



Welcome and Overview

**Presentation to
NIF/JLF User Group Meeting
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NIF missions

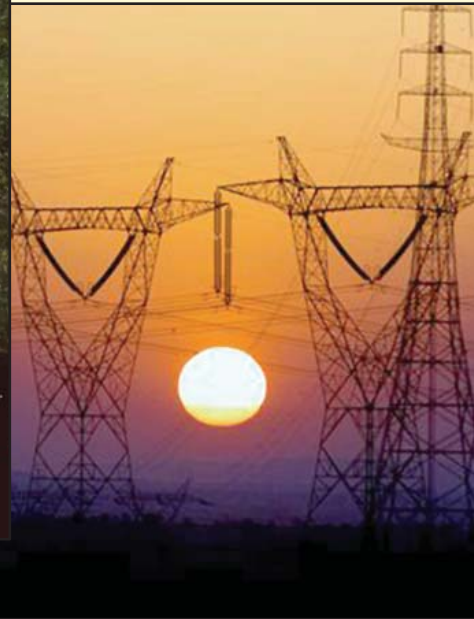
Ensuring National Security



Advancing Frontier Science



Enabling Clean Energy



Building Future Generations of HED Scientists



NIF's first two shots in CY2013 were highly successful fundamental science experiments

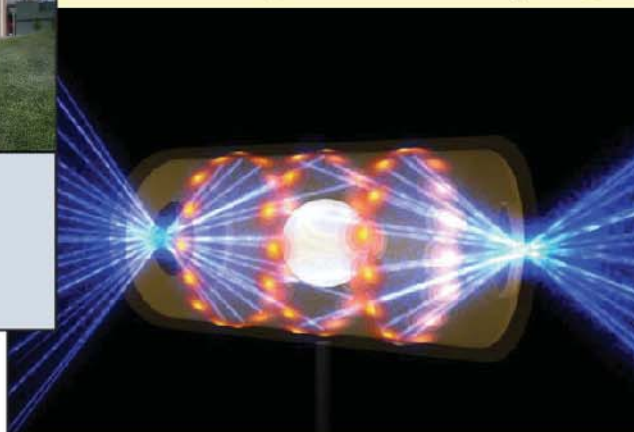
NIF Master Strategy

NIF Project



1997 – 2009
Facility enhancement
is ongoing

National Ignition Campaign



2006 – 2012
The quest for ignition
continues

National User Facility



2011 – 2030
The next major thrust

NIF has a number of major scientific accomplishments

- **Laser Plasma Interactions (LPI) and hohlraum physics**
 - Development of cross-beam energy transfer for symmetry control
 - Demonstration of radiation temperatures (~ 300 eV) required for indirect-drive ignition, and associated improved LPI understanding
- **Materials**
 - Success of shock timing in getting low adiabat and high compressed fuel area densities
 - Measurement of the equation of state of diamond to ~ 70 Mbar, and Fe to 8 Mbar
 - Demonstration of ~ 700 MB pressure in high pressure C EOS experiments
- **ICF performance**
 - Achieving pressure and density within 2-3x of that required for ignition
 - Development of the 3D Generalized Lawson Criterion and ITF/ITFX as metrics for progress toward ignition
- **Hydrodynamics and radiation transport**
 - Measurement of compressed ICF fuel conditions via novel neutron spectroscopic diagnostic techniques
 - Measurements of radiation transport in complex geometries

CERN



Chandra x-ray Observatory



NIF's promise as an international center for experimental science is being realized



APS



SLAC



Thanks to NNSA and the Office of Science for their support of the meeting

NIF

