

Lawrence Berkeley National Laboratory

Lawrence Berkeley National Laboratory

Title

LBNL perspective on inertial fusion energy

Permalink

<https://escholarship.org/uc/item/24w041p4>

Author

Bangerter, Roger O.

Publication Date

1995-12-17

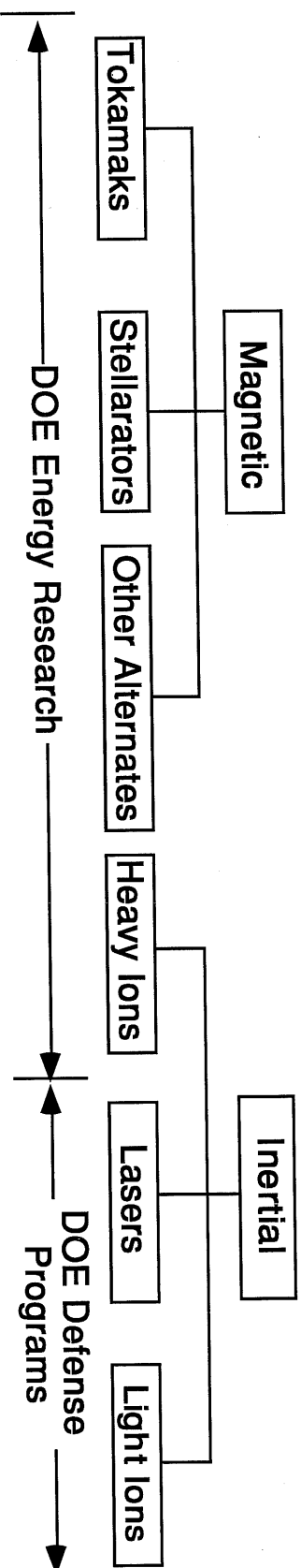
LBNL Perspective on Inertial Fusion Energy

**Roger Bangerter
Lawrence Berkeley National Laboratory**

**presented at the
San Diego Meeting of the FEAC
Policy Subcommittee**

December 17, 1995

There are two fusion options



- DOE funds both options at about the same level.
- Both options will undoubtedly produce net energy.
- Both are challenging in terms of science, technology, and economics. The challenges are different.
- The existence of two options increases the probability of success.
- The Fusion Policy Advisory Committee (1990) and the last Fusion Energy Advisory Committee (1993) looked in depth at the technical promise of both options. The National Academy of Sciences reviewed inertial fusion in 1990.

Heavy ion fusion has a low cost development path



- It leverages the Defense ICF program.
- It leverages the worldwide investment in accelerator science and technology.
- Important program elements are cost reduction and experimental verification of good beam quality in full-scale beams.
- To capitalize on target results from the National Ignition Facility in the year 2005, the Inertial Fusion Energy Program must grow to about \$20M/yr in current dollars. Deliverables are:
 - Demonstration of essential beam physics and beam manipulations with driver-scale beams (construction of an accelerator facility).
 - Driver technology development and cost validation.
 - Chamber design, simulation and experiments.
 - Development of target mass production techniques.

Conclusion



- The combination of MFE and IFE provides a strong basis for fusion power production.
- We are making excellent progress in target physics, target fabrication, chamber design and accelerator research.
- The incremental cost to develop IFE is relatively low. The potential payoff is very high.