

• Program Element:	Next Step Options
• Element Mission and Scope	<ul style="list-style-type: none"> • Advance the design of FIRE as part of the FESAC Dual Path Strategy, and be prepared to initiate a conceptual design by the time of the U.S. decision on participation in ITER construction. • Support both the ITER and FIRE paths of the FESAC Dual Path Strategy: <ul style="list-style-type: none"> • address generic burning plasma R&D activities (e.g., PFC, disruption mitigation, plasma engineering, insulation development) • continue the development of advanced tokamak scenarios and advanced technologies needed for an attractive tokamak power plant in coordination with ARIES design activities. • facilitate broad community involvement in the US burning plasma initiative
• Element Anticipated Five-Year (2008) Accomplishments and Deliverables	<p>2004: • Obtain Mission Need for a Burning Plasma Experiment (DOE Proj Management Order)</p> <ul style="list-style-type: none"> • Progress on AT mode development and Implementation <ul style="list-style-type: none"> • system study and simulation • RWM stabilization modeling and feasibility analysis • Progress on PFC Development/Disruption Mitigation • Decision on Likely Construction of ITER (per FESAC) • If YES proceed with ITER construction activities, if NO proceed with FIRE Conceptual Design, if UNDECIDED continue Dual Path. <p>2005: ITER Construction Authorization Decision 2006: Approval for construction of a burning plasma experiment (either ITER or FIRE) 2007: Complete Design/Begin construction 2008: Construction underway.</p>
• Principal FY2002/2003 Achievements: (list up to five)	<ul style="list-style-type: none"> • Baseline physics, engineering and costing of FIRE validated at Snowmass • “Steady-state high-beta” advanced tokamak scenario developed for FIRE • Document responses to reviews of FIRE, • Update FIRE design to 2.14m, Incorporate Community responses into FIRE design • Complete preconceptual design of divertor and first wall, feasibility of internal RWM coils • Physics Validation Review, respond to generic issues.

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VLT Budget Information: FY2004/2005

Attachment 1

FY2004	
• Reference Budget: (same as FY2003)	1901 k\$
• Principal Milestone	<ul style="list-style-type: none"> • Demonstrate feasibility of one ARIES-like AT Scenario for FIRE and ITER RWM stability and feasibility analysis with compatible PFCs – September 2004
• Other Milestones	<ul style="list-style-type: none"> • Optimize PFCs with aim to extended performance of FIRE and ITER ⇒ ARIES • Develop RWM technology (insulation, feedback control,..) for FIRE and ITER ⇒ ARIES • Disruption Mitigation Development with aim for FIRE and ITER ⇒ARIES • Plasma Engineering (ICRF, LHCD, Pellets, ..) with aim to FIRE and ITER ⇒/ARIES • Diagnostic Development for FIRE and ITER (AT Physics parameters) (Note: Formation of ITER Legal Entity scheduled for December 2003)

FY2005	
Reference Budget: (same as FY03 Budget)	1901k\$
• Principal Milestone	<ul style="list-style-type: none"> • Join ITER Construction Projector or begin FIRE Conceptual design – September 2005 (Note: ITER Construction Authorization scheduled for July 2005)
• Other Milestones	<ul style="list-style-type: none"> • Demonstrate a viable disruption mitigation technique suitable for FIRE or ITER⇒ARIES-RS • Demonstrate a PFC config. suitable heat loads and tritium for FIRE or ITER⇒ARIES-RS • Plasma Engineering (ICRF, LHCD, Pellets, ..) with aim to FIRE or ITER⇒ARIES • Diagnostic Development for Burning Plasmas (turbulence measurements)
• Major Initiatives	National Structure for US Burning Plasma Initiative

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VLT Budget Information: FY2004/2005

Attachment 1

Major ITER Milestones

Date of Schedule Presentation	Oct 2001	Feb 2002
Preferred ITER Site	Jul 02	May 03
Cost Sharing Agreement		May 03
Joint Implementing Agreement	Sep 02	Jul 03
ITER Legal Entity	Jul 03	Dec 03
ITER Construction Authorization	Jul 05	Jul 05
Construction License (EDA Report)		Jul 08
Start of ITER Operations (Cadarache site Proposal Sep 2002)		Jan 2015
Start of DT Operations (after 3 years of H/D operation)		Jan 2018