

FIRE Cost Estimate Status

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Overall Status

- Current Estimate is \$1,125M (FY99\$) with an overall contingency of ~26%, however....
 - Missing some significant parts of estimate
 - Other parts of estimate still under review
 - Hopefully, this meeting will resolve some of the open issues

WBS 1

Fusion Core Systems

- Plasma Facing Components – need clarification on R&D & estimate for PFC cooling inside cryostat
- Vacuum Vessel – missing estimate for internal control coils & need clarification on R&D for passive plates
- TF Magnets – missing estimate to assemble winding pack and coils & TF power and cryogen interfaces

WBS 1

Fusion Core Systems

(Continued)

- PF Magnets – missing estimate for field error correction coils & PF power and cryogen interfaces
- Cryostat – need backup details to support summary
- Tokamak Support Structure – missing estimate for PF support clamps

WBS 2

Auxiliary Systems

- Gas and Pellet Injection Fueling – need backup details to support summary
- Vacuum Pumping – need backup details to support summary
- Fuel Recovery and Processing – missing estimate
- RF Heating – estimate complete and well documented

WBS 3

Diagnostic Systems

- Startup Diagnostics – estimate complete and well documented

WBS 4

Power Systems

- Site Power Systems – need to reformat estimate to agree with WBS => currently based on ITER scaling code
- Experimental Magnet Power Supply Systems - need to reformat estimate to agree with WBS => currently based on ITER scaling code

WBS 5

Central Instrumentation & Control

- I&C Systems – estimate complete and well documented
- Data Acquisition Systems - estimate complete and well documented
- Network Infrastructure and Distribution Systems - estimate complete and well documented

WBS 6

Site and Facilities

- Facility Modifications – estimate complete and well documented
 - May be modified due to recent changes
- Buildings and Structures - estimate complete and well documented
- Water Cooling Systems – missing estimate for PFC and VV cooling systems outside the cryostat

WBS 6

Site and Facilities (Continued)

- Cryogenic Cooling Systems – new estimate provided for LN2 system. LHe estimate missing
 - Some question on Assembly and Installation costs
- Waste Handling and Treatment Systems – estimate complete and well documented
- Utility Systems - estimate complete and well documented

WBS 7

Machine Assembly & Remote Maintenance

- Torus Systems Assembly and Installation – initial estimate prepared and being reviewed
- Ancillary Systems Assembly and Installation - initial estimate prepared and being reviewed
- Special Machine Assembly Tools & Equipment - initial estimate prepared and being reviewed

WBS 7

Machine Assembly & Remote Maintenance (Continued)

- Measurement Systems – need backup details to support summary
- Remote Handling Systems – estimate complete & well documented
- Hot Cell Facility Remote Handling Systems – estimate being finalized

WBS 8

Project Support & Oversight

- Project Management and Control – estimate being reviewed to eliminate duplication with Project Engineering
- Project Engineering - estimate being reviewed to eliminate duplication with Project Engineering
- ES&H – estimate complete & well documented

WBS 8

Project Support & Oversight (Continued)

- Construction Management – estimate being reviewed
- Project Physics – estimate complete & well documented

WBS 9

Preparations for Operations

- Pre-Operational Planning – estimate complete & well documented
- Pre-Operational & Integrated Systems Testing – estimate complete & well documented
- Operational Spares – estimate based on % of total hardware systems costs

FIRE Cost Estimate Summary

- Estimate currently being finalized in many areas and hopefully, this meeting will reduce the number of open issues.
- Expect final estimate to end up ~\$1.2B (+/-) in constant year (FY99\$) => ~\$1.4B-\$1.5B in YOES\$