ILC Status from Japan

Atsuto Suzuki

INTER-UNIVERSITY RESEARCH INSTITUTE CORPORATION
HIGH ENERGY ACCELERATOR RESEARCH ORGANIZATION

1. Toward ILC Construction : Japanese Activities

Action Plan in 2012

at European Strategy Meeting
Dec. 11, 2012

2012 | 2013 | 2014 | 2015~6

Positive Reference from New Prime Minister

- Set-up JLCB and JLCC
- Establish ILC Pre-J-Lab.

HEP Researchers

- Site Decision
- Design ILC Lab.

Formal Message on Hosting ILC in Japan

Cite/Host Establish

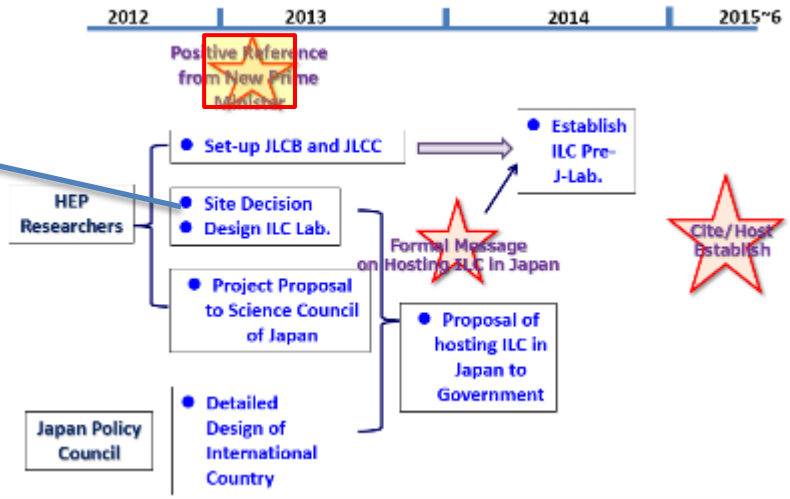
- Project Proposal to Science Council of Japan

- Proposal of hosting ILC in Japan to Government

Japan Policy Council

- Detailed Design of International Country

- Site Decision
- Design ILC Lab.

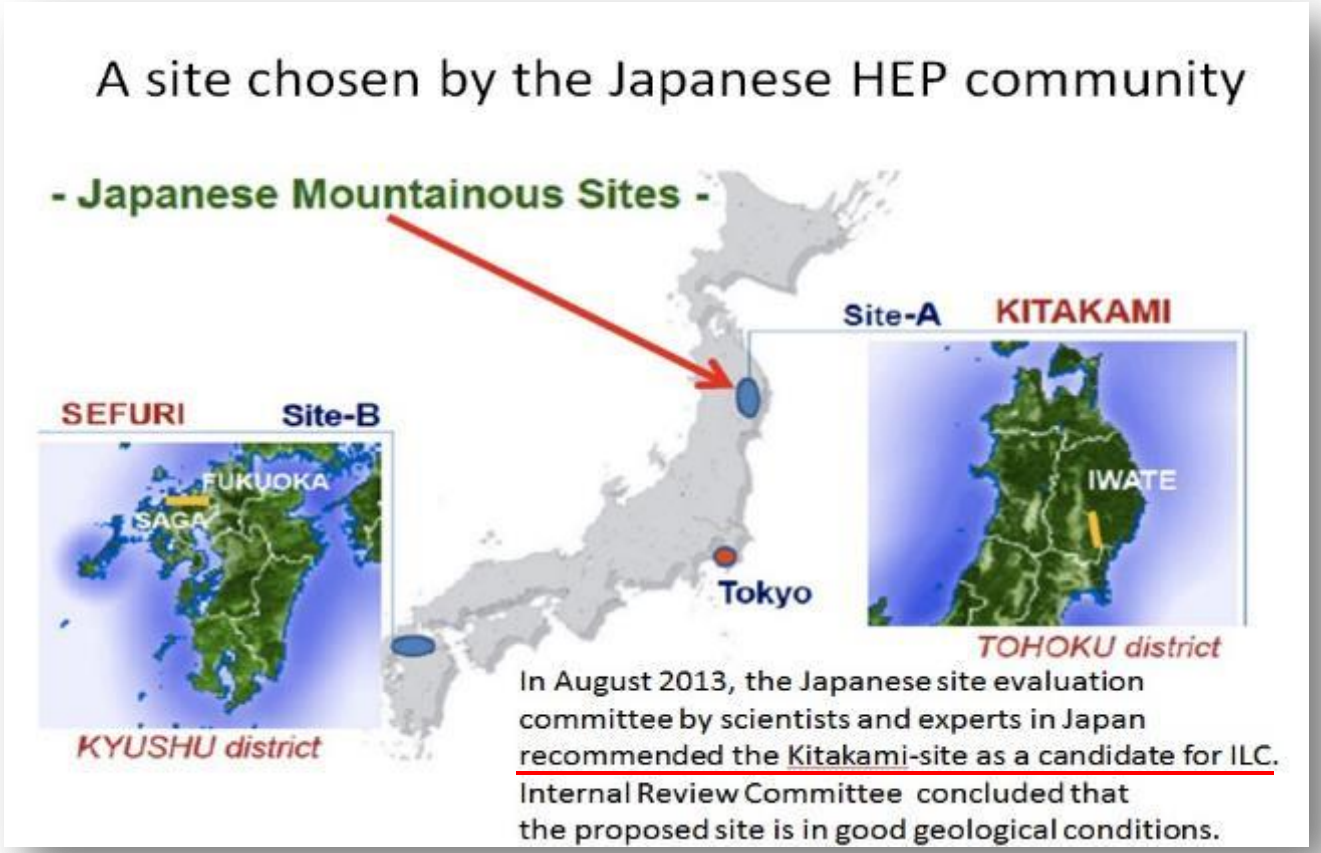


January, 2013

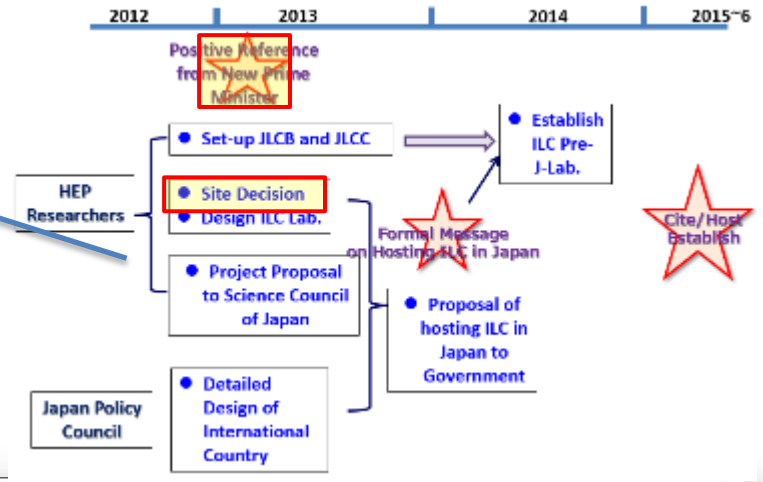
Site Evaluation Committee

- Technical Evaluation Committee
- Socio-Environmental Evaluation Committee
- International Evaluation Committee

August, 2013



- **Project Proposal to Science Council of Japan**

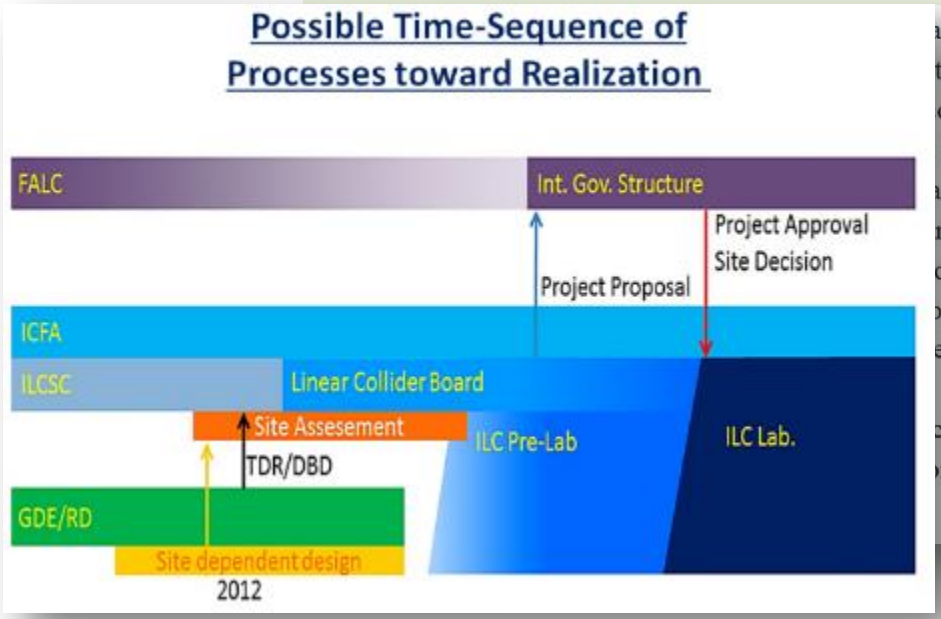


Review by Japan Science Council

September 26, 2013

Japan Needs Years to Make Decision on ILC Building: Science Council Panel

It is essential to start investigating the reliability on hosting the ILC in Japan, taking 2~3 years.



next-generation large-scale particle accelerator.
ting, University of Tokyo Prof. Yasuhiro Ie, head of the panel
ollider (ILC) project, said at a press conference that there are
before the panel gives the green light.
nese p … g for such a
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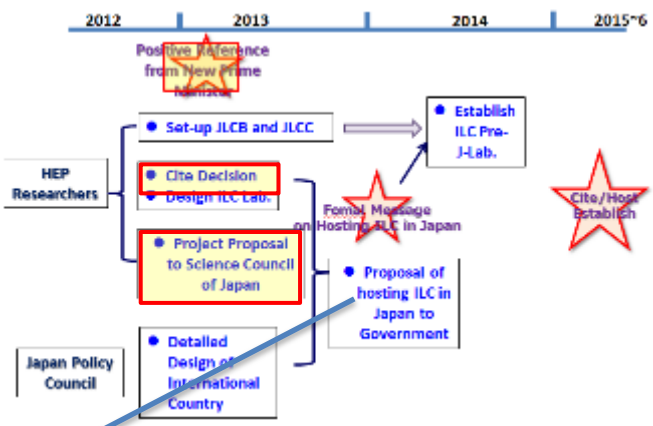
other r … 1,000
project
ed to cost 630 billion to 830 billion yen, half of which Japan is

cists proposed to build the linear collider in either the Kitakami
r the Sefuri mountains in southwestern Japan.

(2013/08/06-23:28)

our understanding:
"go-sign" of ILC pre-Lab.



HEP Researchers

- Set-up JLCB and JLCC
- Site Decision
- Design ILC Lab.
- Project Proposal to Science Council of Japan

TDR

- Proposal of hosting ILC in Japan to Government

Formal Message on Hosting ILC in Japan

September 28, 2013

Formal message on starting diplomatic negotiations of the ILC project by Japanese government

October, 2013

NEWSLINE
THE NEWSLETTER OF THE LINEAR COLLIDER COMMUNITY

AROUND THE WORLD

ILC moves forward in Japan

Hitoshi Murayama and Satoru Yamashita | 10 October 2013

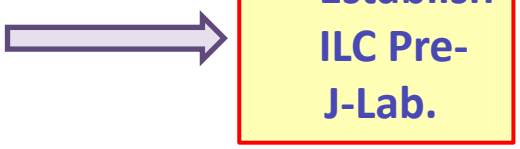
On 30 September, the Science Council of Japan (SCJ) submitted the report on the study of the International Linear Collider to the Ministry for Education, Culture, Sports, Science and Technology (MEXT). This was a response to the request by MEXT in May to the council to examine the ILC project including its scientific significance, the project's position in particle physics and in the whole of science, the significance of the project being hosted in Japan and the possible challenges the project will face.

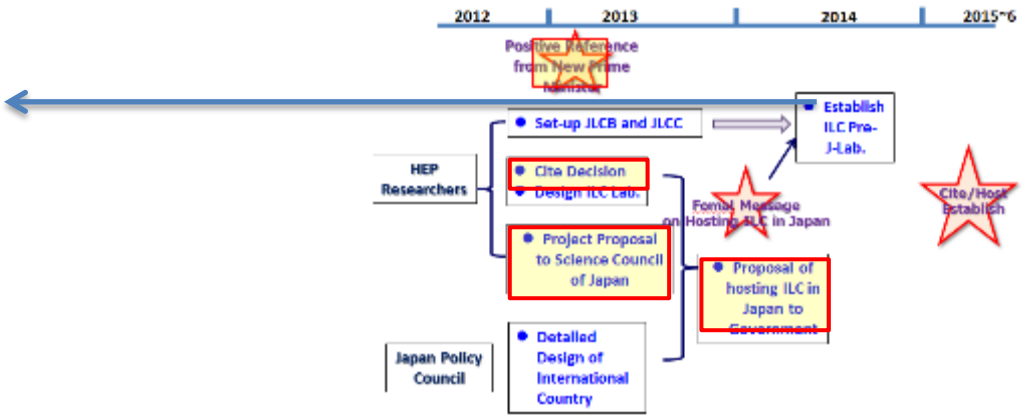
SCJ pointed out obvious issues with international projects, such as cost sharing, its governance model, and availability of leadership and personnel. Therefore,

ge: Rey.

On 2 October, Minister of MEXT said that the government will create a working group of advisors with specialists from various fields which will review the possible issues on the realization of the ILC in Japan.

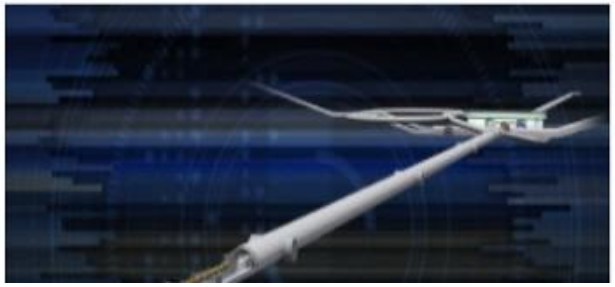
In December, 0.5 M$ requested by MEXT was approved in the fiscal year 2014 budget. Even though the amount is small, it is symbolic that the Japanese government for the first time allocates a "preparatory budget" for the ILC as an official project





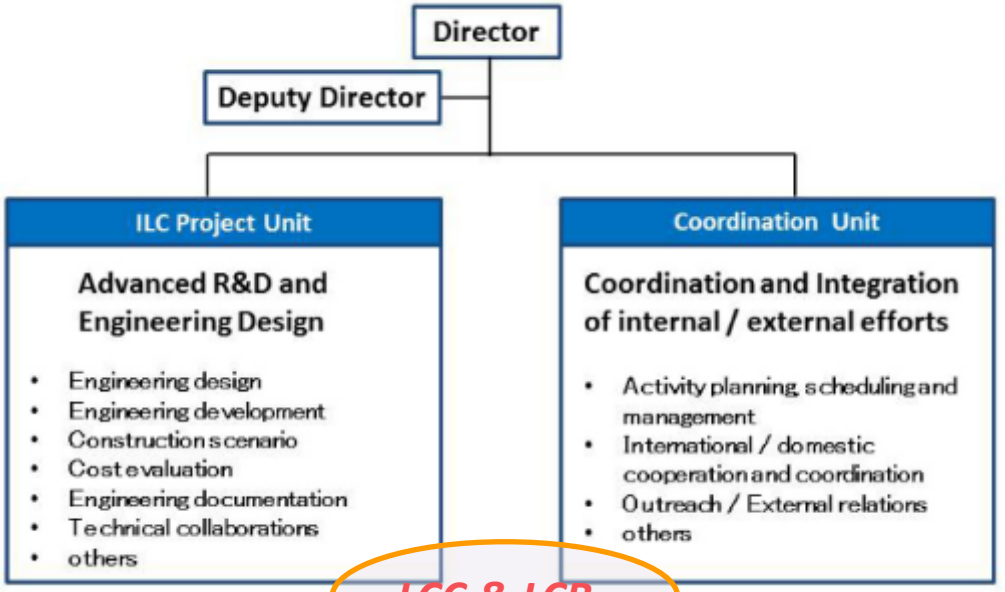
February 6, 2014

From KEK: KEK sets up Planning Office for the International Linear Collider



February

Tsukuba, 6 January 2014. KEK, Japan's High Energy Accelerator Research Organization, has set up a Planning Office for the International Linear Collider. The office will be headed by Atsuto Suzuki, Director General of KEK, and will oversee a broad range of activities required for realisation of the ILC, in addition to the ongoing efforts.



LCC & LCB

Report from ILC Planning Office, KEK
March 2014

1. Progress in Japan

- Started cost estimation case studies depending on the energy-upgrade scenarios based on the TDR.
- In planning to precede investigation of the fraction of in-kind contributions and common funds in the cost estimation case studies. Referring the LHC construction in which the contribution from the Japanese industry was made in similar framework. The study is needed to be made, at first, by scientist. Created information material that explains the physics output of the ILC as a staged project (Appendix 1).
- Case studies of the necessary manpower and its cost will now begin.
- Begin preparation of information material explaining the technology applications, economic effects, and impact on the education and civil life.
- Advanced Accelerator Association Promoting Science and Technology (AAA): Large-scale Projects Working Group is collecting information about the applications of accelerator technology around the world and the potential of applications of the ILC technology. Technology Working Group started investigation of improving the energy efficiency during the operation (via reduced energy consumption and energy recovery). Board meeting decision to begin study to make AAA into an incorporated association.
- Ramping up efforts by researchers to gain further understanding from other fields.
- The Federation of Diet Members for the ILC is holding board meetings, in which lawmakers, bureaucrats, and scientists share information and exchange opinions about the domestic and international situation. The Federation is approaching the Prime Minister and MEXT Minister as needed. Plans for further diplomatic visits by lawmakers to the United States and European countries.
- Domestic candidate site: In Tohoku, preparations are ongoing toward an environmental impact assessment, creation of a framework for accepting the project, and enhancing the regional cooperation. ILC Asia-Kyushu Promotion Council (ILC-AKPC) has not accepted the result of the site evaluation. The Federation of Diet Members for ILC has asked to present explicit appeal for possible missteps in the scientific evaluation. Particle physicists (both theory and experiments) at Kyushu University and Saga University have signed letters agreeing with the result of the site evaluation and requesting constructive discussion. Experts in various fields such as geology, sociology, and physics at Kyushu University and Saga University formed a committee and will report in April. Further efforts will be considered taking into account this report.

Appendix

Appendix 2

Appendix 3

2. International communication

- **United States:** The Particle Physics Project Prioritization Panel (P5) will report in May.
- The Federation of Diet Members for the ILC has delivered a letter to the US Cabinet. Department of State, and the Department of Energy (Mr. Kenji Kosaka's visit in January). Cooperation among the executive members for the Federation and MEXT Minister. (Appendix 2)
- MEXT Minister, Mr. Hakubun Shimomura, met DOE Secretary, Dr. Ernest Moniz, to discuss the ILC project (during Mr. Shimomura's visit in January). (Appendix 3)
- Comment by DOE Secretary, Dr. Ernest Moniz, and Science and Technology Adviser to the Secretary of State, Dr. E. William Colglazier: "ILC is regarded as an important project"
- **Worldwide:** International Committee for Future Accelerators is investigating the organization and management of the International Laboratory for the ILC, facilitating the discussion between the governments, and setting up a framework for the international detailed engineering design.
- **India:** Enthusiastic about the ILC technology for applications in energy utilization and strongly interested in joining.
- **China:** Expressed support for the ILC. Plans to ask the government to support 5% of the construction cost. The Institute of High Energy Physics (Beijing) has also announced an independent concept of a circular collider with a circumference of 50-70 km.

Japan Needs Years to Make Decision on ILC Building: Science Council Panel

Tokyo, Aug. 6 (Jiji Press)--Members of a Science Council of Japan panel agreed in prin
Tuesday that Japan should spend several years to examine the significance of leading the proposed
international project to construct a [illegible] particle accelerator.

After the day's closed-door meeting, University of Tokyo Prof. Yasuhiro Ie, head of the panel
reviewing the [illegible] that there are
uncertain elements to be removed before the panel gives the green light.

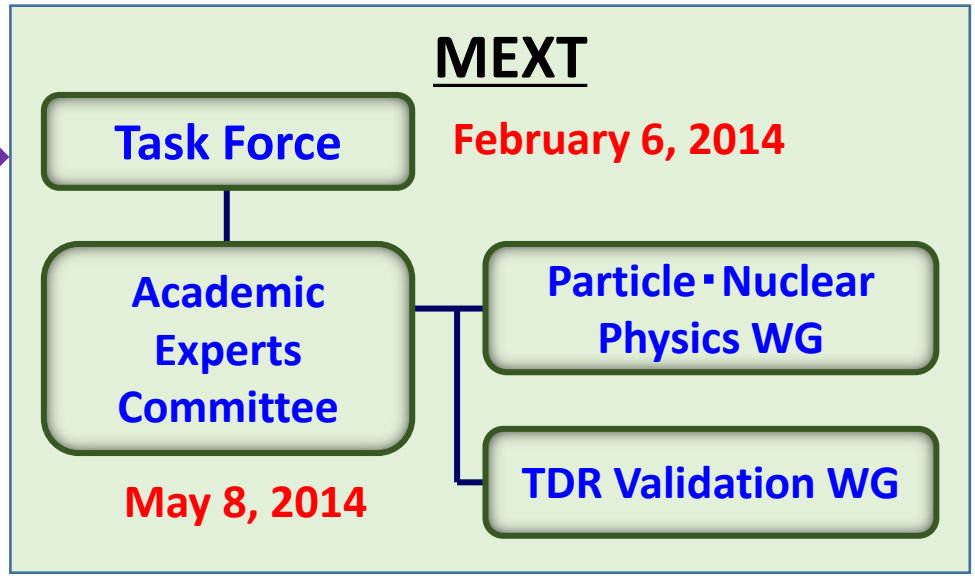
"It is yet to be known if the Japanese public will appreciate huge government spending for such a basic scientific study despite Japan's severe fiscal condition," Ie said. He also expressed concerns about possible cuts in outlays for other research field and difficulty securing more than 1,000 scientists and technicians for the project.

The ILC construction is estimated to cost 630 billion to 830 billion yen, half of which Japan is asked to put up.

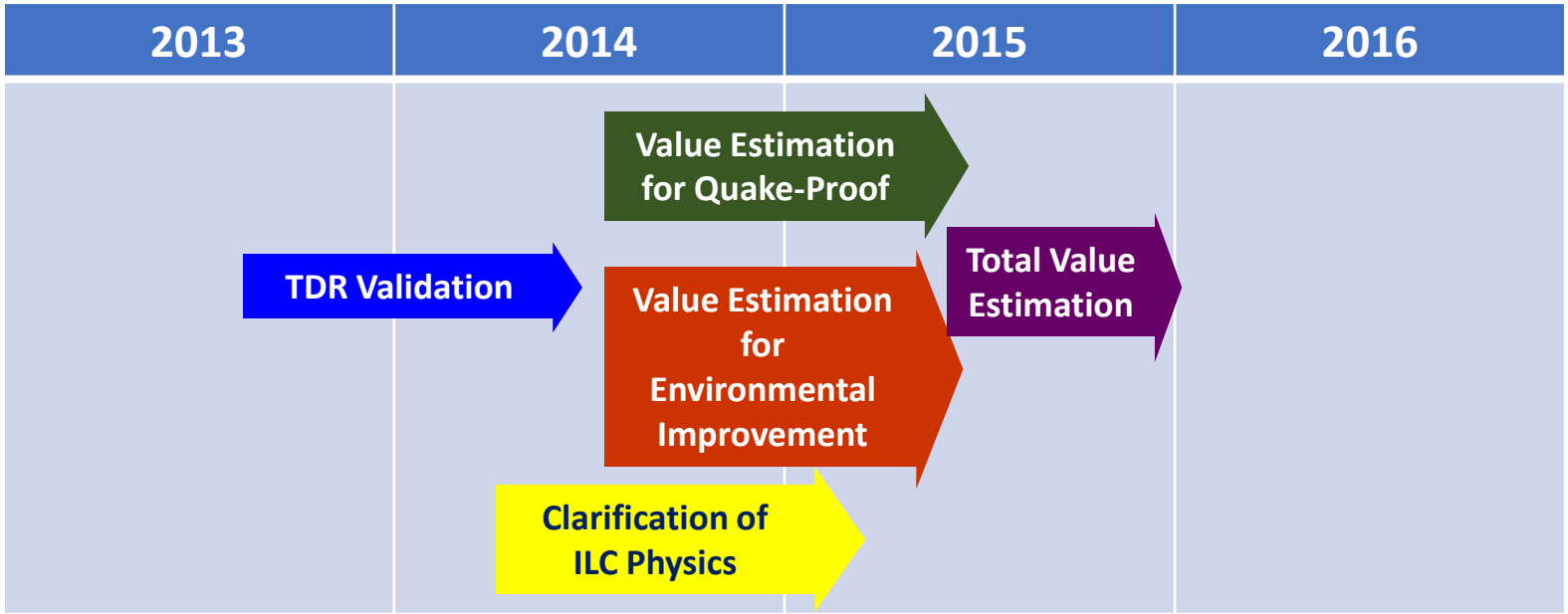
An international group of physicists proposed to build the linear collider in either the Kitakami mountains in northeastern Japan or the Sefuri mountains in southwestern Japan.

(2013/08/06-23:28)

Review by Science Council of Japan

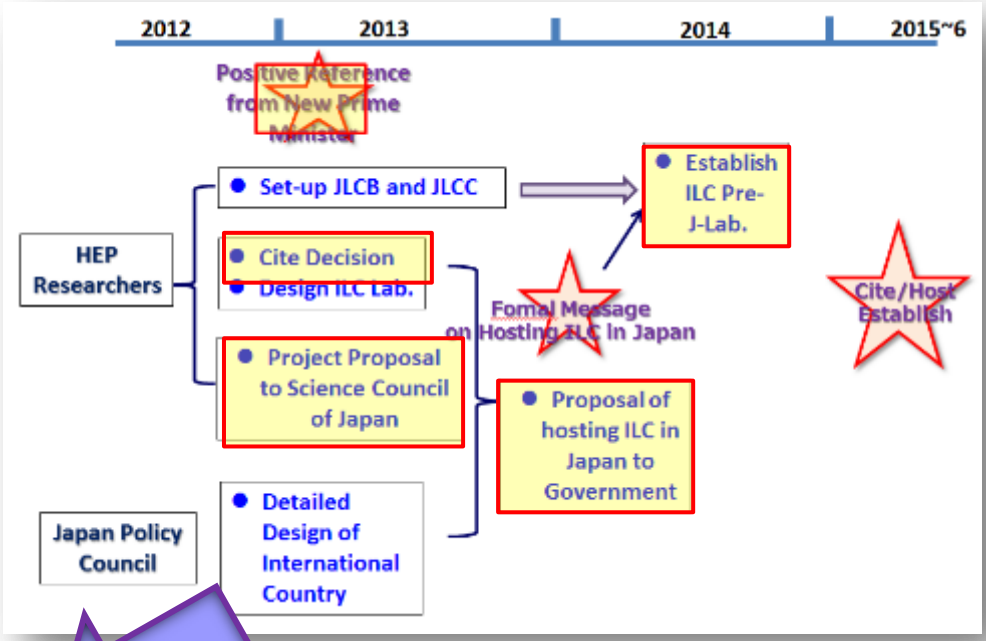


Review Issues



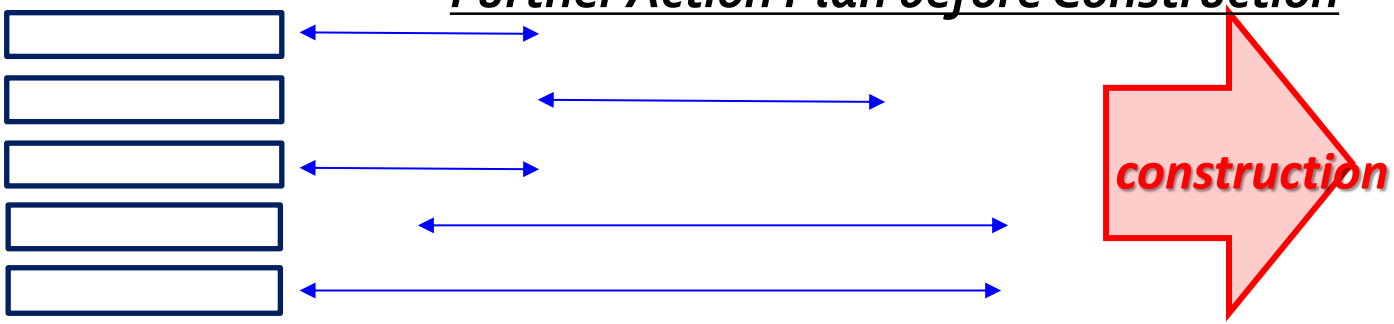
2. Action Plan ~~toward~~ before Construction in 2014

2012



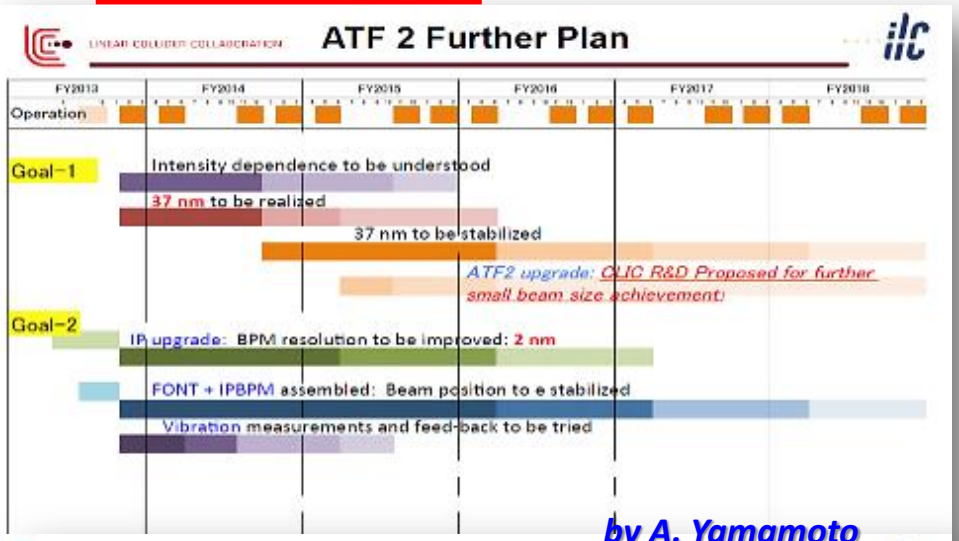
2014

Further Action Plan before Construction

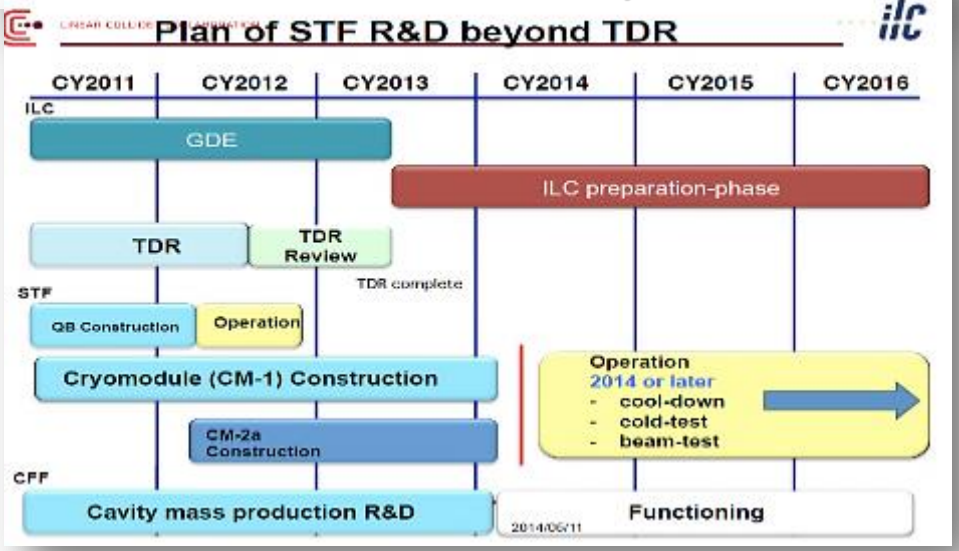


2014	2015	2016	2017	2018

Engineering R&D Schedule (LCC-PreLab)



by A. Yamamoto



Expense Account for Preparatory Phase

ILC 建設準備・年次計画 *2013*

区分	内容	人員／物件費	1年目	2	3	4	5	年次合計	合計
加速器	システム設計	FTE 25	150,000	150,000	150,000	1,50,000	1,500,000	750,000	19,850,000
	EDMS・データベース整備	---	20,000	20,000	20,000	20,000	20,000	100,000	
①	要素技術設計	25	150,000	150,000	150,000	150,000	150,000	750,000	
	製作・量産化技術準備	---	200,000	400,000	700,000	1,200,000	1,500,000	4,000,000	
	(SCRF空洞二高化技術等)								
	試験設備詳細設計	25	150,000	150,000	150,000	150,000	150,000	750,000	
	試験設備準備、建設	---	1,000,000	1,000,000	3,000,000	4,000,000	4,500,000	13,500,000	
	(ATF, STF, SRF, Mag, Vac.)								
測定器 ②	システム設計	10	60,000	60,000	60,000	60,000	60,000	300,000	1,500,000
	技術開発／検証	---	200,000	300,000	300,000	400,000	400,000	1,600,000	
建屋 ③	地質等詳細調査	5	30,000	30,000	30,000	30,000	30,000	150,000	2,400,000
	土木建築詳細設計	---	250,000	500,000	500,000	500,000	500,000	2,250,000	
安全 ④	放射線、高圧ガス、一般安全設計	3	18,000	18,000	18,000	18,000	18,000	90,000	190,000
		---	20,000	20,000	20,000	20,000	20,000	100,000	
環境 ⑤	環境アセスメント	2	12,000	12,000	12,000	12,000	12,000	60,000	160,000
		---	20,000	20,000	20,000	20,000	20,000	100,000	
運営 ⑥	国際協力、研究所整備	5	30,000	30,000	30,000	30,00	30,000	150,000	450,000
		---	20,000	20,000	50,000	100,000	100,000	300,000	
FTE 計		FTE100	600,000	600,000	600,000	600,000	600,000	3,000,000	24,950,000
物件計			1,730,000	2,250,000	4,620,000	6,250,000	7,060,000	21,950,000	
年合計			23.3	28.8	52.0	68.3	76.6	249.5	M$

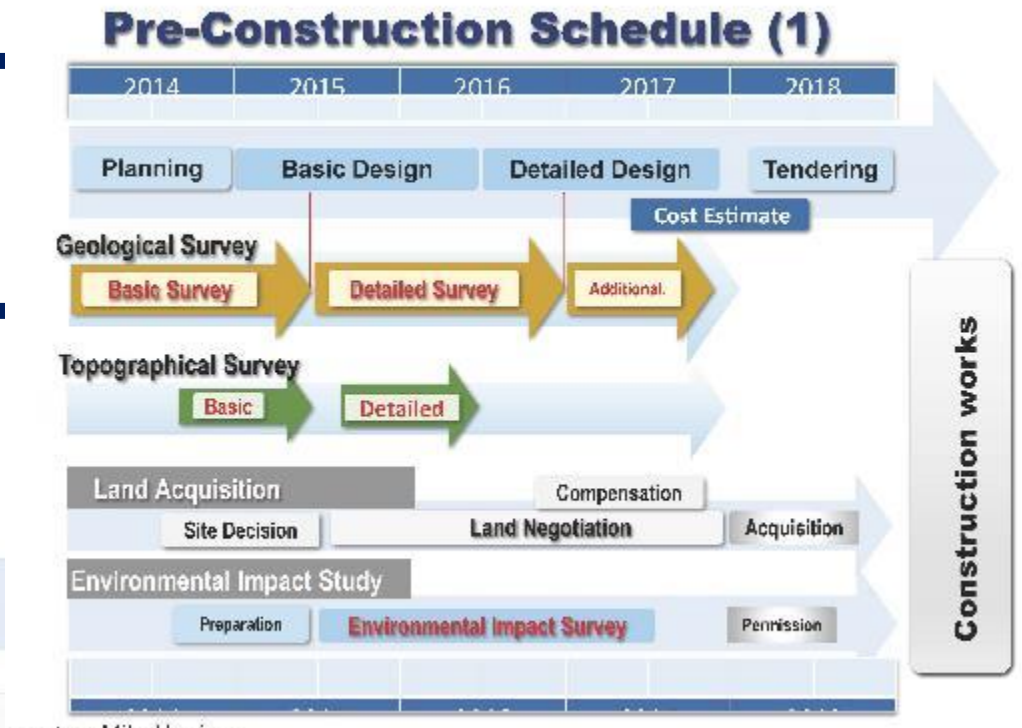
① Accelerator ② Detector ③ CFS ④ Safety
⑤ Environment ⑥ Management

Further Action Plan before Construction

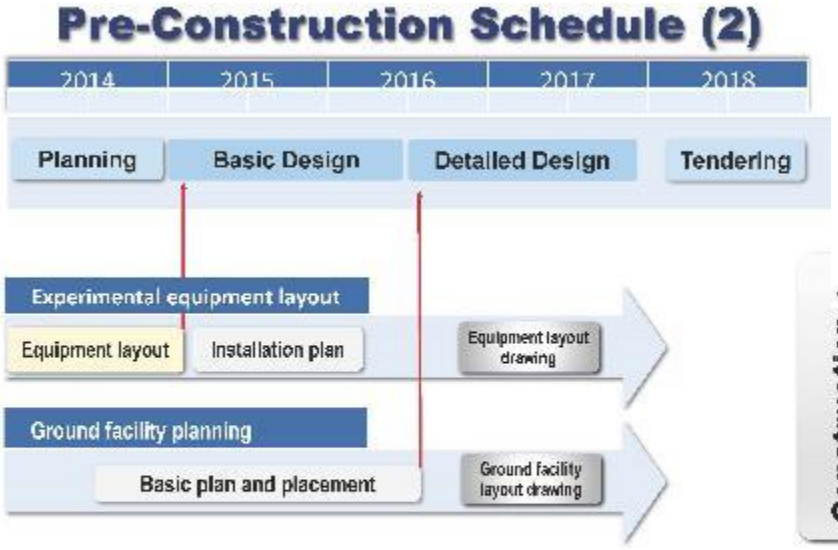
2014	2015	2016	2017	2018

Engineering R&D Schedule *(LCC-PreLab)*

Pre-construction Schedule *(LCC-PreLab)*

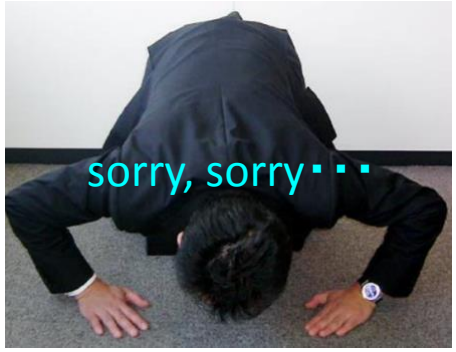


courtesy Mike Harrison

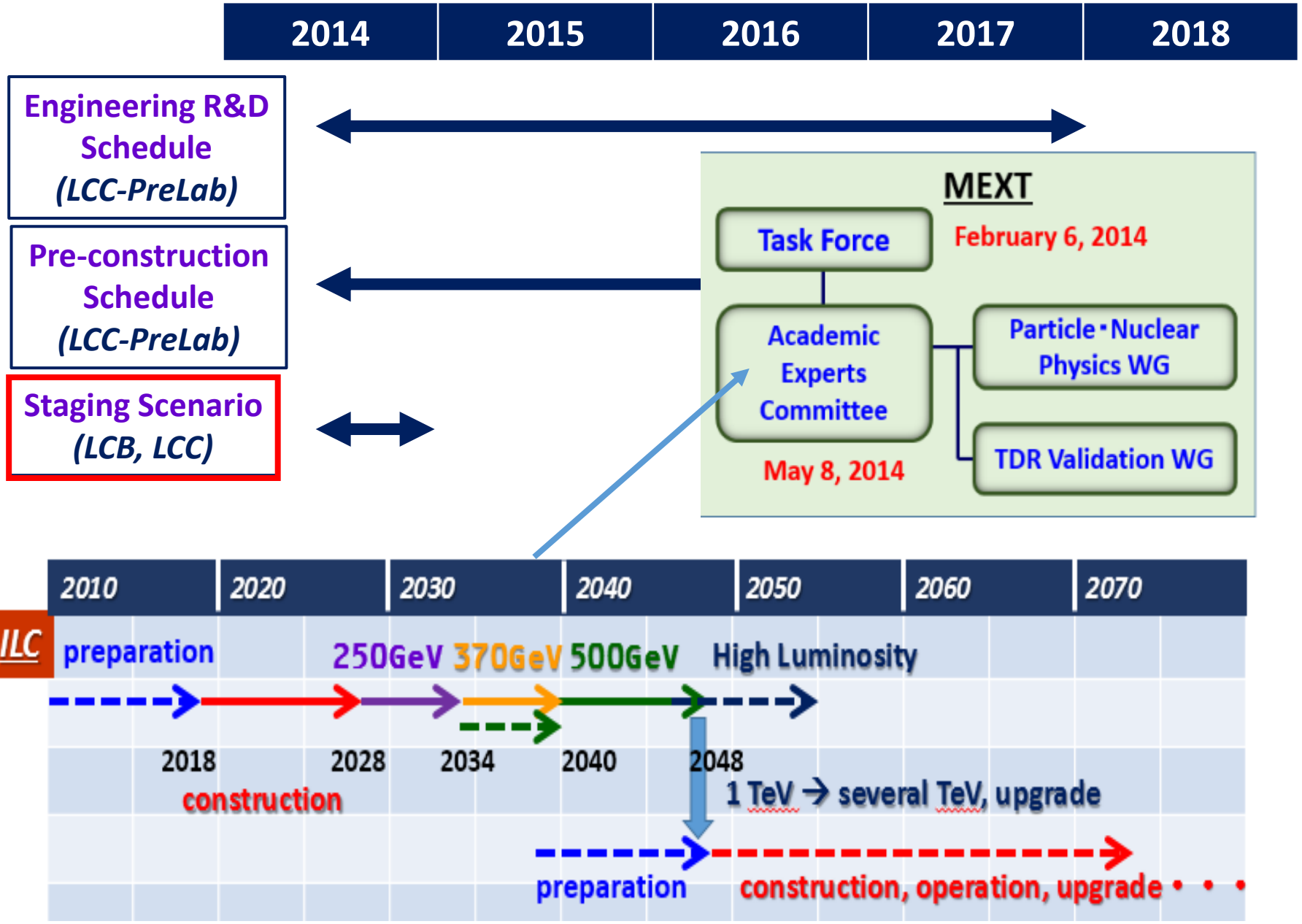


progress currently limited by funding

courtesy Mike Harrison



Further Action Plan before Construction



Further Action Plan before Construction

2014	2015	2016	2017	2018

Engineering R&D Schedule *(LCC-PreLab)*

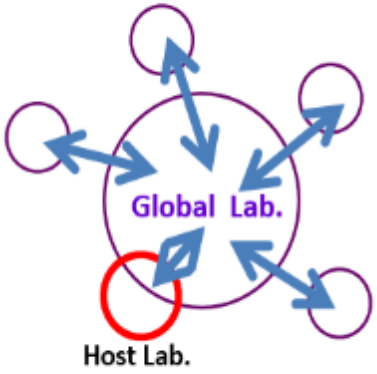
Pre-construction Schedule *(LCC-PreLab)*

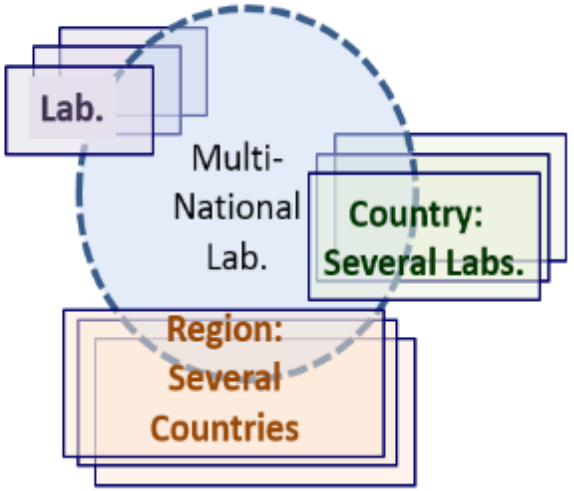
Staging Scenario *(LCB, LCC)*

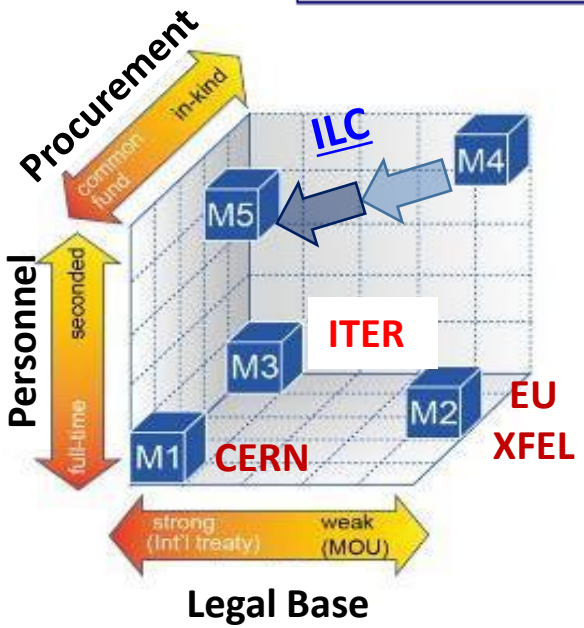
Lab Design: Organization, Structure *(LCB, LCC)*

LCB WG (Feb. 2014～)
PIP & PDG

Possibility 2 : Multi-National Lab.





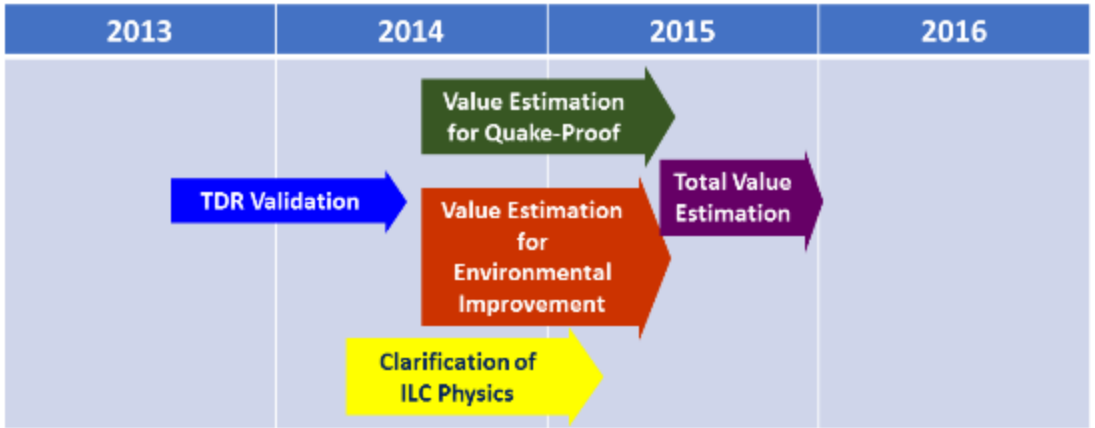


Further Action Plan before Construction

2014	2015	2016	2017	2018

- **Engineering R&D Schedule *(LCC-PreLab)***
- **Pre-construction Schedule *(LCC-PreLab)***
- **Staging Scenario *(LCB, LCC)***
- **Lab Design: Organization, Structure *(LCB, LCC)***
- **MEXT Validation *(LCC-PreLab)***

Review Issues



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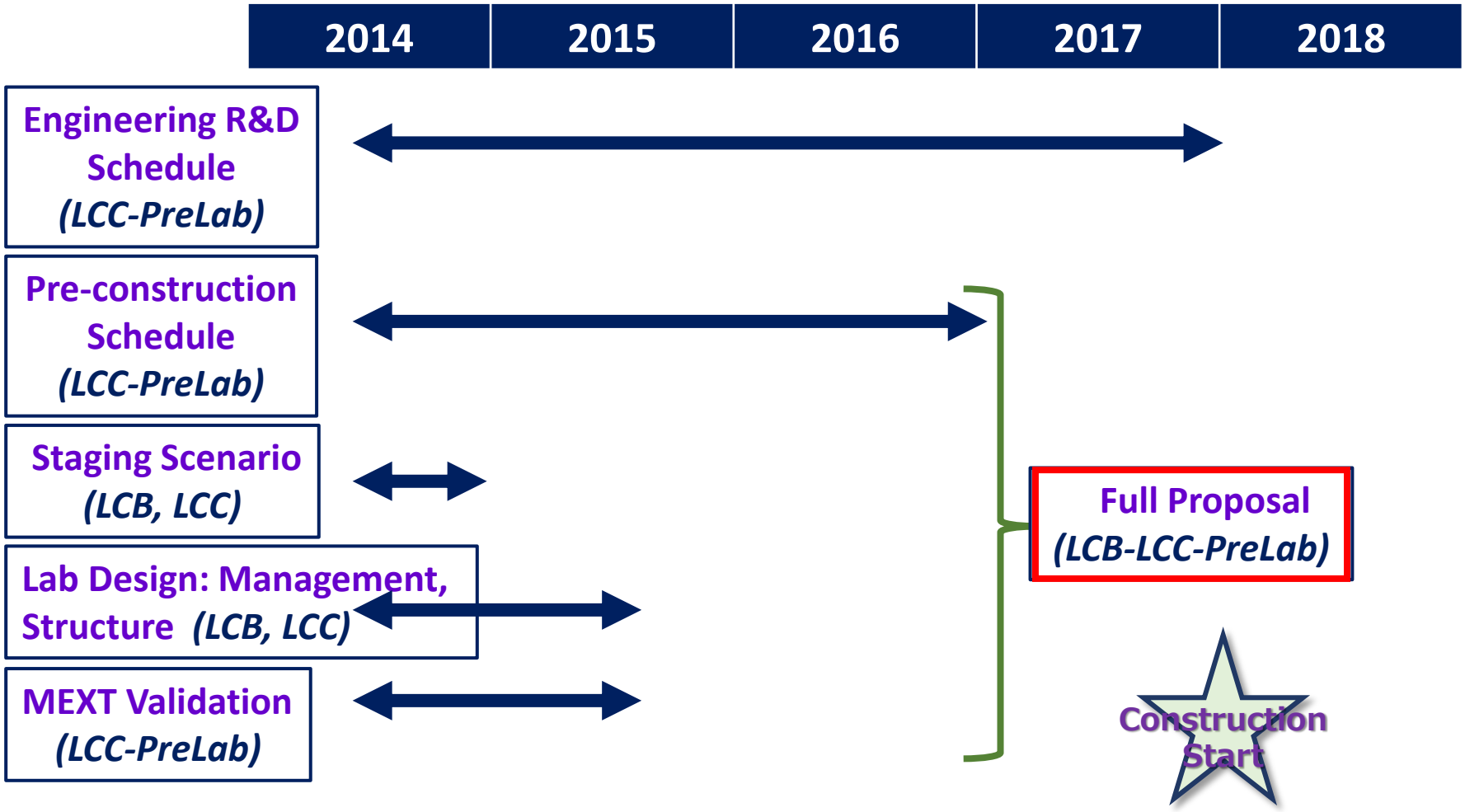

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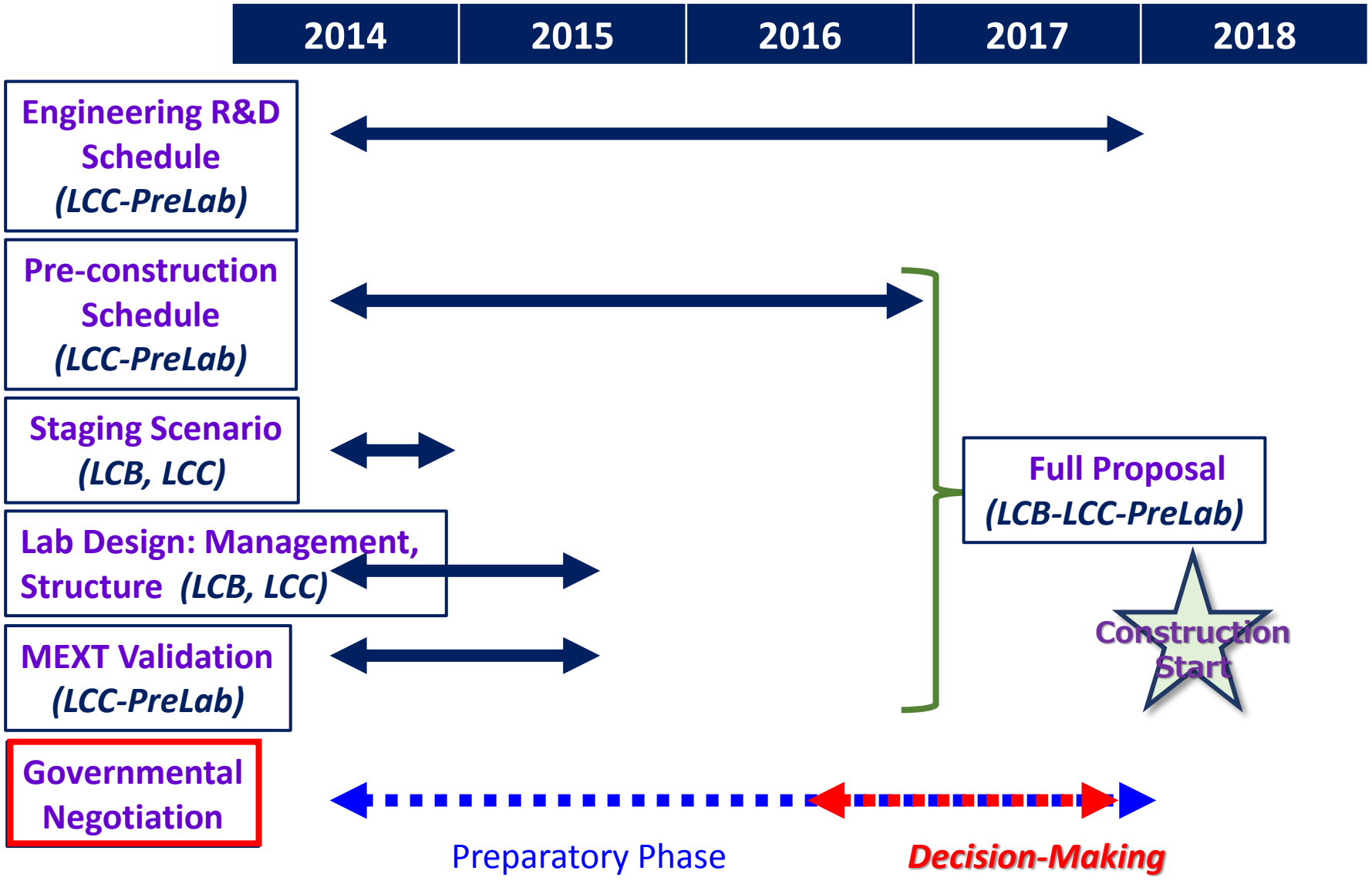


Further Action Plan before Construction

2014	2015	2016	2017	2018

Engineering R&D Schedule *(LCC-PreLab)*

Pre-construction Schedule *(LCC-PreLab)*

Staging Scenario *(LCB, LCC)*

Lab Design: Management, Structure *(LCB, LCC)*

MEXT Validation *(LCC-PreLab)*

Governmental Negotiation

3-Legged Race

:

HEP community / Governments

Construction Start

Preparatory Phase

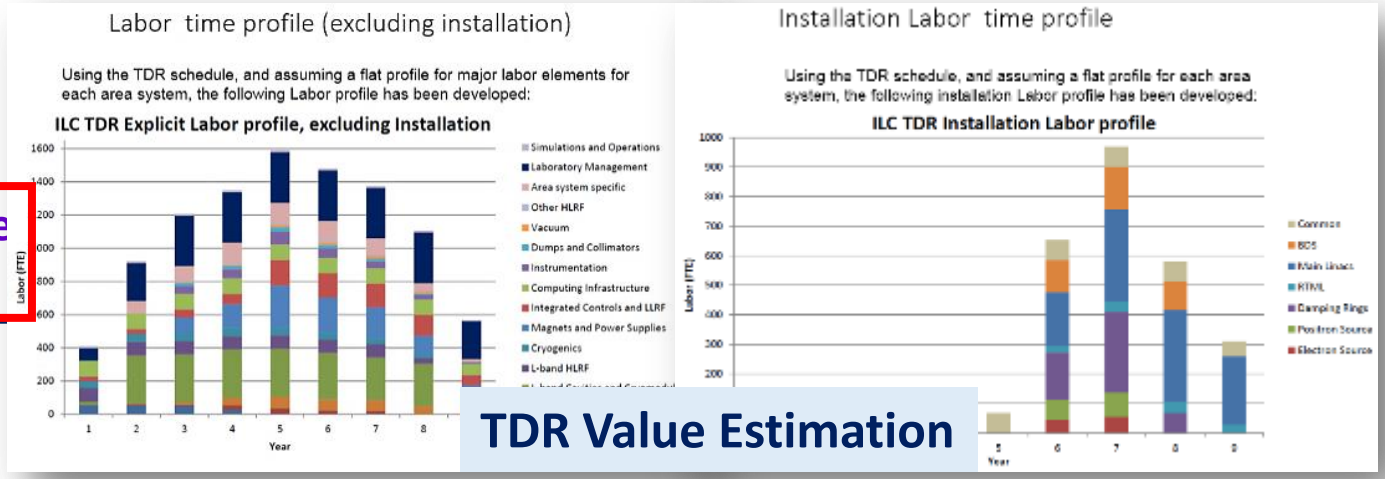
Decision-Making

Further Action Plan before Construction

2014	2015	2016	2017	2018

Governmental Negotiation

Cite-Dependent Value *(LCC-LCB-PreLab)*

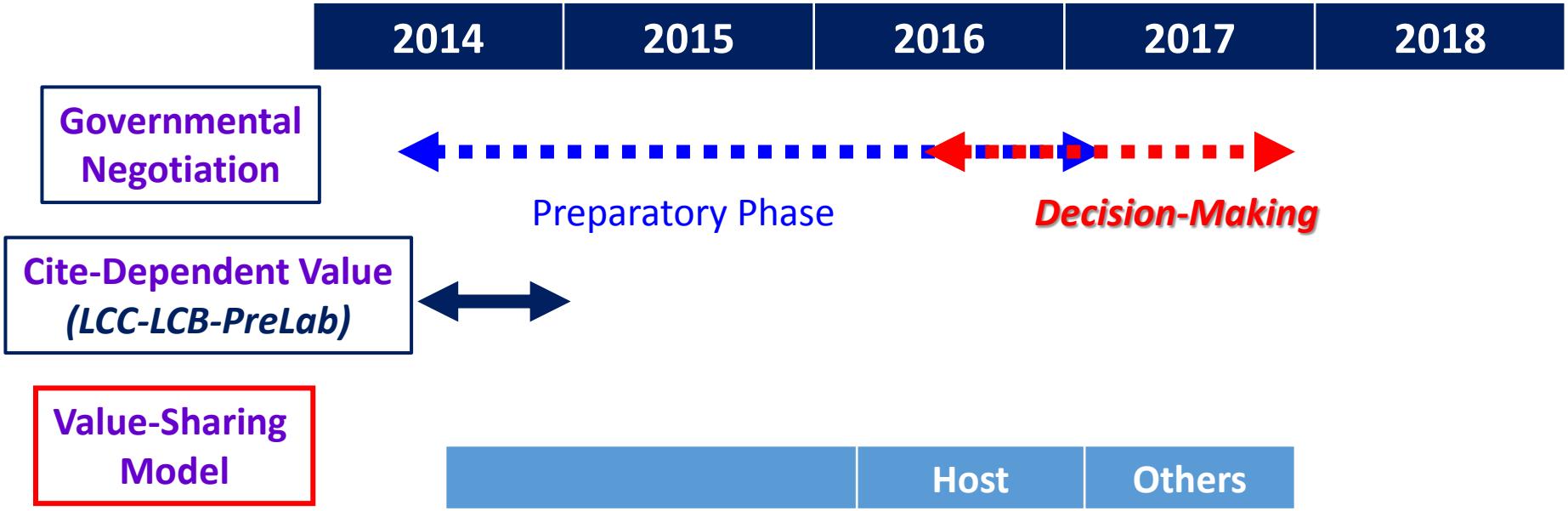


TDR Value Estimation

	Value Site specific (BILCU)	Value Shared (BILCU)	Value Total (Ratio)	Value Total (BILCU)	Value Prem.: 26% (BILCU)	Value converted (BJY)	Value Prem.: 26% converted (BJY)	Labor (M p-hr)	Labor Prem.: 24%
RDR-2007 Converted w/ 117 Y/$			(1)	6.31		739		24.4	
RDR-2012 (15% inflation)			(1.15)	7.27		877		24.4	
TDR-Averaged	1.50	6.28	(1.23)	7.78					
TDR-AS (ppp)	1.76 (109/127Y/$)	6.23 (127 Y/$)	(1.26)	7.98	2.04	967*	251	22.9	5.5
TDR-AS (EX-a)	1.76 (109/127Y/$)	3.47 (3.47G$) (100Y/$) 2.75 (2.49GEu) (115Y/Eu)	(1.26)	7.98		830	216	22.9	5.5

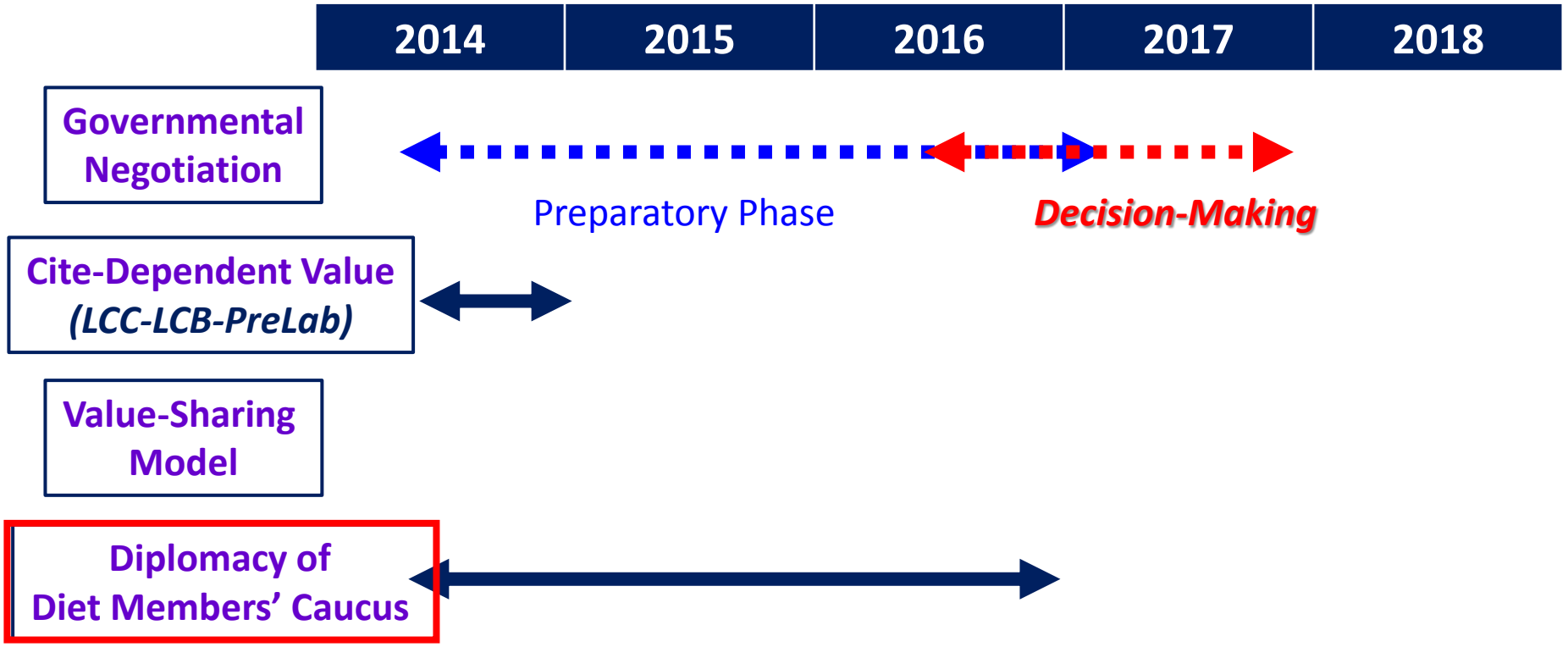
@ 100 JYen/USD
@ 115 JYen/Euro

Further Action Plan before Construction



	Host	Others
CFS - LAND	??? %	??? %
Instrument - Electricity	??? %	??? %
Maintenance/Labor	??? %	??? %
Detector	??? %	??? %

Further Action Plan before Construction



Meeting of the U.S. – Japan
Science and Technology
Joint High Level Committee

April 30, 2013
Washington, D.C.

Next Meeting in July

US-Japan Advanced Science and Technology Symposium

This symposium gathers US and Japanese leaders from policy makers for the field of science and innovation, academia and industry. With the International Linear Collider (ILC) as an example, the discussion will cover the US-Japan co-operation in science and technology, working together for innovation and the realization of economic growth as well as methods and policies for the development of scientific and technical human resources.

Federation of Diet Members for the ILC
Room 302 (Office of Takeo Kawamura)
Second Members' Office Building of the House of Representatives
2-1-2 Nagata-cho, Chiyoda-ku, Tokyo 100-8962, Japan

January 8, 2014

January 8, 2014

Report from ILC Planning Office, KEK
March 2014

The Honorable Ernest Moniz
Secretary, U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585
United States of America

Dear Dr. Moniz:

We, the Diet members of Japa
realize the International Linea
from the House of Represen
of the policymakers in Japan.

The ILC is a global project, t
scientists and engineers. In Ja
budget for the coming Japane
which is in addition to the exi
significance in that the Japane

The Science Council of Japan
viewpoint. Despite the media
financial concern still remains
the concrete tasks for the realization of the ILC. The ultimate decision for Japan to host the
ILC project rests with
strongly in support of

We have reached the s
the realization of the I
investigations and add
by the end of JFY201

The most important is
project. For this purpo
abroad and is starting
forming a partnership
government and scientists. Thus a strong involvement from the United States in the ILC project is indispensable for its realization. The United States has played and continues to play a central role in the worldwide efforts in designing and developing the key technologies for the ILC. These technologies and the people who have developed them are the linchpins for building the ILC. The Particle Physics Project Prioritization Panel (P5) commissioned by the DOE and NSF is regarded as very important to the Japanese government, particularly MEXT, who will be closely watching the discussions on P5. We hope to inform the key players in the P5 deliberations that these preparations are taking place.

The ILC is a global project, to be designed and realized by a worldwide cooperation of scientists and engineers. In Japan, for the first time ever, the government has allocated a budget for the coming Japanese fiscal year to investigate and examine the ILC project itself, which is in addition to the existing funding for the research and development. This has great significance in that the Japanese government has shown a vital interest in the ILC project.

We have reached the stage where we must now work together with other governments for the realization of the ILC. The Japanese government intends to perform concentrated investigations and address the major issues and arrive at a conclusion about hosting the ILC by the end of JFY2015.

Kenji Kosaka 小坂憲次
Deputy Chair, Federation of Diet Members for the ILC
Member, House of the Councillors of Japan

February 7, 2014

MEXT MINISTRY OF EDUCATION, CULTURE, SPORTS, SCIENCE AND TECHNOLOGY-JAPAN

Report from ILC Planning Office, KEK
March 2014

Dr. Ernest Moniz
Secretary of Energy
Department of Energy
1000 Independence Ave. SW
Washington DC 20585
United States of America

February 7, 2014

Dear Secretary Moniz,

It was a great pleasure to talk with you when I visited the United States recently. In our conversation, I explained the current situation regarding the International Linear Collider (ILC) project in Japan, and I would like to reiterate what I said through this letter.

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continuing their R&D with enthusiasm in the ILC project. Considering the significance and benefit of the ILC project, I believe that discussion from a wider perspective is essential. For this, I recognize that working-level informal exchanges of views among Japan, the United States and / or Europe should be started from the current stage.

However, the priorities for academic and scientific projects and the financial status vary between the countries. Therefore, for making a decision of whether or not to join the ILC project, discussion and sharing of the consensus about the scientific significance and challenges between government and scientists in each country that is interested in the ILC project is indispensable. I understand that the project prioritization process in the field of particle physics in the United States is ongoing. The United States is one of the leading countries in the field of particle physics research in the world, and I hope that substantial

October 2012

March 2013

March 2013

April 2014

May 2014

Letter **from**

MEXT MINISTRY OF EDUCATION, CULTURE, SPORTS, SCIENCE AND TECHNOLOGY-JAPAN

Federation of Diet Members for the ILC
Room 302 (Office of Takeo Kawamura)
Second Members' Office Building of the House of Representatives
2-1-2 Nagata-cho, Chiyoda-ku, Tokyo 100-8962, Japan

to

CERN DG

EU Government

June 2014

Meeting : France-Japan Friendship Diet Members' Caucus

3. Summary

Further Action Plan before Construction