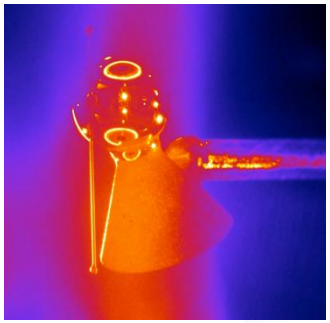
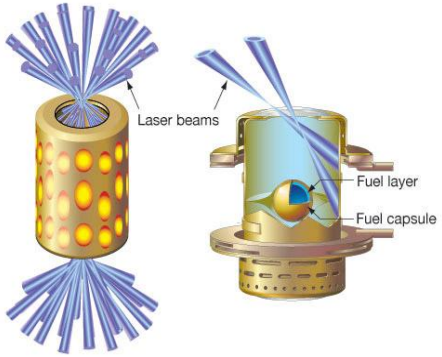
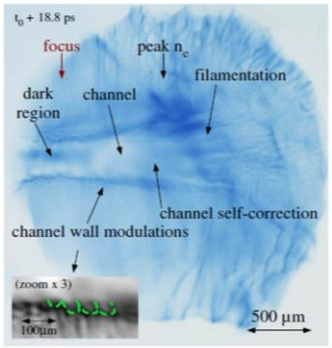
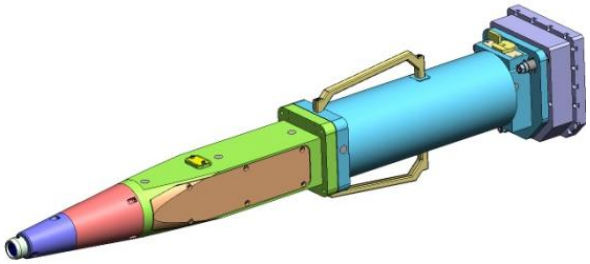








ICF Program

FY 2013 and Beyond

Presented to

Omega Laser Users Group

April 27, 2012

Lois Buitano
Program Manager
Office of Inertial Confinement Fusion
NA-112

The ICF Program is evolving as the end of the National Ignition Campaign approaches

- **NNSA supports the ICF Program and facilities to further its stockpile stewardship and national security missions**
- **Ignition remains a challenge and an opportunity**
- **An exciting and productive period of experimentation has begun with the completion of a number of facilities and upgrades (NIF, Omega EP, Z)**
- **NNSA is focused on the strategy and program planning for the next decade to make best scientific use of these facilities in support of NNSA and DOE missions**
  - **Operate HED facilities as user facilities**
  - **Portion of the facility time for fundamental (discovery-driven) science**
  - **Strong, independent User Groups (OLUG is the model)**

FY2013-2014 NLUF solicitation is expected May 2012

The goal of the NNSA ICF program is to conduct excellent HED science research in support of the Stockpile Stewardship Program

- **Ignition and High Yield remain significant goals for NNSA**
  - **Grand challenge that maintains excitement, stimulates scientific advances, and attracts the best people**
  - **Direct application to stockpile stewardship**
  - **Energy is not an NNSA mission**
- **Non-ignition weapons physics experiments support stockpile stewardship**
- **Fundamental (Discovery-Driven) Science**
  - **JPHEDLP with Office of Science**
  - **Builds HEDP community – knowledge and skills critical to stockpile**
- **Operate world-class HED facilities as User Facilities**
  - **Portion of facility time for fundamental science**
  - **Strong, independent User Groups (OLUG is the model)**

Post-NIC ICF Program Direction (FY 13 and beyond)

- **If Ignition is not achieved: Report due to Congress by end of November – *"Plan B"***
  - Scientific and technical barriers to achieving ignition
  - Steps NNSA will take to achieve ignition with a revised schedule
  - Impact on the stockpile stewardship program
- **Shift from schedule driven/projectized to scientific discovery approach at a reduced pace**
- **Increased effort in support of HED Stockpile Science**
  - HED Milestones in the PCF require increased allocation of facility time
  - Funding resumes in ICF MTE 10.2 Support of Other Stockpile Programs

Goal to achieve ignition and develop high yield platform for science and stockpile stewardship applications remains

Specific Steps Being Taken

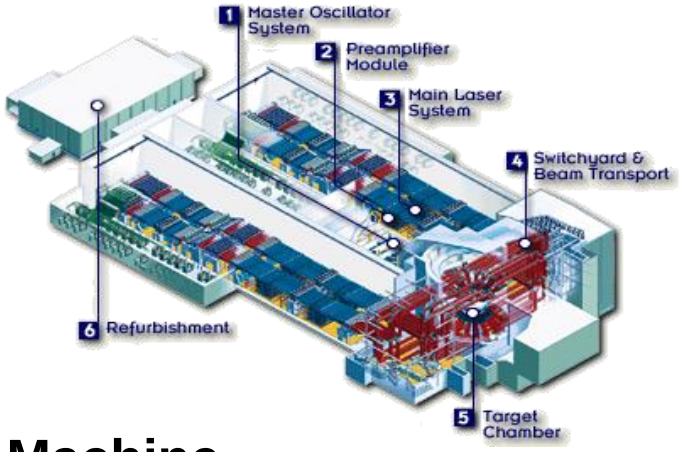
- **Federal Advisory Committee being set up**
  - to provide independent advice to NNSA
- **Workshop on Science of Ignition at LLNL (May)**
  - What have we learned from the NIC?
  - What experiments do we need to understand ignition physics?
- **NNSA/ICF Sites are developing a Program Plan for the next decade**
- **"Plan B" Principles for fusion research:**
  1. Scientific discovery of impediments to ignition
  2. No new approaches/facility modifications until limitations are understood
- **Support of Other Stockpile Programs (10.2) resumes in FY 2013**

NNSA is rebalancing the ICF Program to:

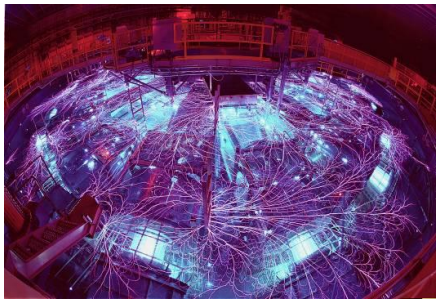
1. **Accommodate more HED Stockpile Science**
2. **Provide more time to understand ignition results**
3. **Explore alternative approaches to ignition**

World-class HED capabilities are now operational:
this is an exciting time to be running experiments!

- **National Ignition Facility (NIF)**
  - Only facility presently designed for ignition
  - National security facility
  - Fully committed on mission activities

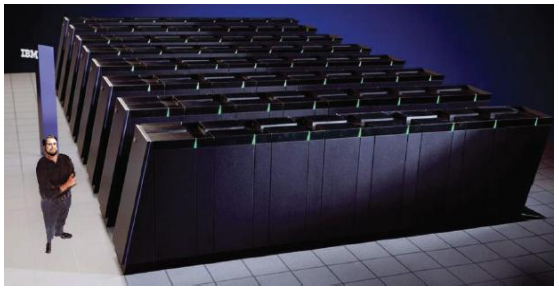


- **Z Machine**
  - Key venue for materials science measurements



- **Omega Laser Facility**
  - Sophisticated high irradiance capabilities
  - Innovation in optics and diagnostics
  - Important venue for advanced fusion research

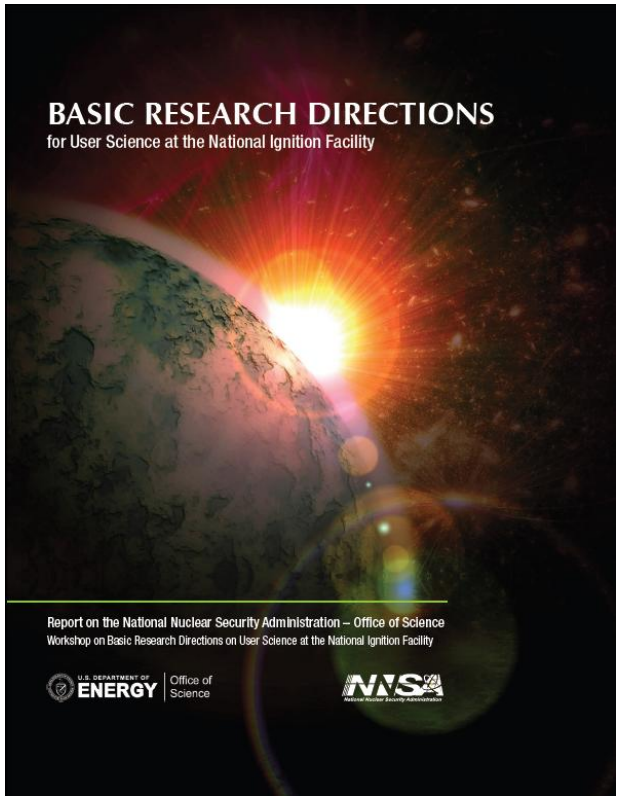
- **Codes and platforms are key to understanding HED physics**



NNSA is developing a Governance Model for User Facilities

- Operate with an approved Governance Plan
- Uniform Shot Allocation Process across facilities
- Well-considered use of Facility Resources
  - e.g. investment in diagnostic and capability enhancements
- Strong, independent User Groups – responsive to customers
  - OLUG is the model

NNSA/Office of Science Collaboration in HED Science through the Joint Program



- **Workshop Report on Basic Research Directions at the National Ignition Facility**
- **Recent Joint Program High Energy Density Laboratory Physics Solicitation**
- **FY13-14 National Laser Users' Facility (NLUF) Program**
  - **Solicitation expected in May**
  - **Communicate early for target cost estimates - *contact Mike Farrell***
  - **LLE NLUF Manager – John Soures**

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ICF FY13 Total Budget Request by Subprogram ($K)

MTE	FY12 Enacted	FY13 Request
Ignition	109,888	84,172
Support of Stockpile Program	0	14,817
NIF Diagnostics, Cryogenics, & Experimental Support	85,654	81,942
Pulsed Power ICF	4,997	6,044
Joint Program in High Energy Density Laboratory Plasmas	9,100	8,334
Facility Operations and Target Production	265,173	264,691
TOTAL	**474,812**	**460,000**