
After months of behind the scenes negotiations, Senators John Kerry (D-MA) and Joe Lieberman (I-VT) unveiled their climate and energy bill, the *American Power Act* (APA), on May 12. The draft bill aims to reduce carbon emissions by 17 percent by 2020 and by over 80 percent in 2050 through a “cap and refund” regime, which would return two-thirds of revenues not dedicated to reducing the nation’s deficit back to consumers with the rest spent on “ensuring a smooth transition for American businesses and investing in projects and technologies to reduce emissions and advance our energy security.”

Below is a summary of APA provisions of interest to the research community. [If you are not interested in the energy provisions of the bill, but only in the climate research and adaptation provisions, please scroll down about three-fourths of the way below.]

**Energy Provisions**

The APA was drafted to try to bridge the differences within the Senate in realization that at least 60 votes would be needed to pass energy and climate change legislation. As such, the APA includes provisions to promote the development of a U.S. nuclear industry; to allow offshore oil and gas exploration and drilling (modified in view of the unprecedented BP oil spill in the Gulf of Mexico); to enable the use of domestic coal resources by facilitating a national strategy to develop and deploy carbon capture and sequestration technologies; to accelerate large-scale deployment of renewable energy technologies and energy efficiency by establishing a Clean Energy Technology Fund; and to promote workforce development in clean energy technologies.

The APA is not a complete companion bill to the House-passed *American Clean Energy and Security Act* (H.R. 2454), also known as the Waxman-Markey bill that passed the House of Representatives on June 26, 2009. Many of the provisions of interest to the academic and research communities are addressed in a separate Senate bill, S. 1462, the *American Clean Energy Leadership Act of 2009* authored by Sen. Jeff Bingaman (D-NM), that has been pending before the Senate since last July. These provisions include the authorization of the Energy Innovation Hubs, improvements to ARPA-E (Advanced Research Projects Agency-Energy), and establishment of a Clean Energy Deployment Administration. The Senate Energy and Natural Resources Committee recently approved a package of bipartisan amendments to S. 1462 that align more closely with the Waxman-Markey bill (a separate report will be prepared on S. 1462). The APA and S. 1462 are envisioned to be combined into one bill if the Senate considers climate change and energy legislation this year.
The American Power Act includes the following energy-related provisions of interest to universities:

**Nuclear Energy Research Initiative** – The Senate bill requires the Secretary of Energy to develop and publish a schedule that contains an outline of a five-year strategy to conduct research to lower the cost of nuclear reactors, including research regarding modular and small-scale reactors; balance-of-plant issues; cost-efficient manufacturing and construction; licensing issues; and enhanced proliferation controls. The bill authorizes $50 million per year for each of fiscal years (FY) 2011 through 2015 for this program and would need to be funded through the Congressional appropriations process. The House (Waxman-Markey) bill does not include such a program.

**National Strategy for Carbon Capture and Sequestration** – The Senate bill tasks federal agencies, including the Environmental Protection Agency (EPA), Department of Energy (DOE), Department of Interior (DOI), and other agencies the President may designate with reporting to Congress on the key legal, regulatory, and other barriers to the commercial-scale deployment of carbon capture and storage (CCS) technology. The Administrator of EPA is charged with establishing a task force composed of experts, including academic researchers, to study existing laws, regulatory frameworks, and private sector mechanisms to assess their applicability to risk management, financial responsibilities, and environmental liabilities associated with CCS. The House bill does not include this initiative.

**Carbon Capture and Sequestration Program Technical Advisory Committee** – APA establishes a special funding program for the development and deployment of carbon capture, sequestration and conversion technologies that would be funded by a special assessment on electric utilities for all fossil fuel-based electricity. This program would be governed by a Carbon Capture and Sequestration Program Partnership Council that would appoint a technical advisory committee, whose membership could include universities and independent research institutions, to provide independent scientific review of applications for grants, contracts, cooperative agreements and other transactions funded under the special funding program. The House bill includes provisions to establish a Carbon Storage Research Corporation that would invest $10 billion in carbon capture and storage technologies.

**Electric Vehicle Infrastructure** – APA authorizes the Secretary of Energy to work with stakeholders that could include universities to develop a National Transportation Low-Emission Energy Plan and a Pilot Program. The plan would assess the near- and long-term need for and location of electric drive vehicle refueling infrastructure across the nation and identify the infrastructure and standardization needs for electricity providers, infrastructure providers, vehicle manufacturers, and consumers necessary to deploy electric vehicles by January 2020. The proposed pilot projects in different regions of the country would demonstrate the electric drive vehicles and infrastructure. These initiatives are subject to future appropriations. The House bill would direct $20 billion to electric and other advanced technology vehicles.
Clean Energy Technology Fund – The Senate bill establishes a Clean Energy Technology Fund to support programs that enhance the economic, energy, and environmental security of the United States through the development of clean energy technologies and the development and deployment of advanced energy technologies. The fund would be capitalized by allowances distributed by the Secretary of Energy on a competitive basis to institutions of higher education, companies, research foundations, trade and industry research collaborations, or consortia of such entities to support research and development of clean energy technology, including nuclear energy, energy transmission and storage technology, energy efficiency improvements, the Smart Grid, and energy efficiency improvements for transportation. There is no estimate for the amounts that would be available from the allowances. The House bill would allocate approximately one and a half percent of cap and trade allowances to specifically fund the Energy Innovation Hubs and ARPA-E. The House bill would also direct $20 billion to electric and other advanced technology vehicles, and $20 billion to basic R&D activities for clean energy and energy efficiency programs largely focused on industry. The House bill would establish a Clean Energy Deployment Administration to support private investment in clean energy technologies, including nuclear power.

Greenhouse Gas Emission Reduction and Sequestration Advisory Committee – APA authorizes the Secretary of Energy and Administrator of EPA to establish an independent advisory committee composed of scientists and other experts to provide scientific and technical advice on the establishment and implementation of the offset credit program for domestic Greenhouse Gas reductions, including methodologies and types of projects or activities to be funded. There is no comparable advisory committee in the House bill.

International Offsets Integrity Advisory Committee – APA provides for the establishment of an independent International Offset Integrity Advisory Committee to provide scientific and technical advice on establishing and implementing the international offsets program authorized in the bill. The advisory committee will also provide recommendations on offset project eligibility, scientific uncertainty, quantification methodologies and related issues. There is no comparable advisory committee in the House bill.

Clean Energy Technology and Jobs – The Senate bill authorizes three initiatives related to developing the clean energy workforce.

The Secretary of Education is authorized to award competitive grants to partnerships to develop programs of study focused on emerging careers and jobs in the fields of clean energy, renewable energy, energy efficiency, climate change mitigation, and climate change adaptation. The Secretary is to consult with the Secretary of Labor and the Secretary of Energy in developing these funding solicitations. An eligible partnership includes a post-secondary education institution, a local education agency, and representatives of businesses, labor, and industry.

The Senate bill also authorizes these three agencies to develop an Internet-based clearinghouse to aid career education and job training programs for the renewable energy
sectors. The Secretary of Labor is to solicit information from universities, businesses, career and technical schools, and community colleges in crafting the clearinghouse.

APA also authorizes a clean energy construction careers demonstration project to promote vocational training and workforce development in the green energy sector. The House bill includes provisions to direct cap and trade revenues toward programs to train the energy workforce and to establish a vocational education and job training clearinghouse.

*Low-Carbon Industrial Technologies R&D* – The Senate bill authorizes the Secretary of Commerce to establish a federally funded research and development center (FFRDC) to support development and demonstration of technology to improve the competitiveness and job creation in the domestic manufacturing sector. The FFRDC is to be known as the National Industrial Innovation Institute and is to be located in a facility owned and operated by a nongovernmental, nonprofit organization selected by the Secretary. The Institute is to collaborate with research universities and other research and technology entities as well as industry and manufacturers. This initiative is subject to funding through the Congressional appropriations process. The House bill has no comparable provision.

**Climate Change Research and Adaptation Provisions**

APA provides less direction and financial support for climate change research and adaptation activities than its House counterpart, the “Waxman-Markey” bill. This is largely attributed to the fact that many of the Senate Committees that have jurisdiction of pieces of climate and energy legislation have not yet inserted their respective provisions into the Kerry-Lieberman draft.

**Climate Services** – The Senate bill does not include a provision establishing a national climate service, or even a climate service program within the National Oceanic and Atmospheric Administration (NOAA). Waxman-Markey includes language that would establish a 3-year process for creating a trans-agency national climate service as well as a climate service program within NOAA. The Senate Commerce Committee has been working on language for the last several months to develop a national climate service; however, it appears that the current APA draft does not include the Commerce Committee’s contributions. It remains to be seen if or when the Committee will insert its provisions into the larger package; the Committee is said to be waiting on indication from leadership that APA will receive floor time this spring or summer.

**Global Change Research** – Unlike the Waxman-Markey bill in the House, the Senate bill does not include reauthorization of the U.S. Global Change Research Program (USGCRP). Again, the Senate Commerce Committee has been working on USGCRP reauthorization legislative over the last several months. It remains to be seen if the Committee will include its provisions into the Senate bill.
Natural Resources Adaptation – The Senate bill includes nearly identical language to Waxman-Markey pertaining to natural resources adaptation. The provisions would establish a Natural Resources Climate Change Adaptation Panel responsible for developing a national strategy to assess the vulnerability of natural resources to climate change and identify protocols and actions for adaptation. Both bills would also codify the National Climate Change and Wildlife Science Centers at the U.S. Geological Survey (USGS) within DOI and require the Centers and NOAA to work together on providing technical assistance and sponsor research to address natural resources adaptation to climate change. NOAA and DOI would appoint a Science Advisory Board, which could include representatives from universities, to advise on the state of the science as it relates to natural resources adaptation. Additionally, states would be eligible to receive funding to assist in adaptation efforts by preparing state natural resources adaptation plans.

International Adaptation – APA includes a nearly identical section to Waxman-Markey on the creation of an International Climate Change Adaptation Program. The Senate bill is slightly more inclusive by including the Departments of Commerce and Agriculture, in addition to the Department of State, Department of Treasury, USAID, and EPA which were included in the House bill, in the program to provide assistance to countries vulnerable to climate change. Funds through this program could be used to promote resiliency and adaptation to water scarcity; enhance diversification of agriculture, fishery and other livelihoods; support disaster risk management; assist in the development of sustainable infrastructure; and promote healthy and productive marine and coastal ecosystems.

Other Adaptation Activities – Unlike Waxman-Markey, the Senate bill does not include a general state adaptation program, which would allow for funding to states to build resiliency to climate change, nor does it include a section on the public health implications of climate change.

Fast Mitigation – The Senate draft includes a section that is not included in Waxman-Markey relating to options for “fast mitigation” of climate change. The bill calls for the establishment of an interagency process to review existing and potential policies and measures that promote fast mitigation of greenhouse gas emissions. The process would include recommendations on what further steps should be taken to implement fast mitigation measures. The bill specifically discusses hydrofluorocarbons, black carbon, and international methane.