

Home Energy Management System Platform

A pilot project that aims to connect the LPC electricity distribution system with residential customers through smarter home controls and a free, open-source software platform and mobile app.

BUDGET

\$750K

Readiness

Local Power Company Assessment

SURVEY


LPCs on their readiness to utilize, deploy, and support a HEMS offering to their customers.

ACCESS

LPCs through Supervisory Control & Data Acquisition Systems (SCADA).

ASSIGN

LPC technical readiness score.

 QUANTITY
153
LPCs

GOALS

- Connect with many smart hardware devices
- Mitigate cyber security risks

VOLTTRON™ Platform

Open Source Control Device Software

DEVELOP A VOLTTRON SOFTWARE PLATFORM TO CONNECT WITH:

- Distributed Energy Resources (DER)
- Battery Electric Storage Systems (BESS)
- Supervisory Control & Data Acquisition Systems (SCADA)

EXPAND OPEN-SOURCE HEMS PLATFORM

to allow greater integration with LPCs and home residents the software will allow anyone to further develop & customize the free software.

INCORPORATE LPC DEPLOYMENT

best practices, including learnings from Phase 1.

 AVAILABLE throughout the
valley

GOALS

- Connect buildings to the power grid in a meaningful way
- Make smart devices smarter

Customer Interface

Mobile App

Develop an open-source mobile app to serve as the customer interface and portal for engagement with their local power companies.

APP WILL ALLOW RESIDENTIAL CUSTOMERS TO:

- Enroll in the program and set preferences
- Connect their technologies
- Set their comfort and energy-saving preferences
- Track and monitor their energy use and cost trends
- Opt in or out of specific demand response events

 AVAILABLE FOR
homes
and small businesses

INTEGRATED WITH

- VOLTTRON platform
- Alexa Skill

Points of Leverage

Connections

Buildings to operators, operators to LPCs, LPCs to energy technologies – the dialogue between each system maximizes energy performance with collaboration, control and confidence.

Resiliency

LPCs and homeowners can control and optimize their energy conservation measures and DERs to create greater flexibility and resilience.

The Value

Customers

- Enhanced platform will simplify participation and connection with their smart devices
- Provides additional insight into energy use and costs
- Creates the opportunity to manage costs without sacrificing comfort, or triggering time of use rates

LPC

- Free, open-source platform will be made available through TVA
- Enhanced software will improve LPC experience and customer insight and engagement
- Integration between the home gateway and SCADA will allow LPCs to do demand response calls to DERs
- HEMS BESS agency will ensure LPCs can support resilient operation modes (including whole home islanding)

TVA

- LPC Technical Readiness Assessment Report will provide visibility into the potential to expand collaboration to other LPCs
- LPC Technical Readiness Assessment Report will provide valuable input into future Connected Communities projects and initiatives
- TVA will serve as a partner for the digitization and modernization of utilities to increase efficiency, accessibility and transparency

Key Partners

TVA

[Georgia Caruthers](#) (main contact)
Bonnie Latta

ACE IoT Solutions

William Maguire
Andrew Rogers

Oak Ridge National Laboratories

Joe Hagerman
Peter Fuhr



Timeline

Project Kick-off

August 2021
Project kick-off for all 3 parts

Assessment

Jan 2022
Technical Readiness
Assessment complete

Completion

March 2022
Completed platform & app