

MATERIALS ADVOCACY SUMMIT

Friday, January 16, 2009

9:00 am – 4:30 pm EST

Materials Research Society

Warrendale, PA

List of participants

Agenda

Summary

Notes

Action items

Appendix A: Presentation slides

Appendix B: Issues and collaborative efforts

Appendix C: Economic stimulus letters

**Advocacy Summit
January 16, 2009
Materials Research Society
Warrendale, PA**

Attendees

	Organization	Name	Email	Phone	Position
1	American Chemical Society	Glen Ruskin	g_ruskin@acs.org	202-872-4475	Director, Office of Public Affairs
2	American Chemical Society	Anthony Pitagno	a_pitagno@acs.org	202-872-4394	Manager, Legislative Affairs
3	American Physical Society	Mike Lubell	lubell@aps.org	202-662-8700	Director of Public Affairs
4	ASM International	Stan Theobald	stan.theobald@asminternational.org	440-338-5151	Executive Director
5	ASTRA	Bob Boege	rboege@comcast.net	202-320-8836	Executive Director
6	The Electrochemical Society	Roque Calvo	roque.calvo@electrochem.org	609-737-1902	Executive Director
7	Federation of Materials Societies	Betsy Houston	betsyhou@ix.netcom.com	202-296-9282	Executive Director
8	Assoc for Iron & Steel Technology	Ron Ashburn	rashburn@aist.org	724-776-6040	Executive Director
9	The Minerals, Metals, and Materials So	Warren Hunt	whunt@tms.org	724-776-9000	Executive Director
10	SAE	David Schutt	david.schutt@sae.org	724-772-8516	Executive Vice President and COO
11	Pittsburgh Technology Council	Audrey Russo	arusso@pgtech.org	412-918-4240	President and Executive Director
12	National Assoc of Corrosion Engrs	Bob Herbert	herbertw@msn.com	412-788-1134	President
13	National Assoc of Corrosion Engrs	Cliff Johnson	cliff.johnson@nace.org	281-228-6213	Director, Public Affairs
14	University Materials Council	Gregory Rohrer	gr20@andrew.cmu.edu	412-268-2696	W.W. Mullins Professor and Head Dept of MS&E, Carnegie Mellon University
15	Materials Research Society	Ron Kelley	rkelley@livingstongroupdc.com	202-256-5211	DC Office
16	Materials Research Society	Duane Dimos	dbdimos@sandia.gov	505-844-6385	MRS Gov Affairs Committee Chair
17	Materials Research Society	Shef Baker	Shefford.Baker@mrs.org	607-255-6679	MRS President
18	Materials Research Society	Dave Ginley	dave_ginley@nrel.gov	303-384-6573	MRS Vice President
19	Materials Research Society	Todd Osman	osman@mrs.org	724-779-3004 x101	Executive Director
20	Materials Research Society	Sandra DeVincent Wolf	swolf@mrs.org	724-779-3004 x601	Director of Membership Development
21	Materials Research Society	Anita Miller	amiller@mrs.org	724-779-3004 x551	Manager of Marketing and Member Services
Not attending, But Keep Informed					
	SPIE	Bob Boege represented			
	American Ceramic Society	John Kaniuk	acerspresident@ceramics.org	440-349-7206	
	American Ceramic Society	Scott Steen	ssteen@ceramics.org	614-794-5855	
	AVS	Rudy Lueke	rudy_lueke@msn.com		Former Pres;interested in Public Affairs
	AVS	Yvonne Towse	yvonne@avs.org		Staff person in NYC, deals with PA
	SAMPE	William Avery	william.b.avery@boeing.com		President
	SAMPE	Gregg Balke	gregg@sampe.org	626-331-0616	Executive Director

MATERIALS ADVOCACY SUMMIT

Friday, January 16, 2009

9:00 am – 4:30 pm EST

Materials Research Society

Warrendale, PA

AGENDA

- 9:00a Welcome and Introduction
Review of Expectations for the Day
Shef Baker, MRS President
Duane Dimos, MRS Government Affairs Chair
- 9:30a Review of the Current Environment in Washington, D.C.
Ron Kelley, MRS
- 9:45a Science and Technology Advocacy
Review of the recent trends and 2009 projections:
Basic Science Funding (20 minutes) Anthony Pitagno, ACS
Technology Funding (20 minutes) Bob Boege, ASTRA
Examples of How Societies Can and Do Work Together Ron Kelley, MRS
- Capture Specific Areas of Joint Interest for S&T
- Explore ways we can work together for greater impact in 2009
 - Develop “common cause” discussion points and themes that we can use during individual meetings with Congressional leaders.
- 12:00n Lunch
- 12:45p Continue S&T Discussion As Needed.....
- 1:30p Energy: at the intersection of Basic Science and Technology
Review of the recent trends and 2009 projections (30 minutes)
Energy: at the intersection of Basic Science and Technology Michael Lubell, APS
Examples of How Societies Might Work Together Duane Dimos, MRS
- Capture Specific Areas of Joint Interest for Energy
- Explore ways we can work together for greater impact in 2009
 - Develop “common cause” discussion points and themes that we can use during individual meetings with Congressional leaders
- 2:45p Group Discussion and General Comments
- 3:30p Capture key points of contact for each Society for future discussions and outreach (e.g. President, Executive Director, Government Relations/Affairs Chair, Washington Office contact, et al)
- 4:00p Wrap-up and Next Steps
- 4:30p Adjourn

MATERIALS ADVOCACY SUMMIT

Summary

The last two years have demonstrated that we are in a serious fight for federal funding; the current economic crisis makes this more difficult. However, the economic and legislative climate also provides new opportunities. Now, more than ever, it is critical that scientific societies engage in the process, providing unbiased information to assist members of Congress and the new Administration in making wise investments for the future.

The goal of the summit was to look at ways to advocate to Congress and the new Administration using a common voice in support of science and technology and its impact on economic growth, national security and the quality of life. While much of this first meeting was used to brainstorm on collaboration opportunities and ways to leverage the collective member base (estimated to be nearly one-half million) around a common message, it was agreed that the most important issue is to educate Congress on the need for a long-term investment in the physical science, for sustainable funding. This is essential if we are to ensure that US students, teachers, business and workers are prepared to lead the world in innovation, research and technology.

As the first step toward this effort, a large-scale letter writing campaign was planned in support of the R&D funding provisions proposed in the American Recovery & Reinvestment Act of 2009. MRS agreed to share its draft letter with the participating societies to use as the basis for their own letters.

It was believed that the second step of this effort should focus on materials with the goal of educating and engaging our legislators on the role that materials can and will play in solving many of the world's challenges. Materials will be the enabling piece, contributing in great part to improving our energy efficiency and independence, bolstering national security, managing global climate challenges, guaranteeing clean drinking water, developing health care and diagnostic initiatives... all of which leading to job creation and expansion. A joint effort to accomplish this could start with ACS' offer to help pilot a joint grassroots District Visit program that would foster understanding of materials issues on the local level.

The presentation slides from the Summit are compiled in Appendix A while collaborative opportunities identified by the participants are presented in Appendix B. The notes that follow are salient points from the day's discussion.

MATERIALS ADVOCACY SUMMIT

Notes

Combined membership of the societies present and those that sent their regrets is estimated to be approximately 0.5M.

Advocacy and speaking with one voice is as important as ever now – new Administration – grand challenges.

Labor – science connection in the stimulus package... using “workforce” and “workforce development”

- Concerns identified:
 - Creating science jobs assumes there are trained individuals to fill those jobs.
 - Sustainability is required; development of an educated and trained workforce takes years.

S&T in the stimulus package may be misleading – policy makers will expect quick success from that funding – if it doesn't happen it could be taken away

- Is the S&T money in the package to catch-up or create things quickly for tomorrow
- Common cause issues must first be identified

Capture of mindshare estimated at 90% today (near zero 10 yrs ago)

Op-Eds in local newspapers will get members' attention (in their home areas)

President's budget release – Feb 5-6

“Boom – Bust” cycle must stop! Need a sustainable funding package.

Work to influence the April budget amendment to plan for consistent funding of federal science agencies (vs. a doubling followed by a cut-off)

The science and education funding needed to rebuild the American economy is a drop in the bucket compared to the total dollar amount of the stimulus package

- \$4.5B to redo entire scientific infrastructure
- DOE Office of Science, NIST, NSF, etc
- USInnovation.org → tools and background policy info
- DOE Office of Science – science; DOD – engineering
- Only 17% of the budget can be influenced according to AAAS
- Effort to increase SBIR funding from 2.5% to 3.5% over a 3-5 yr period

New innovation index to be launched by ASTRA in early February

Proactive help needed to identify “shovel-ready” projects in order to spend all of the Office of Science money in the stimulus package. Currently not enough staff out there to use all of it. → Can/should we consider a different way of doing advocacy?

ACS Careers program – introducing a VC arm (VC equity investments) – fund matching (federal VC) and job placement effort – very early stage companies “what can you do in your sector to create jobs?” (from the Obama Transition Team)

Can we create a program that the government would fund (ex. to develop the workforce needed to fuel a new industry) – partner with universities, professional societies – provide education and training, certification, etc

- Can we specify the talent that will be needed by the new workforce (for these new industries)?

Look at new ways or examples of where materials have had major impacts in other industries or policies (ex. healthcare and the medical industry)

Federal data collection structure is obsolete – try to work on the structure, codes, etc (modest tweaks required from industry/professional societies – need a different and timely model)

Energy Future – Think Efficiency (APS report)

New Science for a Secure and Sustainable Energy Future

- Report of SC to Basic Energy... C (Dec 2008)

\$400M for ARPA-E

DOE structure – stovepipe issue

\$2B in stimulus package for competitive grants in EERE (applied research programs – short term 2-5 yrs; demonstration projects)

Comment – the intersection if basic science and technology does not exist – DOE should fold long term applied research into its programs more seriously than at present

Need applied research to be considered on a 5-10 yr timeframe (2-5 yrs is too short)

2 summary points:

- Energy is materials
- Basic research and applied research are not connected

Proposed next steps may be:

- Schedule a conference call - include volunteer leaders/members
- Get key contact info - send out notes, slides, conference call schedule

- Ask for prioritization/voting on issues
- Note: continuity needed if possible

MATERIALS ADVOCACY SUMMIT

Action Items

[ACS] Coordinate district visits: MRS, ECS, FMS and NACE interested in learning more/participating

[MRS] Construct and share individual society letters with a coordinated message – needed now on stimulus package (see Appendix C for letters that were circulated to the group after the Summit)

[NACE] Web portal/blog/energy Facebook feedback – NACE to investigate; ACS/MRS interested in following up

MATERIALS ADVOCACY SUMMIT
Appendix A: Presentation slides

Review of Current Environment in Washington DC
Ron Kelley, MRS

Basic Science Funding
Anthony Pitagno, ACS

Technology Funding
Bob Boege, ASTRA

Energy: at the Intersection of Basic Science and Technology
Mike Lubell, APS



ADVOCACY SUMMIT

Ronald L. Kelley
January 16, 2009
MRS Headquarters
Warrendale, PA

Overview



- Understanding Advocacy Environment
- Time of Change
- Government Priorities
- Joint Effort Experiences
- Importance of Identifying Issues
- Examples of Advocacy Activities

Advocacy Environment



- Time of Change
 - Obama Administration
 - Congress
 - Global and National Economy Crisis

Government Priorities

(competing for time and attention)



- Economic Unrest
 - Job loss, credit, banking, housing, international
 - Consumer confidence, spending, stock market
- Bail Outs
 - Financial institutions, automotive, what's next?
- Emergency Stimulus/Recovery
 - TARP Phase 2 (\$350B), Stimulus Plan (\$800B+)
 - Deficits (\$1.2T or 8.3% of GDP in 2009) – debt load

Government Priorities (cont)



- Energy
 - Independence
 - Alternative energy, national security, prices
 - Fuel sources, power demands, global sourcing
 - & Environment
 - Cap and trade – reduced carbon
 - Capture and sequestration
 - Alternative production options
- Healthcare
 - Campaign Promises
 - Universal healthcare – campaign promises
 - Reduced healthcare costs
 - Medicare/Medicaid growing out of control

Government Priorities (cont)



- Taxes
 - Middle class cuts, high end payers, business
- Transportation Reauthorization
 - Once every 6 years – infrastructure – TEA21
 - Plus projects from economic stimulus
- New Regulation
 - Security industry, chemical industry, housing, air
- Labor Issues
 - Card check (unions), pay discrimination

Government Priorities (cont)



- Defense and War on Terrorism
 - Costs, shift to repair, reestablish new capabilities
 - Number of threats – world basis
 - National security and homeland security
- Foreign Policy
 - Middle east, Iraq, Afghanistan, Iran, North Korea
 - Russian, Ukraine, Pakistan

Examples of Joint Efforts



- Washington Coalitions/Organizations
 - Lobbying teams working together
 - Ongoing
- Blue Ribbon Panel on S&T Candidates
 - New Administration recommendations
 - ASM, ACerS, FMS, MRS, TMS
- Congressional Fellows “AAAS Program”
 - MRS/OSA
 - MRS/TMS/ACerS

Advocacy Opportunities



- Issues Drive Advocacy
- Issues Determine Potential Partners
 - ▣ “common cause” collaborators
- Issues Have To Be Translated To Realistic Goals
- Issues Are Timely
 - ▣ Legislation
 - ▣ Federal Budget Cycle
 - ▣ Majority’s Agenda

Advocacy Activities



- Develop an effective and knowledgeable Government Affairs volunteer committee structure linked to the Society’s Board/Council
- Support lobbyist direct interaction in Washington – providing personal interface for your organization
 - ▣ Meeting directly with Congressional Representatives and Administration Officials
 - ▣ Meeting with Representatives’ and Administration’s staff in Washington

(note: the lobbying function can be conducted from a society’s main office if not in Washington DC, but it is difficult and far less effective)
- Develop consistency of message, credibility, trustworthiness, be a resource
- Society member visits to Washington or district offices – in frequent, but very important – meetings should also include Society leadership
 - ▣ Meeting Congressional Representatives in the district
 - ▣ Meeting with Representatives’ and Administration’s staff in Washington
- “Talking Points” are always required to ensure core message and focus on specific, timely Congressional or Executive Branch issues
- Support Congressional Fellows program under the auspices of AAAS
 - ▣ Short term benefit to Congress
 - ▣ Long term benefit to Society and Scientific Community

Advocacy Activities (cont)



- Presidential Letters supporting Society position
- Joint letters supporting position of many different organization – multiple Presidents or Executives
- Letters from specific coalitions and formal organizations (e.g. Coalition for National Science Foundation, Task Force for American Innovation, ASTRA)
- Individual letters encouraged by the Society with pre-written letters (e.g. Materials Voice) – allowing personal letters as well as “suggested” letters
- Ensure “thank you” responses from Society and individuals when successful legislation occurs
- Alert Society members when specific action –e.g. letter writing or phone calls – are needed by them (Member Alert List Serve System)
- Provide direct financial and personnel support for coalition work – common cause groups – their events, staff support, advertising, etc.
- Supplemental support funding for lobbying activities of coalitions or groups with shared common cause:
 - Lobbying team, grass roots, grass tops, advertising, events

Advocacy Activities (cont)



- Work with groups and organizations who are not direct recipients of your “ask” but who provide credibility to your request
- Generate opinion editorials on subject of interest to public and to Congressional Representatives in local publications
- Analyze and understand which Representatives and which Committees have the greatest impact on organization – identify which Society members have relationships with key Congressional Representatives
- Engage with Congressional Representatives and staff throughout the year as well as specific “high priority” times
- Provide support information for Congress and Administration
- Provide speakers for key Congressional hearings
- Offer opportunities to brief and educate on specific subjects of interest to Congress – e.g. topical lunch briefings
- Initiate local community activities with Representatives of Congress can be very effective for societies and industries working together

Other Advocacy Actions



□ **Actions for educating society membership about advocacy:**

- Articles about issues or critical legislative matters in Society “Bulletin”
Washington policy news
- National meetings opportunities – conduct public policy background
forum or government speakers at Society major meetings
- Promote options for communicating with Congress at Society meetings –
e.g. Materials Voice kiosks
- Provide an effective web based communication of public affairs
activities, issues, how to engage
- Develop a method of reporting on key meetings or government events
- Document the member benefit of advocacy to the Society



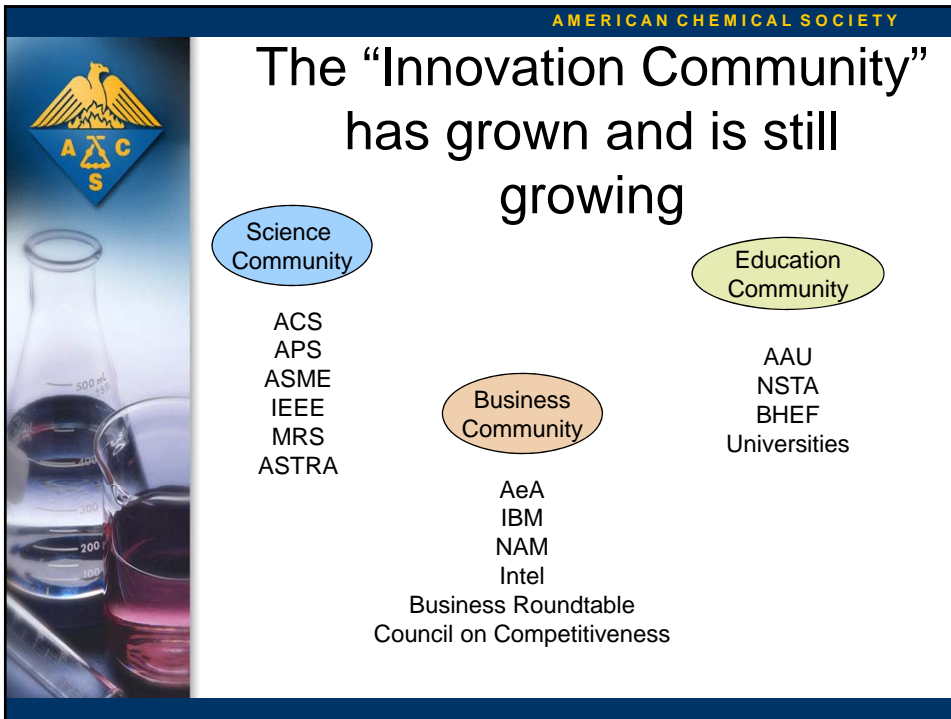
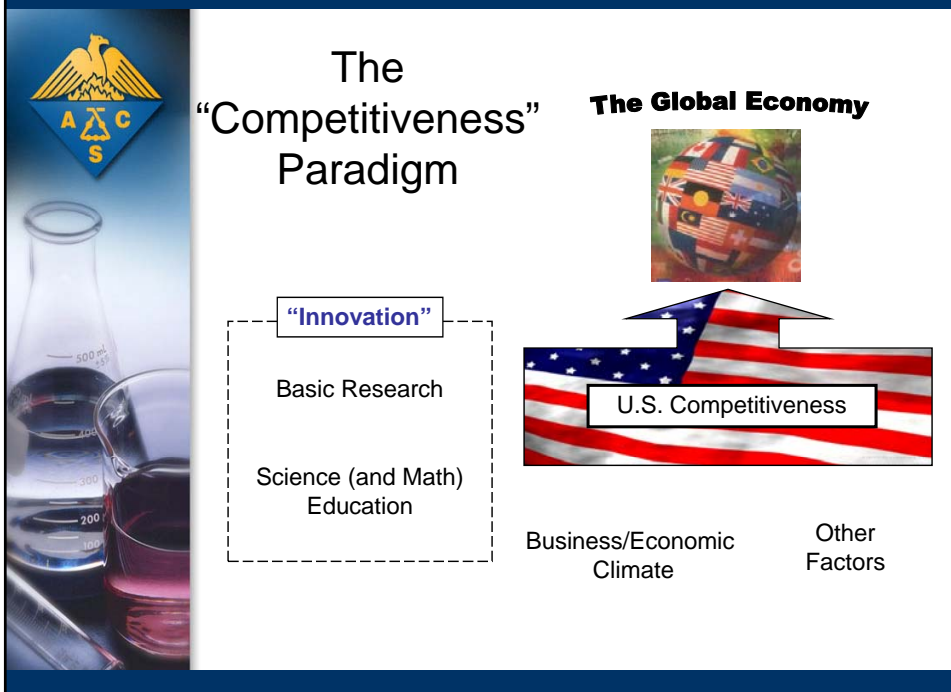
2009 – U.S. Economic Recovery : Science at Center Stage

*ACS Office of
Public Affairs*



Today's 2-part Briefing

- A National Debate on Competitiveness
- Inside Congress





A Debate with Many Voices, but Similar Themes

**Bill Brody,
President of Johns Hopkins
University:**

"If current trends continue... there is a good chance that U.S. competitiveness in vitally important high-tech areas will fall behind..."



**Craig Barrett,
Chairman of Intel Corp:**

"As research goes, so goes the future. If this trend continues, new technologies... will increasingly develop overseas, not here."

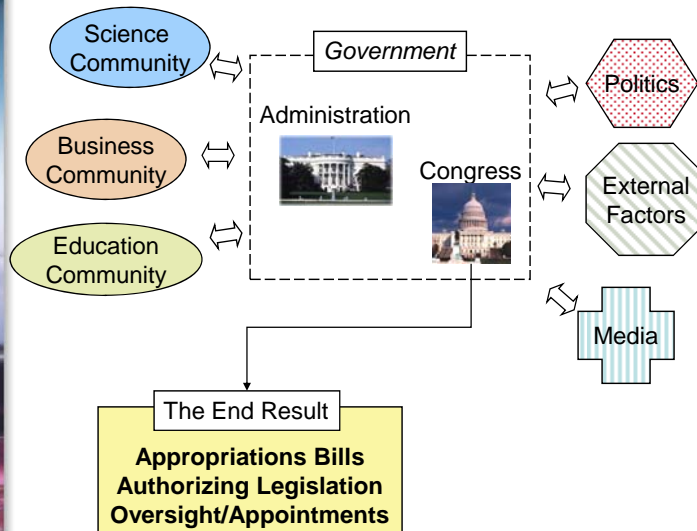


Today's 2-part Briefing

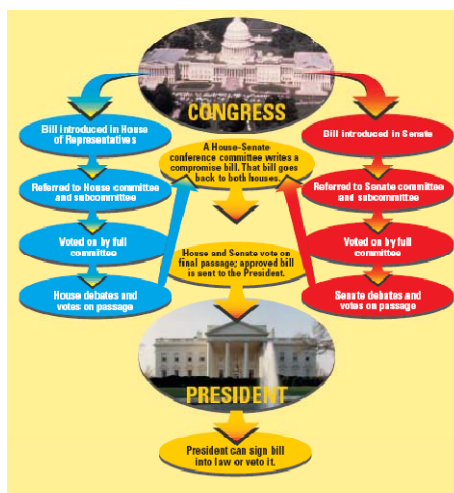
- A National Debate on Competitiveness
- **Inside Congress and the 2009 Agenda**



The "Competitiveness" Playing Field:

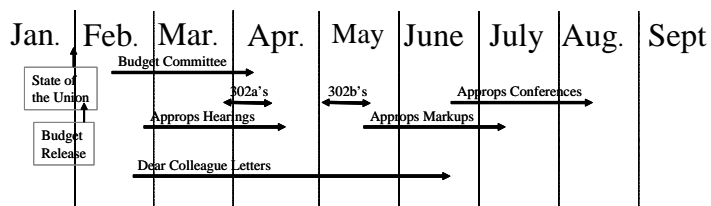


The Legislative Process





The Appropriations Process



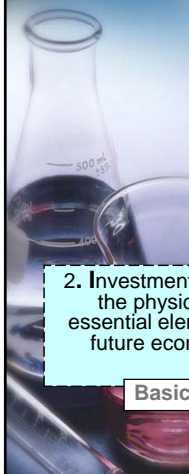
“Our” Appropriations subcommittees (House and Senate)

- Energy and Water: DOE Office of Science
- Science, Justice, and Commerce: NSF, NIST
- Labor, HHS, and Education: DoEd



On the Congressional Agenda in 2009

- Economic Recovery
- FY 2009 and FY 2010
- Iraq and other Foreign Engagements



There is a Strong Consensus in the Business, Scientific, and Education Community That...



1. We must revitalize our commitment to strengthen the pillars of American innovation and competitiveness...

Long-Term Commitment

2. Investment in basic research in the physical sciences is an essential element in assuring our future economic prosperity...

Basic Research

3. America's global competitiveness will increasingly depend on our ability to better educate our young people in math and science...

Education



Why Do Research and Education Matter?

America's next generation will be competing with the rest of the world for the best jobs and the brightest futures

The creation of entirely new markets and services **IS** and **HAS ALWAYS BEEN** a pillar of American prosperity and national security



Business Roundtable Polling



◆ Methods

- Four focus groups conducted September – October 2005 among parents of high school/college students in Raleigh, NC and Philadelphia, PA; educators in Raleigh, NC; high-level opinion leaders in Washington, DC
- Three national surveys conducted November – December 2005:
 - 804 voters (plus oversample of 73 Hispanics); November 19 – 22
 - 1,000 voters; December 28 – 29
 - 250 opinion leaders in government, business, nonprofits; November 16 – December 5



Thank You!

FY 2009 Federal Research & Development (R&D) Spending in Context



Perspectives on Current and Planned Investment in R&D Funding FY 2009

Prepared for The Materials Advocacy Summit

January 16, 2009

by Robert S. Boege, ASTRA



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Federal R&D by Agency FY 2008-2009 ^a

(Budget authority, dollar amount in millions)

Department/ Agency	FY2008 Estimate ^b	FY2009 Request	Dollar Change, 2008-2009	Percent Change 2008 to 2009
Agriculture	2,309	1,952	-357	- 15.5
Commerce ^c	1,113	1,157	44	4.0
Defense	80,192	80,494	302	0.4
Energy	9,739	10,558	819	8.4
Environmental Protection Agency	557	550	-7	- 1.3
Health and Human Services	29,475	29,480	5	0.0
Homeland Security	1,143	3,287	2,144	187.6
Interior	676	617	-59	- 8.7
NASA	10,436	10,737	301	2.9
National Science Foundation	4,500	5,201	701	15.6
Transportation	823	901	78	9.5
Veterans Affairs	960	884	-76	- 7.9
Other	1,140	1,145	5	0.4
TOTAL	143,063	146,963	3,900	2.7

- Source: *Analytical Perspectives, Budget of the United States Government, Fiscal Year 2009*, Office of Management & Budget, The White House, February 2008.
- The figures in this Table do not include supplemental funding for R&D for FY 2008 provided under the *Supplemental Appropriations Act, 2008* (P.L. 110-252).
- "Green" type color denotes *American Competitiveness Initiative* agency.



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Federal R&D by Character of Work, Facilities & Equipment FY 2008 – FY 2009

(Budget authority, dollar amount in millions)

Type of Research	FY2008 Estimate	FY 2009 Request	Dollar Change, 2008-2009,	Percent Change 2008 to 2009
Basic research	28,472	29,319	847	3.0
Applied research	28,112	27,087	-1,025	-3.6
Development	82,432	84,013	1,581	1.9
Facilities and equipment	4,047	6,544	2,497	61.7
TOTAL	143,063	146,963	3,900	2.7



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Top R&D Funding Agencies by Character of Work, Facilities & Equipment, FY 2008 - FY 2009

(Budget authority, dollar amount in millions)

Character or Work	FY2008 Estimate	FY2009 Request	Dollar Change, 2008 – 2009	Percent Change 2008 – 2009
Basic Research				
Health and Human Services	15,897	15,884	-13	0.0
National Science Foundation	3,689	4,336	647	17.5
Energy	3,232	3,556	324	10.0
Applied Research				
Health and Human Services	13,414	13,424	10	0.0
Defense	5,058	4,245	-813	-16.1
Energy	3,513	3,474	-39	-1.1
Development				
Defense	73,358	74,393	1,035	1.4
NASA	5,436	5,731	295	5.1
Energy	2,232	2,472	240	10.7
Facilities and equipment				
Homeland Security	147	2,250	2,102	1420.3
NASA	1,922	2,175	253	13.2
Energy	762	1,056	294	38.6



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Details on FY 2008 DOD Supplemental Bill Science Spending

\$400 Million in “Emergency” Science Spending:

Department of Energy Office of Science (OS)	\$62.5 million
Department of Energy Environmental	\$62.5 million
National Science Foundation	\$62.5 million
NASA	\$62.5 million
National Institutes of Health	\$150.0 million



ACI and Multi-Agency Initiatives Perspective FY 2008 - FY 2009

(Budget authority, dollar amount in millions)

Multi-Agency Initiatives Perspective. Federal R&D funding can also be viewed in terms of multi-agency efforts, such as the National Nanotechnology Initiative and other initiatives, such as the Administration's American Competitiveness Initiative (ACI).

The ACI was proposed by President Bush in February 2006 as a response to growing concerns about America's ability to compete in the global marketplace. The \$136 billion ACI proposal included \$50 billion for additional research, science education, and the modernization of research infrastructure from FY2007 through FY2016. These funds were intended to double physical sciences and engineering research in three agencies — NSF, DOE's Office of Science, and NIST — over ten years. Congress established authorization levels for FY2008-2010 that would put funding for research at these agencies on track to double in approximately seven years. However, FY2008 research funding provided in P.L. 110-161 for these agencies falls below these doubling targets. Estimated FY2008 funding for ACI research totals \$10.61 billion, an increase of approximately \$350 million (3.5%) over the FY2007 ACI funding level.

In FY2009, President Bush requested \$12.21 billion in funding for ACI research at NSF, DOE's Office of Science, and the National Institute of Standards and Technology (including its core research program and facilities), an increase of \$1.6 billion (15.1%) above the estimated FY2008 level of \$10.61 billion.⁸ The NSF funding request for FY2009 is \$6.85 billion, an increase of \$821 million (13.6%) above the estimated FY2008 level of \$6.03 billion.⁹ The FY2009 request for the DOE Office of Science is \$4.72 billion, \$749 million (18.9%) more than the estimated FY2008 level of \$3.97 billion.¹⁰ FY2009 proposed funding for NIST's core research program and facilities totals \$634 million, an increase of \$33 million (4.5%) above the estimated FY2008 level of \$610 million.

Source: Congressional Research Service



Analysis of FY 2009 Continuing Resolution, Current Appropriations & Proposed House Economic Stimulus Bill for American Competitiveness Initiative (ACI) Agencies as of 1/16/09

(Dollar amounts in millions)

Analysis of FY09 Continuing Resolution & Stimulus Package January 2009

Key Research Agencies	FY09 Funding in current CR	Administration's FY09 Budget Requests		FY09 Numbers Reported by House Appropriations		FY09 Numbers Reported by Senate Appropriations	
	\$ in millions	\$ in millions	increase from CR levels	\$ in millions	increase from CR levels	\$ in millions	increase from CR levels
National Science Foundation	6,065	6,854	789	6,854	789	6,854	789
Dept. of Energy – Office of Science	4,018	4,722	704	4,862	844	4,640	622
National Institute of Standards & Technology ¹	601	638	37	630	29	638	37
TOTAL	10,684	\$12,214	1,530	12,346	1,662	12,132	1,448

Key Research Agencies	Impact of funding proposed in House Stimulus Bill	
	Total FY09 \$ in millions	increase from CR levels
National Science Foundation	9,065	3,000
Dept. of Energy – Office of Science	5,918	1,900
National Institute of Standards & Technology ¹	901	300
TOTAL	\$15,884	5,200

¹ Refers to NIST core accounts, consisting of the Scientific & Technical Research and Services (STRS) budget, plus the Construction of Research Facilities (CRF) budget



MRS ADVOCACY SUMMIT

January 16, 2009

Energy Research
Where Basic Science Meets Applied Science

Michael S. Lubell
APS Director of Public Affairs
CCNY Professor of Physics



MRS ADVOCACY SUMMIT

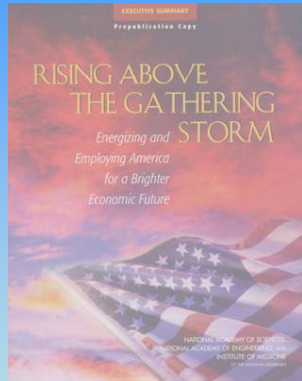
January 16, 2009

Energy Research
Where Basic Science Meets Applied Science
Or Not!

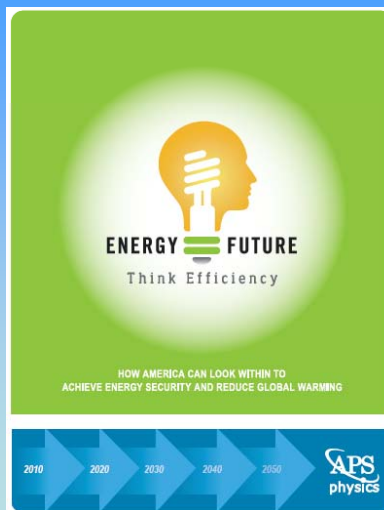
Michael S. Lubell
APS Director of Public Affairs
CCNY Professor of Physics



REPORTS, AGENDAS & INITIATIVES



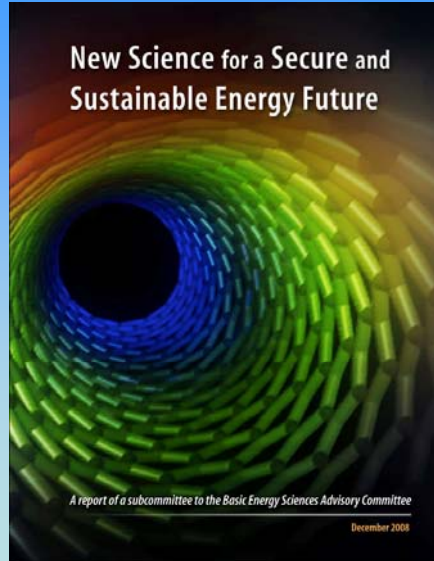
REPORTS, AGENDAS & INITIATIVES



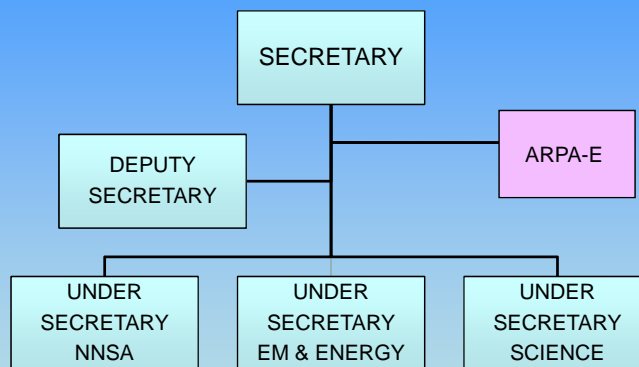
www.aps.org/EnergyEfficiencyReport/



REPORTS, AGENDAS & INITIATIVES



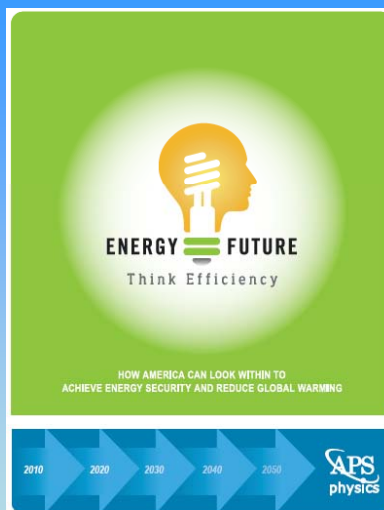
AUTHORIZED DOE ORGANIZATIONAL STRUCTURE



DOE SCIENCE AND ENERGY TECHNOLOGY ACCOUNTS FY 2005 – FY 2009

Account	FY 05	FY 06	FY 07	FY 2008 (\$B)			FY 2009 (\$B)		
	(\$B)	(\$B)	(\$B)	Req	Final	<i>Final</i>	Req	CR	Final
SCIENCE	<i>3.57</i>	<i>3.47</i>	3.81	4.40	3.97	<i>3.85</i>	4.72	3.85	
EERE	1.16	1.16	1.46	1.23	1.72	<i>1.54</i>	1.26	1.54	
FOSSIL	0.57	0.82	0.77	0.86	0.90	0.90	1.13	0.90	
NUCLEAR	0.52	0.57	0.63	0.80	0.96	0.96	0.85	0.96	
EM	6.80	6.13	5.73	5.36	5.35	5.35	5.30	5.35	

Red italics: Adjusted for earmarks; NASA accounts redefined in FY 2008



www.aps.org/EnergyEfficiencyReport/



SAMPLE LIST OF OPPORTUNITIES *ENERGY FUTURE – THINK EFFICIENCY*

- Fuel Cells
- Batteries and Electrical Energy Storage
- Solid-State Lighting
- Catalysts
- Thermoelectric Devices
- Lightweight Materials
- Advanced Windows
- Advanced Ventilation
- Ultrathin Thermal Insulators
- Thermodynamic Cycles
- Behavioral Research



RECOMMENDATIONS *ENERGY FUTURE – THINK EFFICIENCY*

- Policies should be established to achieve 50 mpg by 2030
- Federal transportation R&D portfolio should have broader focus
- Grid improvements & time of use electricity metering needed for PHEVs
- Social science research required to better understand consumer behavior
- Set federal goal: buildings sector primary energy use in 2030 no more than in 2008
- Federal R&D program needed to achieve ZEB by 2030
- LEED certification should give energy efficiency highest priority
- **Federal R&D funding for next generation building technologies should increase significantly**
- **Low-energy residential buildings R&D and demonstration program should be expanded**
- DOE should comply with legislation to develop cost-effective, achievable appliance standards
- Federal government should use carrot & stick approach to get states to adopt DSM programs
- Energy standards for buildings such as those in California should be implemented nationwide
- DOE Office of Science should be funded at levels specified in America COMPETES Act
- DOE should fold long-term applied research into its programs more seriously than at present
- DOE should fully comply with 2005 EPACT mandate to coordinate basic and applied research
- ARPA-E, if funded, needs its purpose better defined: time horizon, private-sector coupling
- In transportation, closely connected long-term basic & applied research need more support
- In buildings, neglected long-term applied research in EERE needs much more attention





SAMPLE OPPORTUNITIES BESAC: *NEW SCIENCE...ENERGY FUTURE*

- Materials with unprecedented performance
- Making chemical change more selective – combustion & catalysis
- Returning carbon to the earth – capture and sequestration
- Solar fuels – photovoltaics, thermal, bio, hydrogen
- Safe and more efficient nuclear power – reactors, waste storage
- Electrical energy storage – batteries, fuel cells, supercapacitors
- Solid state lighting
- A solar economy for buildings – insulation, coatings, photovoltaics
- A 21st century electricity grid – fast switching, superconductors, IT
- Advanced transport – batteries, fuel cells



RECOMMENDATIONS

BESAC: *NEW SCIENCE...ENERGY FUTURE*

- A significant increase in the rate of discovery, innovation and technological change is needed. BES must lead a bold new initiative focused on solving the critical scientific roadblocks in next-generation, carbon-free energy technologies.
- Significant discoveries will come at the intersection of control science with advanced materials and chemical phenomena, and there is a clear first-mover advantage to those who focus their research efforts here. BES must lead U.S. energy research efforts in this direction lest the U.S. fall behind in global competition for discoveries of future energy sources and systems.



RECOMMENDATIONS

BESAC: *NEW SCIENCE...ENERGY FUTURE*

- It will take “dream teams” of highly educated talent, equipped with forefront tools, and focused on the most pressing challenges to increase the rate of discovery. BES must lead the development of these dream teams to close gaps between needs and capabilities in synthesis, characterization, theory, and computation of advanced materials.
- U.S. leadership requires BES to lead a national effort to aggressively recruit the best talent through a series of workforce development and early career programs aimed at inspiring today’s students and young researchers to be the discoverers, inventors, and innovators of tomorrow’s energy solutions.



MATERIALS ADVOCACY SUMMIT

Appendix B: Issues and collaborative efforts

ISSUES - General

- Educate Congress re long-term effort (vis-à-vis demand for short-term results from economic stimulus)
 - Science & technology investment and workforce development
- Basic research and STEM → competitiveness
- Larger picture/pie [basic + applied + education = innovation]
 - Science → innovation → jobs
- Technical education <paradigm shift>
 - < 4yr ← 4 yr → > 4yr
- Immigration & visas (esp. with respect to workforce)
- Technology & industrial policy shifts
 - Materials response
 - Roadblocks & incentives [private-public partnerships]
- Grow pie
- Work on how pie is cooked
 - Logistics to make system more effective/efficient
 - Academic calendar synergy?
 - Multi-year authorizations
- Retrain workforce to transfer to new industries
- Qualifications for professional (assoc, BS, grad)
- Key issues as case studies (on materials) for investment
 - Jobs
 - Solving current problems
- Government data collection system

COLLABORATIVE EFFORTS - General

- New approach to advocacy (“how we communicate”)
 - Basic → applied
 - Communication to new Administration with higher scientific acumen
 - New business model/paradigm
- ACS “careers”
- ACS tech catalyst (VC)
- White papers [tech-industry policy]
- Connect \$ (funding) → jobs (examples, data)
 - Short term
 - Long term
- How past investments are now solving current problems

ISSUES – Energy

- Bring together university/government/industry to coordinate work efforts (create a consortium)
 - Ex. SEMATECH (note – this was very focused)
 - Model? Who will advise? Who will decide?
 - Note: need to provide coordination and guidance
 - Need to research what already exists
 - Note: check NAS/NAE studies – 4 reports, none specifically on materials
 - Assurance that \$ is well spent?
- No roadmap (note: no energy policy)
 - Note: NMAB has nothing on energy at present
- No set of “master goals” to use to create a visions, etc
- The industry is “embryonic” at this point
- Infrastructure does not exist
- ASTRA – connect, link, redirect, convene, enable, provide info
- FMS – ?
- SAE – energy efficient transportation systems (propulsion, highway systems, etc0
- MS&T partners – volunteers planning '09 programming on energy (incl. local focus – Pittsburgh)
- AIST – steel, renewable (nuclear power, energy grid)
- TMS – nuclear materials, energy process, energy storage
- ACS – efficiency, renewable, policies, jobs, measurement tool(s)/metric to put everything on equal footing
- EESI – link to?, briefings, collaborations

Can we identify a couple of specific subject areas where a focused effort can have a significant impact?

- Batteries
- Renewable
- Biofuels
- “Patient” funding needed
- Advance materials to increase efficiency (and reliability) across all of the technologies (life cycle)
- Need cross-cutting w/in the agencies (avoid stovepipes)

Issues of concern to the new Administration:

- National labs, how you get research out of them
- Technology transition

COLLABORATIVE EFFORTS – Energy

- Joint letters, Hill visits, lunches
- Engage our members, leverage around a common message, incl. local/grassroots
- Local media: grassroots communications campaign

- Communication tree
- Blog
- Engage/increase participation of students, tie in young professionals
- Local/district program (ex. ACS)
 - Members/students visiting offices
 - Reps visiting universities/labs
- ACS public policy tools on website
- NOTE: “successful students, a poster and a camera will attract any member of Congress”
- ACTION ITEM: individual society letters – coordinate message – needed now on stimulus package
- Share/expand Materials Voice
 - Zip code locator
 - Customize letter
- Full page DC ad (\$10K)
- Easy to read “glossy’ NMAB-type report on materials for energy
- Viral messaging on issues

MATERIALS ADVOCACY SUMMIT
Appendix C: Economic stimulus letters

ACS

- **ACS stimulus letter.pdf**

MRS

- **MRS Letter on Economic Recovery and Reinvention Act.pdf**
- **Letter to President Obama re Economic Stimulus.pdf**

Sandra DeVincent Wolf

From: Glenn Ruskin [G_Ruskin@acs.org]
Sent: Wednesday, January 21, 2009 3:22 PM
To: Ron Kelley; Anthony Pitagno; Michael Lubell; stan.theobald@asminternational.org; ASTRA; roque.calvo@electrochem.org; Betsy Houston; rashburn@aist.org; whunt@tms.org; david.schutt@sae.org; tony_keane@nace.org; cliff.johnson@nace.org; gr20@andrew.cmu.edu
Cc: Shefford Baker; david_ginley@nrel.gov; Todd Osman; Dimos, Duane B; Crandall, James; Kathleen D'Biagio; Sandra DeVincent Wolf; Anita Miller
Subject: RE: Economic Recovery and Reinvestment Act

Dear Materials Advocacy Summit participants:

FYI – here is a link to a Legislative Action Network alert that ACS just issued to over 16,000 members in our action network urging them to contact their members of Congress to urge support for and passage of the 2009 Economic Stimulus Package.

<http://www.act4chemistry.org/action/recoverybill/index.jhtml?requestid=95418>

We usually garner a 10% response rate – hopefully we will secure a higher response rate for this alert. We also will be sending letters from our ACS President to House and Senate leadership. It was good to meet everyone Friday and hope that we can continue to find mutual areas of cooperation in the future.

Glenn

Glenn S. Ruskin
Director, Office of Public Affairs
American Chemical Society
1155 16th St., NW | Washington | DC 20036
T 202-872-4475 | F 202-872-6206
www.acs.org

ACS Chemistry for Life
American Chemical Society

ACS Vision - Improving people's lives through the transforming power of chemistry

From: Kelley, Ron [mailto:rkelley@livingstongroupdc.com]
Sent: Wednesday, January 21, 2009 1:16 PM
To: Glenn Ruskin; Anthony Pitagno; Michael Lubell; stan.theobald@asminternational.org; ASTRA; roque.calvo@electrochem.org; Betsy Houston; rashburn@aist.org; whunt@tms.org; david.schutt@sae.org; tony_keane@nace.org; cliff.johnson@nace.org; gr20@andrew.cmu.edu
Cc: Shefford Baker; david_ginley@nrel.gov; Todd Osman; Dimos, Duane B; Crandall, James; Kathleen D'Biagio; Sandra DeVincent Wolf; amiller@mrs.org
Subject: Economic Recovery and Reinvestment Act

To all Materials Advocacy Summit participants:

It was good to see all of you at our meeting Friday at the Materials Research Society headquarters in Warrendale, PA.

We agreed that the subject of Economic Stimulus Package and specifically the plan that the Democratic leadership has proposed containing significant S&T support is of high priority mutual interest for our organizations.

We concluded it would be very valuable if we sent in many letters of support for the House leadership proposed bill on Economic Stimulus. The final bill will experience a lot of negotiation and changes in order for this to be completed within the next few weeks. The majority leadership would like to finish with both House and Senate debates and have agreement by mid-February. For that reason, quick action is required for the letters that you write to Congress. You should assume that we will need to fight to keep in the provisions that deal with S&T as proposed.

The [attached MRS letter](#) from Shefford Baker is an example for your organization to consider as you write your own letter and make sure that you have communicated your organization's support for the legislation to Members of Congress.

I have also enclosed a few other background items for your review that might help you and your committees as you review this subject.

- 1) [Two FYI notes from AIP from Friday, January 16, on this science and economic recovery \(attached\)](#)
- 2) [Bill and Report Documents from House Appropriation and the Speaker's Office \(attached\)](#)

I would recommend you target to complete your letters ASAP given the tight deadlines that the Congress has set for this bill.

We were grateful for your participation last week and look forward to working with you on other issues in the coming year.

Please let us know if you have any questions.

Best regards,

Ron



**Materials
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Shefford P. Baker
2009 MRS President

Cornell University
Department of Materials Science and Engineering
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Ithaca, NY 14853-1501

TEL: 607-255-6679
FAX: 607-255 2365
E-mail: shefford.baker@cornell.edu

January 16, 2009

The Honorable Nancy Pelosi
Speaker
U.S. House of Representatives
H-232 U.S. Capitol
Washington, DC 20515

The Honorable David Obey
Chairman, Committee on Appropriations
U.S. House of Representatives
H-218 U.S. Capitol
Washington, DC 20515

The Honorable Bart Gordon
Chairman, Committee on Science and Technology
U.S. House of Representatives
2320 Rayburn House Office Building
Washington, DC 20515

The Honorable George Miller
Chairman, Committee on Education and Labor
U.S. House of Representatives
2181 Rayburn House Office Building
Washington, DC 20515

Dear Speaker Pelosi, Chairman Obey, Chairman Gordon, and Chairman Miller:

On behalf of the Materials Research Society, I want to commend your leadership and recent decisions to support science and technology in the proposed American Economic Recovery and Reinvestment Act. The substantial investments that you have proposed for scientific jobs and infrastructure will provide immediate support and impact as well as have a longer lasting benefit for the United States' economy, national security, quality of life, and provide a highly skilled workforce.

Investments that are made in support of research and technology advance the agenda which you have previously established in passing the America COMPETES Act of 2007. The proposed investments also take into account the critical nature of providing infrastructure investments and support for educational institutions, teachers, and their supporting facilities.

As members of the scientific establishment in this country, we applaud your willingness to invest now before we further lose our global innovation competitive advantage. The signs have been clear for many years that other countries are increasing their investments in basic research and applied technology areas. It is encouraging to know that Congress and the new Administration are working to support science as an important priority as the nation faces so many economic challenges.

The Materials Research Society represents 16,000 scientists and engineers dedicated to advancing the multidisciplinary field of materials and improving the global quality of life. MRS scientists and engineers around the world work towards fundamental breakthroughs in electronics, energy systems, aerospace technologies, biomedical devices, nanotechnology, and advanced computation and communication technologies. Materials Research Society's members work at the forefront of new technologies, from basic research to product development.

On behalf of MRS, I want to thank you in advance for your leadership in completing this legislation and recognizing the pivotal role science and technology will play for ensuring the future competitiveness of our country.

Sincerely yours,

Shefford P. Baker, Ph.D.
President
Materials Research Society

Cc:

House

Minority Leader John Boehner, Ranking Member Jerry Lewis, Ranking Member Ralph Hall, Ranking Member Howard McKeon

Senate

Majority Leader Harry Reid, Minority Leader Mitch McConnell, Chairman Daniel Inouye, Ranking Member Thad Cochran, Chairman John Rockefeller, Ranking Member Kay Bailey Hutchison, Chairman Ted Kennedy, Ranking Member Michael Enzi



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January 30, 2009

President Barack Obama
The White House
1600 Pennsylvania Ave
Washington, DC 20500

Dear Mr. President:

On behalf of the Materials Research Society, which represents 16,000 professional scientists and engineers from around the world, I want to congratulate you on becoming President of the United States. As a professional society, we look forward to working with you and your Administration in the coming years to help advance your agenda. We are especially gratified to see the very high quality scientific talent that you are selecting to represent the Office of Science and Technology Policy, the Department of Energy, and other critical science and technology appointments on your management team.

Your campaign positions and your comments in your inaugural address about science and technology are particularly encouraging to our membership. The ingenuity of the American people is great and our willingness to compete is second to none. The programs that you have outlined with the House of Representatives in the American Economic Recovery and Reinvestment Act of 2009 are exactly what is needed to regain our diminished funding levels for basic research and to support the necessary enhancements in scientific infrastructure and facilities.

Enclosed you will find a copy of the letter we sent to House and Senate leadership in support of the Economic Recovery and Reinvestment Act of 2009. We are also asking the MRS membership to personally express their support for this bill to their Representatives and Senators.

We understand the many challenges that are facing our country and we are prepared to do our part for the nation as you have challenged all of our citizens. We wish to express our sincere appreciation to you for bringing these issues to the forefront of public debate at the start of your Presidency and for providing key leadership to secure America's future.

If there is anything that the Materials Research Society can do, please don't hesitate to call on us in the coming days.

Sincerely,

Shefford P. Baker, Ph.D.
President
Materials Research Society

Enclosed: Letter to Speaker Pelosi and House and Senate leadership