

# Nuclear Energy

## Moving Ahead with a New Nuclear Age



Global Nuclear Energy  
Partnership

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Office of Nuclear Energy,  
Science and Technology

# Nuclear Energy and the Global Nuclear Energy Partnership (GNEP)

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- GNEP seeks to develop worldwide consensus on enabling expanded use of economical, carbon-free nuclear energy to meet growing electricity demand. This will use a nuclear fuel cycle that enhances energy security, while preventing proliferation.
- The role of the Office of Nuclear Energy is to:
  - Expand Domestic Use of Nuclear Power
  - Minimize Nuclear Waste
  - Demonstrate Proliferation-Resistant Recycling
  - Develop Advanced Burner Reactors
  - Demonstrate Small-Scale Reactors

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# Nuclear Energy: Advancing America's Economic and Energy Security

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- **Enable industry to deploy the next generation of nuclear power plants**
- **Develop advanced nuclear reactor and fuel cycle technologies**
- **Maintain the critical nuclear science and technology infrastructure.**

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# Enable Industry To Deploy The Next Generation Of Nuclear Power Plants

## Budget Summary *\$ in millions*

<u>Program Element</u>	<u>FY 2006 Adjusted Approp.</u>	<u>FY 2007 Request</u>
Nuclear Power 2010	\$ 65.3	\$54.0

## The President's budget will:

- Complete Early Site Permit demonstrations making three sites available for building new plants.
- Complete first-of-a-kind engineering to support the Combined Construction and Operating License applications for the Westinghouse AP-1000 and the General Electric ESBWR.
- Continue preparation of the Combined Construction and Operating License applications by the Dominion and NuStart industrial consortia.
- Develop and issue the criteria that the Department will use to evaluate and approve industry applications for standby support.

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# Develop Advanced Nuclear Reactor And Fuel Cycle Technologies

## Budget Summary *\$ in millions*

<u>Program Element</u>	<u>FY 2006 Adjusted Approp.</u>	<u>FY 2007 Request</u>
Advanced Fuel Cycle Initiative	\$ 79.2	\$243.0
Generation IV	54.5	31.4
Nuclear Hydrogen Initiative	<u>24.8</u>	<u>18.7</u>
<b>Total</b>	<b>\$158.5</b>	<b>\$293.1</b>

## The President's budget supports:

- **Acceleration of AFCI in support of GNEP**
  - Develop and test advanced separations and fuel technologies
  - Complete conceptual designs for spent fuel separations demonstration and an advanced fuel cycle facility
- **Research and development to establish the technical viability of Generation IV technologies**
- **Completion of pre-operational testing of integrated laboratory-scale processes in support of hydrogen production**



# Maintain Critical Nuclear Science And Technology Infrastructure

## Budget Summary \$ in millions

<u>Program Element</u>	<u>FY 2006 Adjusted Approp.</u>	<u>FY 2007 Request</u>
Idaho Facilities Management	\$ 99.4	\$ 95.3
Radiological Facilities Management	54.0	49.7
Idaho Sitewide Safeguards and Security	74.3	75.9
<i>Less security charges for reimbursable work</i>	<u>-3.0</u>	<u>-3.0</u>
<b>Total</b>	<b>\$224.7</b>	<b>\$217.9</b>

## The President's budget supports:

- Maintaining the INL site-wide infrastructure required to support research and development programs in accordance with the INL Ten-Year Site Plan
- Maintaining the national nuclear infrastructure to provide nuclear medicine isotopes, energy systems for space exploration and national security needs, and fuel services for U.S. university research reactors
- Maintaining and operating the systems, facilities and protective forces needed to protect DOE personnel and assets at the Idaho site

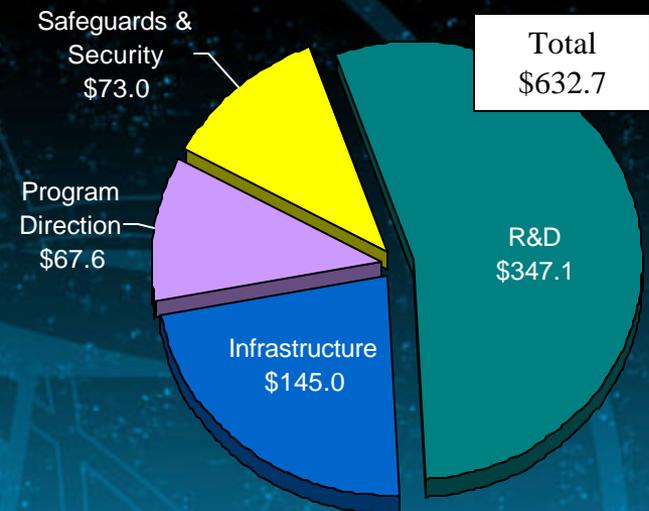


# FY 2007 Budget Request Nuclear Energy, Science and Technology

<u>Program</u>	<u>FY 2006 Adjusted Approp.<sup>a</sup></u>	<u>FY 2007 Request<sup>a</sup></u>
University Reactor Infrastructure and Education Assist.	\$ 26,730	\$ 0
Research and Development:		
Nuclear Power 2010	65,340	54,031
Generation IV Nuclear Energy Systems Initiative	54,450	31,436
Nuclear Hydrogen Initiative	24,750	18,665
Advanced Fuel Cycle Initiative	79,200	243,000
Infrastructure:		
Radiological Facilities Management	54,049	49,722
Idaho Facilities Management	99,358	95,290
Idaho Sitewide Safeguards and Security	74,288	75,949
Program Direction	60,498	67,608
Less Security Charges for Reimbursable Work	<u>-3,003</u>	<u>-3,003</u>
<b>Total Nuclear Energy</b>	<b>\$ 535,660<sup>b</sup></b>	<b>\$ 632,698</b>

<sup>a</sup>All values are dollars in thousands

<sup>b</sup>Includes Congressionally directed activities of \$79.8M



<sup>a</sup>Includes \$3.0M reduction for Security Charges for Reimbursable Work

