



The Need

More frequent and severe storms, prolonged heat events, and grid instability are compounding challenges for vulnerable communities. Texans with low-to-moderate incomes (LMI) face higher energy burdens¹ and are more vulnerable to outages during extreme weather events, which create risks to health and well-being (e.g., heat stress, inability to refrigerate medications, loss of safe spaces for children). TEPRI's data shows 87% of low-to-moderate (LMI) households are concerned about weather-related power outages, with 46% reporting they would stay home and 29% reporting they do not have a safe place to go in a weather-related outage. The project seeks to provide trusted spaces with backup power and community services to reduce risk, close to home.

Project Overview

Resilience hubs equipped with solar and battery energy storage systems provide clean backup power in high-need communities during an outage. TEPRI is working with partners across Texas to develop resilience hubs in community spaces – multifamily housing, community centers, and churches. These hubs offer a range of services in the event of an emergency and generate annual savings that can be used for increased social services at the host center.

With support from **Google**, the **Texas Energy Poverty Research Institute (TEPRI)** has partnered with affordable multifamily housing developer **Foundation Communities (FC)** to develop community resilience hubs located at learning centers at two FC properties located in Arlington, Texas. FC selected **Holistic Utility Solutions** as the team for system engineering and construction. Each hub includes solar photovoltaics (PV) and commercial sized battery energy storage system (BESS) that provide an innovative response to both grid and community challenges. These hubs aim to:

- **Improve community resilience**
- **Achieve energy cost savings**
- **Pilot the use of Distributed Power Plants (DPPs)**, also called Virtual Power Plants
- **Reduce grid strain and enhance reliability**

The solar and battery-powered hubs will provide a minimum of 24-hours of clean backup power and on-site services, such as cooling or warming and device charging, to residents in a power outage. When not in emergency mode, the solar and BESS will reduce energy costs and strain on the local grid. The project aims to pilot integration into a Distributed Power Plant (DPP) program to create a revenue stream for FC. FC will invest energy savings and revenues into resident services such as health and childcare, hub maintenance, and education.

TEPRI will monitor and analyze the performance of this model for two years post-installation, assisting with model adaptation and replication.



¹ A household is considered "highly energy burdened" if they spend more than 6% of annual income on household energy needs, excluding transportation.

Snapshot: Sleepy Hollow Resilience Hub

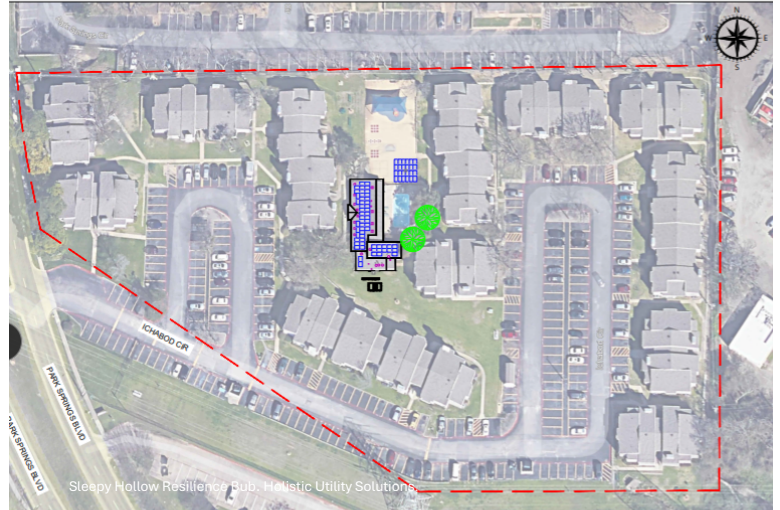
PV: 31.60 kW_{DC} (22.13 kW_{DC} rooftop, 9.48 kW_{DC} shade structure)

BESS: 307.2 kWh/ 60 kW_{AC} (2 cabinets each with 2 battery stacks; 4 inverters)

Resident Units: 128

Hub sq. footage: 3128 sq. ft

Hub Daytime use: Learning Center



Sleepy Hollow Resilience Hub, neighborhood siting, Holistic Energy Solutions

Snapshot: Shadow Brook Resilience Hub

PV: 28.44kW_{DC} (18.97 kW_{DC} rooftop, 9.48 kW_{DC} shade structure)

BESS: 307.2 kWh/ 60 kW_{AC} (2 cabinets each with 2 battery stacks; 4 inverters)

Residential Units: 403

Hub sq. footage: 3185 sq. ft

Hub Daytime use: Learning Center



Shadow Brook Resilience Hub, battery storage system Holistic Energy Solutions



Founded in 2015, the [Texas Energy Poverty Research Institute \(TEPRI\)](https://www.tepri.org), a 501(c)3 organization, is a non-partisan and nonprofit independent research organization that advances lasting energy solutions for low-income communities across Texas.

TEPRI is accelerating the move towards an energy system that is affordable, reliable, sustainable, and supports healthy, thriving communities. We work in partnership with stakeholders from the energy sector and community-based organizations to conduct research, create tools for practitioners, and demonstrate new models that can scale for widespread impact. Our work improves the systems that enable energy solutions to reach underserved communities.