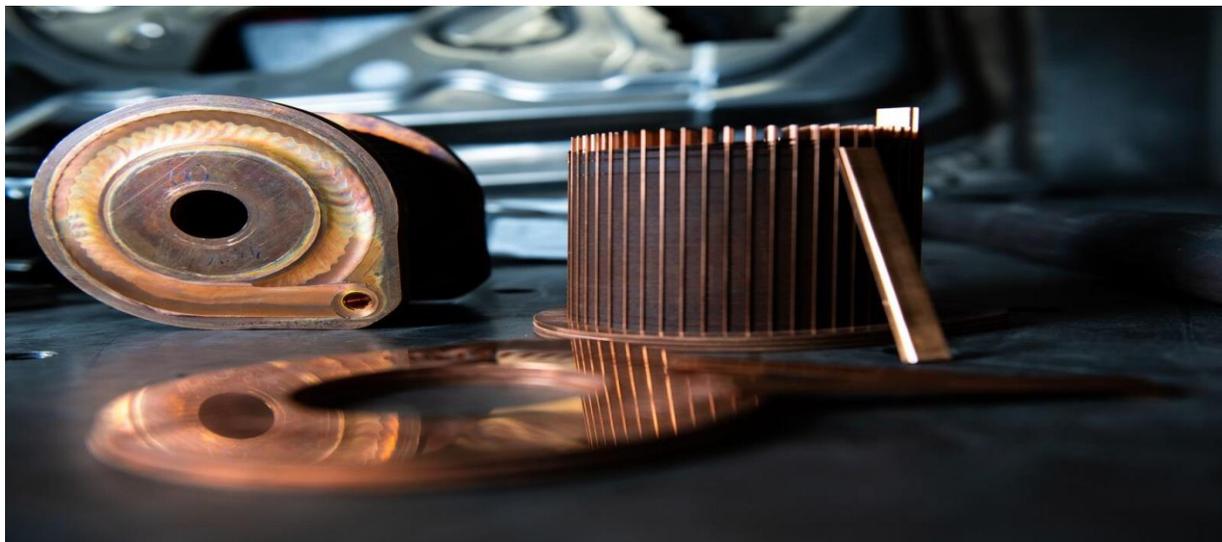


## Innovative Energy Technologies Move Closer to Commercial Use

*\$9 million matching commercialization funds will advance research projects to create products and services*

*July 10, 2020 - Susan Bauer, Pacific Northwest National Laboratory*



As part of a Technology Commercialization Award, joining dissimilar materials—copper and aluminum—through a specialized friction stir welding process will be tested as a way to produce rotors for electrical vehicles.

*Andrea Starr / Pacific Northwest National Laboratory*

A method to reduce weight and improve motors in electric vehicles. A new electrolyte that enables fast charging and high-energy density lithium batteries for electric vehicles. Improved software platforms to save millions of dollars in building energy costs.

These are a few of the 12 energy-related technologies developed at PNNL that were selected for additional technology maturation funding to help move them from the laboratory and field tests to the marketplace. The U.S. Department of Energy (DOE) [Office of Technology Transitions](#) (OTT) funds, combined with fifty percent matching funds from industry partners, bring the total award for PNNL-technologies to more than \$9 million.

In total, DOE will provide **more than \$33 million in funding for 82 projects** supported by the OTT's [Technology Commercialization Fund \(TCF\)](#). TCF connects DOE's national laboratories with private sector companies, which are critical for maturing and deploying emerging technologies to the market place. "As recently as last year, TCF was instrumental in greatly accelerating the commercialization of a technology PNNL developed to create realistic decoys within operational technology networks to attract hackers trying to manipulate remote systems, and keep them engaged while countermeasures are taken" said Lee Cheatham, PNNL's Director of Technology Deployment and Outreach. "Attivo Networks was able to use the funds to build out a deception defense platform for cyber-physical systems. We are excited to see similar success stories with the partners and technologies selected by OTT."

The TCF projects are funded for three to five years with PNNL researchers working directly with private partners to accelerate innovations toward commercial products and services.

PNNL projects awarded 2020 TCF funding include:

- **Deep Learning for Fish Identification from Sonar Data**

Industry partners: Electric Power Research Institute, Great Lakes Fishery Commission, SOUND METRICS, The Eel Passage Research Center, The Technical University of Munich, U.S. Geological Survey, Great Lakes Science Center

Machine learning-based identification of American eels in images generated from sonar data will be optimized into a user-friendly software used to produce much needed behavioral information to help mitigate challenges that declining eel populations face while navigating hydroelectric dams.

- **Electrolyte Development for Fast-Charging High-Energy-Density Lithium Batteries**

Industry partners: American Lithium Energy Corporation, Navitas Advanced Solutions Group

Patented, novel localized, [high-concentration electrolytes](#), which have outperformed conventional electrolytes in laboratory tests, will be optimized as a 'drop-in replacement' in the quest for better batteries. The optimized electrolytes will enable faster charging of current-generation lithium-ion batteries and greater cycling stability for next-generation lithium-metal batteries.

- **HIPPO – An Electricity Market and Power System Research Platform**

Industry partners: MISO Energy

The high-performance power-grid optimization (HIPPO) tool allows users to perform complex production planning and unit commitment calculations ten times faster than existing capabilities with its patent-pending parallel and distributed computing software algorithms. Now, HIPPO will be broadened to develop future market designs, prototype analytical models, and algorithms needed for future energy markets that will become increasingly complex with the incorporation of additional renewable resources.

- **Magnetic Nanoparticle Extraction of Lithium from Produced Waters**

Industry partners: Canada Natural Resources Limited, Conoco-Phillips Corporation, Hatch Engineering, [Moselle Technologies, LLC](#)

Promising iron-based nanoparticles will be tested as a new means of collecting valuable lithium and other rare earth metals from briny waters produced by oil and gas development.