



*U.S. Department of Energy's
Office of Science*

ITER Status
for discussion at
Issues Seminar
at FY2006 BPM



Dr. Michael Roberts
Director of ITER and
International Division

Status on ITER – Remaining Issues

➤ 1. Site Selection Pending



Rokkasho, Japan



Cadarache, France, EU

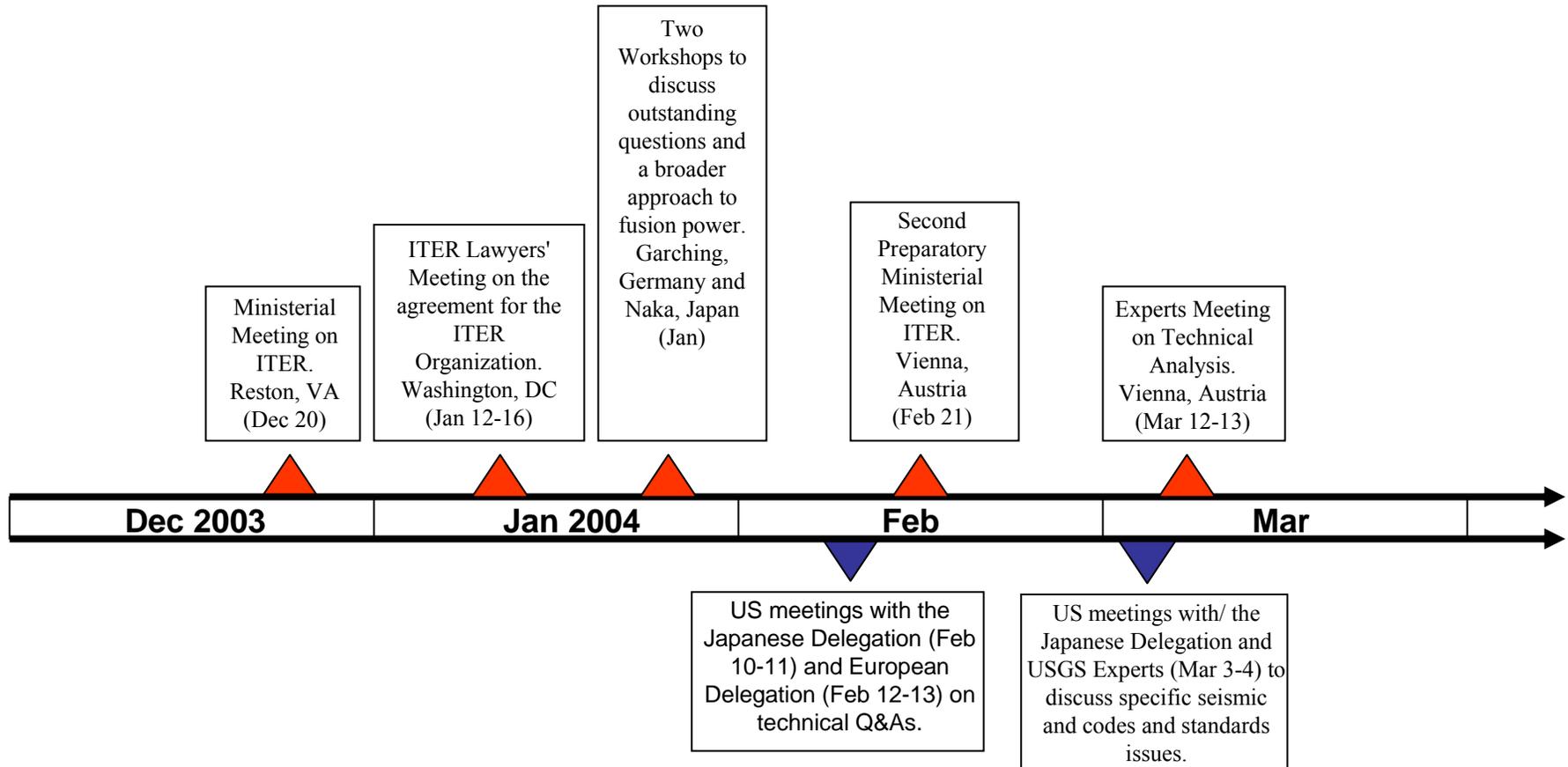
Parallel Activities to Position the US to Act Following Site Selection

- 2. Agreement Text Pending – legalities and interpretations
- 3. Key Personnel – Secondees, US ITER Project Office, ITER Organization
- 4. OFES Program and Community Preparing for ITER
- 5. Licensing – responsibility of host site
- 6. Funding – executing FY 04, defending FY05, and planning FY06
- 7. Construction Start – 2006?

Status on ITER – Site Selection

Timeline of Major Activities Related to ITER Host Sites Negotiations

(Rokkasho, Japan and Cadarache, France, EU)



Denotes meetings where all six ITER parties were present.

Denotes meetings where the US met with another ITER party.

Status on ITER – Site Selection (continued)

- All technical issues and discussions now complete
 - Some homework remains (seismicity and costs)
 - Each Party can now make its technical judgments
- All Parties acknowledged common budget pressures on new ITER funding
 - Consequently, common view that site resolution is urgently needed within weeks
- European Union and Japan, as competing host candidates, bear principal responsibility for this resolution
 - EU and Japan are meeting soon to attempt resolution
- We can hope for some actions soon

Parallel Activities - ITER Agreement

*"Agreement on the Establishment of the
ITER International Fusion Energy Organization [the ITER Organization]
for the Joint Implementation of the ITER Project"*

- ITER Agreement Drafting Meeting held in Washington, DC
January 12-16, 2004
- All six parties had legal representation present
- Process greatly reduced number of outstanding issues
- Finalization of Agreement depends heavily on site selection
 - Principal US concern is on ‘requirement’ for treaty form of
commitment
- Latest plan for completion is based on holding two additional drafting
meetings and a final legal review of the draft text
- A second governmental decision is required once negotiations are completed
to accept the text and prepare for signing

Parallel Activities – Key Personnel

1. The present ITER international team consists of ~ 63 persons:
27 from Europe, 19 from Japan, 13 from Russia, and 4 from China
2. Responding to requests from the ITER International Team Leader, the US is arranging for US persons in FY04 (visitors/secondees/ all part-time):
 - Magnets [Naka, Japan] - Nicolai Martovetsky (LLNL) and Philip Michael (MIT)
 - First Wall/Blanket [Garching, Germany] - <TBD> (Sandia)
 - Ion Cyclotron [Garching, Germany] - David Swain (ORNL) and Richard Goulding (ORNL)
 - Port Plugs/diagnostics [Garching, Germany] - Douglas Loesser (PPPL)

Parallel Activities – Key Personnel (continued)

3. Call for Proposals from DOE National Laboratories to serve as the US ITER Project Office (December 1, 2003). General functions of Office during the construction phase are to:
- Provide central management of the US contributions
 - Procure all hardware contributions
 - Arrange for US interface with the ITER Organization on construction matters and preparations for ITER operations
 - Integrate ITER activities throughout the US fusion program

Proposals were due to Chicago Operations Office by March 1, 2004.

- "X" proposals were received

US ITER Project Office to be selected, hopefully, by April 2004.

- Chicago Operations Office supporting OFES with comprehensive Evaluation Board
- OFES would then make selection

Parallel Activities – Key Personnel

- After the ITER Agreement is signed by all Parties, ITER project team is to be formed at ITER site
 - Director-General plus ~5 Deputies
 - Key Managers
 - Scientists and Engineers
- US would compete in most areas recognizing that we (or any Party) could only hold a small fraction of the positions

Parallel Activities – Program and Community Preparing to Act

- 1. Fusion Energy Sciences Advisory Committee - Nov. 2003
(Burning Plasma Assessment Committee Recommendations)**
 - A burning plasma experiment is critically needed to advance fusion science
 - Join ITER or reassess to move ahead

- 2. Burning Plasma Physics Advisory Committee (Recommendations)**
 - Need an organizational structure that vests the broad US fusion community with strong participation in and guidance of the US burning plasma program
 - Need structure and path for communicating concerns
 - OFES recognizes desire for community to be heard
 - We will work to find good mechanism to involve community in planning and conducting program

Parallel Activities – Program and Community Preparing to Act

3. International Tokamak Physics Activity (ITPA) and ITER Physics
 - Future pending ITER Agreement
 - Extended up to two years from July 2003
 - Technical work progressing well
 - ITPA/IEA coordination meeting at Naka in November 2003 for joint experiments
 - Tokamak Physics Basis being prepared
 - Need to improve interaction with the International Team on ITER Physics Tasks
 - A new ITPA Chair to be selected in June

Status of ITER - Licensing

- Formal start of project begins with Agreement Signing.
- Approved licensing to begin construction is scheduled for mid-2006.
- Responsibility of the host site but has implications for world fusion efforts
- US personnel who are formally members of the ITER Organization will participate in the licensing process
- The ITER Organization will communicate licensing plans to the Parties so that potential licensing precedents related to ITER could be reviewed by the Parties at an early time.
- ASME developing fusion codes/standards
 - We need US fusion experts engaged!
 - Designers familiar with code interpretation from our institutions should become involved

Parallel Activities – Budget Planning Activities

FY2004 Actions

- Contributing to R&D, design, and manufacturing studies
- Qualifying US vendors to provide hardware
- Refining the cost estimates and procurement plans for US contributions
- Preparing project management procedures for US contributions, including identifying and managing the risks

Parallel Activities – Budget Planning Activities

FY2005 Budget Planning

- Funding in the amount of \$7,000,000 for direct support of ITER would provide:
 - Continuation of ITER Transitional Activities such as safety, licensing, project management,
 - preparation of final specifications and system integration.
 - participation by U.S. personnel in these activities in preparation for eventual project construction.
 - preparation to qualify U.S. vendors to supply hardware and components for the project when the need arises.

- Additional funding in the amount of \$31,000,000 is for base program science and technology activities, mainly plasma physics experiments
 - DIII-D Research
 - Alcator C-MOD Research
 - Fusion Theory Research
 - Plasma Technology

Parallel Activities – Budget Planning Activities

FY2006 Budget Planning Meeting – March 16-18, 2004

- Base program will focus on burning plasmas and identify specific tasks, such as high-priority ITPA R&D, theory, and technology R&D for heating, current drive, diagnostics, etc.
- FY 2006 funding for ITER construction would require increased funding for these construction related activities:
 1. The procurement of hardware, including funds needed for industry R&D and funds for the procurement effort itself
 2. U.S. personnel assigned to the ITER project team
 3. U.S. share of cash contributions to the project team for miscellaneous items such as hardware installation, infrastructure, etc.
 4. Project management of all U.S. ITER activities.

Parallel Activities – Construction Start

