

HEALTHCARE ENERGY ASSURANCE & RESILIENCE TRUST

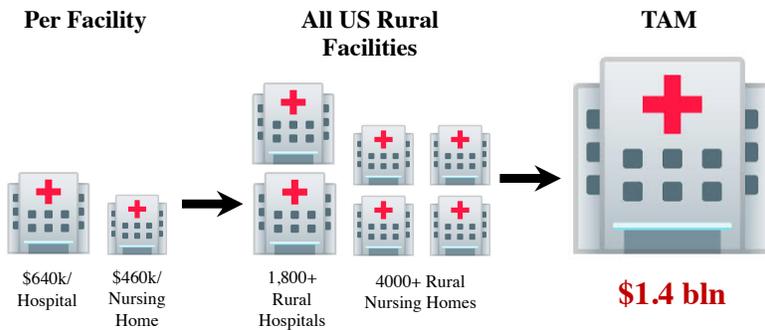
Delivering reliable & renewable power to healthcare facilities

Challenge

Hospital downtime is unacceptable. Healthcare facilities (HCFs) play an enormously important role in keeping communities healthy, and as a result use sophisticated techniques and practices to reduce patient impact, most of which rely critically on utility infrastructures. These systems which make medicine valuable like modern surgeries, electronic health records, low-temperature storage, dialysis, and life-extending care also make facilities extremely sensitive to utility outages and natural disaster impacts. When natural disasters strike, patients and health care facilities can be enormously impacted, having to limit or stop care, evacuate, and risk patient wellbeing, while also suffering medicinal spoilage, revenue losses, and lasting reputational damage. In the midst of the COVID-19 pandemic, it is now more important than ever to keep our medical centers running, yet **only 1-in-20 U.S. hospitals are adequately prepared for a power outage**, and over 44% of rural hospitals lack backup power systems.

US Hospitals alone are a \$1.15TN industry, and each power-outage event costs a hospital \$600k – \$1M per day for revenue losses and reputation impacts, totaling approx. **\$6.1BN single-day industry risk**. As a result, many hospitals have already gone to great lengths to install diesel-driven backup generators or dedicated combined heat and power generators to continue care in the event of outages, yet there are still examples such as Superstorm Sandy, where backups don't exist, fail to operate, or disaster that caused the outage prevents resupply. The level of preparedness only decreases when it comes to Nursing Homes and Hospice facilities, \$129.8 BN and \$24.2BN in revenues respectively, and assuming a similar level of exposure, totals the top three short and long-term **healthcare facilities' exposure at approximately \$6.9BN**. We believe there is a better solution which will benefit all parties by creating a sustainable investment structure which realizes the mutual benefits between HCFs, insurance parties, local communities, and of course, patients.

Figure 1. Market Opportunity



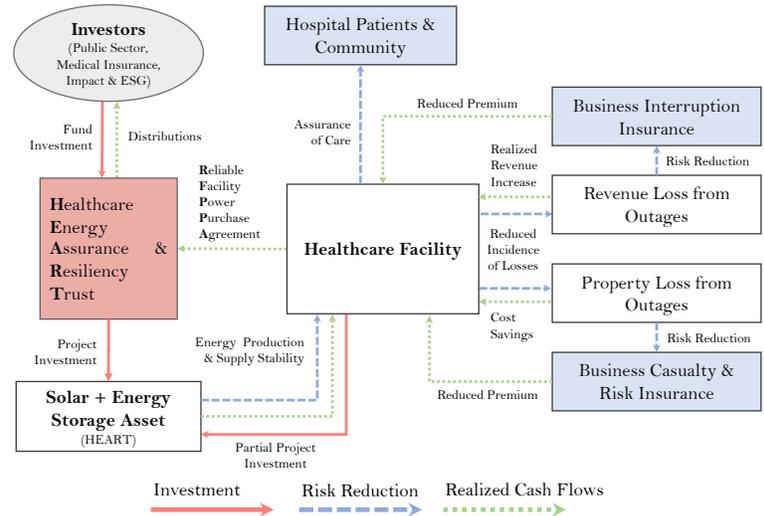
You can't fight COVID without power

- **Testing** uses power to process samples; samples are often refrigerated if not tested immediately
- **Treatment** utilizes ventilators, oxygen masks, sterilization equipment, and electrical diagnostics
- **Vaccines** must be stored at below-freezing temperatures
- **Data collection** relies on computer systems to process patients and communicate data to the CDC and other healthcare professionals

Innovative Solution

The **Healthcare Energy Assurance & Resilience Trust ("HEART")** is a cooperation between healthcare organizations, renewable energy generation assets, and insurance providers to create a distributed energy resource which enables standalone energy generation and uninterruptible power supplies for healthcare facilities, subsequently decreasing the risks of revenue loss, patient complications, and complete and immediate loss of HCF power due to power outages and natural disasters. HEART will invest in renewable energy generation and power storage which will be fully dedicated to the HCFs.

Figure 2. HEART Investment Structure



Our innovative solution **aligns the financial interests of investors with the need for energy resilience** in HCFs. HEART would harness the value added by co-located clean energy microgrids to provide reliable clean power to essential healthcare systems and steady returns to investors. HEART investors would receive dividend payments based on several value streams:

- Substantial reduction in risk exposure to extreme weather events
- Reduced operational losses due to immediate battery response
- Energy costs offset due to solar energy production
- Federal & local incentives for renewable energy investment

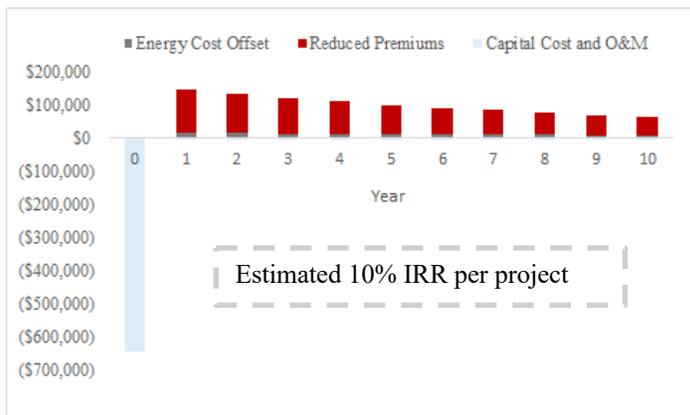
Healthcare facilities would gain a **reliable source of power that is not dependent on grid or transportation infrastructure**. These solar + battery microgrids would be sized to provide power for essential loads and would provide uninterrupted power. We would identify HCFs to serve as HEART sites starting with the list of rural HCFs in California and prioritizing those with exposure to outages as well as sufficient financial means to offset any risk of default. Next, we will focus on rural locations throughout the US.

HEART would act as a special purpose vehicle and assume ownership of the microgrid systems. HEART would lease the co-located microgrids to healthcare facilities at predetermined rates based on the value of their offset energy costs, reduced insurance premiums, and reduced operational losses. These payments, the value of the carbon offsets, and the value of relevant grants or tax credits would be used to guarantee a minimum IRR of 10% for investors.

Cash Flows & Structure

In Year 0, HEART, along with a 10-20% partial investment from the HCF, would construct and commission the solar + storage asset. The contract would be structured similar to standard Power Purchase Agreements (PPA) but with a novel financial aspect since most electrical generation is distributed across many customers. In the new structure, **Reliable-Facility Power Purchase Agreement (RF-PPA)**, the hospital is a dedicated customer of the generation asset and pays a PPA for electricity generated but with additional base facility fees (BSF) and resilience performance guarantees as a bonus/penalty.

Figure 3. Discounted Investment and Cash Flows (Single Site)



This structure provides contingency to both parties for asset performance, offsets O&M costs to HEART, and **provides a method to capture a portion of the outage event cost and premium reductions to the hospital**, which is the main source of creating positive returns to fund. All cash flows to HEART would be through the HCFs as they recognize the risk reductions and premium reductions, and the BSF would be fixed to the CPI as impact costs to the hospital rise or fall, reducing fund risk exposure. The standard contract would be 10-15 years, which is based on equipment life.

Investor Appeal

- Stable, predictable cash flows and returns from RF-PPA structure
- Risk-stabilized structure with partial-investment from HCFs
- Main investors will be Medical Insurance providers, the public sector and Impact/ESG funds
- Additional cash flow opportunities identified for each investor type (as outlined in Figure 2).
- Medical insurance providers have the clearest incentives as this initiative is about risk reduction and protection
- Diversified revenues and impact between public, private, energy and investor spheres
- Opportunity for returns while investing in community wellbeing

Impact: COVID-19 and Beyond

Nearly 3 billion of the world's 7.8 billion people live where temperature-controlled storage is insufficient for large-scale immunization efforts to bring COVID-19 under control. The Pfizer vaccine, for example, needs to be kept at -94 °F (-70 °C). The result is **that the poorest regions, hit the hardest by the virus, are likely to be the last to recover**. Helping these regions address this urgent healthcare need is one way in which HEART can concentrate investment in underserved communities while maintaining a profitable stream of cash flows.

Beyond the current pandemic, HEART is designed to address the widening health gap between rich and poor populations by increasing the reliability of healthcare facilities. **The positive impact on underserved communities will increase over time** as solar and storage technologies decrease in cost, unlocking new opportunities for investment. Additionally, a robust market contributes to the industry's ability to operate at scale, which lowers project costs and risks.



6k+ grids installed



Countless lives saved



~\$1M in financial exposure reduced (per hospital per year)



~\$800M NPV for hospitals

If HEART was implemented prior to COVID, how many of the ~0.1% or 1,500 doses of vaccine spoiled per day could have been used to save lives and end the pandemic?

Table 1. HEART Investment Overview

Investment Overview	
Fund Type	Trust
Fund Size	\$77 million
Target Geography	California hospitals as first target, rural hospitals in US after
Fund Life	10-12 years
Fees	2% Management Fee 20% Incentive Fee
Target IRR	10%
Target Investors	Insurance, Utilities, Municipalities
Other Contributors	Gov't Incentives, Grants
Investment per Facility	\$650,000

Fund Risk & Mitigants

Fund Risk	Factors	Mitigants
Operational Risk	- Location & Weather - O&M Costs	- Cost advantaged contracts with Solar Energy companies for installation and maintenance - Location selection based on neutral-to-positive rate of return for Energy production
Asset Performance	- Ability to perform on demand - Natural Disaster damage	- Uninterruptable power supplies are a proven tool in industrial applications - Performance bonus/penalty structure to address success/failure of the asset on demand provides extra gain potential for HEART while providing the HCF with a contingency
Financial Exposure	- Investment Risk - HCF performance - Solar & Energy Market Dynamics	- HCFs will be required to make a partial-investment in the solar + storage asset, which lowers chance of contract termination and decreases HEART fund exposure - PPA structure allows for floating energy cost to adjust for price change, while fee-portion of contract appended to CPI to adjust fees for changes in consumer prices
Healthcare Facility Insolvency	- HCF Performance - U.S. Economy Performance	- Solar + Storage asset is owned by HEART and can be re-deployed to the public grid or sold outright. - Energy production is a proven stand-alone business model