

# Introduction to the PAC07 International Industrial Forum for the ILC

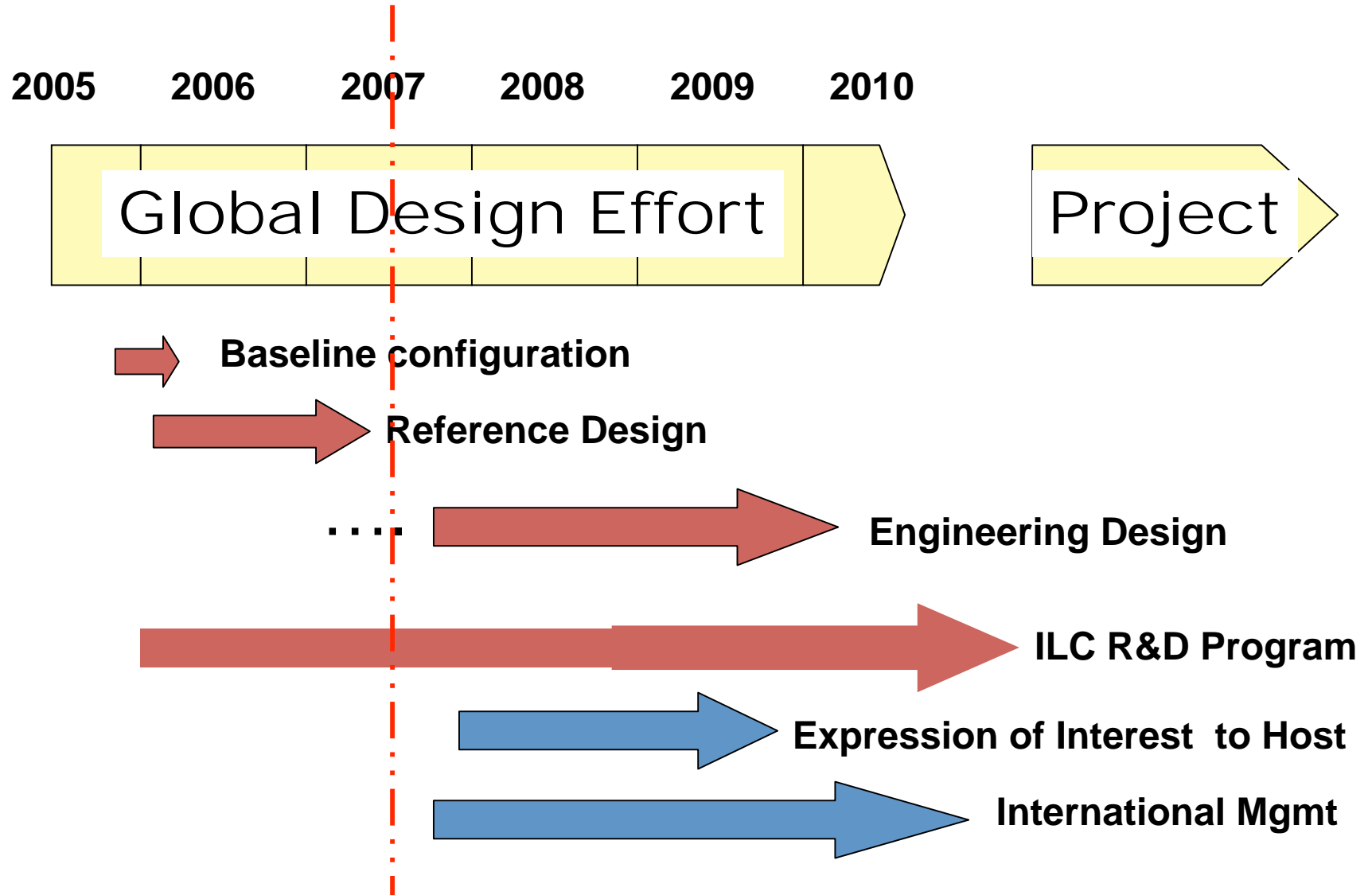
Ken Olsen

President

Linear Collider Forum of America



# ILC Timeline



# The Need for Industrialization

“The primary goal of the engineering design effort is to produce a proposal for construction of the ILC. A critical element will be not only to know what we want to build in detail, but also how we propose to build it and what will it cost. This means we must begin to work closely with industry *now*.”

Barry Barish, ILC Newsline; 19 April 2007



# ILC Component Requirements

By the end of 2010 global industry must supply reliable production cost estimates for:

- 18,000 Superconducting RF Cavities
- 2,250 Cryogenic Cryomodules
- 700 Klystrons and Modulators
- 16,500 electro-magnets (25% superconducting)
- 11 Cryogenic Plants
- Advanced civil construction techniques for tunnels and shafts
- Controls, Vacuum systems, etc.



# Hosting the ILC

## Current General “Thinking”

The host will provide the conventional facilities (~25%)

The technical components will be shared worldwide (~75%)  
[present model is 1/3 Asia, 1/3 Americas, 1/3 Europe]

Barry Barish,  
Presentation at the LCFOA Capitol Hill Meeting; 28 February, 2007



# International Cost Review of the ILC

**“More industry involvement in ILC component design, R&D and fabrication would be very desirable, but with strong coordination by the GDE. Removal of risk from the industrial fabrication companies is still essential in the application of such new technology. Valuable experience in industrialization will be gained at the XFEL project”**

Independent international committee of experts commissioned by the ILCSC and the FALC reviewed the technical progress and value based cost report prepared by the GDE over the past two years in a meeting at LAL Orsay, France on 23-25 May, 2007.



# Global Industrial Organizations

Each region has an industry support group to interface with the ILC program:

- European Industry Forum for Accelerators with SCRF Technology: 40 members
- Linear Collider Forum of Japan: 64 members
- Linear Collider Forum of America: 31 members

While the organizations, funding support and transparency may differ, each organization has the common objective of early involvement of industry in the project.



# ILC Industrialization Issues

Competition: The GDE operates in an open environment, all R&D results are available to all interested parties. Individual company manufacturing technology must remain proprietary to maintain cost competition.

Contracting Practices: Performance based vs. prescriptive, build to print, specifications. (or a combination)

Technology Transfer: Continuous two-way process through the EDR phase to reduce schedule and cost uncertainties.

Systems Engineering: Must be integral to senior program management structure at the top





# ILC Industrialization Issues

## (continued)

Reliability and Maintainability: Commercial best practices should be integrated into the EDR

Codes and Standards: Agreement on inter-regional commonalities and deviations needs to be agreed upon during the EDR phase.

Configuration management: Should be a key component within the EDR, integral to the hardware costing and bidding processes.



# ILC Industrialization Issues

## (continued)

Safety and Security: Regional requirements differences must be accounted for during the EDR.

Final Hardware Acceptance Testing: Procedures and locations should be developed, could have significant cost implications.

Additional Technology Applications: Credible additional markets for ILC technologies could reduce the tooling and manufacturing setup costs to the ILC.

