

American Competitiveness and the Nuclear Science Long Range Plan

**Summary of the Workshop held in Chicago
on January 19 – 21, 2007
Calvin R. Howell**

**DOE/NSF Nuclear Science Advisory Committee Meeting
Sheraton Crystal City Hotel, Arlington, VA
March 8-9, 2007**

President Bush's 2006 State of the Union Speech introduces the American Competitiveness Initiative

OVERVIEW

Keeping our competitive edge in the world economy requires focused policies that lay the groundwork for continued leadership in innovation, exploration, and ingenuity. *America's economic strength and global leadership depend in large measure on our Nation's ability to generate and harness the latest in scientific and technological developments and to apply these developments to real world applications.* These applications are fueled by: scientific research, which produces new ideas and new tools that can become the foundation for tomorrow's products, services, and ways of doing business; a strong education system that equips our workforce with the skills necessary to transform those ideas into goods and services that improve our lives and provide our Nation with the researchers of the future; and an environment that encourages entrepreneurship, risk taking, and innovative thinking. By giving citizens the tools necessary to realize their greatest potential, the American Competitiveness Initiative (ACI) will help ensure future generations have an even brighter future.

<http://www.whitehouse.gov/stateoftheunion/2006/aci/>



Executive Office of the President
Office of Management and Budget



Executive Office of the President
Office of Science and Technology Policy

June 23, 2006

M-06-17

MEMORANDUM FOR THE HEADS OF EXECUTIVE DEPARTMENTS AND AGENCIES

FROM: JOHN H. MARBURGER, III *John Marburger*
DIRECTOR, OFFICE OF SCIENCE AND TECHNOLOGY POLICY

ROB PORTMAN *Rob Portman*
DIRECTOR, OFFICE OF MANAGEMENT AND BUDGET

SUBJECT: FY 2008 Administration Research and Development Budget Priorities

Budget Priorities

Presidential Priority: The American Competitiveness Initiative

To build on America's unparalleled economic success and to remain a leader in science and technology, President Bush has proposed the American Competitiveness Initiative.

The centerpiece of the American Competitiveness Initiative is the President's strong commitment to double investment over ten years in key Federal agencies that support basic research in the physical sciences and engineering that has potentially high impact on economic competitiveness. President Bush plans to double investment by the National Science Foundation, the Department of Energy's Office of Science, and the Department of Commerce's National Institute of Standards and Technology core activities. To achieve this doubling within ten years, overall annual increases for these three agencies will average roughly seven percent. Specific allocations will be based on research priorities and opportunities. In addition to the doubling effort at these three agencies, similarly high-impact basic and applied research of the Department of Defense should be a significant priority.

Competitiveness

The image shows a screenshot of a Google search results page. The browser window title is "american competitiveness initiative" - Google Search. The address bar shows the URL: http://www.google.com/search?hl=en&lr=&safe=off&q=american competitiveness initiative. The search bar contains the text "american competitiveness initiative". The results are displayed under the heading "Web" and show "Results 1 - 10 of about 110,000 for 'american competitiveness initiative'. (0.11 seconds)".

American Competitiveness Initiative
The **American Competitiveness Initiative** commits \$5.9 billion in FY 2007 to ... President Bush's **American Competitiveness Initiative** seeks to fill these gaps ...
www.whitehouse.gov/stateoftheunion/2006/aci/ - 99k - [Cached](#) - [Similar pages](#)

State of the Union: American Competitiveness Initiative
In His State Of The Union Address, President Bush Announced The **American Competitiveness Initiative** (ACI) To Encourage American Innovation And Strengthen ...
www.whitehouse.gov/news/releases/2006/01/20060131-5.html - 29k - [Cached](#) - [Similar pages](#)

American Competitiveness Initiative (ACI)
President Bush's 2006 education agenda, the **American Competitiveness Initiative**, aims to strengthen innovation and education in the US by improving ...
www.ed.gov/about/inits/ed/competitiveness/index.html?src=pb - 60k - [Cached](#) - [Similar pages](#)

Strengthening Education: Meeting the Challenge of a Changing World ...
The **American Competitiveness Initiative** commits \$5.9 billion in FY 2007, and more than \$136 billion over 10 years, to increase investments in research ...
www.ed.gov/about/inits/ed/competitiveness/challenge.html - 64k - [Cached](#) - [Similar pages](#)

[PDF] **american competitiveness initiative booklet**
File Format: PDF/Adobe Acrobat - [View as HTML](#)
Building on our successes, the **American Competitiveness Initiative** funds increased ...
American Competitiveness Initiative Research: FY 2007- FY 2016 ...
www.ostp.gov/html/ACIBooklet.pdf - [Similar pages](#)

The National Academies | News | Academies' Presidents Applaud ...
Academies' Presidents Applaud "**American Competitiveness Initiative**" ... White House press release: "**American Competitiveness Initiative**" ...

In what areas will increases be invested?

Federal investments in Research and Development will be targeted to those fields which contribute to the competitiveness of the United States.

The Nuclear Science Long Range Plan must showcase and explain the contributions that Nuclear Science is making to the competitiveness of the Nation and outline our strategies for enhancing those contributions, particularly in areas of national security and energy.

Strategy for developing the section on American Competitiveness

- 1) Gather community input
 - electronic communications
 - dedicated workshop
- 2) Write a white paper as input to the relevant LRP writing group
 - white paper will be posted on the workshop web site prior to formal submittal to NSAC

Workshop Organizing Committee:

Mark Chadwick, LANL

Ben Gibson, LANL and DNP

Thomas Glasmacher, Michigan State University and NSCL

Ed Hartouni, LLNL (co-chair)

Calvin Howell, Duke University and TUNL (co-chair)

Dennis McNabb, LLNL

David Robertson, University of Missouri

Susan Seestrom, LANL and DNP

Goals:

- (1) To collect examples since our last LRP on how the nuclear science community is contributing to the areas of energy, medicine, security and industry.
- (2) To identify the opportunities and challenges for our community in these areas during the next decade, and
- (3) To make recommendations on how the Office of Nuclear Physics at DOE and the Nuclear Physics Program at the NSF might better facilitate the engagement of the nuclear science community in these important areas in response to national needs.

Chicago Workshop Agenda

http://www-mep.phy.anl.gov/atta/dnp/program_ac.htm

Friday evening, January 19, 2007

Plenary Session I: Energy

Ed Hartouni (LLNL),

Description of the goals of the workshop

John Herczeg (Office of Nuclear Energy, DOE),

Global Nuclear Energy Partnership

Phillip Finck (INL)

Advanced Fuel Cycles and R&D needs in the nuclear data needs field

Plenary Sessions II and III

Saturday morning, January 20, 2007

Plenary Session II: National Security

Mark Chadwick (LANL)

National Nuclear Security: Some Future Needs for Nuclear Science

Dennis McNabb (LLNL)

From building bombs to finding them: New frontiers in nuclear physics

Peggy McMahan Norris (LBNL)

Radiation Effects Testing

Plenary Session III: Medical Applications,

Jonathan Farr (Midwestern Proton Radiotherapy Institute)

Advances in Charged-particle Beam Therapy

Stan Majewski (JLab)

Advances in Medical Imaging Using Nuclear Physics Techniques

Working Group Sessions

Saturday afternoon, January 20, 2007

Working Group Session I: Nuclear Energy & Nuclear Data

Speakers:

Jolie Cizewski (Rugers)	Lee Schroeder (LBNL)
Michael Dunn (ORNL)	Michael Smith (ORNL)
Mike Herman (BNL)	Mark Stoyer (LLNL)
Filip Kondev (ANL)	Jerry Wilhelmy (LANL)
Davis Kulp (Georgia Tech)	

Working Group Session II: National Security & Other Applications

Speakers:

John Becker (LLNL)	Robert Ledoux (Passport Systems, Inc.)	Chris Morris (LANL)
Todd Bredeweg (LANL)	Peggy McMahan (LBNL)	Brad Sherrill (MSU/NSCL)
Carl Brune (Ohio University)	Harry Miley (PNNL)	Steve Wender (LANL)
Rod Clark (LBNL)	Naresh Menon (Physical Optics Corp.)	
Bill Hagan (DNDO)	E. Frank Moore (ANL)	

Closeout Session

Sunday morning, January 21, 2007

Discussions:

1. Examples of technologies and services made possible by nuclear science research and investments in research facilities, e.g.,
 - accelerator technologies for medicine and industry
 - particle detection technologies used in medicine
 - radiation effects on electronics and materials
 - nuclear reaction data and nuclear science information
2. Opportunities
 - continued online nuclear data and nuclear information services
 - national security
 - energy
 - medicine (detectors, accelerators, polarization technologies)
3. Challenges
 - facility stewardship
 - transition of knowledge to technology
4. Format of the white paper and schedule
 - plain sections
 - colorful side boxes (complete descriptions of contributions)
 - submit to NSAC by April 13, 2006

Writing Assignments

Introduction - **Hartouni & Howell**

International Context - **Glasmacher**

National Security - **Chadwick**

Homeland Security - **McNabb**

Nuclear Energy - **Robertson**

Medicine - **Glasmacher**

Industry - **Gibson & Howell**

Summary - **Hartouni & Howell**

Recommendations – **All**

Schedule

1. Receive contribution from each writer - March 16
2. Circulate draft document for comments – March 23
3. Post revised document on WS website – April 6
4. Submit final white paper to NSAC – April 13

Side Boxes

Examples:

The DOE/SC/NP SBIR program directly supports small business

IBM Blue Gene/Light (BG/L) - Lattice QCD “dream machine”

Ion-therapy and the Bevelac (history)

Imaging and detector development

NIF and Fusion

Burning Minor Actinides impact on NE infrastructure

Satellite & Avionics and testing for SEU

Nuclear Data Program

Academic Alliance programs with NNSA and DHS

How to contribute?

Provide writing on Competitiveness topics to the WS committee before April 13, 2007.

Email addresses of Committee members:

http://www-mep.phy.anl.gov/atta/dnp/contact_ac.htm

Provide references to existing work.

Send examples of Nuclear Science accomplishments pertinent to Competitiveness.