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U.S. DEPARTMENT of ENERGY

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Hubs

Modeled on the proactive approach to science management exemplified by the Manhattan Project and AT&T's legendary Bell Laboratories, the DOE Energy Innovation Hubs are integrated, multidisciplinary research centers that combine basic and applied research with engineering to accelerate scientific discovery and address critical energy issues.

The Hubs were first established by DOE in 2010. Currently, there are five Hubs supported by various DOE Offices. These Hubs cover a range of topics including:

- Improving nuclear reactors through computer-based modeling (Nuclear Energy Modeling and Simulation Hub; the Consortium for Advanced Simulation of Light Water Reactors – CASL);
- Advanced research to produce fuels directly from sunlight (Fuels from Sunlight Hub; the Joint Center for Artificial Photosynthesis - JCAP);
- Establishing a science base underpinning future battery technologies for transportation and the grid (Batteries and Energy Storage Hub; the Joint Center for Energy Storage Research - JCESR);

- Developing solutions for rare earth elements and other materials critical to a growing number of energy technologies (Critical Materials Hub; the Critical Materials Institute - CMI);
- Research on desalination and associated water-treatment technologies to secure affordable and energy-efficient water supplies from nontraditional water sources (Energy-Water Desalination Hub; the National Alliance for Water Innovation - NAWI).

Energy Innovation Hubs are tackling some of the most challenging areas of energy science and engineering. With a flexible approach, each Hub focuses on specific R&D challenges, with the breadth of the R&D dependent on the topic. Office of Science Hubs (JCAP and JCESR) are focused on topics that require substantial early stage research to bring innovations to research prototypes; private sector collaborations and partners inform science directions and facilitate transitions to impact commercial products. Hubs managed by the Offices of Nuclear Energy (CASL) and the Advanced Manufacturing Office (CMI and NAWI) range from earliest stages of research to the point of commercialization, with engagement of the private sector as

R&D partners and for future deployment of technologies related to critical energy challenges.

Hubs: For More Information

- Nuclear Energy Modeling and Simulation
- Fuels from Sunlight
- Batteries and Energy Storage
- Critical Materials
- Energy-Water Desalination

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Ningde Amperex Tech. Exhibit No. 2026
Zhuhai CosMX Battery Co. Ltd. v. Ningde Amperex Tech.
IPR2025-00432, U.S. Patent No. 11,575,148
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