



# ***LINEAR COLLIDER FORUM OF THE AMERICAS***

## ***CONVENTIONAL FACILITIES OVERVIEW***

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## **OUTLINE**

- ***Overview of the CFS Role in the Overall GDE Organization***
- ***Update of Current CFS Activities***
- ***Near-Term Schedule***
- ***Thoughts on a Bid To Host Effort***
- ***How Can the LCFOA Help***

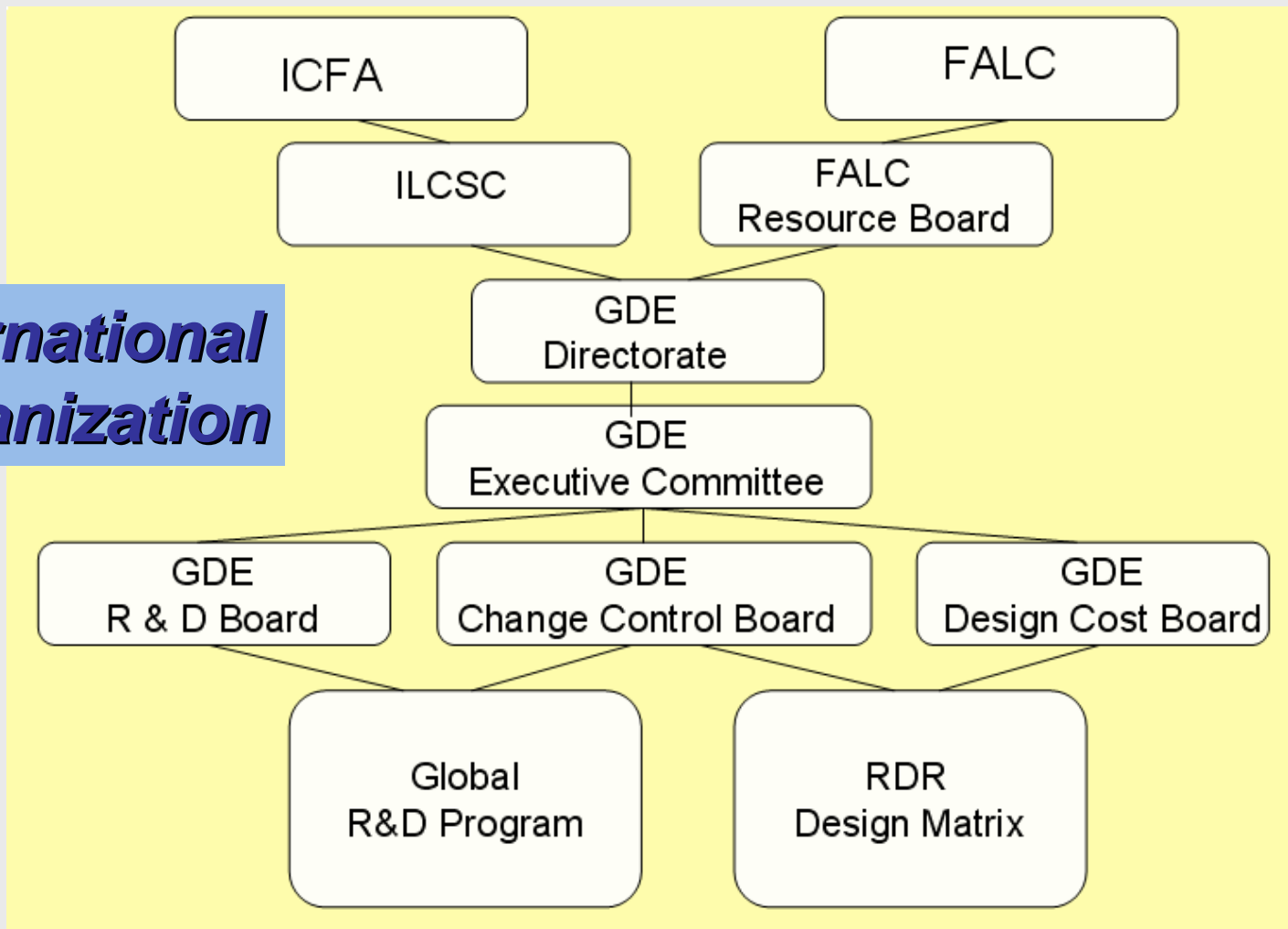


## First Some Definitions

- ICFA - International Committee for Future Accelerators***
- FALC - Funding Agencies for the Linear Collider***
- ILCSC - International Linear Collider Steering Committee***
- GDE - Global Design Effort***
- RDB - Research and Development Board***
- CCB - Change Control Board***
- DCB - Design Cost Board***
- CFS - Conventional Facilities and Siting***
- BCD - Baseline Configuration Document***
- RDR - Reference Design Report***
- TDR - Technical Design Report***
- WBS - Work Breakdown Structure***



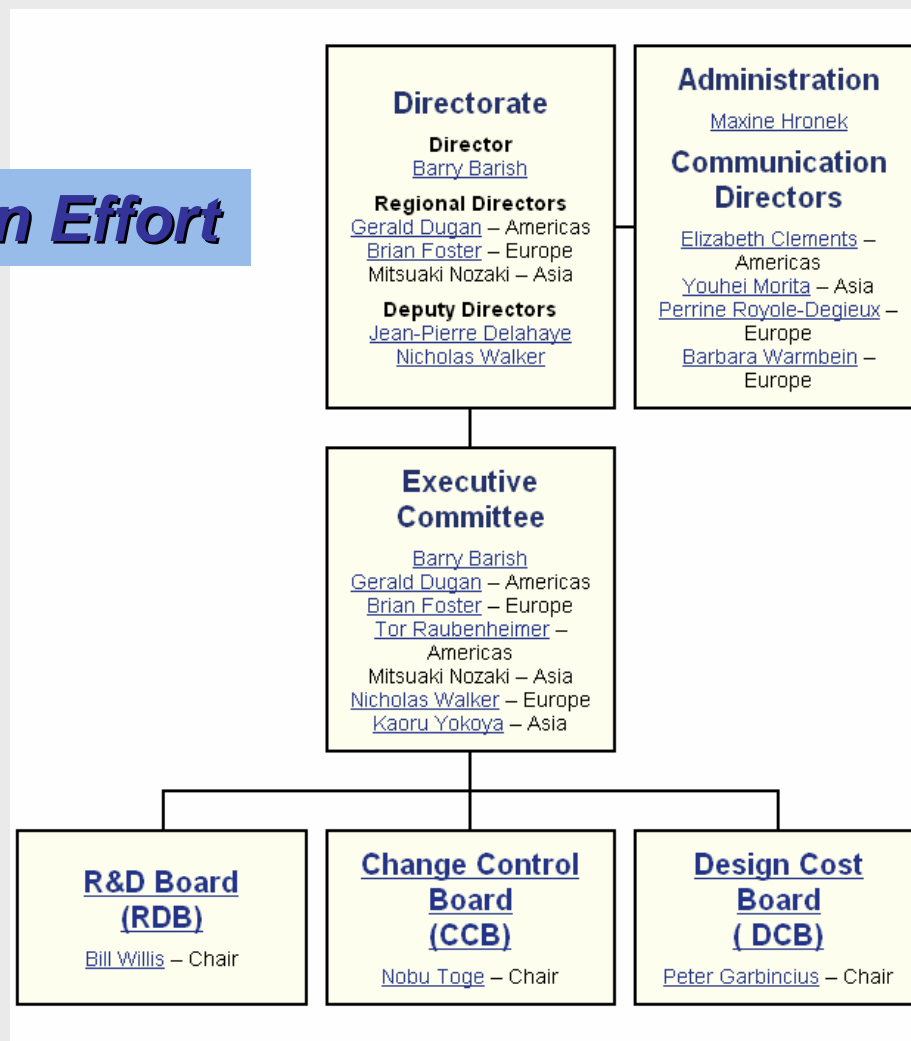
**International Organization**





# Linear Collider Forum of the Americas

## Global Design Effort





AREA SYSTEMS	e- SOURCE	e+ SOURCE	DAMPING RINGS	RTML	MAIN LINAC	BDS
<b>TECHNICAL SYSTEMS</b>						
VACUUM SYSTEMS						
MAGNET SYSTEMS						
CRYMODULE						
CAVITY PACKAGE						
RF POWER						
INSTRUMENTATION						
DUMPS AND COLLIMATORS						
ACCELERATOR PHYSICS						
<b>GLOBAL SYSTEMS</b>						
COMMISSIONING, OPERATIONS & RELIABILITY						
CONTROL SYSTEM						
CYROGENICS						
CF&S						
INSTALLATION						

**Area Systems  
Technical Systems  
Global System Matrix**



## **ILC CFS GROUP**

- ***CFS is Conventional Facilities and Siting***
- ***A Global Effort Divided into 3 Regions, Europe, Asian and the Americas***
- ***Asian Region Representative - Atsushi Enomoto***  
w/ M. Tanaka and R. Sugahara at KEK
- ***European Region Representative - Jean-Luc Baldy***  
w/ M. Poelher at CERN
- ***Americas Region Representative - Vic Kuchler***  
w/ F. Asiri, J. Aarons and C. Corvin at SLAC  
w/ T. Lackowski, E. Huedem and L. Hammond at Fermilab



## **ILC CFS CHARGE**

- ***Identify a Sample Site(s) for Inclusion into the Baseline Configuration Document***
- ***Develop Criteria to Support a Credible Cost Estimate for Inclusion into the Reference Design Report***
- ***Review Cost Estimate for Items that Could be Identified as Potential Contributions for a Regional Bid to Host Proposal***
- ***Begin to Develop Criteria for a Bid To Host Document***





## **RECENT AND NEAR TERM MILESTONES**

### ***At Bangalore***

- *Formalize Communication with Points of Contact*
- *Identify Means of Communication and Information Exchange*
- *Encourage Participation in Weekly CFS Video Conferences*

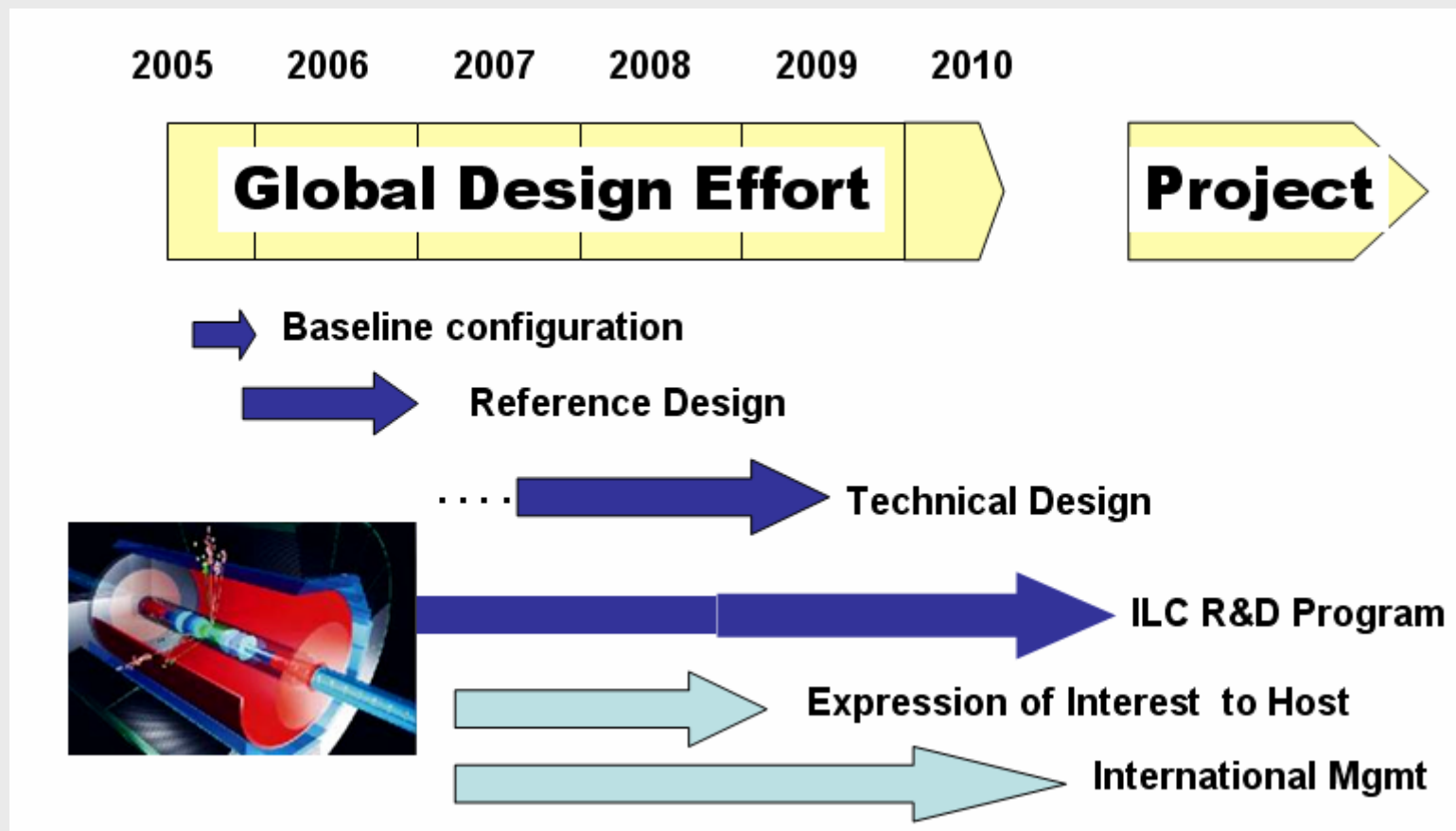
### ***Bangalore to Vancouver***

- *April - Identify Site Dependent and Site Independent Elements of CFS WBS. Distribute the Effort Equally Between the Three Regions and Review Results. Identify Areas of the Cost Estimate that Require Further Definition and Revision and Needed Input from Area Systems*
- *May - Continued Data Collection and Cost Development with a Full CFS Internal Review of First Draft Cost Estimate*
- *June - Provide First Full Draft CFS Cost Data to Design and Cost Board and Area System Groups Prior to Vancouver Meeting*

### ***Vancouver to Valencia***

- *Refine CFS Cost Estimate Including Review of Technical and Conventional Option Studies and Complete RDR Text As Needed*

## LONGER TERM MILESTONES





## **STRATEGY FOR WBS/COST DEVELOPMENT**

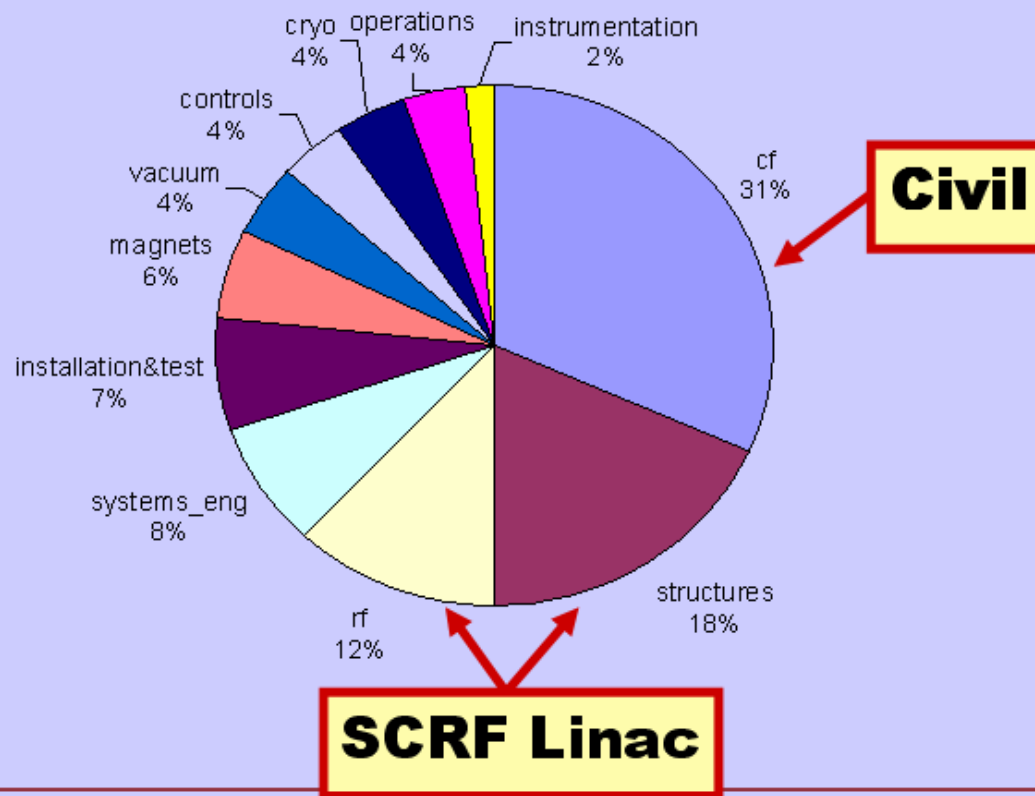
- ***Identify Work Breakdown Structure Line Item Elements***
- ***Generate the First Draft WBS Dictionary***
- ***Review Level of Detail Hierarchy and Line Item Elements***
- ***Complete First Draft Internal (CFS) Review and Incorporate Adjustments as Needed***
- ***Work with the Members of the Design and Cost Board to Resolve the Issue of System-Area-Discipline***
- ***Update Existing Available Cost Data to Reflect Current Criteria and Populate CFS WBS***
- ***Working with Area System Contacts, Develop Schematic Drawings and Criteria on which to Base the CFS Cost Estimating Effort***
- ***Iterate Cost Data as More Defined Criteria is Developed***



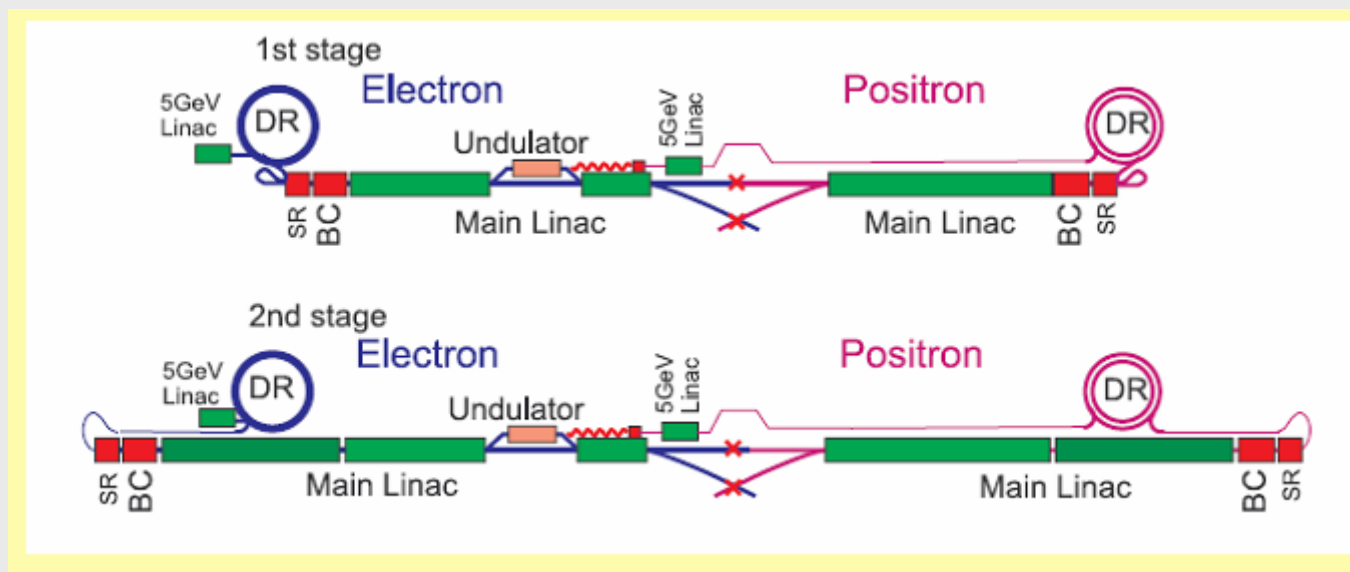
## **STRATEGY FOR WBS/CRITERIA DOCUMENTATION**

- ***Develop Schematic Drawings of Each Area System in Conjunction with Points of Contact and Update as Needed***
- ***Use the WBS and Dictionary to Assist in the Definition and the Establishment of the Boundaries Between CFS and the Area and Technical Systems***
- ***Utilize All Points of Contact to Complete Internal Criteria Data Sheets for Conventional Facilities Information***
- ***Make All CFS Data Available for Use by All Groups Via Web Posting to Provide Consistency of Information Throughout the Project***

### Cost Breakdown by Subsystem

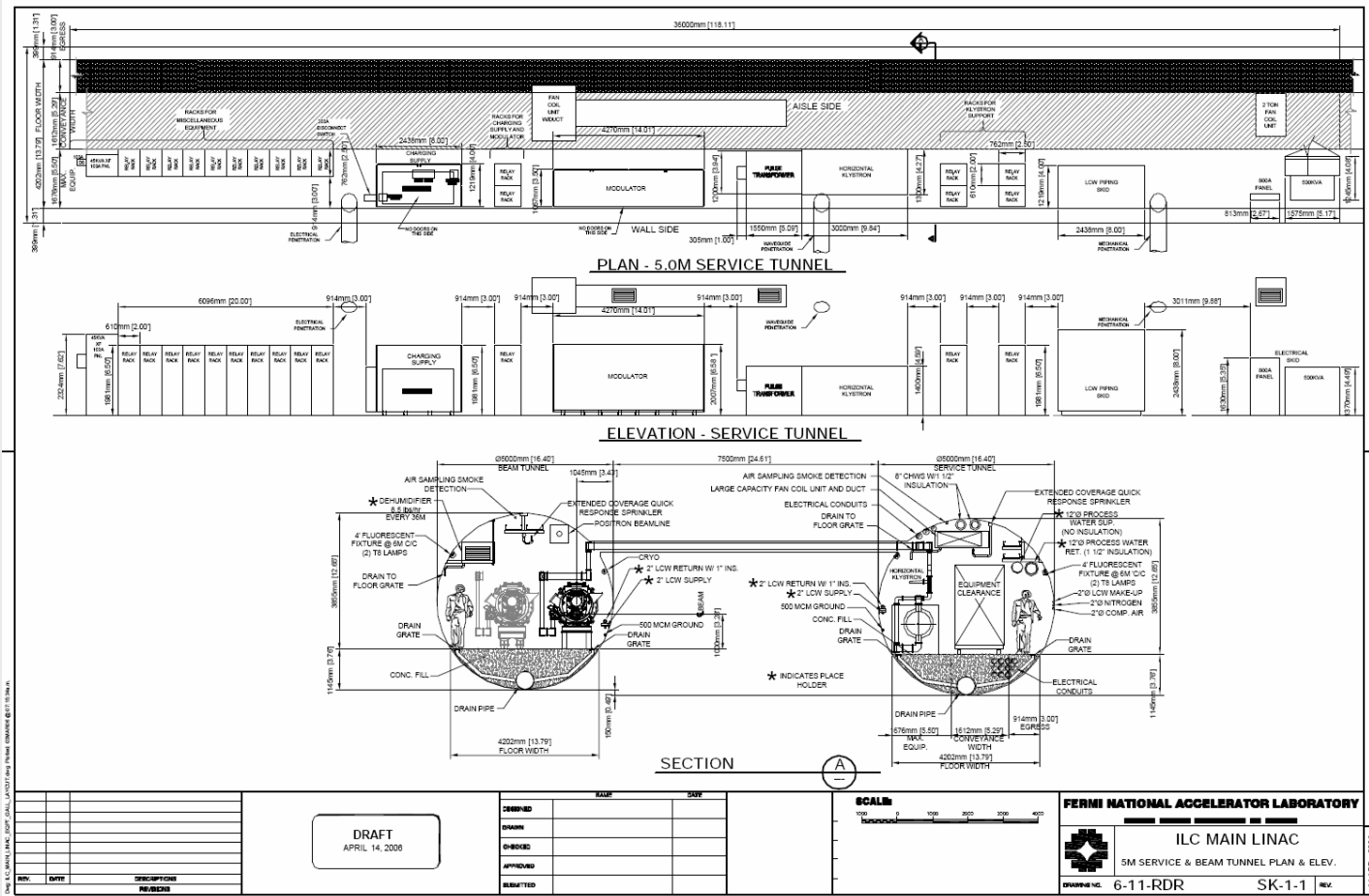


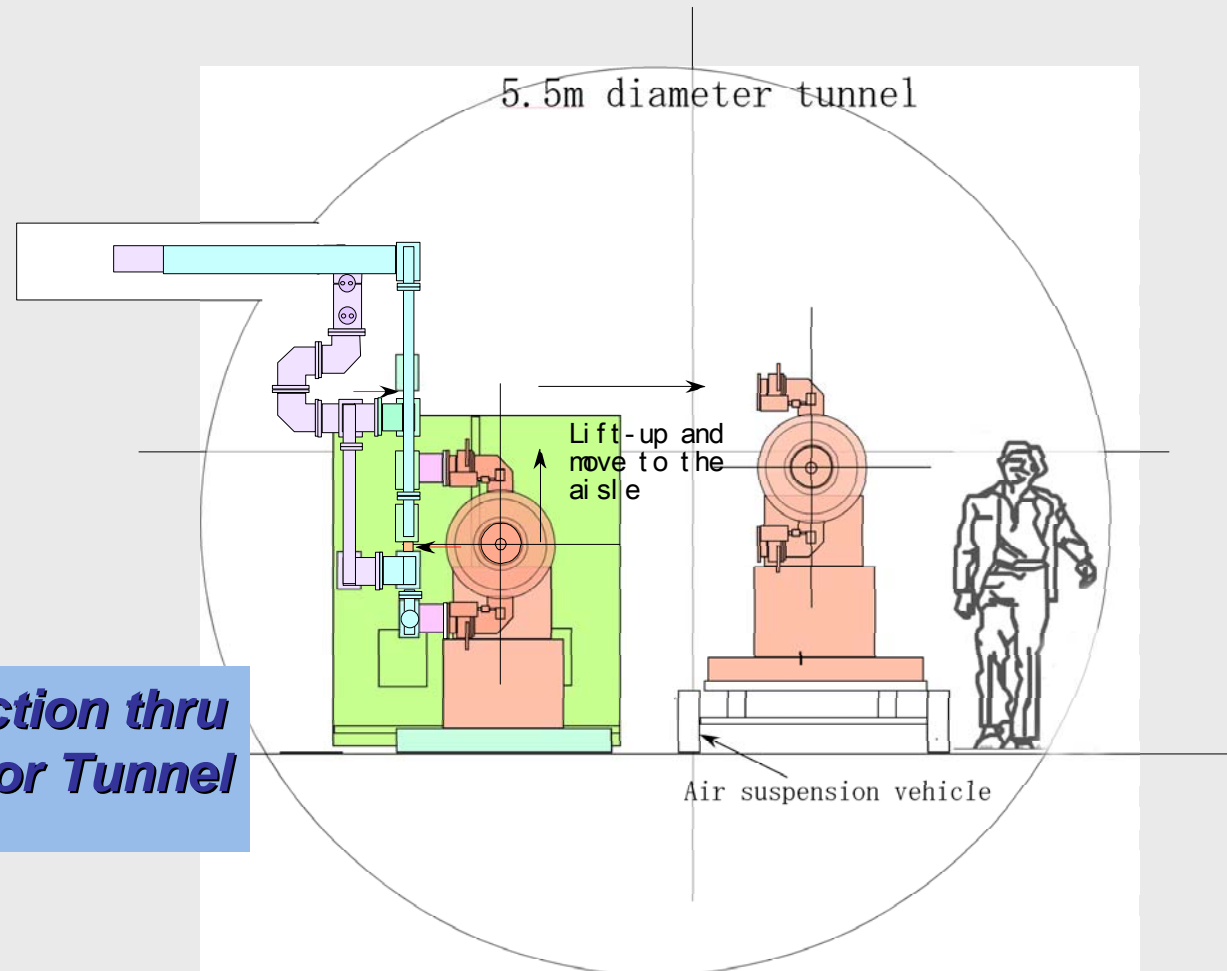
## OVERALL MACHINE LAYOUT





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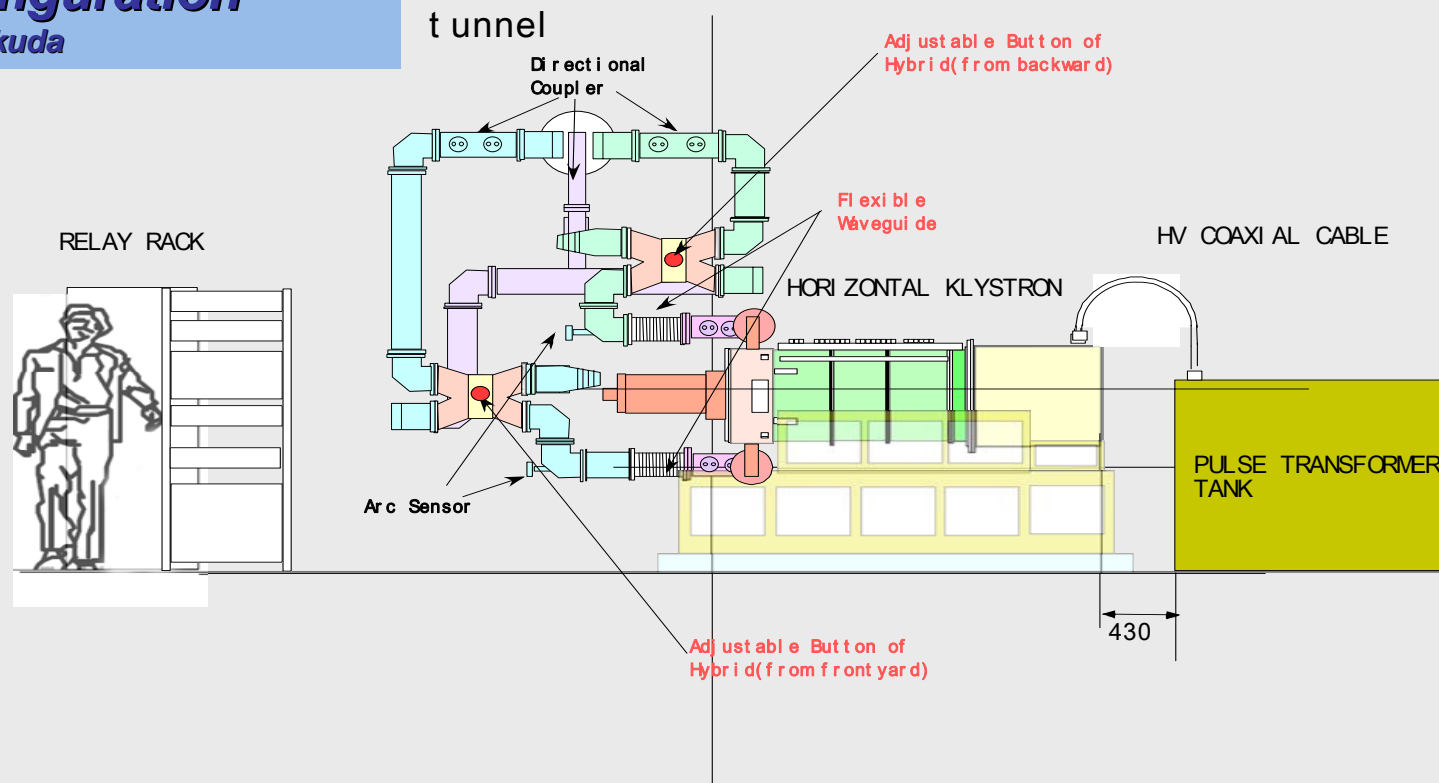


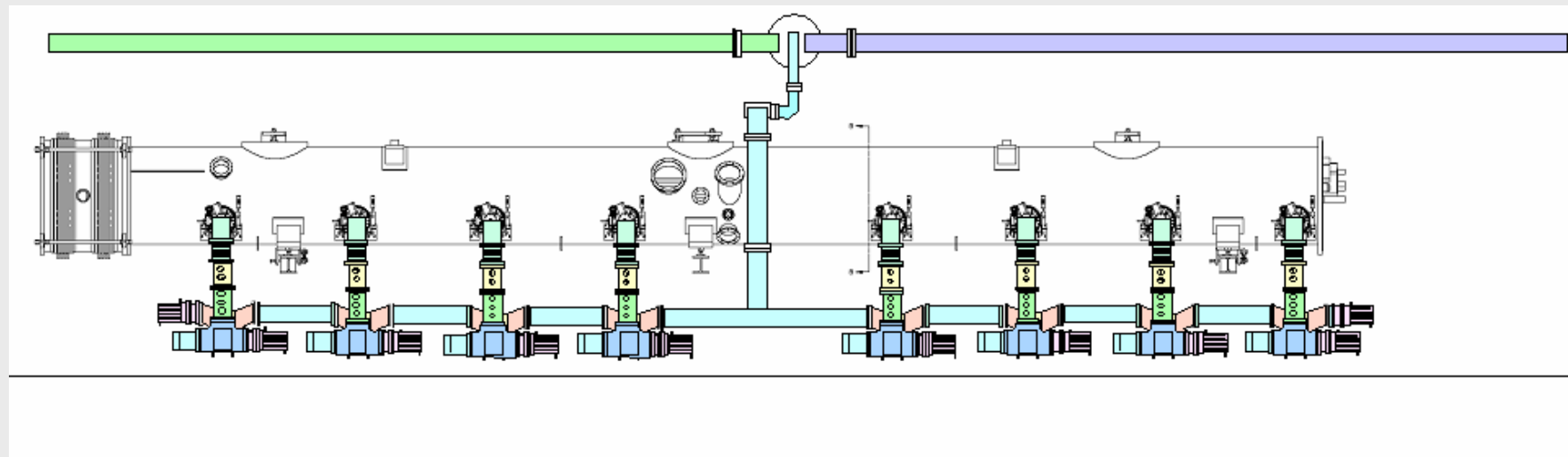
**Cross Section thru  
Accelerator Tunnel**  
-S. Fukuda



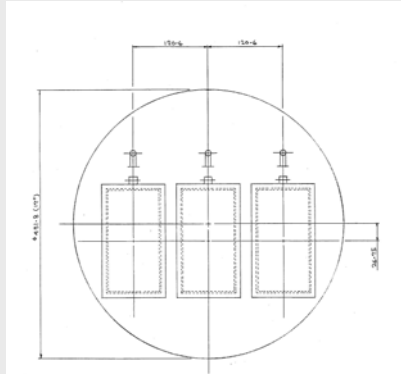
## Horizontal Klystron Configuration

- S. Fukuda





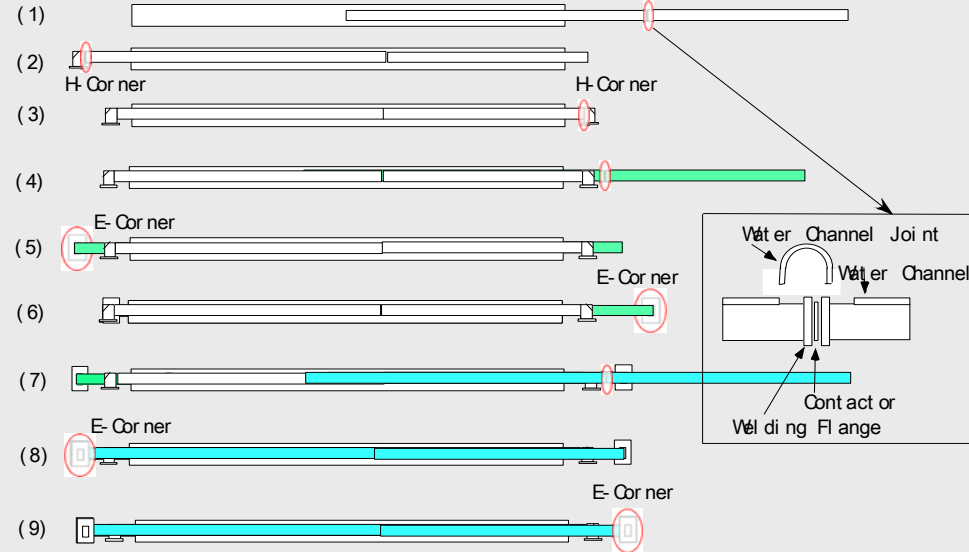
**Aisle Side Waveguide  
Connection to Cryomodule**  
- S. Fukuda



Penetration and 3 WGs  
 Penetration hole dia. Is 17"



### One Penetration 3 Waveguide Welding Procedure



## Waveguide Installation Schematic

- S. Fukuda



## **THE BID TO HOST DOCUMENT**

- ***There are Many Questions and Regional Distinctions***
- ***Anticipated Time Frame - 3 Years (2007 thru 2009) ?***
- ***What Will Constitute a Bid to Host Document ?***
- ***Who Will Receive, Review and Accept a Bid to Host Document ?***
- ***What/Who's Guidelines Should Be Used in the Development of Such a Document ?***
- ***These Questions Need Some Early Guidance in Order to Develop a Credible Cost Estimate for the Work that Would Need to be Accomplished***



## **BASIC INFORMATION IS UNDERSTOOD**

- ***More Information than a Reference Design Report***
- ***Less Information than a Conceptual Design Report***
- ***A Fully Developed Preliminary Conventional and Machine Design and Cost Estimate***
- ***Specific Site Location and Description***
- ***Geologic Investigation and Information***
- ***Environmental Considerations***
- ***Social and Political Consensus***
- ***Full Understanding of Regional Contributions that Would be Used to Offset Total Project Costs***



## **HOW CAN THE LCFOA HELP**

- ***The Conflict of Interest Issue is of Primary Importance and Needs to be Resolved Soon***
- ***Some Ad Hoc Type Work is Being Pursued to Support the CFS Cost Estimating Effort But Primarily Through Existing Contracts***
- ***Experience in the Preparation of Documents Similar to a Bid to Host Proposal Needs to be Developed, Understood and Accepted Before Actual Progress Can be Made in this Area***
- ***A Formal Procedure to Work with the LCFOA Needs to be Developed and Accepted to Enable the CFS, and Other Groups to Fully Utilize All of the Resources that the LCFOA Can Offer***