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NASA awards contract to NEI Corporation and University of California, San Diego to develop nanoscale materials for high energy density lithium-ion batteries

Somerset, NJ – NEI Corporation and The University of California, San Diego announced today that NASA has awarded a Phase II Small Business Technology Transfer contract to develop and implement high energy density cathode materials for Li-ion batteries. NEI is the prime contractor and UC San Diego is the subcontractor. The nearly \$600,000 program builds upon expertise in the Department of NanoEngineering at UC San Diego in modeling new nanocomposite structures for next generation electrode materials, and NEI's capability to reproducibly synthesize electrode materials, particularly at the nanoscale. NEI has overcome the challenge of producing ultrafine powders that can be used in the fabrication of electrodes without any further processing, i.e., it is a drop-in replacement for conventionally used materials.

The outcome of the program will be a commercially useable cathode material with an exceptionally high capacity, > 250 mAh/g, which translates to an energy density in excess of 1000 Wh/kg. This represents a factor of two enhancement in energy density over lithium cobalt oxide, which is the most commonly used cathode material at the present time. NEI expects sample cathode materials for testing by interested end-users to be made available by the middle of 2011.

Such advanced lithium-ion battery systems are required for NASA's exploration missions that will operate at low temperatures and could be used to power components and systems such as the James Webb Space Telescope (JWST), Mars Atmospheric and Volatile Evolution (MAVEN), deep drilling equipment and Astrobiology Field Laboratory on Mars, International X-ray Observatory (IXO), and extravehicular activities. Additionally, the lithium-ion battery packs could also be used in hybrid electric vehicles, consumer electronics, medical devices, electric scooters, and a variety of military applications.

"This work, which could lead to new batteries for space exploration and beyond, is just one example of the high impact research being done in the Department of NanoEngineering," said Kenneth Vecchio, Professor and Chair of the Department of NanoEngineering at the UC San Diego Jacobs School of Engineering. Dr. Ganesh Skandan, CEO of NEI, commented, "I am pleased that we at NEI are able to link fundamental research with applied advanced materials development to develop and deliver a product needed by NASA." Dr. Skandan added, "Our Contracting Officer's Technical Representative at NASA, Ms. Concha M. Reid, has been extremely supportive of our efforts in this area over the past two years, and we expect to achieve the performance targets specified by NASA."

About NEI Corporation

Established in 1997, NEI Corporation develops, manufactures, and distributes nanoscale materials for a broad range of industrial customers around the world. The company's products incorporate proprietary nanotechnology and advanced Materials Science to create significant performance



improvements in manufactured goods. NEI's products include advanced protective coatings, high performance battery electrode materials, and specialty nanoscale materials for diverse applications.

NEI has created a strong foundation in the emerging field of Nanotechnology that has enabled the company to become a leader in selected markets. The company is based in Somerset, NJ. For more information, contact NEI Corporation at (732) 868-3141 or visit www.neicorporation.com.

About University of California, San Diego

Founded in 1960, the University of California, San Diego is one of the nation's most accomplished research universities, widely acknowledged for its local impact, national influence and global reach. The campus is ideally located near the Pacific Ocean, the U.S.-Mexico border and the Pacific Rim. UC San Diego is renowned for its collaborative, diverse and cross-disciplinary ethos that transcends traditional boundaries in science, arts and the humanities. The university's award-winning scholars are experts at the forefront of their fields with an impressive track record for achieving scientific, medical and technological breakthroughs. A leader in climate science research, UC San Diego is one of the greenest universities in the nation and promotes sustainability solutions throughout the region and the world.