



**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 **Date**
Annual period: Sept 2019 - Aug 2020 **Submitted:** 8/27/2020

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 has operated in normal conditions for the reporting period
- Availability of the Pilot ESS was analyzed every month and defined as the time the system was online and enabled to receive control system commands. Operations from 9/1/19 - 7/31/20 shows the Pilot ESS was 94.8% Available over 11 months.
 - 5.2% Unavailability due to planned and unplanned outages described in Section II, where predominately unplanned instances resulted from alarm triggers.
- Efficiency of the Pilot ESS was analyzed and defined as battery round-trip efficiency, or the fraction of energy put into the storage cycle that can be retrieved. Operations from 9/1/19 - 7/31/20, for months when the Pilot ESS had over 85% State of Charge, demonstrated an average of 86.3% Efficiency.
- The Pilot ESS responded under operating modes including energy arbitrage and peak load shaving
 - Congestion management and voltage control operating modes were also enabled, but the Pilot ESS did not respond to these reliability applications because the feeder and grid ecosystem were not needing correction

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.

- No key events occurred during this reporting period. However, some interruptions to operations were experienced during March 2020. These are detailed as problems below

Report any anticipated or unanticipated problem(s).

- A: During the month of March, from 3/6/20 – 3/10/20, a controlling software error caused the Pilot ESS to stop responding to remote operations and commands
- B: During the month of March, from 3/11/20 – 03/22/2020, the Pilot ESS experienced several “Meter Comm Error” alarms, which shut down the ESS each time the alarm occurred
 - Whenever this “Meter Comm Error” alarm triggered, it remained in a latched state, meaning remotely resetting the alarm back to Normal was not possible. However, this alarm managed to periodically reset itself and then immediately after the reset action completed, another alarm appeared
- C: Anticipated work from the last annual reporting period included software updates to be pushed to the Pilot ESS battery retrofits, that were approved in September 2019. This update was recommended by the battery manufacturer in response to battery fire incidents in Korea from 2017-2019 and followed updates which took place in January and March 2019.

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

- A: Onsite investigation to determine locality of error or issues with site-level controls
- B: Monitor alarm log in the software and evaluate implications of any recent software/hardware updates
- C: 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: An on-site investigation was conducted over 3/9/20 – 3/10/20, and the error was found and removed. The ESS was also restarted on 3/25/20 and remote operations and commands were enabled
- B: The vendor uninstalled the previous software update patch on 3/25/20. Additional software testing was proposed, to augment control application settings, without affecting alarm triggers.

- C: Software updates for Pilot ESS battery retrofits, which were approved and intended to take place in September 2019 did not occur at that time. In the next reporting period it is intended to schedule these updates.

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
 - Also this year, a tour video was created featuring the Pilot ESS so that AE can continue to share ESS experience, when it is not possible to physically visit the site.

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 will continue analysis on system performance including percent availability, system efficiency, and value realized
- AE is working to integrate the ESS into its asset management program
- The ESS team is working to include ESS data into a DER data retention plan
- AE will continue to assess battery safety enhancements for potential implementation
- AE will continue to develop protocols for sharing control between grid operators and market teams, with the intent to maximize reliability and economic value

Kurt Stogdill

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

Kurt Stogdill

Date: 08/26/20

***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:

Texas Commission on Environmental Quality
Air Quality Division
Implementation Grants Section (NTIG), MC-204
P.O. Box 13087
Austin, Texas 78711-3087