

# StorEn Technologies, Inc. Evaluates Vanadium Flow Battery Technology



## StorEn Technologies, Inc.

Located at the Clean Energy Business Incubator Program at Stony Brook University, New York, StorEn Technologies, Inc.'s (StorEn) patent pending vanadium flow battery (VFB) technology intends to increase energy generation from renewable sources because it provides long lasting and economical energy storage.

## Challenge

StorEn sought a third party to test and evaluate the operational performance of their VFB technology.

## Solutions

NYSP2I collaborated with Unique Technical Services (UTS) to test and evaluate the operational performance and comparative greenhouse gas (GHG) emissions of StorEn's new VFB technology as compared to commercially available electrical energy storage. Testing and evaluation was performed at Stony Brook University's Advanced Energy Center on the above-ground StorEn prototype VFB. Testing focused on maximum power output, energy capacity, efficiency, ramp rate and response time.

## Results

- The battery met the rated nominal energy storage capacity specification of 15kWh
- Average cell round trip efficiency across five tests was 76.50%, meeting the stated specification of > 75%
- Ramp rate evaluation resulted in measured ramp rates of 1.479kW/sec, 1.492kW/sec, and 0.711kW/sec at 0%, 50%, and 100% State of Charge (SOC), respectively
- Response time evaluation resulted in a response time of 0.08 seconds, and the output power settled at value of 3.052kW

## Challenge

- StorEn Technologies, Inc. requested NYSP2I's assistance, in collaboration with Unique Technical Services (UTS), to test and evaluate the operating performance of StorEn's new vanadium flow battery (VFB) technology.

## Solution

- NYSP2I collaborated with Stony Brook University's Advanced Energy Center and UTS to provide assistance to test and evaluate the operational performance and greenhouse gas emissions of their VFB technology compared to commercially available electrical energy storage.

## Results

- The battery met the rated nominal energy storage capacity specification of 15kWh
- Average cell round trip efficiency across five tests was 76.50%, meeting the stated specification of > 75%
- During the 'use' life cycle phase, StorEn's VFB technology has the potential to displace >50% more CO<sub>2</sub> over the batteries' warranty period as compared to commercially available lithium-ion battery technologies

- During the 'use' life cycle phase, StorEn's VFB technology has the potential to displace >50% more CO2 over the batteries' warranty period as compared to commercially available lithium-ion battery technologies

Third party testing and evaluation of StorEn's patented VFB technology provided promising results, advancing StorEn towards commercialization.



StorEn VFB Battery

## Testimonial

*"The NYSPI third party assessment was very valuable to StorEn. From an environmental standpoint, it was important to quantify the reduction in GHG emissions obtained with our technology, and how our batteries can help address climate change by reducing greenhouse gas emissions. This also represents a key value proposition for StorEn's batteries. Additionally, it was crucial for us to stress test our prototype in order to assess the level of performance that we have reached thus far. The testing also provided important indications of how we can enhance our final design as we move towards volume manufacturing and commercialization. Over the course of the past year, we thoroughly enjoyed working with and getting to know the NYSPI team. We look forward to working with NYSPI in the future."*

Carlo Brovero  
CEO  
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