Draft Presentation to FESAC
July 19, 2005

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U.S. Department of Energy
Cadarache, France Selected to Host ITER

June 28, 2005
Ministerial Meeting
Moscow, Russia

- Cooling Water Pumping Station
- Site Services Building
- Steady-State Power Supply Area
- Hot Basin and Cooling Tower
- Control Building
- Tritium, Vacuum, Fueling and Services Building
- NB Injection Power Supply Complex
- Magnet Power Conversion Buildings

Pulsed Power Supply Area

ITER site

Hot Basin and Cooling Tower

Control Building

Tritium, Vacuum, Fueling and Services Building

NB Injection Power Supply Complex

Magnet Power Conversion Buildings

Pulsed Power Supply Area

June 28, 2005
Ministerial Meeting
Moscow, Russia
June 28, 2005 - A Six-Party Ministerial-level Meeting Successfully Ended the Site Negotiations with the selection of Cadarache, France as the ITER host site.

- The negotiations have been largely in the hands of the EU and JA.
- The US has been adamant about not influencing the site negotiations between the EU and JA.

- Mar 27 Koizumi and Chirac met in Tokyo.
- Apr 12 Nakayama and Potocnik met in Tokyo.
- May 2 Japan-EU Summit - Koizumi met with EC President, Luxembourg Prime Minister and other European leaders.
- May 5 JA and EU completed technical negotiations, Brussels
- May/June Intense bilateral work to conclude site negotiations
Near-term Activities

ITER Parties: Select and appoint Director General and key staff and form ITER working team at Cadarache, including assignment of U.S. personnel

ITER Parties: Negotiate text on the international ITER Agreement

DOE: Continue to complete project activities in U.S., including setting milestones, design/R&D preparations and organizing to implement the US Contributions to ITER project.

U.S. Congress: Address FY06 Budget Request and ITER in Energy Bill

U.S.G. and Congress: Consult on progress of text negotiations

Complete international ITER Agreement and pre-initial or concur on content

ITER Parties: Governments initial the international ITER Agreement

FY 2007 Budget Released on February 6, 2006

DOE: Obtain Administration approval via Circular 175 authorizing the U.S. to sign the ITER Agreement, in consultation with Congress

ITER Parties: Sign international ITER Agreement

U.S.G. and Congress: Consult on Ratification or Acceptance of the Agreement

ITER Parties: Ratify or Accept the signed Agreement and its Entry into Force

ITER Parties: Establish international ITER Organization

July to Dec 2005

Jan 2006 and Beyond
Priority negotiation issues include:

- **SITE SELECTION**: Completed June 28, 2005.
- **LEGALITIES AND ORGANIZATION**: The need continues to finalize the international ITER Agreement and obtain approval from all parties’ government systems, appoint a Director General, and establish the ITER Organization.
The Energy and Water Subcommittee approved HR 2419, the fiscal year 2006 Energy & Water Development Appropriations bill. The bill provides an increase of $233 million above the President’s request for the Office of Science.

Office of Science Highlights:
The House bill provides $3.67 billion for scientific research, which is...
$203 million above the President’s request
$66 million above the current year level
• Provides an additional $22,000,000 to maintain high energy physics at the fiscal year 2005
• additional $39,000,000 is provided to support the Office of Science initiative to develop the hardware, software, and applied mathematics necessary for a leadership-class supercomputer to meet scientific computation needs
• Fully funds the Spallation Neutron Source at Oak Ridge
• Funds Fusion Energy Sciences at $296 million.
The Committee recommendation for fusion energy sciences is $296,155,000, an increase of $5,605,000 over the budget request but with a significant redirection of funds as outlined below. The Committee is concerned that two-thirds of the proposed increase for the International Thermonuclear Experimental Reactor (ITER) would be achieved by reducing domestic fusion research and operating time on domestic user facilities. Under the proposed fiscal year 2006 budget, operating time at the three major fusion research facilities (DIII-D, Alcator C-Mod, and NSTX) would be reduced from 48 weeks in fiscal year 2005 to a total of only 17 weeks in fiscal year 2006. If the United States expects to be a serious contributor to international fusion research in general and to ITER in particular, the Nation needs to maintain strong domestic research programs and user facilities to train the next generation of fusion scientists and engineers. The Department's proposal to increase support for ITER at the expense of domestic fusion research is unwise and unacceptable. Such an approach is not only short-sighted, but inconsistent with prior Congressional guidance. Therefore, the Committee directs the Department to utilize $29,900,000 of funding proposed for ITER and the additional $5,605,000 to restore U.S.-based fusion funding to fiscal year 2005 levels as follows: $7,300,000 for high performance materials for fusion; $14,305,000 to restore operation of the three major user facilities to fiscal year 2005 operating levels; $7,200,000 for intense heavy ion beams and fast ignition studies; $5,100,000 for compact stellarators and small-scale experiments; and $1,600,000 for theory. As in previous years, the Committee directs the Department to fund the U.S. share of ITER through additional resources rather than through reductions to domestic fusion research or to other Office of Science programs. If the Department does not follow this guidance in its fiscal year 2007 budget submission, the Committee is prepared to eliminate all U.S. funding for the ITER project in the future.
Boehlert Amendment to the House Energy and Water Appropriations Bill
Approved on House Floor (May 24, 2005)

WASHINGTON, D.C. - The House tonight approved, by voice vote, an amendment by Science Committee Chairman Sherwood Boehlert (R-NY) to prevent the U.S. from entering into an agreement on ITER, the international fusion experiment, before March 1, 2006.

"The Department of Energy is moving ahead with negotiating U.S. participation in ITER, the international fusion energy project, which is all to the good. I support U.S. participation in ITER, a critical experiment that will help determine, finally, if fusion is a realistic option for energy production. If it is, fusion might go a long way toward solving our looming energy supply shortfall.

"But ITER is expensive. The U.S. contribution is expected to exceed $1 billion. And I want to make sure that before we commit a dime to ITER that we have a consensus on how we will find that money.

"I am very, very tired of the U.S. signing on to international science agreements that we later come to regret. We're then left with the Hobson's choice - the Chairman will excuse the expression - the Hobson's choice of either reneging on our international agreement or tunneling money into a project we don't actually need.

"So this time we have a chance to avoid that uncomfortable choice. We have time to ensure that the Administration and the Congress and the fusion science community agree on how we're going to pay for ITER before we sign on the dotted line. And that's exactly what this amendment is designed to guarantee.

"The amendment says, in effect, that we can't finalize an agreement on ITER before March 1 of next year. By then we will have in hand both the proposed ITER agreement and the President's fiscal 2007 budget request. With that information, we should be able to determine if there is a consensus on moving forward.

"In the meantime, the site selection and planning process and negotiations on ITER can and should continue. But I will do all I can to prevent the U.S. from entering into an agreement if no one is willing to make the sacrifices necessary to pay for it.

"Again, I look forward to working with Chairman Hobson and everyone concerned with this issue to build a strong and balanced fusion program."
• The Energy and Water Subcommittee approved a fiscal year 2006 Energy & Water Development Appropriations bill.

• The bill provides an increase of $100 million above the President’s request to support the Department of Energy Science facilities, $240 million above the President’s request for the Office of Science.

Office of Science Highlights:
The Senate bill provides $3.7 billion for scientific research, which is...

$240 million above the President’s request

$102 million above the current year level

• $100 million increase is provided to support 100% utilization of all Department of Energy Science facilities.

• The Genomes to Life program is provided $40 million above the request to accelerate the deployment for four research facilities.

• Initiates Nanotechnology Technology Transfer fund at $30 million.

• Fully funds the Spallation Neutron Source at Oak Ridge

• Restores funding for domestic fusion research at $290 million.
Reduced funding for ITER by $28M to a funding level of $21.5M

If a site is selected, the Committee will work with the Department…
Estimated Cost/Funding Issues

$1.122 Billion is a cap imposed by OMB in the FY 2006 President’s Budget process.

Cost estimates and final design will be refined with final site selection, leading to total project cost estimate at CD-2 milestone.

The international project performance baseline, including a final allocation of in-kind contributions, will be determined upon completion of the ITER agreement. Then the US project performance baseline, Critical Decision-2, will be obtained.
### FY06 President’s Budget and Consequences of May/June 2005 Congressional Markups

<table>
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<th>Fiscal Year</th>
<th>Total Estimated Costs (TEC)</th>
<th>Other Project Costs (OPC)</th>
<th>Total Project Costs (TPC)</th>
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<td><strong>1,038.0</strong></td>
<td><strong>84.0</strong></td>
<td><strong>1,122.0</strong></td>
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- Consequences of the proposed Congressional reduction to ~$21M for project funding in FY06 are project delay and cost increase due to added escalation and key staff extensions.
After 10 years of operation (2014 to 2024), and, in parallel, operation of materials test facility(ies) we will have the confidence, as well as the physics and technical basis to design a demonstration power plant based on fusion.