

of Management and Budget (OMB) to coordinate with the Office of Science and Technology Policy (OSTP) and establish an interagency working group that is tasked with reducing administrative burdens, while protecting public interests such as transparency and accountability for federally funded research. Two specific tasks, stipulated within the bill, are to develop a simplified and uniform grant format as well as a centralized researcher database to be used across all relevant federal agencies.

Title II also addresses an area of significant concern for the materials community—scientific and technical conference attendance for federally funded researchers. The bill states, “it is the policy of the United States to encourage broad dissemination of federal research findings and engagement of federal researchers with the scientific and technical community,” and directs the OMB to consult with the OSTP and other relevant agencies to streamline the process for attendance at scientific and technical conferences.

The topic of STEM education, discussed at the second roundtable, is addressed in Title III. Mandates of interest in this title include the establishment of a STEM Education Advisory Panel to provide advice to the National Science and Technology Council’s Committee on STEM Education, continued and expanded support to broaden participation and promote inclusion of underrepresented groups (including women) in STEM fields, and

the expected submission of recommendations from federal agencies for the expansion of research opportunities for undergraduate students.

The last three titles of the bill cover private sector involvement (IV), manufacturing (V), and innovation, commercialization, and technology transfer (VI). These titles include provisions that allow more flexibility in federal prize competitions, encourage crowdsourcing and citizen science to fulfill agency missions, extend manufacturing partnerships with the private sector, and provide continued support for commercialization of federally funded research.

It is important to note that unlike the original COMPETES legislation, the American Innovation and Competitiveness Act does not address policy changes or authorize funding for the DOE Office of Science. Rather, a separate bill, the Energy Title of America COMPETES Reauthorization Act of 2015 (S.1398), was introduced by Senator Lamar Alexander (R-Tenn.) and has been incorporated in part in the comprehensive bipartisan Energy Policy Modernization Act of 2016 that has passed both the Senate and House. A conference committee is currently resolving differences between the bills. The version passed by the Senate authorizes a 7% increase in funding for each of the next five years for basic energy research within the DOE (Office of Science and ARPA-E), while

also eliminating and consolidating a number of inactive or duplicative DOE programs.

The American Innovation and Competitiveness Act covers the remainder of the basic sciences budget and authorizes appropriations for NIST and the NSF for fiscal years (FYs) 2017 and 2018. Authorized levels for NIST increase 1% for FY 2017 and 5% for FY 2018, while levels for the NSF increase 0.05% for FY 2017 and 4.6% for FY 2018 (from baseline FY 2016 funding levels). Despite the relatively modest authorization numbers, the lack of identified offsets may make passage difficult in a Republican-led Congress that has adopted a protocol known as “cut-go” that requires new or increased authorizations to be offset by terminating or reducing funding for a current program.

In addition to not meeting the “cut-go” protocol, the small number of legislative days left and the upcoming US elections make passage of the American Innovation and Competitiveness Act unlikely before the expiration of this session of Congress. “The hope is that this is a marker that would be taken up again in the next session of Congress,” says Dozier, adding “it defines how the Senate views the reauthorization of COMPETES, and is much more in line with the scientific community than any alternative legislation offered to date.”

Jennifer A. Nekuda Malik

Inaugural Mission Innovation Ministerial pledges unprecedented support for clean energy R&D <http://mission-innovation.net>

At the inaugural Mission Innovation (MI) Ministerial, an international organization, held in June, ministers from all Mission Innovation partners released their respective governments’ plans to double clean energy research and development (R&D) funding over five years. Ministers also welcomed the European Commission on behalf of the EU as the 21st partner.

“The European Commission is honored to be part of Mission Innovation,” said

European Commission Vice President for Energy Union Maroš Šefčovič. “Scaling up clean energy innovation is key to the success of the European Energy Union and to the implementation of the Paris Agreement on Climate Change. It also represents a major global economic and industrial opportunity.”

Ministers met with leaders of the Breakthrough Energy Coalition and other leading energy investors, underscoring the critical link between government innovation

and entrepreneurship to bring affordable clean energy technologies to market.

“Our support for Mission Innovation is crucial to funding the basic scientific research and development that will underpin the advanced clean energy solutions needed to combat climate change in the 21st century,” said US Secretary of Energy Ernest Moniz. “These technologies will help drive down adoption costs to grow low-carbon economies and create entirely new markets for the solutions that will reduce heat-trapping emissions.”

In recent years, due to advances in research worldwide, significant progress has been made in driving down the cost



of key technologies by 40–90%, notably in land-based wind power, rooftop and utility solar, electric car batteries, and light-emitting diodes.

“Over the last decade, the UAE [United Arab Emirates] has led the growth of clean energy in the region and established solid foundations upon which to build a green economy for future generations,” says UAE Undersecretary of Energy Matar Hamed Al Neyadi.

Collectively, these 21 partners represent well over 80% of global public investment

in clean energy R&D, currently totaling approximately \$15 billion per year. These efforts represent an unprecedented acceleration of R&D efforts for innovative clean energy technologies.

Under Mission Innovation, each partner independently determines a strategy for clean energy innovation funding based on individual national resources, needs, and circumstances. MI partners also encourage mutually beneficial engagement with other partner countries in international collaborations.

“The clean energy R&D investment by MI members represents a transformative public investment to support clean energy development and provides a clear direction of the areas in which each country has decided to move forward, including areas of high technological risk and uncertainty,” says Mexican Secretary of Energy Pedro Joaquín Coldwell. “Patient and long-term investment from [the] private sector will be key to complement public investment to accelerate these technologies to the market.”

National Research Council spearheads research on aluminum products

www.nrc-cnrc.gc.ca

A newly formed alliance called ALTec Industrial Research R&D Group is consolidating research efforts in the Canadian aluminum sector to develop innovative aluminum products for ground transportation vehicles. As a cost-effective and sustainable material, aluminum is increasingly being used to manufacture components for lightweight vehicles that reduce greenhouse gas emissions, and meet increasingly stringent fuel consumption requirements.

“By 2020, the world aluminum market in the transportation sector alone is forecasted to represent more than 65 billion US dollars,” says Michel Dumoulin, General Manager of Automotive and Surface Transportation at the National

Research Council of Canada. “Canadian businesses include aluminum in the design of their vehicles, but we saw a gap in knowledge transfer and this is where ALTec comes in.”

ALTec already has 23 members and partners who will have access to state-of-the-art facilities and Canada’s most advanced expertise in aluminum forming, assembling, corrosion control, and performance validation. A major partner, the Ministère de l’Économie, de la Science et de l’Innovation du Québec, has contributed \$450,000 through the Advanced Materials Research and Innovation Hub known as PRIMA.

“This alliance helps strengthen collaborative innovation in the field of advanced materials to enrich Quebec’s

research expertise and increase the competitiveness of companies,” says Benoit Balmana, General Director of the Advanced Materials Research and Innovation Hub.

“Rio Tinto is proud to contribute \$125,000 to this partnership. Our commitment to research and development for innovative applications in the automotive sector ensures that the low-carbon footprint aluminum produced in Canada continues to be the material of choice for world-class automakers,” adds Frédéric Laroche, Director of the Arvida Research and Development Center at Rio Tinto Aluminium. “ALTec generates positive results and contributes to the economic development of the Saguenay-Lac-Saint-Jean region [in Quebec].” □



News and views on global materials science policy



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