

EIC Receives Federal Grant to Collaborate with Oak Ridge National Laboratory Using Supercomputer Resources

SARATOGA, CALIFORNIA, USA, March 14, 2024 /EINPresswire.com/ -- [EIC](#) is pleased to announce that it has been awarded a federal grant under the Department of Energy 'High Performance Computing for Energy Innovation' program to work with researchers at [Oak Ridge National Laboratory](#)

on optimizing EIC's isothermal compressed air energy storage (I-CAES) technology using massively parallel high-fidelity simulations on supercomputers. This work supports EIC's mission to bring extra-long duration energy storage (xLDES) to commercialization as a primary

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DOE's substantial HPC capacity is an important national asset... this award is an excellent example of how it can be used to create advantage for US industry and advance important new technologies.”

Dr. Robert Stoner, MIT

enabler of high levels of renewable energy penetration to the grid. The outcomes of these simulations, coupled with physical test correlation, is a foundational element in the digital twin of this multi-component energy storage system. This AI enabled virtual factory will run in parallel with actual plants in real time to maximize performance.

Mark Weathers, SVP Operations for EIC elaborates: “The grant will allow EIC engineers and ORNL to perform advanced computational fluid dynamics modeling and simulations to further refine the second-generation heat transfer technology that is at the heart of long duration

nature of this storage system. Reaching parity with fossil fuel costs is integral to accelerating the zero-carbon transition, and maximizing the I-CAES performance in terms of energy efficiency and overall levelized cost of storage are the next steps in commercializing this breakthrough technology. Successful implementations will provide daily, weekly and seasonal energy storage that is needed for variable renewable energy sources like wind and solar to be convenient and cost effective at high levels of grid penetration.”

The modeling of complex systems such as I-CAES requires the intensive computing power of supercomputers and the advanced modeling expertise of the computational scientists at ORNL.



This resource, combined with the extensive experience in isothermal compression/expansion and liquid piston enabling technology at ORNL and EIC, will predict the sensitivity of the system to various parameters and guide the final experimental validation runs prior to the beginning of manufacturing. EIC's isothermal (minimal temperature change) compression and expansion process builds on several years of design and testing work at EIC as well as prior research and development at ORNL and other research institutes, including ORNL's GLIDES program. EIC is excited to join the likes of GE, Siemens, Pratt & Whitney, Carpenter Technology and ArcelorMittal as awardees in this program.

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