Integrated Laser IFE Research –
A Roll-back Approach

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General Atomics
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

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<th>Concept</th>
<th>Single phenomenon</th>
<th>Multiple phenomena (partial integration)</th>
<th>IRE Integration (non-neutron environment)</th>
<th>ETF Demonstration</th>
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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.