5 MOBILE SOLAR WITH ENERGY STORAGE

Mobile solar power supplies combine solar and other generator types with battery storage, and are mounted on wheeled trailers or skids. With solar onboard, they stay charged up and may be transported to areas of need. They are designed to supply continuous power even under adverse weather conditions, and operate silently while producing no air emissions. In conjunction with fueled generators, solar can extend the fuel supply and probability of survival in an extended outage.

MODEL SOLAR APPLICATIONS

1. SIMPLE GRID-TIED SOLAR
2. SOLAR ON LANDFILLS OR OTHER UNDERUTILIZED SITES
3. SOLAR ON SHADING STRUCTURES
4. GRID-TIED SOLAR WITH ENERGY STORAGE
5. MOBILE SOLAR WITH ENERGY STORAGE

Solar and energy storage applications can provide energy, capacity, shade, mobility, resiliency and other benefits to local communities. The North Central Texas Council of Governments (NCTCOG), with support from the Texas State Energy Conservation Office (SECO), identified a need for efficient approaches to evaluating solar and energy storage costs and benefits. This fact sheet, developed by Frontier Associates, presents information and analysis about one of five model solar applications likely to be of interest to local government officials. Frontier also produced a detailed report and Microsoft Excel-based financial pro forma templates that can be customized and applied to specific projects under consideration. All of this information may be obtained at www.GoSolarTexas.org.

Photo courtesy of Event Solar Power

CLOSE UP

ESTIMATED COSTS*

Solar panels: (~2,400 watts)	$2,500
Custom racking:	$4,000
Charge controller:	$1,000
Batteries: (5 > kW, stand-alone)	$2,500
Inverter:	$5,000
Miscellaneous items and hardware:	$2,500
TOTAL	$17,500

* This estimate does not include the cost of the trailer or vehicle, and does not have redundant systems that can run independently.

EVENT SOLAR POWER'S SOLAR SHUTTLE™

Event Solar Power's Solar Shuttle™ is available for rental in the Dallas Fort Worth metroplex and beyond. The trailer consists of a 2,150 WDC solar array that can be tilted and positioned as desired, and 32 kWh of battery storage. It is capable of powering sound stage amplifiers and related equipment for up to 5,000 or more attendees. It can also power welders, lights, audio and video equipment, power tools, and many other types of loads that plug into a standard 120 volt home or office electrical outlet. Event Solar Power also makes available two smaller solar plus storage systems that can power audio amplifier systems, portable video systems, laptops, temporary lighting fixtures, and other applications.

MOBILE HYBRID POWER SOURCES

These include small power systems mounted on a trailer frame with two or more independent power sources to provide reliable, self-sustained power for diverse applications and environments. They may require no refueling and offer silent operation for deploying sensors, camera and antennas in security, remote power, disaster relief, emergency preparedness, and lighting applications.

SOLAR POWERED MESSAGE BOARDS

These systems enable construction crews to program and place a message at needed locations without the hassle of refueling generators. Solar array and battery banks are typically sized to enable the signs to operate for several days even in poor weather conditions.

Photos courtesy of SolarCraft and US Barricades

SYSTEM DESIGN

Mobile power system designers evaluate the potential of various power sources, including solar, wind, propane or natural gas fueled generators, alone and in combination, and consider battery requirements, power cycling, solar resources, maintenance, and site access. The goal is to design highly reliable systems that optimize costs with power output to effectively power expected loads year round.

KEY QUESTIONS

1. What power requirements must the mobile unit be able to serve?
2. What space constraints limit the size of a solar array?
3. What is the anticipated utilization rate of the system?
4. How often will the system be moved?
5. What other means of providing backup power or service functionality exist?

DOLLARS AND SENSE

Local governments may have a wide variety of applications that could be served with mobile solar with storage solutions, and may value the application of solar in such instances in ways that direct financial analysis cannot adequately express.

Public libraries may provide bookmobiles or mobile learning centers incorporating laptops with internet access.

Economic development agencies may offer mobile workforce centers that provide job search and application tools.

Cultural arts programs may power sound stages or enable credit card transactions at entry gates of outdoor events.

Emergency response teams may utilize mobile work centers that enable continuous service provision during outages.

Transportation agencies may need to temporarily provide power to traffic control systems at busy intersections after an interruption.

Additional community benefits may include increased public awareness, flexibility, and silent operation.

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