

Integrated Laser IFE Research – A Roll-back Approach

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Laser-IFE Planning Meeting

July 18, 2000

General Atomics

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- The IFE program plan call for an IRE in 5 to 7 years. But what is IRE:
 - ETF driver only;
 - ETF driver + target injection & tracking only;
 - Integrated test of all ETF components in a non-neutron environment.
- The R&D program the next few years depends heavily on what definition of IRE we adopt.

State of Development of IFE

	Concept	Single phenomenon	Multiple phenomena (partial integration)	IRE Integration (non-neutron environment)	ETF Demonstration
Driver	X	X	X		
Target Physics	X	X	X	X	
Target Engineering	X	X			
Final Optics	X				
Chamber					

Required state of IFE development prior to IRE

- If IRE mission is integrated test of all ETF components in a non-neutron environment:
 - We should have chosen one or more chamber concepts, final optics, target engineering, *etc.*
 - We should have investigated all single phenomenon issues;
 - We should have done partial integration R&D;
 - We should be clear what IRE does and what other supporting information is needed to proceed to ETF.
- We need develop a comprehensive R&D plan based one or more self-consistent chamber concept, final optics, target engineering, *etc.* This should not be an issue list, rather it should clearly identifies R&D (modeling and experiment) and milestones.

Priorities for the next two years

- Next one to two years are critical :
 - Do not launch multiple studies. Unify all “paper studies” under one umbrella (ARIES-IFE) in order to identify one or more promising concept with buy-in from the whole community.
 - Identify the design/operation window for each promising concept;
 - Identify present data base and need extrapolations for each promising concept;
 - Prepare a comprehensive R&D program to obtain the necessary information. Plan a 5-7 year program for the IRE;
 - Plan to transition to a substantial R&D program in two years.