



leaning into the national dialogues about the importance and role of science.”

In addition to the desire for better representation, access to resources likely played a role in the larger and more diverse candidate pool. Action 314 [also covered in the August 2017 issue of *MRS Bulletin*] supported scientists and medical professionals running for office by providing funds, training on how to run a successful campaign, and endorsements. Sixteen candidates, including eight newcomers, who were supported by Action 314 won their congressional elections (and many others won elections at the state and local levels) [see **Table I**].

“These new members can impact decision making from day one,” White says, “but more importantly, if they remain in Congress and become more senior on key committees that oversee science policy and appropriations, we may start to see more significant changes in policies that impact the materials community, like those around climate change, energy, and STEM education.” The budget process has a significant impact on what areas of science receive funding, and Hurd points out that “the non-diverse majority of the last two years has treated science and engineering quite well, standing off proposed cuts and even increasing some budgets for basic science.” With the Congress now

split—Republicans control the Senate while Democrats control the House—setting budgets will likely become more contentious, especially regarding issues that are divided on party lines like climate change.

The fact that the Democrats now control the House also means that committee leadership has changed and Vorpahl believes that “leadership will have a huge impact on how energy and environment issues are talked about at a federal level.” Vorpahl illustrates her point saying, “The Science, Space and Technology Committee, which has been run by climate change deniers for almost a decade, is now chaired by Representative Eddie Bernice Johnson (D-Texas), a former chief psychiatric nurse. This marks the first time that the House science committee chair has a STEM background since the 1990s.” And despite the fact that they are just learning the ropes, some of the newcomers are likely to significantly impact science- and materials-related issues. For example, Rep. Sean Casten (D-Ill.) is a likely champion for clean energy and environmental policy according to Arslan because he has “made clean energy his life work by founding a company that aims to reduce greenhouse-gas emissions by trapping and reusing energy from industrial facilities.” And Vorpahl points out that Rep. Alexandria Ocasio-Cortez (D-N.Y.) is already “endorsing

aggressive, climate change movements that center around a ‘Green New Deal’—a policy that sits at the nexus of environmental issues and income inequality and includes a call for 100% renewable energy and more jobs in clean energy.”

While the increase in diversity and expertise within the 116th Congress will undoubtedly have an impact on a broad range of policy issues, perhaps even more importantly, “it will provide more diverse role models,” White says. “Seeing more women, people of color, and scientists serving in Congress can build momentum and encourage even greater future diversity.” Hurd echoes these sentiments, adding that the “most dramatic change in Congress is the influx of women,” which he says in his experience will likely translate to better governance because “every group effort runs more smoothly with a healthy gender mix in leadership.”

Brewster captures the importance of this moment in history saying, “The new Congress embodies a diversity of lived experiences—from those who have benefited from modern technologies, to those who have been displaced by new industries, to those who may take current technology advances for granted. We need this choir of voices to form robust legislative solutions for all of America.”

Jennifer A. Nekuda Malik

Australia's *GenCost 2018* finds renewables are cheapest new-build power www.csiro.au and www.aemo.com.au

The Australian national science agency, CSIRO, and the Australian energy market operator, AEMO, have announced a new report on costs of electricity generation in the country.

The inaugural *GenCost* report, prepared collaboratively with a range of industry stakeholders, updates estimates of the cost to generate electricity from new power plants in Australia; *GenCost 2018* found solar and wind technologies to be lowest cost.

CSIRO Chief Energy Economist and report lead author Paul Graham says *GenCost 2018* was an essential annual

benchmark to guide strategic decision making, given technology costs change significantly each year.

“Our data confirm that while existing fossil fuel power plants are competitive due to their sunk capital costs, solar and wind generation technologies are currently the lowest-cost ways to generate electricity for Australia, compared to any other new-build technology,” Graham says.

The authors largely based their analysis on levelized cost of electricity, which includes operating as well as investment costs, and is the best way known

to compare the costs of different technologies, like fossil fuel plants (which require relatively low capital costs, but higher operating expenses) and wind and solar (which require high capital outlays but low operating expenses).

“Data from *GenCost 2018*, combined with some of our previous research, indicate we may need additional flexible technologies—such as energy storage, demand management, and peaking gas plants—if the share of variable renewables increases beyond 50 percent,” Graham says.

Research in 2019 will identify in more detail the least cost set of balancing solutions required by variable renewables once they represent a significantly larger share of the generation portfolio. □