for support in defined areas. Each challenge fund round operates as a series of standalone programs. The idea, Cliffe says, is that for each program there is a discrete and definable challenge where the UK has both the research capability and the industrial commitment to drive R&D in the area.

The first wave of challenges included the Faraday Battery Challenge "for battery development for the electrification of vehicles." With a commitment to spend £246 million over the next four years, Cliffe describes "the Faraday" as being "all about clean and flexible energy and being able to deliver the batteries for the next generation" of electric vehicles. "There is so much expertise on batteries in the UK. Faraday is about translating it," Cliffe says.

The Faraday program, Cliffe explains, fits into the theme of the industrial strategy's Mobility Grand Challenge. The first wave of projects, with a total government investment of £28 million, runs from research into novel materials for batteries, through to the National Battery Manufacturing and Development Facility, an £80 million demonstration plant for pilot production of prototype batteries "at scale," big enough to be used in real applications. There were even projects on the recovery of materials at the end of a battery's life. It is a condition of winning grants that the industrial partners provide funds that at least match the government's input.

While much of the research in the Faraday program will take place in universities and companies around the country, there will also be a new Faraday Institution, based at Harwell near Oxford, as a focus for research nearer to the academic end of the R&D spectrum. With a budget of £65 million over four years, the institution will establish a battery technology training program and will fund and direct research challenge projects in the academic sector.

A second wave of challenges, announced last autumn, committed a further £725 million, with several programs open to bids for materials research, including such concepts as "prospering from the energy revolution," reflecting the changing face of the energy system within the UK. Another area with a considerable advanced materials content, Cliffe says, was in "transforming construction," addressing the need to deliver housing in the most cost-efficient and clean way possible. In the run up to its move into UK Research and Innovation, IUK is preparing to launch a further call for bids for a second round of Faraday projects.

Michael Kenward

Chanette Armstrong appointed DOE Director of the Office of Technology Transitions

US Secretary of Energy Rick Perry has announced the appointment of Chanette Armstrong as the Director of the Office of Technology Transitions (OTT) within the Department of Energy (DOE).

"Ms. Armstrong's engineering background coupled with her extensive private sector experience makes her an outstanding appointment for OTT Director," Secretary Perry says.

As the Director of OTT, Armstrong's responsibilities will extend across DOE's program offices, its 17 national laboratories, and its other research and production facilities across the country. She will also oversee DOE's Energy Investor Center, the Technology Commercialization Fund, and the coordination of technology transfer activities and best practices across the DOE complex.

In addition to serving as the Director of OTT, Armstrong will also serve as the DOE Technology Transfer Coordinator, an advisor to the Energy Secretary on technology transfer and commercialization activities. Armstrong will oversee and advance the DOE's efforts to spur innovation and accelerate the commercialization of early-stage technologies from the DOE's laboratories to the marketplace.

OTT was established in 2015 in order to expand the commercial impact of the DOE R&D portfolio to advance the economic, energy, and national security interests of the country.

Armstrong is a registered patent attorney, holding a BS degree in electrical engineering from Carnegie Mellon University, a MBA degree from Long Island University, and a JD (Doctor of Law) from Rutgers, The State University of New Jersey Law School.

Last Fall, Perry announced $19.7 million in funding through the OTT's Technology Commercialization Fund, supporting 54 projects across 12 national laboratories involving more than 30 private-sector partners. DOE's national laboratories have supported R&D that led to many technologies currently in the marketplace, including the batteries powering electric vehicles, the foundation of Internet servers, and the optical digital recording technology behind DVDs. According to DOE, these selections will further expand the department's efforts to catalyze the commercial impact of research, development, and demonstration activities to increase return on investment from federally funded work.

The recently funded projects include lithium anodes for electric vehicles (Argonne National Laboratory and alphaEn Corporation, Tarrytown, N.Y.), additive manufacturing of thermoelectric generators (Lawrence Livermore National Laboratory), biomaterials from nonwoody biomass (National Renewable Energy Laboratory and Sustainable Fiber Technologies, Renton, Wash.), and development of cost-effective quantum key distribution systems for the US power grid (Oak Ridge National Laboratory). □

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