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Media Contacts: Lori Sinsley, Energy Commission, 916. 539.8863 (mobile); 916.654.4989 (office)

Bret Adams, EnerVault, [351-201-9139]

California Energy Commission Joins U.S. Department of Energy to Dedicate EnerVault's Long-Duration Energy Storage System

First Grid-scale Iron-Chromium Redox Flow Battery in the World

TURLOCK, Calif. – Today, the California Energy Commission (Energy Commission) joins the U.S. Department of Energy (DOE) to dedicate EnerVault Turlock, the first grid-scale iron-chromium redox flow battery deployed in the world. EnerVault designed and manufactured the long-duration, grid-scale energy storage system in Silicon Valley with a combination of private funding and research and development grants from the DOE and the Energy Commission. Long-duration energy storage systems are emerging as the lynchpin to efficient operations for resilient grids as aging conventional power plants are replaced by higher levels of solar and wind. Interconnected to the distribution grid, EnerVault Turlock is co-located with a dual-axis tracking solar photovoltaic system in an almond orchard in California's Central Valley.

“With the support of DOE, the Energy Commission, our technical team and investors, EnerVault's long-duration, grid-scale energy storage systems are ready to participate in California's ground-breaking energy storage market in less than five years from our first round of funding,” said Jim Pape, EnerVault CEO. “EnerVault Turlock will demonstrate that our proprietary technology is inherently safe, reliable and cost effective. Using commodity equipment and materials, EnerVault can manufacture large scale systems quickly: no gigafactory required.”

"The EnerVault Turlock project solidifies California's position as an incubator of companies that attract investment, and demonstrates the value of public-sector investments in energy research and development," said Robert B. Weisenmiller, chair of the Energy Commission. "This storage technology will help integrate renewable energy and improve the reliability of California's evolving electricity system. Federal and State investments were critical to taking this project from laboratory prototypes to community-scale, energy storage system in less than five years."

“The EnerVault Turlock system demonstrates the viability of iron-chromium redox flow batteries at the grid-scale,” said Imre Gyuk, DOE Energy Storage Program Manager. “Long-duration energy storage, like EnerVault’s, is the lynchpin to grid stability as we achieve high penetration of renewable energy. We are very proud of EnerVault’s success as a member of our DOE ARRA Storage Demonstration Program as it is the first battery of its class of grantees to reach field commissioning.”

“Thanks to the support of my legislative colleagues and Governor Jerry Brown, California is leading the redesign of our electricity system, reducing greenhouse gas emissions and incorporating efficiency, renewables, and distributed and customer-sited resources,” said Assemblymember Nancy Skinner, author of AB 2514. “With direction from the legislature, the CPUC is now working with our utilities to incorporate a wide range of energy storage capabilities into the grid. I congratulate EnerVault Turlock as an innovative example of long-duration, grid-scale energy storage ready to enter our new energy storage marketplace.”

“The unique characteristics of storage devices mean they can respond quickly to supply energy to the grid when needed or store it for later use,” said Karen Edson, Vice President at the California Independent System Operator. “Storage is one of the most important emerging technologies for managing electricity production and delivery in the future, and creating a grid that is modern, flexible and can use renewable resources efficiently and effectively.”

“Energy storage has the potential to be a game changer for our electric grid, and our energy storage procurement proceeding aims to achieve improved grid optimization, integration of renewable energy, and reduction of greenhouse gas emissions to 80 percent below 1990 levels by 2050,” said Paul Clanon, Executive Director of the California Public Utilities Commission. “California’s multi-year energy storage procurement target of 1,325 megawatts is specifically designed to encourage the scaling of new innovative technologies and reduce costs to ratepayers. We commend EnerVault for its success and welcome innovative technologies to bid into California’s energy storage marketplace.”

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The California Energy Commission is the state's primary energy policy and planning agency. Created by the Legislature in 1974 and located in Sacramento, six basic responsibilities guide the Energy Commission as it sets state energy policy: forecasting future energy needs; licensing thermal power plants 50 megawatts or larger; promoting energy efficiency and conservation by setting the state's appliance and building efficiency standards; supporting public interest energy research that advances energy science and technology through research, development, and demonstration programs; developing renewable energy resources and alternative renewable energy technologies for buildings, industry and transportation; planning for and directing state response to energy emergencies. Visit www.energy.ca.gov for more information.

The DOE ARRA Storage Demonstration Projects operate within the U.S. Department of Energy’s Office of Electricity Distribution and Energy Reliability (OE) has the mission to lead national efforts to modernize the electric grid, enhance security and reliability of the infrastructure, and facilitate recovery from disruptions to energy supply. As part of this mission, OE has awarded 16 grants for energy storage

projects under the American Recovery and Reinvestment Act of 2009 (ARRA) for a total of \$185M. Each project is at least 50% cost shared. The projects cover diverse technologies such as compressed air energy storage, flywheels and advanced batteries. Applications include frequency regulation, smoothing of a photovoltaic installation, ramping for wind, and time shifting for a fossil fuel plant. ARRA projects are an integral part of OE's Energy Storage Program. Project management is provided by the National Energy Technology Laboratory (NETL).

EnerVault designs and manufactures long-duration, grid-scale energy storage systems based on iron-chromium redox flow battery technology pioneered by NASA. EnerVault's energy storage systems offer grid operators the flexibility to both absorb and deliver energy to cost effectively manage system efficiency, increase reliability and integrate renewable resources. Based in Silicon Valley, EnerVault is the first company to deploy megawatt-hour scale iron-chromium redox flow battery systems in field operations. For more information, visit www.EnerVault.com.