



**Texas Commission on Environmental Quality
New Technology Implementation Grant (NTIG) Program**

Operation Phase Annual/Final Status Report

Contract Number: 582-15-54066-1471
Grantee: City of Austin - Austin Energy (AE)
Report for the Annual period: Sept 2018 - Aug 2019 **Date Submitted:** 8/31/2019

Section I. Accomplishments

Provide a bulleted list of operations of the facility during the past year. Include exact numbers and/or estimates.

- The Pilot ESS entered into initial normal operations on September 3, 2018
- Analysis of a representative two-month operations period (Feb 26 - Apr 22, 2019) shows the Pilot ESS responded to control system commands with a 99.8% correctness factor and an 84% reliability factor. Details and analysis will be explained in the Sept 2019 first year performance report
- The Pilot ESS demonstrated the ability to respond under several operating modes including voltage control, energy arbitrage and peak load shaving

Section II. Key Events and Issues

Report any key events that occurred during this reporting period. Please include any major project updates that impacted operations.

- Ground fault warranty claim
 - Entered warranty claim September 6, 2018 after ground fault detector tripped unit offline
 - Doosan GridTech (DG), the system integrator, worked with vendors to assess and remedy the issue, and returned to 24/7 operational testing state on December 5, 2018
 - The likely cause was determined to be moisture in the battery container and the inability of the environmental control system to remove that moisture. As a result, Doosan oversaw the redesign and retrofit of the environmental controls in the battery container to better manage

humidity and condensation and replacement of the ground fault detection unit in the control and protection cabinet.

- The Pilot ESS returned to normal operations after a burn-in period to demonstrate that remedies were sufficient
- Operations pause for battery fire safety review
 - Took Pilot ESS offline on April 22, 2019 as a precautionary measure to initiate a safety review after learning of APS's McMicken Battery Storage Facility incident
 - Returned to operations on July 15, 2019 after communicating with system vendors about root causes of fires in similar systems, their perception of overall system safety, and any measures necessary to make the system safer moving forward. We also worked with internal groups to firm up our emergency response procedures and verify proper protection, alarming, and notifications.

Report any anticipated or unanticipated problem(s).

- A: During the annual period, several hardware components were replaced including four Battery Protection Units (BPUs) and one Rack Battery Management System (RBMS)
- B: Several retrofits were recommended/required by the battery manufacturer in response to battery fire incidents in Korea from 2017-2019

Proposed Solution(s): Report any possible solution(s) to the anticipated or unanticipated problem(s).

- A: Take affected racks out of service until replacement parts are installed
- B: Manufacturer identified hardware retrofits and software updates for implementation

Action(s) Conducted and Results: Describe the action(s) taken to resolve the anticipated or unanticipated problem(s). Were the actions successful in resolving the problem?

- A: Replacement parts were installed in March 2019, shortly after the issues were identified. The manufacturer performed testing on the replaced BPUs to determine the root cause
- B: Hardware retrofits were unnecessary because the original design/installation already addressed these items. Software updates took place in January and March 2019 and another is anticipated in September 2019.

Section III. Provide a summary of the overall state of the facility and grant funded equipment.

- The Pilot ESS is in normal operations and connected to Austin Energy's fleet-level controller (Distributed Energy Resource Management System or DERMS)
- The site has served to educate many stakeholders through tours, presentations, and analysis


Section IV. Goals and Issues for Upcoming Period

Provide a brief description of the project goal(s) you hope to realize during the next reporting period.

- Over the next year, the ESS team intends to perform additional analysis on system performance including percent availability, system efficiency, and value realized
- AE is working to integrate the ESS into its asset management program
- AE will continue to assess battery safety enhancements for potential implementation

KURT STOGOILL

**Authorized Official/ Project Representative's Printed name
(blue ink)**



Date: 8/29/19

**Authorized Official Signature/ Project Representative's
name (blue ink)**

NOTE: *Please attach any additional information that you feel should be a part of your report.*

This form may be submitted via e-mail to your Grant Coordinator or a paper copy may be sent to the following address:

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