



Investing in technology that turns tidal energy into clean power has paid off for the state of Maine.

States lean in on R&D

As federal spending remains tight, AAAS is helping some states make the most of their own R&D programs.

By **Kathy Wren**

At the mouth of the Bay of Fundy, just off the coast of Maine, a tidal power system built and operated by the Ocean Renewable Power Company (ORPC) draws energy from currents created as 100 billion tons of water flow into and out of the bay. The system was the first commercial, grid-connected tidal power system in the United States, and ORPC expects to expand in the coming years to provide electricity to roughly 2000 homes and businesses.

The company, which estimates that it has pumped more than \$25 million into the Maine economy, attributes much of its early success to the \$1.75 million in loans and grants it received from the Maine Technology Institute (MTI). This publicly funded nonprofit offers early-stage capital and commercialization assistance for the development of technologies that create new products, services, and jobs in Maine. Other state legislatures have also created

similar funding programs to boost their high-tech sectors and attract top talent and investment.

While local support for these programs is strong and in some cases growing, the organizations must be strategic with their resources. To ensure that these dollars are going to projects based on the soundest, most promising science, MTI and other organizations rely on AAAS's Research Competitiveness Program (RCP), which uses its nationwide network of expert reviewers to evaluate funding proposals for state-level funders in Maine, Connecticut, Rhode Island, North Carolina, and South Dakota.

Some of these programs are expanding their activities, with new funding opportunities rolling out and voters or legislators approving new financing mechanisms. This is happening despite, or in some cases because of, belt-tightening in Washington; federal R&D funding as a percentage of GDP is at its lowest levels in several decades, according to the AAAS R&D Budget and Policy Program. AAAS is active in a

number of efforts to encourage lawmakers to turn this trend around and close the "innovation deficit." In the meantime, states are doing what they can to support innovation within their own borders.

When designing their funding competitions, "states play to their strengths," said Rieko Yajima, RCP's associate director. "They are targeting their research dollars to areas where they feel they have the best competitive edge." RCP staff then draw from their nationwide network of reviewers whose areas of expertise match the proposals.

If reviewers do not reach consensus on a proposal, RCP staff facilitate a discussion to help them arrive at a final decision that includes suggestions to applicants for strengthening their proposals. "Going through those different opinions and coming to an agreement strengthens the review in the end. You have an opinion that is backed up by all the reviewers," Yajima said.

Representatives from MTI and other funding programs agreed that it would be nearly impossible for them to develop a similar peer-review system on their own. They also said the confidential process provides objectivity that, along with AAAS's strong reputation, can assure voters that their dollars are being spent fairly.

This credibility has long-term benefits for awardees. Those that have received MTI

funding often report that they are then able to attract further funding, said Joe Migliaccio, director of business development at MTI. Migliaccio's program at MTI invests \$4 to 5.5 million per year in loans, grants, and equity to support R&D of new products or services in Maine's key technology sectors. Since 2007, MTI has also awarded \$53 million in bond-backed grants through its Maine Technology Asset Fund, said Martha Bentley, the fund's program manager.

"Voters are continuing to support R&D as an economic engine in Maine," Bentley said. For example, a 2014 referendum approved additional bonds in support of biomedical and marine research.

Another state-based funder, Connecticut Innovations, has responded directly to national trends with its Connecticut Bioscience Innovation Fund (CBIF), which opened its doors in 2014 and has awarded approximately \$4.5 million to five universities and four companies, with AAAS overseeing the scientific review of applications.

"The key opinion leaders in our state saw a couple of factors coming together," when they created the CBIF, said Margaret Cartiera, director of bioscience initiatives at Connecticut Innovations. The state has a strong concentration of pharmaceutical and medical device companies, but many were downsizing or closing their R&D units. And state officials were concerned that decreased federal funding to Connecticut universities would make them less attractive to top faculty and slow technology transfer, according to Cartiera, which is why the fund is open to universities and nonprofits as well as commercial establishments.

A funding initiative is also newly launched in North Carolina, where in 2014 the general assembly created a \$3 million annual fund for "game-changing" research in several key areas at the University of North Carolina (UNC). The money will be distributed via UNC's Research Opportunities Initiative, which has contracted with AAAS to administer the peer review of the research proposals, and the first set of recipients will be announced in the coming weeks.

Christopher Brown, vice president for research and graduate education at the University of North Carolina, noted that UNC continues to pull in research dollars from federal agencies. But, he said that the new initiative reflects legislators' growing appreciation of the importance of R&D to the state's economic growth, and understanding that supporting UNC researchers will help position them to attract other federal or industry funding. ■

Former congressman Holt joins AAAS as new CEO

By **Ginger Pinholster**

Retired Congressman Rush D. Holt, Ph.D., has agreed to join AAAS as the 18th chief executive officer and executive publisher of the *Science* family of journals. He will succeed Alan I. Leshner at the Association's 12 to 16 February Annual Meeting in San Jose, California.

Holt, 66, represented Central New Jersey (12th District) in Congress from 1999 to 2015. His science- and education-related roles in Congress have included service with the Committee on Education and the Workforce, the Committee on Natural Resources, and the National Commission on Mathematics and Science Teaching for the 21st Century. Over the course of his career, Holt also has held positions as a teacher and as an arms control expert at the U.S. State Department. From 1989 until 1998, he served as assistant director of the Princeton Plasma Physics Laboratory, the largest research facility of Princeton University.

On Capitol Hill, Holt established a long track record of advocacy for federal investment and private-sector support for research and development, science education, and innovation. He has also broadly promoted the value of science communication, particularly for conveying information about climate change, and he has said that "thinking like a scientist" can benefit the policy-making process.

AAAS Board member Laura H. Greene, the Swanlund Professor of Physics at the University of Illinois at Urbana-Champaign, described Holt as an effective advocate for the importance of science to society: "Rush Holt has long been a champion of a broad spectrum of scientific research areas, and of education," she said. "He very effectively communicates with the public and policymakers, and he brings exciting new ideas to the table. Those abilities will help AAAS to achieve an even greater role in supporting international scientific collaborations and advances."

In 1982-83, while he was teaching physics and public policy at Swarthmore College, Holt was selected by the American Physical Society to receive a highly competitive AAAS Science & Technology Policy Fellowship. Holt has said that his AAAS S&T Policy Fellowship was "life changing," and served as a springboard to his role in Congress.

"AAAS, as one of the world's most respected nonprofit, nonpartisan organizations and publisher of the leading *Science* family of journals, helps to promote scientific progress and to improve human welfare," Holt said regarding his acceptance of the leadership role at AAAS. "I look forward to supporting the Association's mission to advance science, engineering, and innovation throughout the world, for the benefit of all people." ■



Rush Holt (right) and Alan Leshner.

Call for nomination of 2015 Fellows

Fellows who are current members of AAAS are invited to nominate members for election as Fellows. A member whose efforts on behalf of the advancement of science or its applications are scientifically or socially distinguished, and who has been a continuous member for the 4-year period leading up to the year of nomination, may by virtue of such meritorious contribution be elected a Fellow by the AAAS Council.

A nomination must be sponsored by three previously elected AAAS Fellows (who are current in their membership), two of whom must have no affiliation with the nominee's institution.

Nominations undergo review by the steering groups of the Asso-

ciation's sections (the chair, chair-elect, retiring chair, secretary, and four members-at-large of each section). Each steering group reviews only those nominations designated for its section.

Names of Fellow nominees who are approved by the steering groups are presented to the Council in the fall for election.

Nominations with complete documentation must be received by 22 April 2015. Nominations received after that date or nominations that are incomplete as of the deadline will not move forward.

Complete instructions and a copy of the nomination form are available at www.aaas.org/current-nomination-cycle. Questions may be directed to fellownomination@aaas.org.

Results of the 2014 election of AAAS officers

Following are the results of the 2014 election. Terms begin on 17 February 2015.

GENERAL ELECTION

President-Elect: Barbara A. Schaal, Washington Univ. in St. Louis

Board of Directors: Michael S. Gazzaniga, Univ. of California, Santa Barbara; Mercedes Pascual, Univ. of Michigan

Committee on Nominations: Peter C. Agre, Johns Hopkins Malaria Research Institute; Frances H. Arnold, California Institute of Technology; Michael A. Marletta, Scripps Research Institute; Marc Tessier-Lavigne, Rockefeller Univ.

SECTION ELECTIONS

Agriculture, Food, and Renewable Resources

Chair Elect: Steven C. Huber, Univ. of Illinois at Urbana-Champaign

Member-at-Large: Johanna Schmitt, Univ. of California, Davis

Electorate Nominating Committee: Amanda D. Rodewald, Cornell Univ.; Roger Philip Wise, USDA-ARS/Iowa State Univ.

Council Delegate: Jim Giovannoni, USDA-ARS/Cornell Univ.

Anthropology

Chair Elect: Dennis H. O'Rourke, Univ. of Utah

Member-at-Large: Joanna E. Lambert, Univ. of Texas at San Antonio

Electorate Nominating Committee: Yolanda T. Moses, Univ. of California, Riverside; Anne C. Stone, Arizona State Univ.

Astronomy

Chair Elect: Debra Meloy Elmegreen, Vassar College

Member-at-Large: Henry C. Ferguson, Space Telescope Science Institute

Electorate Nominating Committee:

Harriet L. Dinerstein, Univ. of Texas at Austin
Nancy A. Levenson, Gemini Observatory

Atmospheric and Hydrospheric Sciences

Chair Elect: Jack A. Kaye, NASA

Member-at-Large: Carol Arnosti, Univ. of North Carolina at Chapel Hill

Electorate Nominating Committee:
Chris E. Forest, Pennsylvania State Univ.;
James M. Russell, Brown Univ.

Biological Sciences

Chair Elect: Pamela C. Ronald, Univ. of California, Davis

Member-at-Large: Sarah M. (Sally) Assmann, Pennsylvania State Univ.

Electorate Nominating Committee:
David A. Baum, Univ. of Wisconsin-Madison;
N. Louise Glass, Univ. of California, Berkeley

Chemistry

Chair Elect: Carol J. Burns, Los Alamos National Laboratory

Member-at-Large: Michael P. Doyle, Univ. of Maryland, College Park

Electorate Nominating Committee:
Joanna Aizenberg, Harvard Univ.;
Stephanie L. Brock, Wayne State Univ.

Dentistry and Oral Health Sciences

Chair Elect: Susan Reisine, Univ. of Connecticut

Member-at-Large: Matthew P. Hoffman, NIDCR/NIH

Electorate Nominating Committee:
Laurie K. McCauley, Univ. of Michigan;
James E. Melvin, NIDCR/NIH

Education

Chair Elect: Cathy Middlecamp, Univ. of Wisconsin-Madison

Member-at-Large: Tammy M. Long, Michigan State Univ.

Electorate Nominating Committee:
Claire A. Hemingway, National Science Foundation; M. Patricia Morse, Northeastern Univ.

Engineering

Chair Elect: Larry V. McIntire, Georgia Tech

Member-at-Large: Lance Collins, Cornell Univ

Electorate Nominating Committee:
Carol K. Hall, North Carolina State Univ.;
Rebecca Richards-Kortum, Rice Univ.

Council Delegate: Molly Sandra Shoichet, Univ. of Toronto (Canada); Stuart L. Cooper, Ohio State Univ.

General Interest in Science and Engineering

Chair Elect: Cristine Russell, Harvard Univ.

Member-at-Large: David F. Salisbury, Vanderbilt Univ.

Electorate Nominating Committee: Sharon Dunwoody, Univ. of Wisconsin-Madison; Ginger Pinholster, AAAS

Geology and Geography

Chair Elect: Philip D. Gingerich, Univ. of Michigan

Member-at-Large: Paul H. Glaser, Univ. of Minnesota

Electorate Nominating Committee:
Mary L. Droser, Univ. of California, Riverside;
Sarah L. Shafer, U.S. Geological Survey

History and Philosophy of Science

Chair Elect: Janet Browne, Harvard Univ.

Member-at-Large: Hanne Andersen, Aarhus Univ. (Denmark)

Electorate Nominating Committee:

Michael A. Osborne, Oregon State Univ.; James Woodward, Univ. of Pittsburgh

Council Delegate: Frederick Grinnell, Univ. of Texas Southwestern Medical Center

Industrial Science and Technology

Chair Elect: Katharine Blodgett Gebbie, National Institute of Standards and Technology

Member-at-Large: William D. Provine, DuPont

Electorate Nominating Committee: Laura Privalle, Bayer CropScience; Proctor Reid, National Academy of Engineering

Council Delegate: Frances M. Ross, IBM Research

Information, Computing, and Communication

Chair Elect: Jeannette Wing, Microsoft/Carnegie Mellon Univ.

Member-at-Large: Nancy Amato, Texas A&M Univ.

Electorate Nominating Committee: Jeffrey Dean, Google, Inc.; Manuela M. Veloso, Carnegie Mellon Univ.

Linguistics and Language Science

Chair Elect: Jennifer Cole, Univ. of Illinois at Urbana-Champaign

Member-at-Large: Maria Polinsky, Harvard Univ.

Electorate Nominating Committee:

Dan Jurafsky, Stanford Univ.; Angelika Kratzer, Univ. of Massachusetts Amherst

Mathematics

Chair Elect: Eric M. Friedlander, Univ. of Southern California

Member-at-Large: Jack Xin, Univ. of California, Irvine

Electorate Nominating Committee: L. Pamela (Pam) Cook, Univ. of Delaware; Joceline Lega, Univ. of Arizona

Medical Sciences

Chair Elect: Harry B. Greenberg, Stanford Univ. School of Medicine

Member-at-Large: Barbara J. McNeil, Brigham and Women's Hospital/Harvard Medical School

Electorate Nominating Committee: Nancy C. Andrews, Duke Univ.; Mary E. Klotman, Duke University School of Medicine

Council Delegate: Anna Di Gregorio, Weill Cornell Medical College; Jeffrey S. Chamberlain, Univ. of Washington; Garrett A. FitzGerald, Univ. of Pennsylvania School of Medicine; Charles M. Rice, Rockefeller Univ.

Neuroscience

Chair Elect: Don W. Cleveland, UC San Diego/Ludwig Inst. for Cancer Research

Member-at-Large: Diane Lipscombe, Brown Univ.

Electorate Nominating Committee: Leslie C. Griffith, Brandeis Univ.; Lori L. Isom, Univ. of Michigan Medical School

Pharmaceutical Sciences

Chair Elect: Peter Wipf, Univ. of Pittsburgh

Member-at-Large: Gunda I. Georg, Univ. of Minnesota

Electorate Nominating Committee: Jeffrey Aubé, Univ. of Kansas; Amy M. Barrios, Univ. of Utah

Physics

Chair Elect: Greg Boebinger, Florida State Univ./Univ. of Florida

Member-at-Large: Lynn R. Cominsky, Sonoma State Univ.

Electorate Nominating Committee:

Gail G. Hanson, Univ. of California, Riverside; M. Cristina Marchetti, Syracuse Univ.

Psychology

Chair Elect: Barbara Landau, Johns Hopkins Univ.

Member-at-Large: Randi C. Martin, Rice Univ.

Electorate Nominating Committee: Susan A. Gelman, Univ. of Michigan; Dedre Gentner, Northwestern Univ.

Council Delegate: David A. Rosenbaum, Pennsylvania State Univ.

Social, Economic, and Political Sciences

Chair Elect: Ann Bostrom, Univ. of Washington

Member-at-Large: Guillermina Jasso, New York Univ.

Electorate Nominating Committee: Stanley Presser, Univ. of Maryland, College Park; Gary Sandefur, Oklahoma State Univ.

Council Delegate: Paula Stephan, Georgia State Univ.

Societal Impacts of Science and Engineering

Chair Elect: Jane Maienschein, Arizona State Univ.

Member-at-Large: Anne Fitzpatrick, U.S. Department of Energy

Electorate Nominating Committee:

Anne-Marie Carroll Mazza, National Academy of Sciences; Julia A. Moore, Pew Charitable Trusts

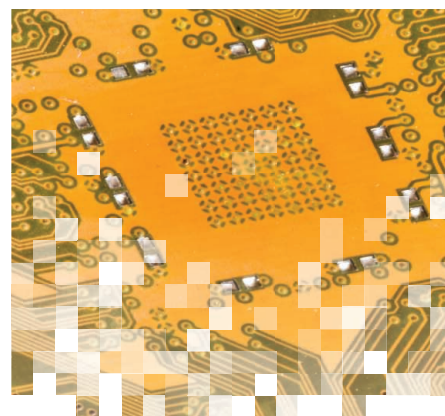
Statistics

Chair Elect: Nicholas P. Jewell, Univ. of California, Berkeley

Member-at-Large: Charmaine Dean, Univ. of Western Ontario (Canada)

Electorate Nominating Committee:

Sastry G. Pantula, Oregon State Univ.; Simon Tavaré, Univ. of Cambridge (UK)



AAAS 2015 Annual Meeting

This year's theme: innovations, information, and imaging

Information and imaging technologies are helping scientists from particle physicists to oceanographers organize and visualize their work in new ways. These innovative technologies also have made science open and accessible to the public at an unprecedented level, with the potential for truly global collaborations. In February 2015, thousands of scientists, journalists, students, and others will convene in San Jose, California, to show how this data revolution can be used to benefit society and inspire new avenues of research. Visit the 2015 Annual Meeting Web site at www.aaas.org/meetings to see the full program of scientific symposia, lectures, career workshops, and free public events.

The 181st Annual Meeting will convene in San Jose for the first time in the association's 167-year history and may draw as many as 8000 attendees from 60 countries. Sessions will include cutting-edge research on topics such as lessons learned from the 2014 Ebola outbreak, the pros and cons of electronic cigarettes, earthquakes related to energy extraction, and new technology to combat childhood deafness. For 2015, two free Family Science Days—14 and 15 February—at the San Jose Convention Center will feature hands-on science-learning activities and stage shows for children, teenagers, and young adults, along with a “Meet the Scientists” speaker series designed especially for middle- and high-school students. ■

Science

AAAS news and notes

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