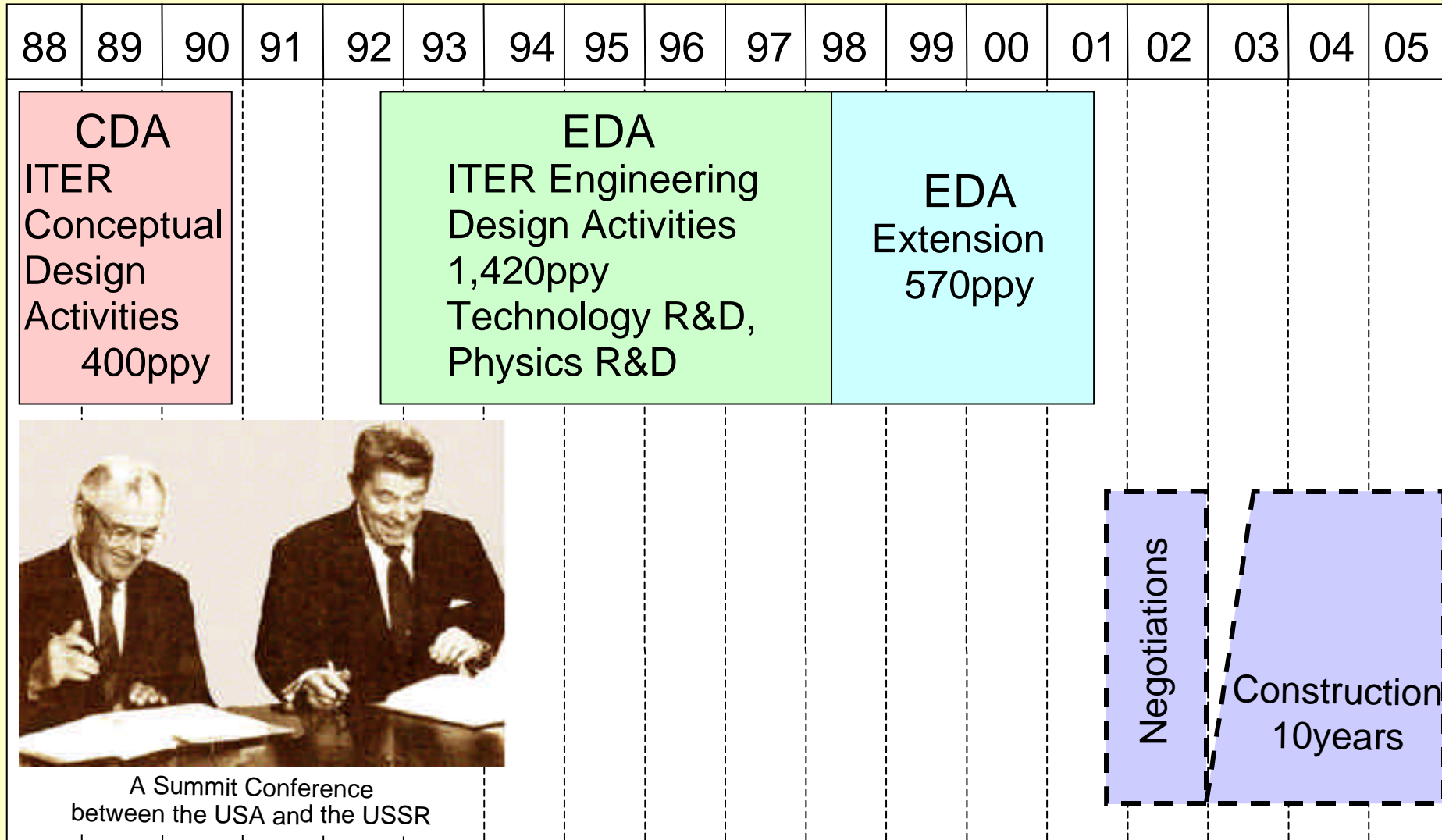


December 14, 2001
ITC12

Status of ITER Project

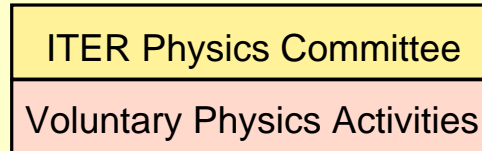
Presented by T.Tsunematsu
(EDA JA Home Team Leader)
Japan Atomic Energy Research Institute

Reference Schedule of ITER Project



EDA: organization

Physics R & D



ITER Council

Director General

Management Advisory Committee

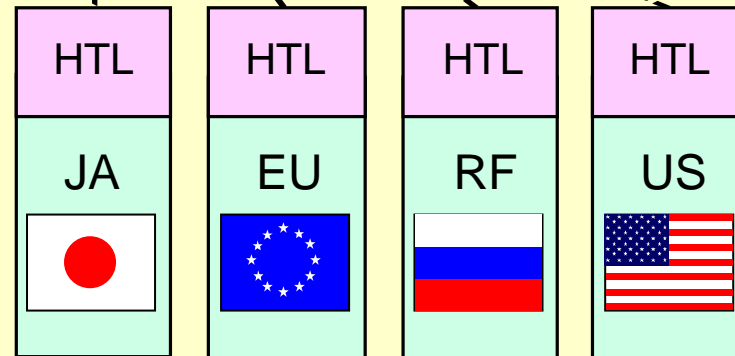
Technical Advisory Committee

Design

Joint Central Team		
San Diego	Naka	Garching
Design Integration (Design Integration Building Fusion Safety R&D Coordination etc.)	Out-Vessel (Superconducting Magnet Power Supply Tritium Remote Handling etc.)	In-Vessel (Divertor Blanket Vacuum Vessel etc.)

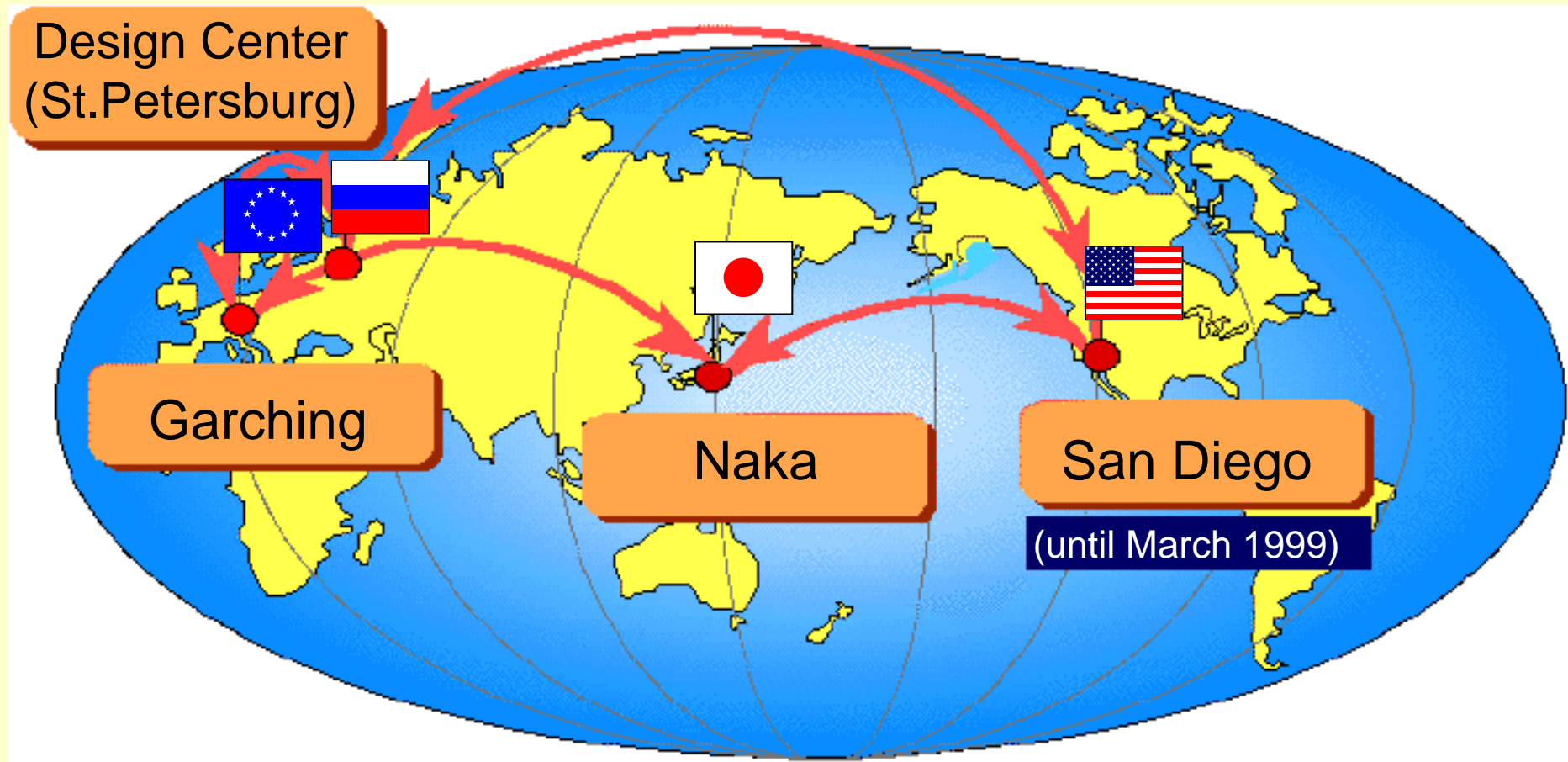
(until July 1999)

Task Agreement



(until July 1999)

World-Wide Cooperation in ITER/EDA



- Efficient use of high speed link and information technology
- Multi-national engineering and industries

Detailed Technical Objectives

Plasma Performance:

- to achieve extended burn in inductively driven plasmas with the ratio of fusion power to auxiliary power injected into the plasma $Q > 10$ with an inductive burn duration between 300 and 500s,
- to aim at demonstrating steady-state operation using non-inductive current drive with $Q > 5$,
- Controlled ignition should not be precluded.

Engineering Performance and Testing:

- demonstrate availability and integration of essential fusion technologies,
- test components for a future reactor,
- test tritium breeding module concepts; with a 14MeV neutron average power load on the first wall $> 0.5 \text{ MW/m}^2$ and fluence $0.3 > \text{MWa/m}^2$,
- the option for later installation of a tritium breeding blanket on the outboard of the device should not be precluded.

ITER

Super-conducting Magnets

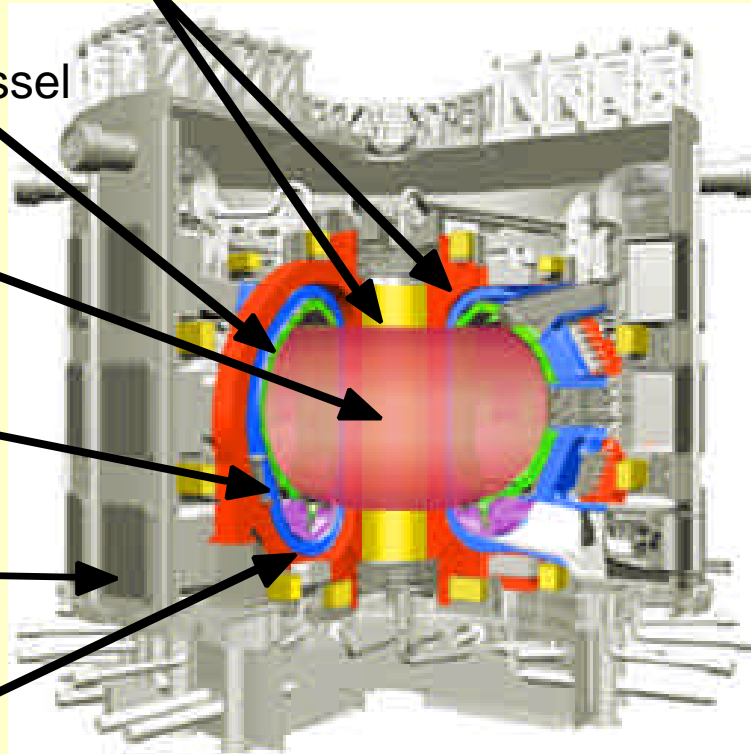
Vacuum Vessel

Plasma

Blanket

Cryostat

Divertor



0m 10m 20m 30m

Major Specifications

Fusion Power : 500 MW

Q Value : >10

Major Radius : 6.2 m

Minor Radius : 2.0 m

Plasma Current : 15 MA

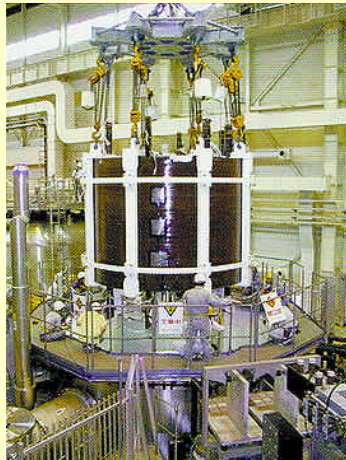
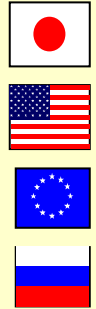
Magnetic Field

Maximum : 11.8 T

Plasma Center: 5.3 T

ITER Technology Development

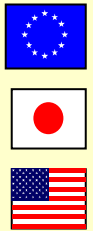
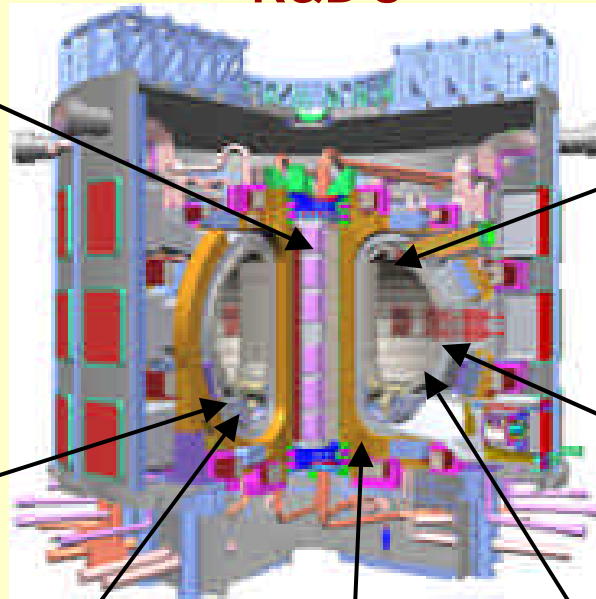
ITER 7 Large Technology R&D's



CS Model Coil



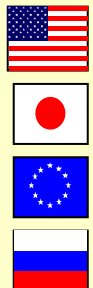
Blanket Module



Divertor Cassette Remote Handling



Blanket Module Remote Handling



Divertor Cassette



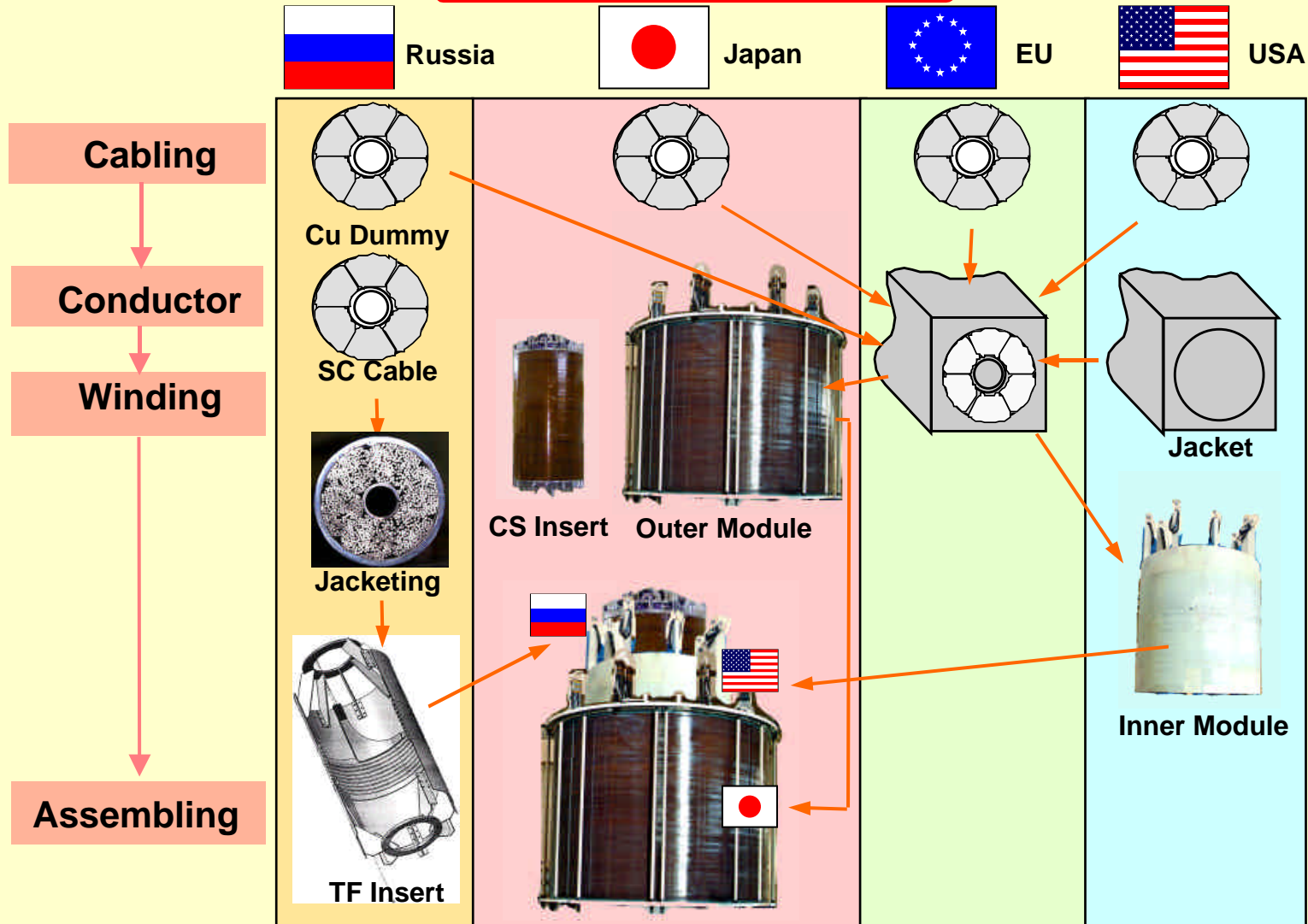
TF Model Coil



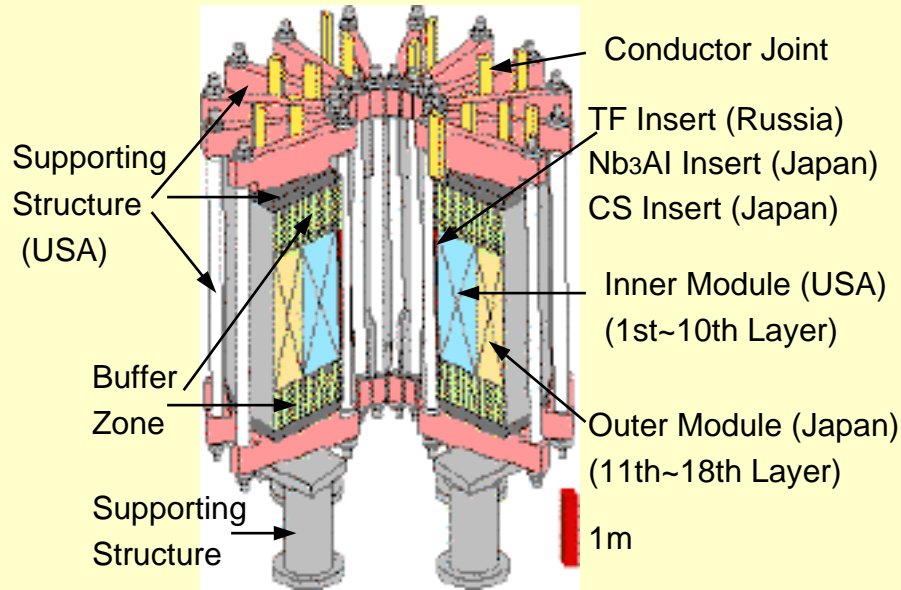
VV Sector

Central Solenoid Model Coil (1)

International Collaboration



Central Solenoid Model Coil (2)

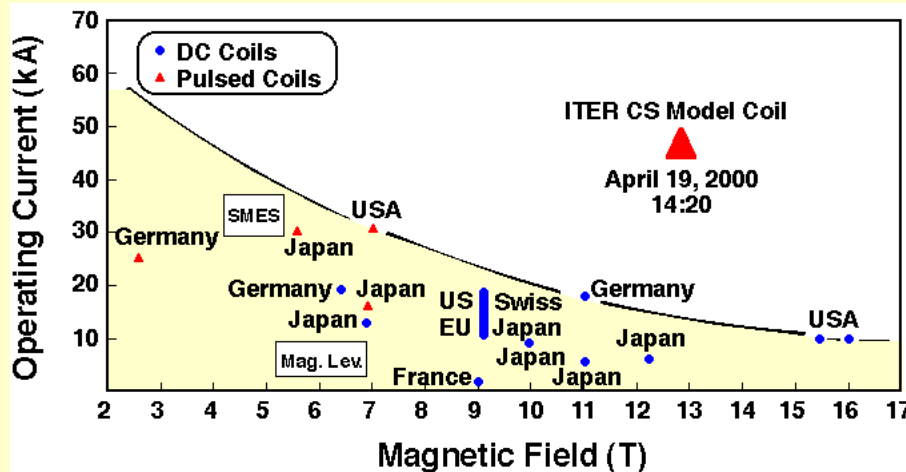


Main Parameters

Inner Diameter:	1.6m
Outer Diameter:	3.6m
Coil Height:	2.8m
Coil Weight:	110ton
Operating Current:	46kA
Magnetic Field:	13T

TF Insert

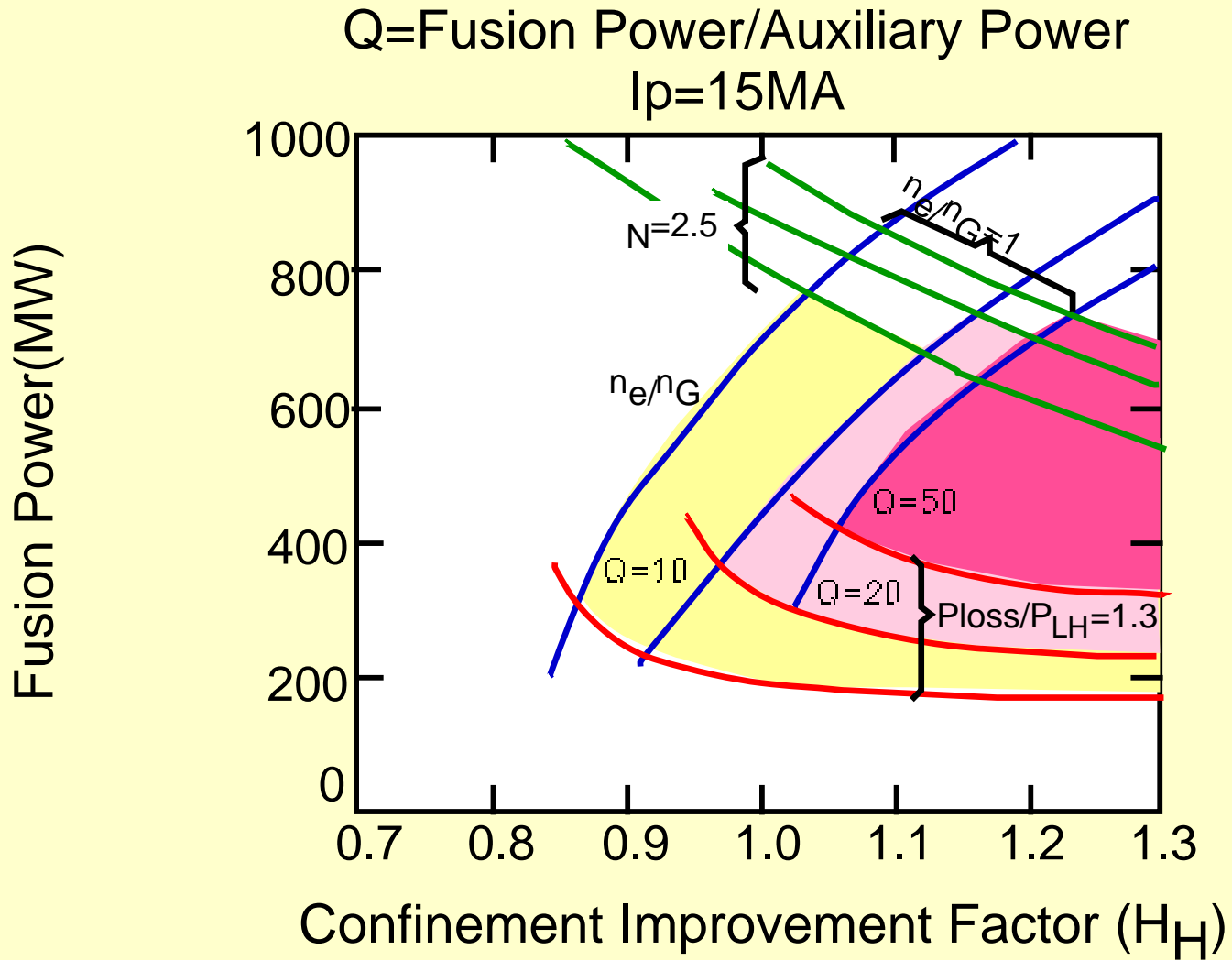
Achieved technology



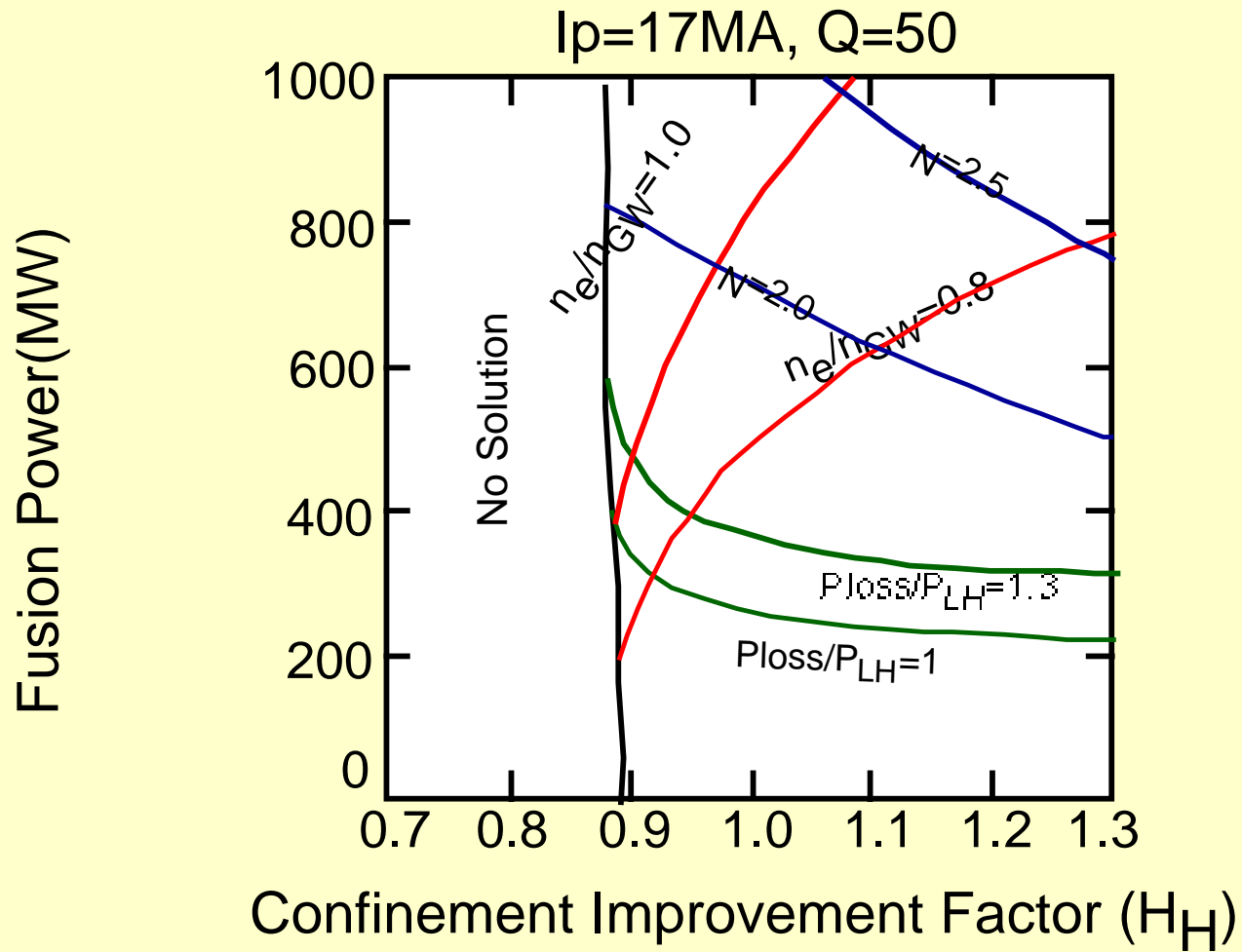
Expert Groups on ITER Physics R&D

1994 – 1999	1999 – 2001
Confinement and Transport Physics	Transport and Internal Barrier Physics
Confinement Database and Modeling	Confinement Database and Modeling
Edge Database and Modeling	Edge and Pedestal Physics
Scrape-Off Layer and Divertor Physics	Scrape-Off Layer and Divertor Physics
Disruptions, Equilibrium Control and MHD	MHD, Disruptions and Control
Fast Particles, Heating and Current Drive	Energetic Particles, Heating, and Steady State Operation
Diagnostics	Diagnostics

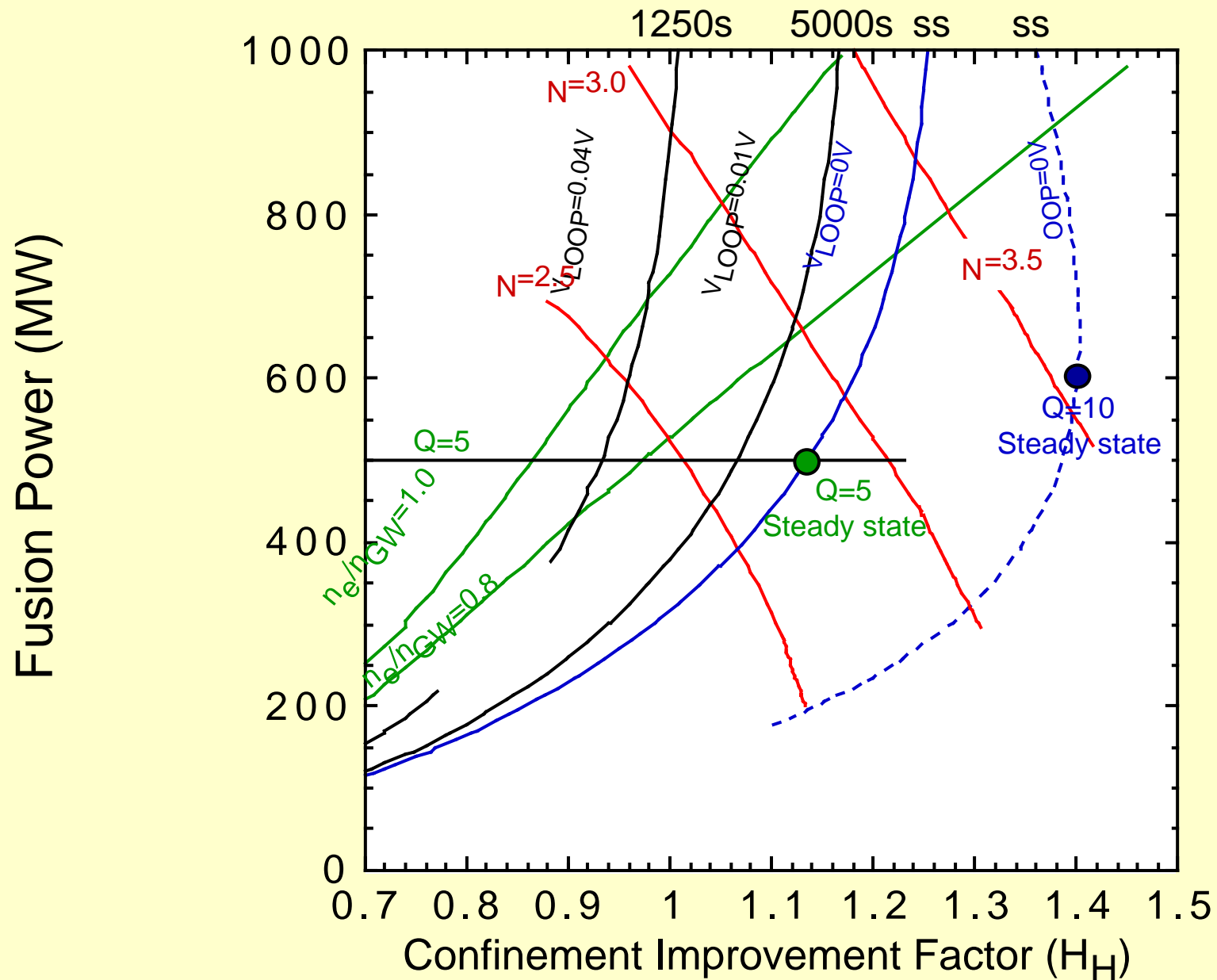
Operation Region of ITER



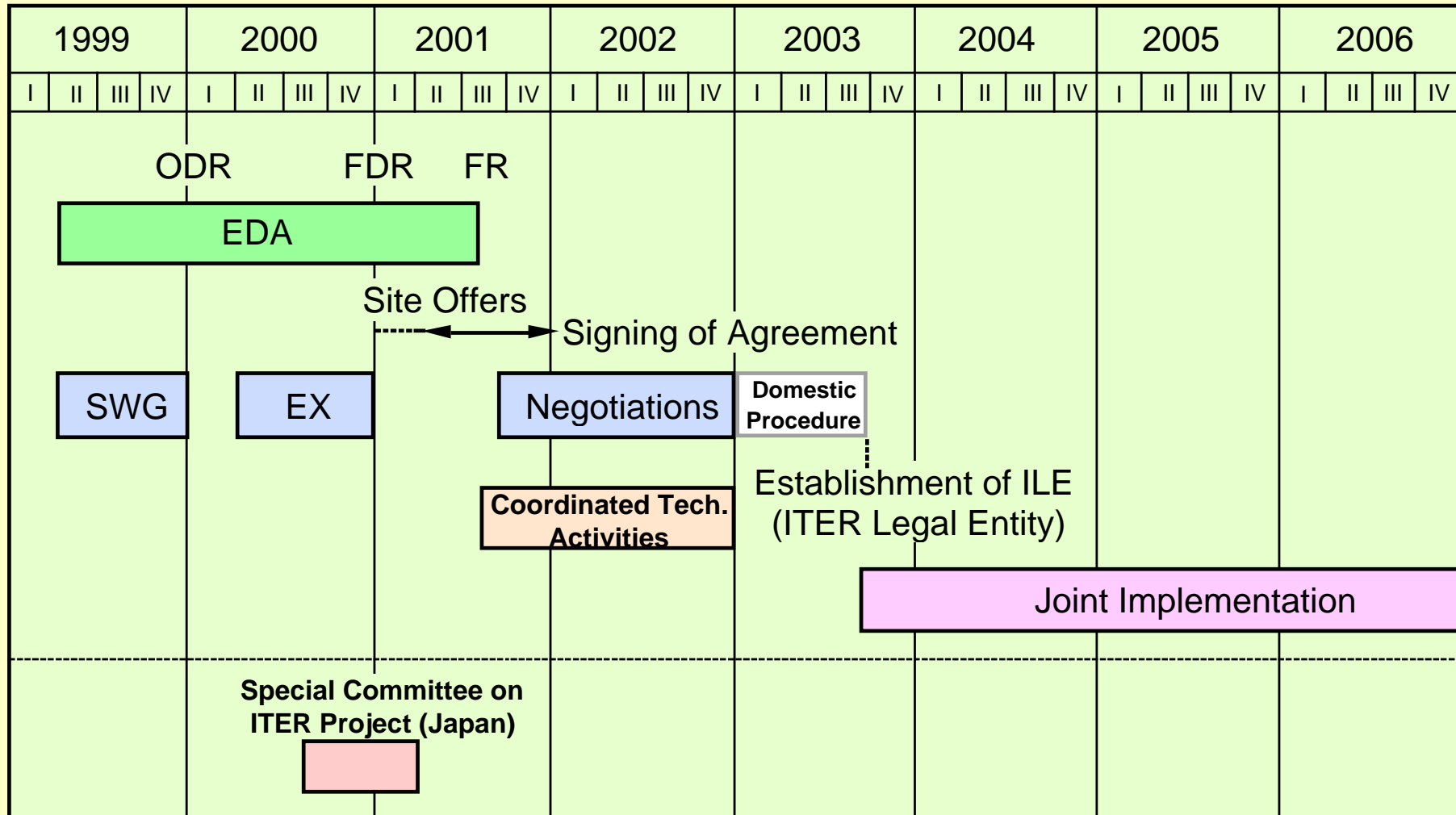
Enhanced Operation Region



Long Pulse/Steady State Operation of ITER



Reference Schedule of ITER Project

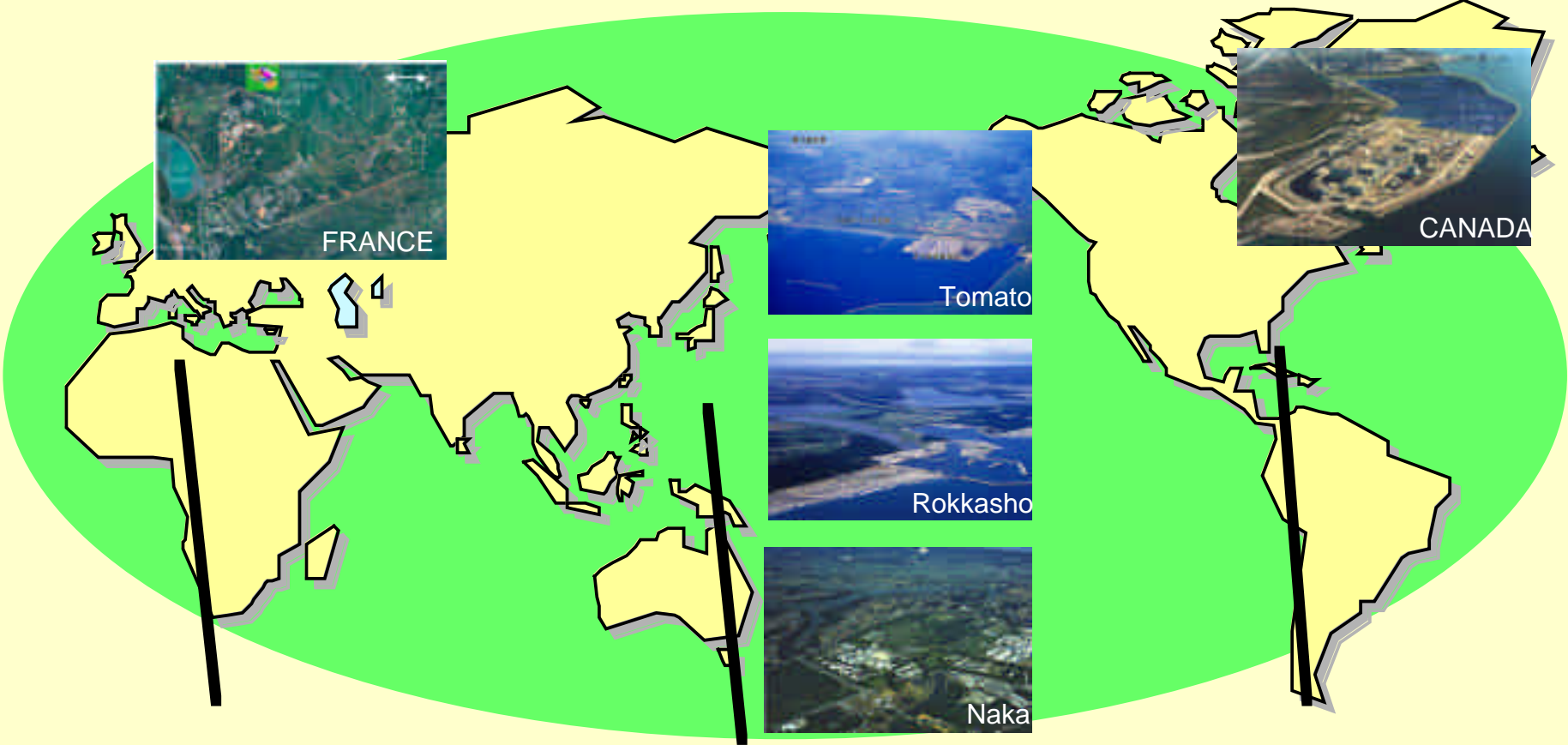


ODR:Outline Design Report
 FDR:Final Design Report
 FR:Final Report

SWG:Special Working Group
 EX:Exploration

COEDA:Construction, Operation, Exploitation
 Decommission Activities

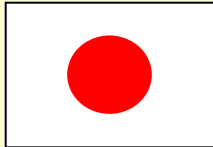
Possible Candidate Sites



FRANCE
Cadarache



JAPAN
Naka, Rokkasho, Tomato



CANADA
Clarington



Summary

- Through the collaboration among the JCT and EDA partners, the design and R&Ds has been successfully conducted.
- The technical basis toward the construction has been established.
- Negotiation among EU, JA, RF and Canada has been started aiming at the signature by the end of 2002.



**Now,
we are ready for ITER.**