View from Capitol Hill

Michael Holland
House Committee on Science
September 11, 2006
Dominating the Science Policy Agenda...

RECOMMENDATION A: Increase America’s talent pool by vastly improving K–12 science and mathematics education.

RECOMMENDATION B: Sustain and strengthen the nation’s traditional commitment to long-term basic research that has the potential to be transformational to maintain the flow of new ideas that fuel the economy, provide security, and enhance the quality of life.

RECOMMENDATION C: Make the United States the most attractive setting in which to study and perform research so that we can develop, recruit, and retain the best and brightest students, scientists, and engineers from within the United States and throughout the world.

RECOMMENDATION D: Ensure that the United States is the premier place in the world to innovate; invest in downstream activities such as manufacturing and marketing; and create high-paying jobs that are based on innovation by modernizing the patent system, realigning tax policies to encourage innovation, and ensuring affordable broadband access.
The President’s American Competitiveness Initiative

- Doubles, over 10 years, funding for innovation-enabling research at key Federal agencies that support high-leverage fields of physical science and engineering: the NSF, DOE Office of Science, and the NIST;

- Modernizes the Research and Experimentation tax credit by making it permanent and working with Congress to update its provisions;

- Strengthens K-12 math and science education;

- Reforms the workforce training system to offer training opportunities to some 800,000 workers annually;

- Increases our ability to compete for and retain the best and brightest high-skilled workers from around the world by supporting comprehensive immigration reform.
Recent Committee Bills


HR 5356, Early Career Research Act; HR 5357, Research for Competitiveness Act; and HR 5358, Science and Mathematics Education for Competitiveness Act

- NSF and DOE Early Career Awards, NIST Workforce Study, NSF and DOE “PYI” Awards, Increase size of NSF MRI, Research on Innovation and Inventiveness, Establish NASA Academy

H.R. 5143, the H-Prize Act of 2006

- Prizes for Components or Systems, Prototypes, and Transformational Changes
Senate Bills

*National Innovation Act of 2005 (S. 2109)*
Introduced by Senators Joseph Lieberman (D-CT) and John Ensign (R-NV)

*Protecting America’s Competitive Edge (PACE, S. 2197, 2198, 2199)*
Introduced by Senators Domenici (R-NM), Bingaman (D-NM), Alexander (R-TN), and Mikulski (D-MD)
## FY 2007 Budget

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<td>Basic Energy Sciences</td>
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<td>Subtotal, Science</td>
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<td>3,596,391</td>
<td>4,101,710</td>
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<td>Use of prior year balances</td>
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<td>Total, Science</td>
<td>3,635,650</td>
<td>3,596,391</td>
<td>4,101,710</td>
<td>+505,319*</td>
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* One half of the $505 million increase is for operations of our scientific facilities, including operations at new facilities: the Spallation Neutron Source and the Center for Nanophase Materials Sciences at Oak Ridge; the Center for Nanoscale Materials at Argonne; the Molecular Foundry at Berkeley; and the Center for Integrated Nanotechnologies at Sandia and Los Alamos National Laboratories. Research is increased by $237 million, 47% of the $505 million increase.
House vs. Senate

HIGH ENERGY PHYSICS

The Committee recommends a total of $775,099,000 for high energy physics, the same as the budget request. The Committee supports the requested increase in research and development activities, from $30,000,000 to $60,000,000, to prepare for the International Linear Collider (ILC), including P Ricardo U. sites for the ILC. The Committee construction funding request of $10,300,000 for the new detector (project 07-SC-07), which will be obtained from the Neutrinos at the Fermilab.

International Linear Collider.—The Committee provides $45,000,000, an increase of $15,000,000 above current year levels, to support pre-conceptual research to support the U.S. ILC effort within the Accelerator Development, International Linear Collider R&D activities. The Committee appreciates the scientific challenge of building the ILC in the United States, establishing our leadership in this discipline among an international team. The budget calls for doubling the request above current year to support pre-conceptual R&D, yet the Committee does not have a clear understanding of the cost of this international project, which has been reported to exceed $8,000,000,000, twice the annual budget of the Office of Science. Despite the large financial commitment by the President in scientific research, the Committee is concerned that the ILC will crowd out other valuable research as has been demonstrated with both the National Ignition Facility within the NNSA, the Rare Isotope Accelerator and ITER, both within the Office of Science. Therefore, before the Committee agrees to adopt large budget increases for the ILC, the Department must provide a cost estimate including an out year funding plan and an explanation of how this initiative will impact other facilities and scientific research. In addition, the Committee would like to see the initial results from the Large Hadron Collider, which is set to begin operations in mid 2007 before the Committee commits to a long-term investment toward the ILC. The Committee looks forward to reviewing the data and visiting this matter again in 2008.
HEPAP Long Range Plan: A Post – Mortem

HEPAP Subpanel Report

- What did it accomplish and where did it fail Short?

**MAIN ACCOMPLISHMENTS**
1. New definition of particle physics that gives a broader scope to the science
2. Established a ~ 1 TeV Linear Collider as the highest priority long term goal for the field. In a similar frame ACFA in Asia and ECFA in Europe came to similar conclusions
3. Proposed a new mechanism, P5, to evaluate and recommend funding for large projects in a national context

**FELL SHORT**
1. Did not establish priorities for the program, except for the linear collider
2. Roadmap was little more than a list of known projects
3. Did not grapple with the future roles and programs of our major laboratories – SLAC and Fermilab or adequately take into account plans in the rest of the world.
4. Had limited impact on policy makers or the broader scientific communities

from Chairman Barry Barish’s presentation to the NAS EPP2010 Committee
DOE/NSF HEPAP Quantum Universe Report

- Asks for precisely the same things as The Science Ahead: The Way to Discovery.
- Ties EPP to the broader effort in discovery-oriented physical sciences, yet does not subordinate EPP to any other field
- Strong connection to Physics of the Universe and Astronomy and Astrophysics Advisory Committee (AAAC) activities
- Very well received in DC
National Academies Decadal Survey

The EPP2010 Report
Revealing the Hidden Nature of Space and Time

Report of the Committee on Elementary Particle Physics in (the First Decades of) the 21st Century
July 2006

- Recommends heavy investment in ILC R&D.
- Encourages strong ILC bid by US
- Well received in DC, but message not unexpected
ILC Strategy

Issues to address:

- Project Structure
  - SSC vs. ITER
- Clarity of the “ask”
  - ILC vs. EDA + ILC
- Timing of the “ask”
  - Before LHC 1st Physics?
- Message
  - Opportunity vs. Entitlement
- Siting
  - Existing Lab vs. Greenfield
- Cost

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from Barry Barish’s presentation to EPP 2010 Panel as Head of GDE
Opportunity vs. Entitlement

If the US has no facility at the energy frontier: a much diminished program.

- How does this matter?
- What about our $540 million investment in LHC?
- Look to NSF for a means of explaining the value of EPP: People, Ideas, Tools
Prepare for the “Obvious” Questions

Political Level (President, Congress)
  • How does the science benefit society? (jobs, economy, defense,...)
  • How does this alleviate/placate constituent concerns? (budget growth!)
  • How has the program been managing and performing?
  • What have we gotten for our investment to date?

Agency Head/Department Secretary Level
  • How does the agency mission address administration priorities?
  • How does the science further the mission of the agency?
  • How does the science help with stewardship of DOE’s national labs and university research communities?

Program Level
  • How does science advance the program’s objectives?
  • How does the science impact or strengthen other programs or related activities across the Government?

Project Level: Quality & Relevance
Understand Your Competition

OMB
DIRECTOR

4 Resource Management Offices (RMOs)

Natural Resource Programs
DOE, NSF
NASA, USDA
USGS, EPA
Smithsonian

vs.
National Parks, Forest Service, Army Corps, crop insurance, etc.

Human Resource Programs
NIH, Ed

vs.
Social Security, Medicare, Medicaid, CDC, Student Loans, JobCorps, etc.

General Government Programs
NIST, NOAA
DOT, DHS

vs.
Justice, Treasury, SBA, HUD, etc.

National Security Programs
6.1, 6.2,
NNSA, VA

vs.
Army, Navy, Air Force, Marines, Intel, State Dept., etc.
Understand Your Competition

House Appropriations Committee

10 Appropriation Subcommittees

Energy & Water
SC, FE, EERE, NE
vs.
NNSA, Army Corps

Labor/HHS
NIH, Ed
vs.
CDC, FDA, Student Loans, JobCorps, Dept. of Labor, etc.

Commerce, Justice, Science
NSF
NASA, NIST, NOAA
vs.
Justice

Defense
6.1, 6.2
vs.
Army, Navy, Air Force, Marines, Weapons Systems Procurement, Intel
Know Your “Benefits” Footprint
Manage Your Brand

- Supporting Universities
- Exploration
- Curing Disease
- Supporting Industry
- National Labs?
- Facilities?
- ???
Speak to Your Audiences in Their Language

Society

Political (Macro)

Agency (Corporate)

Research Program (Competitive)

Disciplines

Scientific Opportunities
AMO, bio, nano, NP, EPP, Astro cosmology

MERIT

Societal Demands
Defense
Energy
Economic Security
Health
Environment
Food/Water
Discovery

VALUE
Communicate, Communicate, Communicate

• **DO** tell a good story
  – Focus on the opportunities for discovery

• **DO** craft your message for the various audiences you’ll encounter.
  – Message must be self-consistent

• **DO** avoid jargon. **DON’T** dumb it down
  – Focus on relationships between ideas and measurement, don’t bury us in data slides

• **DON’T** sell your project by trashing the competitor’s

• **DO** beat up on us if you’ve got a concern. **DO** sell us good ideas. **DON’T** do both *in the same meeting.*
  – Focus on building a relationship, serving as a resource