



**CORE**

**ELM<sup>EV</sup>**

**Westwood**

**Strategic Energy Solutions**



# Why

INVEST IN SUSTAINABILITY AND RESILIENCY

## Measures That Don't Pay for Themselves or Have Long Paybacks



Roof Replacement



Building Envelope



Sustainable New Construction



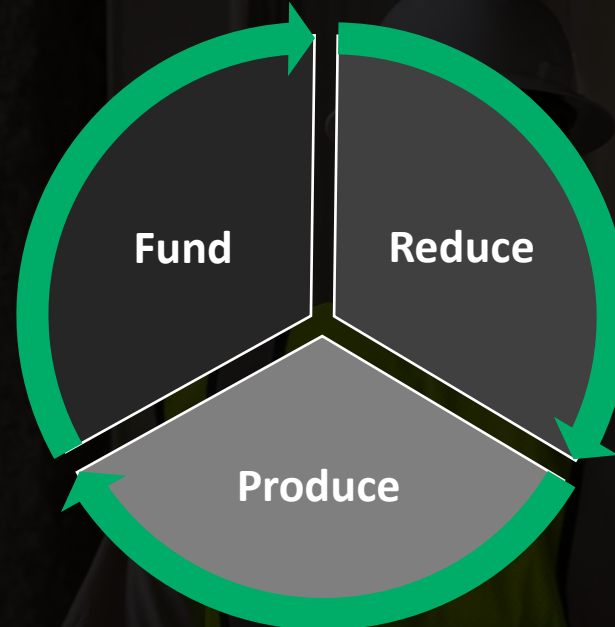
Indoor Air Quality & Safety



Information Technology



Major HVAC Replacement



## Cost Reducing Measures



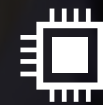
Retro-Commissioning



HVAC Optimization



LED Lighting

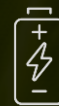


Active Energy Management

## Resource-Generating Measures



Solar PV



Energy Storage



MicroHydro



Microgrids



Waste to Energy

Biogas Power



Fleet Electrification and EV Charging

# The Role of Energy Storage

Investing in grid infrastructure upgrades, such as transformer upgrades, distribution system improvements, and grid reinforcements, can enhance capacity. It also reduces the strain caused by EV charging, especially in large EV fleet applications, but it comes with an expensive price tag and long lead times for construction. An alternative method for handling the increased demand for EV charging is by utilizing an ESS at the site. The ESS has many benefits to enhance the grid stabilization as well as optimizing a sites power usage and minimizing costs.



## **Grid Stabilization and Peak Shaving:**

Energy storage can smooth out the intermittent nature of renewable energy generation by storing excess energy during low demand periods and delivering it during peak hours. By mitigating grid imbalances, energy storage enables efficient EV charging while reducing strain on the grid during high-demand periods.



## **Load Shifting and Time-of-Use Tariffs:**

Energy storage can enable load shifting by charging during off-peak hours when electricity prices are lower and discharging during peak hours when prices are higher. This flexibility allows EV owners to take advantage of time-of-use tariffs, optimizing charging costs and minimizing grid congestion during peak periods.



## **Fast Charging Infrastructure Support:**

Energy storage systems can provide high-power charging infrastructure with rapid energy delivery. By storing energy during periods of low demand and delivering it quickly during fast charging events, energy storage enhances charging speed and efficiency, reducing EV drivers' wait times and fleet vehicle turnaround rates.

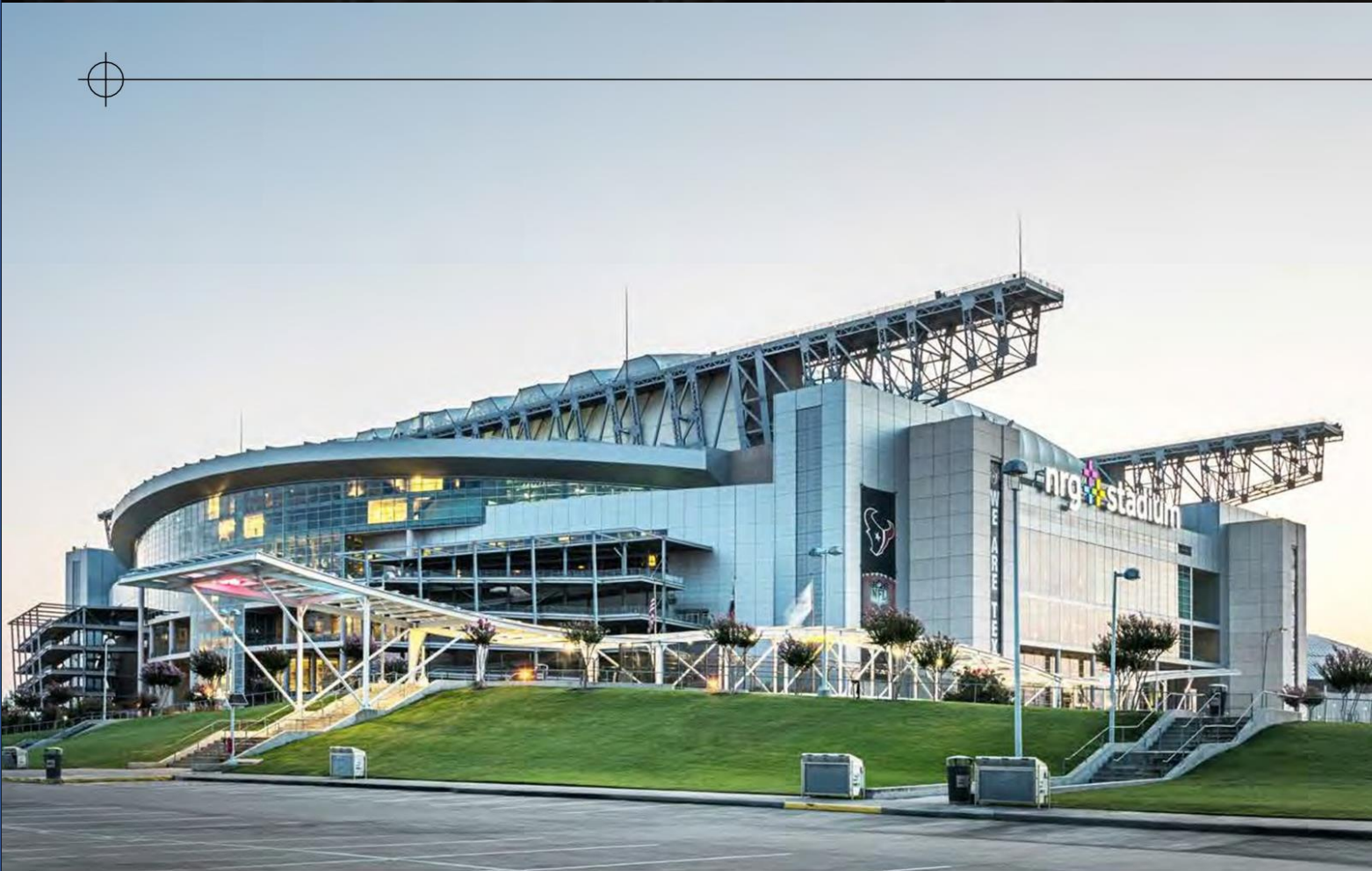


**Grid Resilience and Backup Power:** Energy storage systems can serve as backup power during grid outages, ensuring uninterrupted charging for EV owners. In emergencies or natural disasters, EVs equipped with bidirectional capabilities can even provide power to critical loads or support local microgrids.



**EV Charger Management:** To minimize the need to update a site's electrical architecture, an Intelligent Energy Management System (EMS) can manage the charging capacity of the EV chargers to never exceed the capability of a site.





NRG ENERGY, INC.

## NRG Stadium Photovoltaic Solar Array

The NRG Stadium Photovoltaic Solar Array project included the addition and new construction of 176 kilowatt photovoltaic solar arrays on two pedestrian bridges, a weatherproof canopy and a 6,000-square-foot electrical vehicle charging area located in Houston, TX. The pedestrian bridges function as walkways from the main parking areas to the stadium, and the weatherproof canopy shelters the main entrance to the stadium for onsite vending and ticket queuing. The photovoltaic solar arrays and the weatherproof canopy were constructed of steel structures and solar modules. The project also featured custom LED multicolored NRG brand lighting fixtures mounted between the overhead solar panels on the pedestrian bridges and the weatherproof canopy. Due to CORE's solar photovoltaic solar construction experience, the NRG Stadium Photovoltaic Solar Array project creates an exciting atmosphere for fans entering the stadium of the Houston Texans professional football team on game day.











**CORE**

**ELM<sup>EV</sup>**

**Westwood**

**Strategic Energy Solutions**