October 14, 2009

The Honorable Harry Reid  
Majority Leader  
United States Senate  
Washington, D.C. 20510

Dear Majority Leader Reid:

On behalf of the Association of Public and Land-grant Universities (A·P·L·U) and the Association of American Universities (AAU), we write to offer comments from the research university perspective on H.R. 2454, “The American Clean Energy and Security Act” (ACES Act) and its counterpart now under development in a number of Senate committees.

The combined membership of A·P·L·U and AAU includes most major public and private research universities in the United States. Despite budget constraints brought on by state government cuts and declining endowments resulting from the current fiscal crisis, our universities are already seriously engaged in producing the intellectual talent, the scientific breakthroughs, and the new energy technologies required to help meet the huge energy and environmental challenges facing our country. We would like to work with the federal government to contribute more.

Unfortunately, our nation and the rest of the world have been woefully under-investing in energy research and development for almost three decades. Today our federal energy R&D expenditures are just one-fifth of their 1980 peak as a percentage of GDP. Indeed, since 1980 the U.S. federal investment in energy R&D has dropped from 10 percent of total government R&D investments to just two percent today. This underinvestment has left our current knowledge base and our available clean energy technologies inadequate to tackle the looming energy and climate challenges.

Achieving necessary new energy and environmental goals will require replacing virtually every energy technology used worldwide today at a cost that the International Energy Agency (IEA) has predicted will reach trillions of dollars. For us to have a reasonable chance of meeting these goals and avoiding significant environmental degradation, U.S. energy companies must become as research-oriented as high-tech companies are today. At the same time, the U.S. government must immediately increase its commitment to investing in long-term energy research critical to our energy future.

We were encouraged when the President said in his February 2009 address to Congress, referring to cap and trade revenues, that “we will invest $15 billion a year to develop technologies like wind power and solar power, advanced biofuels, clean coal, and more efficient cars and trucks built right here in America.” We are further encouraged that Secretary of Energy Steven Chu has said repeatedly that to
meet the climate change challenge, government spending on energy R&D must move to the levels of high-tech industry, which are generally 10 percent or more of sales. Both realize that technological change must be preceded by the increased knowledge that can only come from a substantial research and development effort.

The only way for Secretary Chu’s vision to move forward at a credible pace, however, is for the Congress to honor the President’s request. Unfortunately, the House-passed bill failed to do this. As Presidential Science Advisor John Holdren noted in a September 24 National Journal interview, “...in my judgment, one of the things I would have preferred to see in the House bill that wasn't really there, was a lot of support for energy technology and innovation. In principle, that could be fixed in the Senate and in conference.” This is a gentle way of saying that the House-passed bill managed to spread tens of billions of dollars per year on a wide variety of energy and environmental causes while virtually ignoring the research investment necessary to solve our energy and environmental problems; the draft Senate Environment and Public Works Committee bill also appears to ignore the Administration’s call for R&D.

As the Senate moves forward with climate change legislation, we strongly urge you to ensure that the amount of R&D funding designated for the development of clean energy technologies is more in line with the President’s proposal of $15 billion. We further encourage Congress to designate approximately a third of these funds to support early-stage basic, applied and transformational research and to expand energy education and workforce efforts. Finally, we recommend that Congress front-load this R&D investment in the climate legislation to ensure that we have the required research breakthroughs and new technologies available in time to successfully meet the bill’s targets for greenhouse gas emission reductions.

We commend you for your leadership in advancing the innovation agenda in Congress. We view the passage of the America COMPETES Act and spending provided in both the FY 2009 appropriations bills and the American Reinvestment and Recovery Act as major steps in developing the research capabilities we must have in the near future. We are grateful for the continued incremental increases in appropriations for basic research that reflect the goals of the America COMPETES Act and the President’s budget. These increases on their own will bring us only a fraction of the way to solving our energy research deficiencies. We agree with the President that a directed revenue stream from climate change mitigation legislation is the best way to address this problem.

A one-page fact sheet with more information on our proposal is attached.

Sincerely,

Peter McPherson
Association of Public and Land-grant Universities

Robert M. Berdahl
Association of American Universities
The American Clean Energy and Security (ACES) Act calls for an 83% reduction in US carbon emissions by the year 2050. **Without significant advances in science and technology, the incentives now provided in ACES and other laws are not sufficient to let the US meet its goals.** Many studies have recommended major increases in both Federal and private sector energy R&D to do this; thus the President, in his FY10 Budget, calls for creating a “Clean Energy Technology Fund” of $15 billion per year for 10 years. We need a major effort to obtain the basic scientific knowledge to develop and implement the technologies needed to eliminate the projected growth in the use of fossil fuels, and then to displace five of every six barrels of oil and tons of coal with renewable and nuclear energy, and enhanced energy efficiency.

Secretary Chu has said that to achieve dramatic change in our energy portfolio, energy companies will have to become high technology companies and substantially increase their R&D investments. This will not happen without accompanying large increases in Federal energy research conducted at universities and other major research institutions – where most cutting edge research is done - so they can become major sources of new technologies, of spinoff companies, and of the highly trained workforce needed for the transformation of our energy economy. We also will require a highly trained workforce for energy production, installation and maintenance, as well as for development and implementation of new codes and standards. **To increase the chances for rapid success, the research and training must be frontloaded.** The longer it takes for dramatic improvements in energy technologies to occur, the less likely it will be for Americans to make our necessary contribution to reducing fossil energy use and dependence, and the required reductions in the cost of new energy technologies.

Consistent with the Administration’s proposal, we recommend that a modest portion of the climate change mitigation allowances -- one third of the President’s request, about $5 billion -- be allocated to conducting the research necessary to accelerate the invention, development, and deployment of the new technologies we need, and to increase our understanding of climate change. Making these dramatic changes will require such an increased research effort in energy production and consumption which account for nearly 10% of our GDP. This proposal is only **one** of many ways to structure such an effort.

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**Proposal for Discussion**

- Seven percent of the carbon allowances issued annually (nearly $5 billion in FY 2012, as estimated by CBO) under the ACES Act shall be used to fund basic and long-term applied research to support the goals of the Act.
- An account shall be created in the Treasury named the ACES Research Fund.
  - For each of the fiscal years 2012 through 2014, in exchange for these allowances, the Treasury shall deposit in the Fund an amount equivalent to their value, as estimated by CBO prior to enactment; **this will let the research start as soon as possible.**
  - For fiscal years after 2014, the annual proceeds from selling the allowances will be deposited in the Fund.
- Funds from the ACES Research Fund, on enactment, shall be available for obligation subject only to such limitations as may be placed in appropriations acts enacted after this Act. Specific program authorizations could be set forth in quadrennial authorization bills starting the calendar year after the enactment of ACES.
- Funds from the ACES Research Fund shall be used only for competitively awarded basic research or long-term applied research in the following areas:
  - new lower, or zero, carbon emission energy resources and technologies, including increased efficiency;
  - improved methods for sequestering greenhouse gases;
  - climate change research, including its modeling, monitoring and analysis; and
  - the economic and social factors affecting consumer energy use.
- The Secretary of Energy shall oversee the ACES Research Fund and prepare an annual plan for obligating its funds; he shall present it to the Congress at the same time the President submits his annual budget request.
- To the maximum extent practicable, multiyear projects funded from the ACES Research Fund shall be fully funded at their initiation; such projects shall be reviewed by DOE on an annual basis.