

Sustainability Best Management Practice

presented by the Greening Fire Team



Solar Light Towers and Mobile Solar Power

What Are We Recommending?

Using solar lighting and power solutions in lieu of traditional diesel light towers and generators when practical.

Why Do We Recommend This?

These products have been used successfully on many incidents! This “Greening Fire” best practice aligns with [Executive Order 14057](#) for federal agencies to achieve net-zero emissions from operations and procurement, as well as the [Red Book](#) requirement for sustainable incident operations (to include energy conservation and alternative energy). Major benefits include: no noise (better sleep), no emissions, reduced fuel dependency, less vehicle traffic in fire camp from reduced refueling needs (improved safety), less heat, reduced carbon monoxide, and fewer bugs. Battery back-up allows for operation even during smoky or dusty conditions.



Standard solar light tower, 2021 McClellan fire, California. Photo by Denise Kusnir.

Environmental, Cost, and Other Benefits

- **Option 1:** Replacing one diesel light tower with one solar light tower (all-night operation) can save up to \$73 per day and 7 gallons of fuel per day.
- **Option 2:** Replacing a diesel light tower and separate small diesel generator with a hybrid solar light + power unit can reduce fuel consumption by 26%. This calculation assumes area lighting is only used for 5 hours per day while maximum auxiliary power is provided for 24 hours per day.
- **Option 3:** Replacing a diesel metal halide light tower with a diesel LED unit (all-night operation) can reduce fuel consumption by 39% and overall cost by 6%.

Footprint Focus

Energy and Fuel
Conservation

Best Management Practice

Replace diesel light towers
(and generators)

Resource Savings

Up to 100% reduction in fuel
consumed for area lighting!

Cost Savings

Up to 30% reduction in
overall cost

Operational Benefits

- Reduced fuel dependency
- Silent operation
- No fumes
- Improved safety from reduced refueling vehicle traffic

Tools and Resources

- [Federal and Interagency Sustainability Drivers](#)
- [Solar Light Tower and Trailer Companies](#)
- [General Message Template – Option 1](#)
- [General Message Template – Option 2](#)

If you would like to provide feedback on “green” products and services you have used on incidents, please complete the survey via the QR code or <https://forms.office.com/g/uwepC6rSut>



How Can You Do This?

Option 1: Standard Solar Light Tower

- Typically have four 60-watt LED light fixtures, two 300-watt solar panels, and 20-foot telescoping tower. Can be programmed for automatic on/off capability. Larger units are also available.
- Appropriate for lighting areas up to 7,200 square feet. Most beneficial for all-night applications (e.g., fire camp entrance and/or security area).
- Battery (4,800 Watt-hour capacity) can operate lights for 16 hours from a full charge. Battery power only used for lights, no auxiliary power.
- Many companies offer standard solar light towers across the country.

Option 2: Hybrid Solar Light + Power Trailer

- Typically have 8 LED lights, 10 solar panels (2.3 kilowatt), 11 kilowatt diesel back-up generator, and AC power outlets.
- Appropriate for lighting areas up to 3.2 acres (139,000 square feet). Can also power one tent/yurt (with up to 3.5 ton air conditioning unit) or provide auxiliary power for equipment or communication systems. Most beneficial in areas where stand-alone light and power is needed (e.g., Supply, Security, Ground Support, spike camps).
- Limited companies offer solar light + power units at this time, although more units are expected to become available. Check availability in advance before ordering these units.

Option 3: Diesel LED Light Towers

- If solar light towers are unavailable, fuel and emission savings can still be achieved by ordering diesel light towers with LEDs (instead of standard metal halide light fixtures).
- LEDs produce less heat and attract fewer bugs than metal halide lights.
- Metal halide lights decrease in brightness substantially over their lifetime, but LEDs remain at a consistent brightness and last longer.

Things to Consider

- Solar units perform best when sited in locations with maximum exposure to direct sunlight (i.e., unshaded areas). Units can be programmed for automatic on/off schedule.
- **When ordering, request that the vendor deliver, set-up, maintain, and provide ability to relocate the unit as needed. Vendor should confirm that on-board batteries are in optimal operating condition.**
- Solar light towers usually illuminate a smaller area than diesel light towers. Look at the specifications for the model you are considering.
- Replacing just 25% of the diesel light towers with solar units (operating just 5 hours per day) could save an estimated \$427,000 and 27,000 gallons of fuel per year.

Questions?

Contact the National Greening Fire Team at SM.FS.greeningfire@usda.gov



Option 1: Standard solar light tower. *Wanco Inc.*



Option 2: Hybrid solar light + power trailer, 2022 Black fire, New Mexico. *Photo by Margie Guzman.*



Option 3: Diesel LED light tower. *Wanco Inc.*