The companies may have different processes for manufacturing the items, and these can be proprietary but not the end products.
  - ◆ If any company has IP which would significantly reduce costs then licensing should be considered.
- ◆ It is difficult to impose IP if the three regions are collaborating and working on a common design.

# USE OF DEVELOPING COUNTRIES

- ◆ It depends on whether they are supplying materials or technology, the assumption is they could cut ILC costs.
- ◆ We believe that all three regions will want to develop and retain these technologies for the future.
- ◆ Outsourcing of such systems as cryomodules and RF power systems will make it very difficult to obtain US Congressional support for the ILC.
- ◆ If developing countries can supply materials such as niobium and portions of detectors as in-kind contributions, then this might be an option.

# **PROPOSALS FOR INDUSTRIAL STUDIES**

- ◆ The GDE is committed to providing a conceptual design and a cost estimate by December, 2006.
- ◆ Industrial studies should be conducted in each region, based on the baseline ILC, for production of cavities, cryomodules, couplers and for civil construction. These studies should commence no latter than January, 2006, if they are going to impact the GDE's cost estimate