

## Storagy Executive Summary

Utility companies are under mandates to supply a certain percentage of their energy from renewable sources (e.g., 40% by 2020 in NY). Reaching such levels of renewable generation necessitates extensive capital investment (several million US dollars) in solar and wind farms. In parallel, there is a growing and diverse set of technologies being developed for renewable energy management (hardware monitoring and company specific API's), that develop technical solutions for individual customers and solutions. These energy management solutions help mitigate heavy capital expenditures to produce a reasonable return on investment (ROI) for renewable energy projects. Such technologies, albeit, are being developed in an ad-hoc fashion, and there is a strong need for an aggregated platform that properly aggregates and analyzes renewable energy data. Without such an aggregated platform there it cannot be ensured that the maximum value is realized for renewable energy production.

Our designed platform, "Storagy", offers an interface that helps systems operators and utilities access real-time information on relevant energy generation and consumption. They would be able to utilize this data to control and integrate renewable energy assets on to the grid. This platform properly integrates with solutions that serve residential and business renewable energy assets (e.g., solar panels and batteries) and provides the information to the utilities for optimal and most cost-efficient grid operations, including remaining in compliance with electrical grid regulations. We gather this data from our partnerships with energy management and analytics companies with their API sharing. Our platform analyzes this data, which is gathered and aggregated externally, and feeds it to an algorithm that incorporates grid and energy pricing factors. The results of the algorithm will be displayed through a visualization interface that also displays potential energy transactions in the electricity grid. This platform results in decreased overall energy costs and increased energy rebates for renewable energy generation. This is instrumental to increasing the adoption rate of otherwise prohibitively expensive technologies.

Our customer development activities show that (i) municipal utilities are looking for solutions and businesses, and (ii) battery/solar providers are looking for new value for their equipment beyond its original intent. This transactive and financially gainful service that Storagy envisions will enable customers to get quicker and more immediate benefits and ROI. We have come to this conclusion by performing 35 interviews with multiple industry members in the energy and utility sector. This solution will provide a slight but consistent ROI for consumers of these systems and will further grow interest in this industry. The utilities will have better visibility into these resources through aggregation and will help to properly incentivize local energy producers.

Storagy was created to facilitate efficient, local, and economically feasible energy transfer and management solutions for the public. The competitive advantage that we offer is that we allow local and national utilities, our target customers, to integrate local renewable energy information for cheaper and more transparent energy rates for their customers in their operating regions. Any developer, commercial entity, or residence will be able to utilize these services with their existing renewable energy equipment (e.g., solar panels and batteries). Our main differentiating advantage from the competing technologies is the scale at which we gather the data. We, specifically, aggregate the data of individual residence business units, and analyze the data for the benefit of grid and utility operations. Our idea is currently in the customer discovery (ideation) stage. A prototype product is underway to be developed within one year. We completed the NSF I-site node program at Rensselaer Polytechnic Institute during winter 2018.

## Team Members

Entrepreneurial Lead: Colin Danahy: Colin received his M.S. in Technology Commercialization & Entrepreneurship at RPI and a B.S. in Mechanical Engineering at California State Polytechnic University, Pomona. He worked for a year at a utility on an energy storage project in advanced technology. Colin was able to understand the technical and business use cases for solar and renewable energy in various locations. He also has two years of experience working as an engineer and project manager. (contact: colindanahy@yahoo.com)

Academic Lead: Dr. Ali Tajer: Dr. Tajer is an Assistant Professor of Electrical, Computer, and Systems Engineering at Rensselaer Polytechnic Institute. His expertise lies in the general areas of large-scale data analytics, statistics, signal processing, with special focus on power system operations and data analytics. He has completed several projects related to power system data analytics sponsored by various federal, international, and industrial agencies. He has served on the editorial boards of several premium IEEE journals, including as a Guest Editor-in-Chief for the IEEE Transactions on Smart Grid, and an editor for the IEEE Transactions on Communications. He is a senior member of the IEEE and has received an NSF CAREER award in 2016. (contact: tajer@ecse.rpi.edu)

Mentor: Alan Evans: Alan is a partner at ReWire Energy focused on the firm's strategic business development efforts, including energy related software and process automation technology for Commercial Net Zero Energy (NZE) projects and Municipal Smart Energy applications. Alan's management experience spans cleantech, healthcare, industrial, manufacturing, education, government and critical infrastructure protection sectors. He has experience managing energy efficiency and renewable energy projects, Web and mobile software development and digital marketing programs. Alan's portfolio includes successful product management of key Web-based technology and general program initiatives, from planning through execution. He holds a BS Degree from Cornell University in Industrial Relations. He has over two decades of experience working in strategy and project management. (contact: alan.evans@rewiregroup.net)