

# Residential Demand Response Through Connected MHA

Expanding on the Building Wi-Fi Access & Education to New Affordable Housing Projects pilot project, Phase II will conduct a Home Energy Management System (HEMS) and demand response pilot project in one of the Murfreesboro Housing Association (MHA) communities. This pilot project will further explore the benefits of connectivity and its relationship with smarter energy management.

BUDGET

# \$1M

TVA Connected Communities

## Background



### Barriers to Energy Saving

While affordable housing offers many benefits for low-income residents, access to more advanced energy efficiency technologies and programs can be difficult or non-existent, hindering meaningful energy burden relief. Building off of an earlier pilot project, residents of one community within MHA will be offered the opportunity to participate in an incentive-based HEMS plus demand response pilot project.

#### THE OPPORTUNITY

### Expanding Energy Savings

Residents of a MHA community will have new, high-efficiency, Wi-Fi-enabled devices in their units and the opportunity to participate in a HEMS plus demand response program to save energy and money.

#### PHASE 1 PILOT PROJECT

# 3

communities provided with Wi-Fi access

# 300

total residents impacted

## Scope



### Water Heaters and Thermostats

installed and controlled through the HEMS app for DR events.



### Demand Response Events

that last two hours and include pre-event notifications and monthly reports of energy savings.



### Resident Comfortability

is top of mind and residents will have the option to opt-out of any demand response event.

#### QUANTITY

# 2

Wi-Fi-enabled devices

# 75

participating units

#### THE GOAL

### Designing a Scalable Program

In addition to energy-savings benefits for current program participants, data from this pilot will allow Middle Tennessee Electric (MTE) to further develop customer-facing programs with HEMS and smart home functionality which other local power companies can deploy.





## Performance

### Key Performance Indicators

- Energy saved by unit
- Money saved by unit
- Resident comfort during demand response events (# of opt-outs during events)

## The Value

### Program Participants

- New smart thermostats and high-efficiency water heaters in the selected community
- Earn financial rewards for participation
- Energy and money savings
- Flexibility with program participation

### MTE

- Understanding of customer experience and reactions to demand response events
- Integration of HEMS platform into MTE's app
- Cost savings from reducing energy consumption during peak hours when energy is more expensive

### Other Local Power Companies

- Access to documentation to replicate the pilot program
- The Open HEMS platform and mobile app

## Key Partners

Middle Tennessee Electric

Murfreesboro Housing Association

ACE IoT

SmartMark Communications, LLC

Oak Ridge National Laboratory

Tennessee Valley Authority



## Timeline

October 2022

Residents move in to Oakland I

March/April 2023

Install Wi-Fi and network gateways

April 2023

Recruitment for participation in HEMS Plus DR pilot begins

May 2023

Residents move in to Oakland II

June 2023

Open HEMS DR activities begin with participating residents