

## **Electricity Towers**

**By Mark Madler Staff Reporter**

SAN FERNANDO VALLEY BUSINESS JOURNAL

SEPTEMBER 27, 2021

TECHNOLOGY: With \$400 million plus in capital and plans to go public, Energy Vault has big ambitions for its power system

Excess wind and solar power are behind the technology developed by Energy Vault Inc.

The Westlake Village company takes the extra energy created by wind turbines and solar panels and store it, then releases it at peak demand times by lowering 35-ton blocks from an elevator-like shaft. The technology allows electric utilities and generation companies to adjust deliver of power to when customer need it, rather than when wind and solar is available.

Robert Piconi, co-founder and chief executive of Energy Vault, said the process is done with computerized control software with components of artificial intelligence.

“That allows for some dynamic decision making to power the system when there is excess energy and discharge the system when the energy is needed on the grid,” Piconi said.

Early this month, the company announced it will merge with Novus Capital Corporation II, a special purpose acquisition company in Indianapolis. Starting as early as late December – but more likely early next year – Energy Vault will be listed on the New York Stock Exchange under the symbol GWHR.

The announcement of going public followed by a couple of weeks the news that the company had raised \$100 million in Series C financing.

That money will combine with \$288 million in cash from Novus and an additional \$100 million in commitments for a common stock PIPE (private investment in public equity), which will be used, among other things, to fund the company’s growth strategy.

“If you add all of this up, it gives us what’s going to be between \$400 million and \$500 million of new capital just to focus on executing with customer demand,” Piconi said. “It’s a great position for us to be in.”

### **Block energy**

Energy Vault has a 5-megawatt commercial demonstration project called EV1 it built in Switzerland, and which was connected to the grid in July last year. The project utilizes a series of cranes to raise and lower the blocks to create and release energy.

The company got a lot of feedback from customers and potential customers about the EV1 tower. Many wanted more power than 5 megawatts but for a shorter duration and that led to the development of the EVx, Piconi said.

For the EVx system, which is built in a modular format, Energy Vault took every- thing it had learned from the EV1 – the same composite bricks, the same software, the same power electronics and multi-megawatt motors – and put it in a smaller format that is 40 percent lower in height compared to the EV1 tower.

The blocks – or bricks, as Piconi also called them – are not made from concrete but are a composite material that includes dirt from the excavation site, sand, waste materials, as well decommissioned wind turbine blades and coal combustion residuals.

---

Eventually, Energy Vault hopes to build Resiliency Centers consisting of acres of solar panels and a building of towers to store the energy.

Using the excess solar and wind energy, the blocks are raised to the full height of the building and then gently lowered at 2 meters per second, or about 4 to 5 miles per hour. The lowered blocks will spin a turbine that creates the energy that is put back on the grid.

The cost of a modular building, made up of 4 meters by 4 meters modules, will be determined by how much power the customer wants and the duration it takes to release it, Piconi said.

It can range from a couple hundred dollars per kilowatt hour to \$500 to \$600 per kilowatt hour, he added.

In the current market, lithium-ion batteries are the main source of energy storage. However, they degrade over time and so a company would need to augment its capital expenditures to replace depleted cells.

“With our system, it doesn’t degrade so that cost isn’t there – it’s zero,” Piconi explained.

Another advantage of a gravity-based storage system is that it can operate in any environment, hot or cold. Alternatively, lithium-ion batteries need air conditioning to cool them down, he added.

Also, Piconi continued, there is end-of-life issues that his blocks do not face as they can be recycled or returned to their original soil state.

“That is a challenge for some other technologies like lithium that have challenges on the environmental side with recycling today,” he said.

#### Environmental impact

Maggie Teliska is a member of the innovation team at Enel Green Power S.p.A., a subsidiary of Enel Group S.p.A., an Italian multinational that distributes electricity generated by solar, wind, geothermal and other means. It is one of the largest independent power producers in the world.

Teliska said that Enel Green Power is working with Energy Vault on building modular systems near some of the 60 renewable energy plants the company has in 14 states in the U.S.

“We are looking at long duration storage and it is going to be needed as we expand our renewable capacity,” Teliska added. “The more electrons we make, we are going to have to store them somehow for later use to make the grid more modern, resilient and reliable.”

Additionally, the company is going to provide decommissioned wind turbine blades for use in making the blocks.

#### Revenue models

Energy Vault operates on two business models.

One is that the company builds the energy storage system and then hands it over to the customer, a utility such as Southern California Edison, a subsidiary of Edison International in Rosemead or Pacific Gas and Electric Co. in San Francisco.

The second is that the company builds and operates the storage system and sells the power through a power purchase agreement to an independent power supplier such as Enel Green Power, Eight Minute Energy, Nexterra or Invenergy. It can also sell to large industrial users such as desalination plants or traditional oil and gas refineries; or to companies with large data center infrastructure that need a round-the-clock power supply.

“One of our customers in the U.S., who we have not announced yet publicly, they make green jet fuel and use biomass to do it,” Piconi said. “To power their process, they use solar plus storage. That allows them to power the biomass, which is a waste recycling process that makes green jet fuel.”

Howard Wenger, president of Solaria, a residential solar panel manufacturer in Fremont, said that the two business models followed by Energy Vault are common. However, it does require more capital and ties up the company’s capital longer when they own and operate

the system “because they get the cash over a longer period of time, because power purchase agreements are typically many years, between 10 and 20 years,” said Wenger, who also worked for SunPower Corp., a solar and storage products company in San Jose.

---

“They need to recover their investment over that period time. But they are both viable models and there is a whole finance infrastructure to support them,” Wenger added.

One challenge facing Energy Vault, as all companies in the clean energy industry, is that of reliability and cost, he continued.

With the Swiss project, the company demonstrated reliability but now “they need to prove over years that their technology will work and hit the cost point to compete,” Wenger said.

Another challenge is having enough money to prove the system is reliable and to scale up the technology in a way that can produce storage cost competitively, he added.

It is good that the company recently decided to go public, Wenger continued.

“That means investors and the market believe in what they are doing, and they will have access to quite a bit of money,” he said.

Conejo Valley benefits

Piconi is a Southern California native who grew in San Diego.

He came to the Conejo Valley in 2006 when he was president and chief operating officer for a large division of Spirent Communications in Calabasas.

“I love this area where you are not in the city but you have all the benefits of being in Southern California,” Piconi said.

In 2017, he co-founded Energy Vault with Bill Gross, chief executive of Idealab, the tech incubator in Pasadena. Before that, he worked for primarily health care companies, including in Switzerland.

The global administrative headquarters of Energy Vault is in Westlake Village, while an operative headquarters is in Lugano, Switzerland. That is where the supply chain is run out of and some of the engineering team is based there, Piconi said. He added there are 78 employees total at Energy Vault with about 35 in Westlake Village.

He chose Westlake Village for the company’s headquarters because of the good schools and the open space. He also liked there is a tech community with easy access to software, mechanical and electrical engineers.

“That’s one of the benefits of being CEO of the company,” Piconi said. “I do get some leeway to select the location.”

ENERGY VAULT INC.

HEADQUARTERS: Westlake Village

CEO: Robert Piconi

BUSINESS: Large-scale energy storage NUMBER OF LOCATIONS: 2

EMPLOYEES: 78 in total; 35 in Westlake Village

NOTABLE: Company was started out of Idealab, the tech incubator in Pasadena.

---

## Forward-Looking Statements

This communication includes certain statements that are not historical facts but are forward-looking statements for purposes of the safe harbor provisions under the United States Private Securities Litigation Reform Act of 1995. Forward-looking statements generally are accompanied by words such as “believe,” “may,” “will,” “estimate,” “continue,” “anticipate,” “intend,” “expect,” “should,” “would,” “plan,” “predict,” “potential,” “seem,” “seek,” “future,” “outlook,” and similar expressions that predict or indicate future events or trends or that are not statements of historical matters. These forward-looking statements include, but are not limited to, statements regarding estimates and forecasts of financial and performance metrics, projections of market opportunity, expectations and timing related to the rollout of the business of Energy Vault, Inc. (“Energy Vault” or the “Company”) and timing of deployments, customer growth and other business milestones, potential benefits of the proposed business combination and PIPE investment (the “Proposed Transactions”), and expectations related to the timing of the Proposed Transactions.

These statements are based on various assumptions, whether or not identified in this communication, and on the current expectations of Energy Vault’s management and the management of Novus Capital Corporation II (“Novus”) and are not predictions of actual performance. These forward-looking statements are provided for illustrative purposes only and are not intended to serve as, and must not be relied on by an investor as, a guarantee, an assurance, a prediction, or a definitive statement of fact or probability. Actual events and circumstances are difficult or impossible to predict and will differ from assumptions. Many actual events and circumstances are beyond the control of Energy Vault and Novus.

These forward-looking statements are subject to a number of risks and uncertainties, including changes in domestic and foreign business, market, financial, political, and legal conditions; the inability of the parties to successfully or timely consummate the Proposed Transactions, including the risk that any regulatory approvals are not obtained, are delayed or are subject to unanticipated conditions that could adversely affect the combined company or the expected benefits of the Proposed Transactions or that the approval of the stockholders of Novus or Energy Vault is not obtained; failure to realize the anticipated benefits of the Proposed Transactions; risks relating to the uncertainty of the projected financial information with respect to Energy Vault; risks related to the rollout of Energy Vault’s business and the timing of expected business milestones; demand for renewable energy; ability to commercialize and sell its solution; ability to negotiate definitive contractual arrangements with potential customers; the impact of competitive technologies; ability to obtain sufficient supply of materials; the impact of Covid-19; global economic conditions; ability to meet installation schedules; the effects of competition on Energy Vault’s future business; the amount of redemption requests made by Novus’ public shareholders; and those factors discussed in Novus’ Annual Report on Form 10-K for the fiscal year ended December 31, 2020 under the heading “Risk Factors,” and other documents of Novus filed, or to be filed, with the SEC. If the risks materialize or assumptions prove incorrect, actual results could differ materially from the results implied by these forward-looking statements. There may be additional risks that neither Novus nor the Company presently know or that Novus and the Company currently believe are immaterial that could also cause actual results to differ from those contained in the forward-looking statements. In addition, forward-looking statements reflect Novus’s and the Company’s expectations, plans or forecasts of future events and views as of the date of this communication. Novus and the Company anticipate that subsequent events and developments will cause their assessments to change. However, while Novus and the Company may elect to update these forward-looking statements at some point in the future, Novus and the Company specifically disclaim any obligation to do so. These forward-looking statements should not be relied upon as representing Novus’s or the Company’s assessments as of any date subsequent to the date of this communication. Accordingly, undue reliance should not be placed upon the forward-looking statements.

## Important Information and Where to Find It

This communication is being made in respect of the proposed merger transaction involving Novus and Energy Vault. Novus intends to file a registration statement on Form S-4 with the SEC, which will include a proxy statement/prospectus of Novus, and certain related documents, to be used at the meeting of stockholders to approve the proposed business combination and related matters. Investors and security holders of Novus are urged to read the proxy statement/prospectus, and any amendments thereto and other relevant documents that will be filed with the SEC, carefully and in their entirety when they become available because they will contain important information about Energy Vault, Novus and the business combination. The definitive proxy statement will be mailed to stockholders of Novus as of a record date to be established for voting on the proposed business combination. Investors and security holders will also be able to obtain copies of the registration statement and other documents containing important information about each of the companies once such documents are filed with the SEC, without charge, at the SEC’s web site at [www.sec.gov](http://www.sec.gov). The information contained on, or that may be accessed through, the websites referenced in this communication is not incorporated by reference into, and is not a part of, this communication.

## Participants in the Solicitation

Novus and its directors and executive officers may be considered participants in the solicitation of proxies with respect to the Proposed Transactions. Energy Vault and its executive officers and directors may also be deemed participants in such solicitation. Information about the directors and executive officers of Novus is set forth in its annual Report on Form 10-K for the fiscal year ended December 31, 2020. Additional information regarding the participants in the proxy solicitation and a description of their direct and indirect interests, by security holdings or otherwise, will be included in the Proxy Statement and other relevant materials to be filed with the SEC regarding the Proposed Transactions when they become available. Novus stockholders and other interested persons should read the Proxy Statement carefully when it becomes available before making any voting decisions. When available, these documents can be obtained free of charge from the sources indicated above.

---