

# Planning to host the ILC

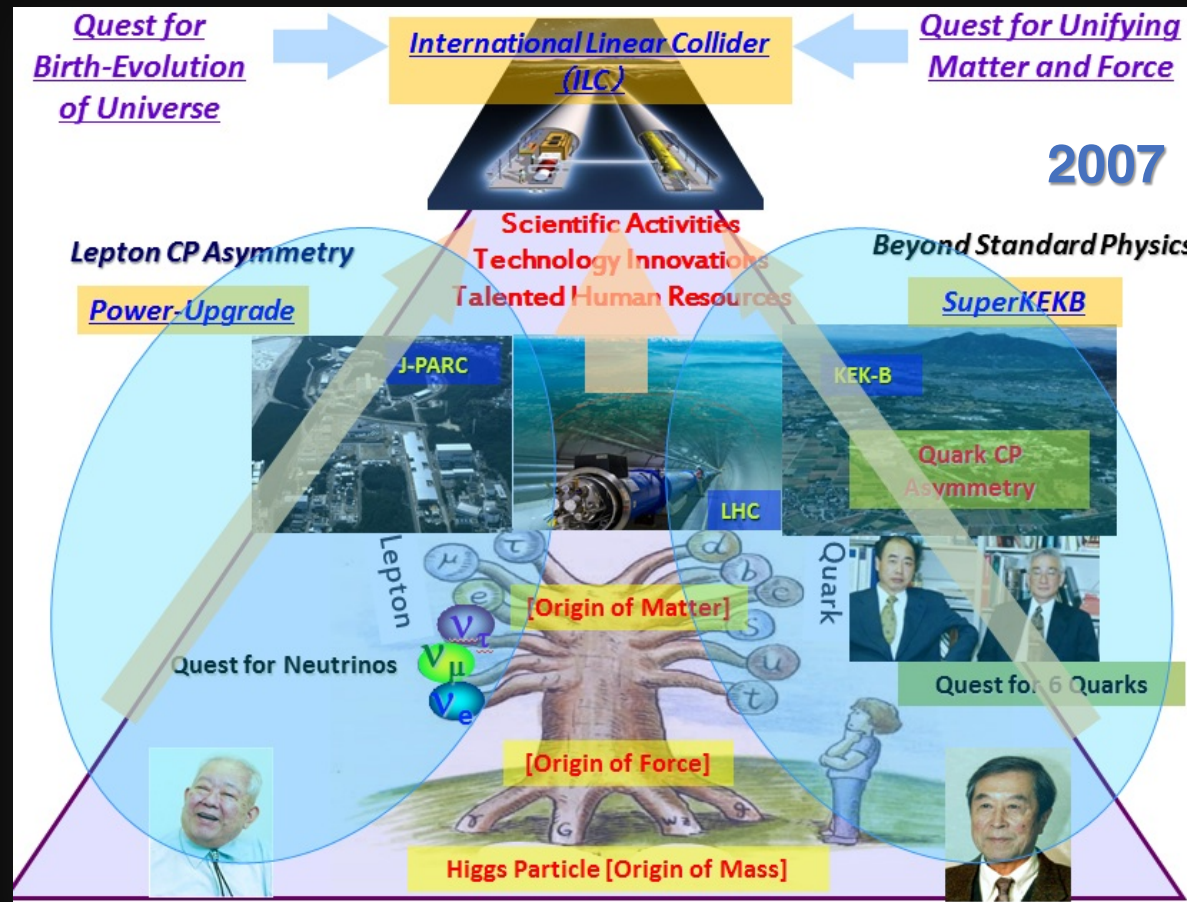
Hitoshi Yamamoto, 11-Mar-2013, HEPAP

# Possible Timeline

- July 2013
  - Non-political evaluation of 2 Japanese candidate sites complete, followed by down-selecting to one
- End 2013
  - Japanese government announces its intent to bid
- 2013~2015
  - Inter-governmental negotiations
  - Completion of R&Ds, preparation for the ILC lab.
- ~2015
  - Inputs from LHC@14TeV, decision to proceed
- 2015~16
  - Construction begins (incl. bidding)
- 2026~27
  - Commissioning

# Academic Front

# KEK Roadmap (2007)



- A 5-year plan formed through town hall meetings in 2007
  - Endorsed by Japan Association of HE Physicists
  - ILC at the top of the pyramid

## KEK roadmap (2013)

- KEKが中心となって、日本がホストするILC計画推進のための国際準備組織を立ち上げ、装置、施設・設備、研究所組織の詳細設計などに取り組み、本ロードマップ期間内（2014年からの5年間）の国際協力の枠組みによる建設着手を目指す。
- KEK takes an initiative to start an international preparatory organization, engage in detailed designs of equipments, facilities, laboratory organization etc., and aims at starting the construction under international framework within the duration of this roadmap (5 years from 2014).  
(my translation)

# JAHEP

- A report on large projects (March 2012)
  - ILC and neutrino experiment at highest priority.
  - On ILC:

Should a new particle such as a Higgs boson with a mass below approximately 1~TeV be confirmed at LHC, Japan should take the leadership role in an early realization of an  $e^+e^-$  linear collider. In particular, if the particle is light, experiments at low collision energy should be started at the earliest possible time.

(Now, Higgs-like particle has been found and it is 'light')

# JAHEP

- A proposal for staging of ILC (October 2012)
  - Staging
    - A Higgs factory with a CM energy of  $\sim 250$  GeV to start
    - Upgraded in stages to  $\sim 500$  GeV (ILC baseline)
    - Technical expandability to  $\sim 1$  TeV to be secured
  - Guideline for cost sharing
    - The host country to cover 50% of the expenses (construction) of the overall project of the 500 GeV machine.
    - The actual contribution, however, should be left to negotiations among the governments.

# International Science Innovation Centers (MEXT, \$100M max each program)

- 'A new industry alliance center to create earth cleaner market to protect the environment'
  - One of 15 programs approved (March 7, 2013)
    - Using super-conducting accelerator and quantum beam technology, advance the technologies and businesses to 'cleansing the earth' and expand the market.
    - Proponent: KEK
      - Co-proponents: , Mitsubishi Heavy Industries, Hitachi, Toshiba, Mitsubishi Electronics, Kyocera



# Political Front (National)

# LDP (Liberal Democratic Party) Victory in the lower-house election in Oct, 2012

Our new prime minister  
Shinzo Abe



LDP policy document  
for the election

LDP took power in Dec 2012

The ILC appears twice explicitly in  
the policy document:

- Science and technology policies
- Creation of top-class research centers

# LDP (Liberal Democratic Party) : New Ruling Party Election 'promises'

## 32 Rebuilding true command tower functions that strongly advance science and technology policies

- ...We will actively promote the critical fields of energy creation, energy conservation, energy storage, etc. as knowledge-concentrated national strategies - for example, our country should be able to play a leading role in creation of international centers for scientific innovations such as the ILC (the international linear collider) project which is a grand project in the field of particle physics.

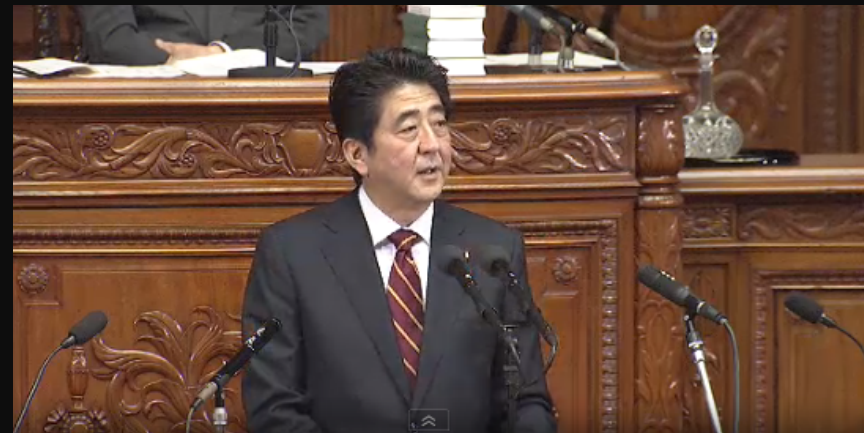
## 92 Creation of globally top-class centers for research and development

- ...We will significantly strengthen supports for universities and public research facilities that perform studies at levels above the intentional standards, such as significant expansion of WPIs and playing a leading role in creation of international centers for scientific innovations such as the ILC (the international linear collider construction) project which is a grand project in the field of particle physics.

# Policy Speech by PM Abe

(Japanese version of ‘State of the Union’)  
Feb 28, 2013

- ‘Japan is driving global innovation in cutting-edge areas, including among others the world's first production test of marine methane hydrate, a globally unparalleled rocket launch success rate, and **our attempts to develop the most advanced accelerator technology in the world.**’



PM Abe at the  
83<sup>rd</sup> session of Diet

# Q&As at the Diet

Mar 4, 2013

- Q : Mr. Ohata's Question on the 'Strategy for Growth  
'Establishing science&technology and intellectual property rights has greatly contributed to the progress of Japan in the past. What is your thought on the basic science&technology including the linear collider?'
- PM Abe's answer on the ILC  
'We will pull along the innovations through accelerator technologies that are at the global state-of-the-art. The ILC is part of it and it is a project that inspires great dreams. On the other hand, it requires a large amount of budget.'  
'As the government, we will proceed checking the progress of the international design activities at researchers' level.'

(There have been many answers in the Diet by Ministers in the past)

# MEXT (Ministry of education, culture, sports, science and technology) Minister Shimomura's Statement

*'We will call for inter-governmental negotiations with European and American governments in the first half of 2013'*

Jan 15, 2013 : When governors and vice-governors of 4 prefectures in the North East region of Japan visited MEXT (and other offices) asking for actions for hosting the ILC as a part of the earth-quake reconstruction program.  
(Great East Japan Earthquake: March 11, 2011)



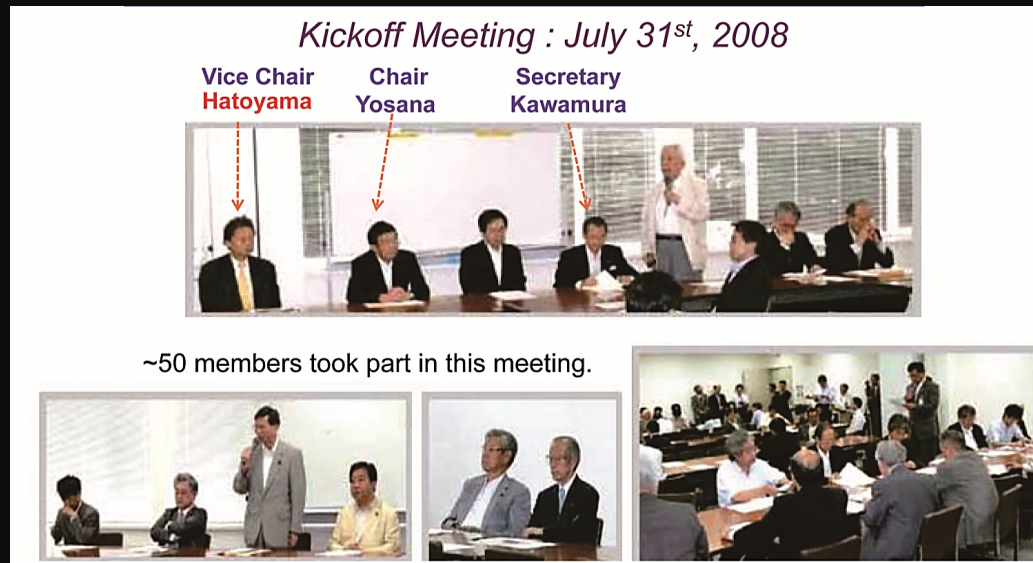
# Press conference by the MEXT minister Shimomura Jan 18, 2013



‘(On ILC) We would like to consider the plan for the near future, while as the government actively negotiating with relevant countries in the first half of this year ... we are now studying the legal framework.’

# Diet

- ‘Federation of Diet Members for Promotion of the ILC’
  - Established in 2008
  - Expanded to a multi-partizan group



- Previous PM Noda made a positive remark on ILC in one of the symposiums co-hosted by the federation.
- Re-invigorated after the Higgs discovery: now ~120 members!
- New chair: Mr. Kawamura (former MEXT minister)



# Activities of the new Federation (Diet)

- General meetings
  - Feb 1, 2013 : re-establishing the federation
    - Huge attendance:
      - 45 diet members and 25 proxies + researchers/companies
  - Feb 26, 2013 : re-organization
  - March 25, 2013 : invite Lyn Evans (LC collaboration director).
  - Apr : two general meetings planned
- Mini-lecture series
  - eg: March 13, by Sakue Yamada etc.
- Visit Washington DC
  - Apr 29-May 1, 2013
  - goal : enlarge US-Japan collaboration on the ILC
  - Joint symposium US-Japan w/industries planned

# Japanese Diet Members' Letter to DOE Office of Science (Oct 10, 2012)

Dear Dr. Brinkman,

As members of the Diet and also leading figures of the supporting group for hosting the International Linear Collider (ILC) in Japan, we are writing this letter to express our deep desire to invoke a much closer cooperation in accelerator-driven basic science, especially in High Energy Physics (HEP) Projects between Japan and the US.

The ILC, whose construction is strongly supported by the recent Higgs-like boson discovery at the LHC, represents the future frontier of particle physics with the fundamental goal of making the next step forward in our knowledge of the Universe. The most delicate undertaking of all, however, is to create the multi-national conditions to build the ILC as a global effort, which should also be internationally structured. We consider the process to realize this new international enterprise would represent a successful model of future global projects in all fields of science, technology and economics.

Japanese Prime Minister Noda made positive references to the ILC in December 2011, just after the first preliminary sightings of the new boson were announced from CERN. Presently in Japan, there is a talk of extra funds, because the new

# Japanese Diet Members' Letter to DOE Office of Science - signed by:

Sincerely yours,



Kaoru Yosano

A member of the House of Representatives  
Previous Ministers of Finance, Education, International Trade and Industry



Takeo Kawamura

A member of the House of Representatives  
Previous Chief Cabinet Secretary and Minister of Education, Culture, Sports,  
Science and Technology



Ryu Shionoya

A member of the House of Representatives  
Previous Minister of Education, Culture, Sports, Science and Technology



Hiroya Masuda

Professor of University of Tokyo  
Previous Minister of International Affairs and Communications

## Reply by the director of Office of Science

...

Should the Japanese government desire to commence such discussions on an international linear collider, **the US Department of Energy Office of Science will consider participating**, but we note that this process will require a thorough understanding of both the domestic scientific priorities in each major region

....

The U.S. HEP community is working to consider the options as part of **a community planning process culminating in a workshop planned for next summer**. The community's physics studies and simulations are necessary to compare the scientific reach of the various options. Once these studies and the community input are complete, **we will be in a better position to evaluate future U.S. priorities for the HEP program**.

# Industry & Private Sector

# Science-Industry Alliance

- ‘Advanced Accelerator Association for promoting science and technology (AAA)’
  - Established in 2008
  - Headed by a former CEO of Mitsubishi Heavy Industries: Mr. Nishioka
  - Hitachi, Toshiba, Mitsubishi, etc.
  - ~90 industries + ~30 universities

## Intensive activities:

- Lecture series, symposiums
- Civil engineering study
- Studies on large projects
- Science-industry cooperation
- ...



# ILC TDR

## Ceremony for draft completion



15 Dec 2012, Akihabara UDX, Tokyo  
A big media event  
Hosted by KEK and JAHEP  
Assisted by AAA

# Japan Policy Council

- A private organization (an influential thinktank)
  - Led by Hiroya Masuda
    - Professor of University of Tokyo
    - Former minister of internal affairs and communications
    - Former governor of Iwate prefecture



- Issued a report:
  - Build a role model for the creation of a global city by reforming a local city through founding an international organization for the International Linear Collider (ILC).



# Local Front

# Two Candidate Sites

- Kyushu
  - Sefuri mountains
- Tohoku
  - Kitakami mountains



In order to focus the design efforts:  
one of them will be chosen by this summer based on:

1. Geology and other technical aspects
2. Infrastructure and economic ripple effects
3. Political aspects

‘ILC site evaluation council’

Co-chairs: Kawagoe, Yamamoto

Evaluates 1. and 2. (hopefully that is enough information for decision)

# Regional Organizations : Kyushu

## ■ Kyushu

### ■ 'Association of Advanced Fundamental Science and Future Accelerators'

- Established in 2007
- Local governments, companies and universities

City of Karatsu

### ■ 'Kyushu and Saga Universities Promoting ILC'

- Established in 2007

### ■ 'ILC-Asia-Kyushu Conference Promoting ILC'

- Established in 2013 Feb 14

### ■ 'City of Karatsu Conference Promoting ILC'

- Established in 2013 Feb 19

### ■ 'City of Saga Conference Promoting ILC'

- Established in 2013 Feb 26



City of Saga

# Regional Organizations : Tohoku

- 'Tohoku Conference for the Promotion of the ILC'
  - Local governments, companies and universities
  - Cities of Oshu, Ichinoseki, Kesennuma joined the Tohoku Conference for the Promotion of the ILC
    - 2013 Mar 6
  - New members joining rapidly now!
- 'Tohoku University Council for the Promotion of the ILC'
  - Established in 2012
- 'Federation of Assembly Members Promoting the ILC'
  - Iwate Prefecture : established 2013 Mar 13
  - Miyagi Prefecture : to be established at next assembly

~200 newspaper articles on ILC this year  
by major journals in Iwate and Miyagi

Iwate Assembly Members  
visiting KEK



# Regional Activities (both regions)

- Geological survey
  - Borings, seismic surveys, electrical surveys, etc.
  - Field studies (reconnaissance)
- Study on international academic city and economic ripple effects
  - Residences, medical, educations, etc.
  - Official reports
- Outreaching to local public
  - Lectures, symposiums, science cafes etc. high school lectures (>10k students) and >50 public lectures, etc. after 2010.
  - Meetings to explain site studies
  - Production of PR DVDs

Science Cafe

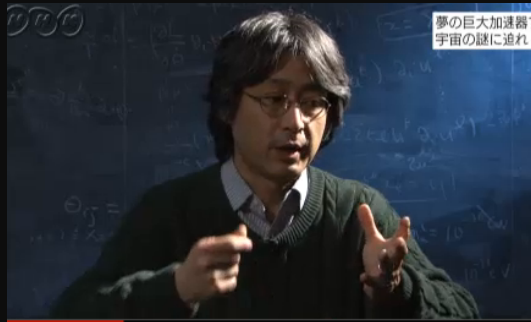


Symposium



# National Coverage of the ILC

- Many TV and newspaper coverages
  - ‘Close-up Today’ (クローズアップ現代) Feb 2013  
NHK’s flag-ship news program (30 min)  
‘Go beyond Higgs – Japan’s Large Accelerator Project’



Anchor: Hiroko Kuniya



Lastly

## European Strategy

draft is released, to be approved by the CERN council

- There is a strong scientific case for an electron-positron collider, complementary to the LHC, that can study the properties of the Higgs boson and other particles with unprecedented precision and whose energy can be upgraded. The Technical Design Report of the International Linear Collider (ILC) has been completed, with large European participation. The initiative from the Japanese particle physics community to host the ILC in Japan is most welcome, and European groups are eager to participate. Europe looks forward to a proposal from Japan to discuss a possible participation.



# NATURE Editorial (Dec 20, 2012)

<http://www.nature.com/news/head-of-the-line-1.12064>

- Statements of support from overseas will not guarantee that the ILC will go ahead. Japan's opaque government will still have to debate the programme's merits internally and come up with a process for committing to its construction. But an early show of support could give the collider the push it needs to get under way. That would be a great victory for Japan, and the world.

# Backups

Federation of Diet members to promote the realisation of ILC

2013/3/11

Title	Name	House	Party	incumbent in Cabinet	incumbent in the House	incumbent in party	former position
Advisor Emeritus	Kaoru Yosano						Chief Cabinet secretary, trade and economic, Minister of Finance, Minister of Education, Culture, Sports, Science and Technology (MEXT)
Advisor	Taro Aso	Representatives	Liberal Democratic Party(LDP)	Minister of Finance			Prime Minister
	Yoshihiko Noda	Representatives	Democratic Party of Japan(DPJ)			Supreme Advisers(DPJ)	Prime Minister
	Kosuke Hori	Representatives	Liberal Democratic Party(LDP)		Chairman of the Commission on the Constitution		Minister of Education, Culture, Sports, Science and Technology (MEXT)
	Sadakazu Tanigaki	Representatives	Liberal Democratic Party(LDP)	Minister of Justice			
	Seiko Noda	Representatives	Liberal Democratic Party(LDP)		Director of the Committee on Cabinet	Chairman, General Council(LDP)	Minister of State for Science and Technology Policy
	Tadamori Oshima	Representatives	Liberal Democratic Party(LDP)				Minister of Education, Culture, Sports, Science and Technology (MEXT)
	Takeo Hiranuma	Representatives	Japan Restoration Party				Minister of Economy, Trade and Industry (METI)
	Hirofumi Shimomura	Representatives	Liberal Democratic Party(LDP)	Minister of Education, Culture, Sports, Science and Technology (MEXT)			
	Yasufumi Tanahashi	Representatives	Liberal Democratic Party(LDP)		Director of the Committee on Foreign Affairs		Minister of State for Science and Technology Policy
Chairman	Takeo Kawamura	Representatives	Liberal Democratic Party(LDP)			Director-General, Election Bureau(LDP)	Chief cabinet secretary, Minister of Education, Culture, Sports, Science and Technology (MEXT)
Acting Chairman	Akihiro Ohata	Representatives	Democratic Party of Japan(DPJ)			Acting President(DPJ)	Minister of Economy, Trade and Industry (METI) Minister of Land, Infrastructure, Transport and Tourism(MLIT)
Deputy Chairman	Shunichi Suzuki	Representatives	Liberal Democratic Party(LDP)	Senior Vice-Minister for Foreign Affairs(MOFA)			
	Kenji Kosaka	Councillors	Liberal Democratic Party(LDP)		Chairman of the Commission on the Constitution		Minister of Education, Culture, Sports, Science and Technology (MEXT)
	Tetsuo Saito	Representatives	New Komeito(NK)		Director of the Committee on Environment	Executive Acting Secretary-General(NK)	Minister of the Environment
	Yoshiaki Takagi	Representatives	Democratic Party of Japan(DPJ)			Chair, Diet Affairs Committee(DPJ)	Minister of Education, Culture, Sports, Science and Technology (MEXT)
	Ken'ichi Mizuno	Representatives	Your Party			Acting Secretary-General(YP)	Vice-Minister for Foreign Affairs
Secretary-General	Ryu Shionoya	Representatives	Liberal Democratic Party(LDP)		Director of the Committee on Education, Culture, Sports, Science and Technology	Chairman, Research Commission to Promote Research and Establish a Nation of Innovative Science and Technology(LDP)	Minister of Education, Culture, Sports, Science and Technology (MEXT)
Secretary	Eisuke Mori	Representatives	Liberal Democratic Party(LDP)		Chairman of the Special Committee for Investigation of Nuclear Power Issues		Minister of Justice
	Teruhiko Mashiko	Councillors	Democratic Party of Japan(DPJ)		Chairman of the Committee on Economy and Industry	Vice Presidents(DPJ)	Vice-Minister of Economy, Trade and Industry (METI)
	Takeshi Shina	Representatives	Democratic Party of Japan(DPJ)				
	Mitsuhide Iwaki	Councillors	Liberal Democratic Party(LDP)		Chairman of the Committee on Rules and Administration		Deputy Chief Cabinet Secretary
	Yoshihisa Inoue	Representatives	New Komeito		Director of the Committee on Fundamental National Policies	Secretary General(NK)	
	Yoshiaki Harada	Representatives	Liberal Democratic Party(LDP)		Director of the Committee on Land, Infrastructure, Transport and Tourism		
	Tatsuo Hirano	Councillors	Democratic Party of Japan(DPJ)				Minister of Reconstruction Agency
	Kan Suzuki	Councillors	Democratic Party of Japan(DPJ)		Director of the Committee on Education, Culture, Sports, Science and Technology	Chair, Public Relations Committee(DPJ)	Vice-Minister of Education, Culture, Sports, Science and Technology (MEXT)
Bureau-General	Norihisa Tamura	Representatives	Liberal Democratic Party(LDP)	Minister of Health, Labour and Welfare			Vice-Minister of Education, Culture, Sports, Science and Technology (MEXT)
Chief Secretary	Keisuke Tsumura	Representatives	Democratic Party of Japan(DPJ)			Chair, Youth Committee(DPJ)	Parliamentary Secretary for Cabinet Office

Membership	Diet Members	152	The House of Representatives	122
			The House of Councillors	29

# Academic Statements

Table 1: Timeline of statements and recommendations relevant to the ILC project.

---

2007	JAHEP Roadmap
December 2007	KEK's Roadmap (5 Year Plan) [7]
March 2010	Science Council of Japan, <i>Master Plan of Large Research Projects</i> [8]
September 2010	MEXT of Government, <i>Roadmap of Large Research Projects</i>
September 2011	Science Council of Japan, <i>Master Plan of Large Research Projects 2011</i> [9]
February 2012	JAHEP, <i>Report of the Subcommittee on Future Projects of High Energy Physics</i> [3]
May 2012	ILC Strategy Council is formed [1]
October 2012	JAHEP, <i>Proposal for a phased execution of the ILC project</i> [4]
(Scheduled) March 2013	KEK's Roadmap for 2014-2019 [10]
(Scheduled) April 2014	Science Council of Japan, <i>Master Plan of Large Research Projects 2014</i>

---