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SPACE Adaptive Container

OFF-GRID CASE STUDY

SYSTEM SPECIFICATIONS	
Location	City of Houston, Texas
System Power	7 to 13kW solar system
Components	• FLEXmax 80 charge controller • VFX inverter/charger • MATE3 system display and controller

OVERVIEW

SPACE, Adaptive Container's flagship product, originally grew out of the need for a sustainable office and kiosk to promote a LEED-certified residential building in Houston. By coupling a proprietary digitally-designed and fabricated solar rack for power production with a standard shipping container transformed into a customized interior office, the concept of SPACE was born.

In 2009, after success with an initial grid-tied solar model for this project and feedback from potential users, Adaptive Container planned its first off-grid prototype to serve the needs of those who require mobile, reliable off-grid power in a secure, adaptable workspace. In 2011, SPACE was tapped by the City of Houston to provide mobile solar generators for the municipality's use during day-to-day operations and emergency first response situations.

CHALLENGE

- Build an affordable off-grid, solar energy-powered mobile generator capable of a round-the-clock operation in disaster relief efforts and day-to-day operations
- Ensure seamless operation and critical backup power capability in extreme environments
- Create a solar-powered energy system that is secure, transportable and able to provide sufficient energy for an office space
- Make solar energy accessible and easier to understand for new or casual users

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SOLUTION

For the primary purpose of hurricane and disaster relief, the City of Houston purchased 17 SPACE units from Adaptive Container for mobile power in emergency situations, as well as year-round office space for fire and park departments, community centers and the Houston Independent School District. Working with Ameresco Solar, an OutBack Power distributor, SPACE developed a solution that can produce up to 7kW of solar power in an 8-by-20-foot model and up to 13kW in an 8-by-40-foot model. The components of the system—battery, inverter and charge controller—are displayed in the back-end of the shipping container in a user-friendly manner. Using OutBack Power's MATE3, FLEXmax 80 charge controller and VFX3024E inverter/charger, SPACE provides reliable energy with easy battery-level monitoring to eliminate unknown power availability.

Having met the demands of the developed world, Adaptive Container next began to pursue areas around the globe where reliable electrical energy was either unaffordable or unavailable. With a unit deployed in Lagos, Nigeria, serving as an example, SPACE continues to integrate OutBack Power technologies for innovative applications both in the developed and developing worlds, such as mobile medical facilities and financial institution branches.

OUTCOME

- Developing regions around the world gain independence from unreliable grid power
- Emergency communications centers stay powered during disaster relief efforts
- Placing the solar generating system at ground level instead of on a roof makes it more accessible for solar education purposes
- A day-to-day office space can run on renewable solar power for greater energy efficiency and cost savings

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