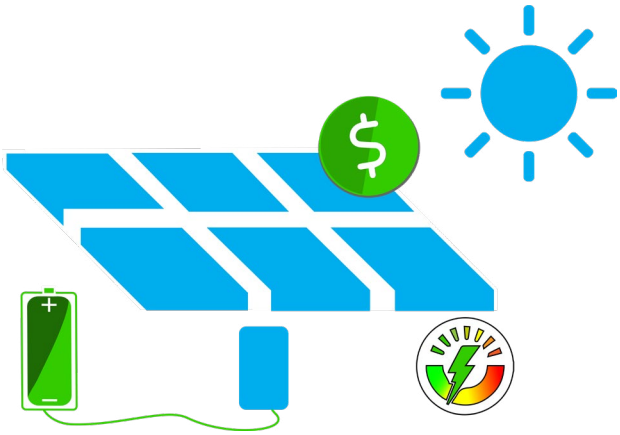
ASK THE EXPERTS

Evaluating Solar Power Blue Light Emergency Phone Towers for Public Safety on Campus

When evaluating solar-powered security systems, it's important to consider the total cost of ownership, including both upfront expenses and recurring costs, given the vast number of options available in the market.

INTRODUCTION

In this Code Blue Ask The Experts article, we examine solar power technology and best practices that will help ensure your expected outcomes for the quality and performance of solar power blue light towers on campus.



Institutions regularly contact Code Blue to ask about retrofitting their solar powered emergency call towers from other manufacturers. Although they might be relatively new, once installed, some products simply do not perform "as sold." The root cause is typically tied to platform basics.

We encourage campuses planning for blue light towers with solar power to evaluate total costs, not just the upfront price. This approach ensures that value (benefits and price) drives a decision and avoids degrading public safety and trust.

THE BASICS ARE CRUCIAL TO YOUR SUCCESS

GENERAL SOLAR POWER CONSIDERATIONS

The advantages of solar power include substantially lower installation costs in remote areas, low maintenance, quick installation, grid independence, reliability, and sustainability. These are important topics for most customers

WATTAGE CAPABILITY IS IMPORTANT FOR OVERALL PERFORMANCE

Power Output

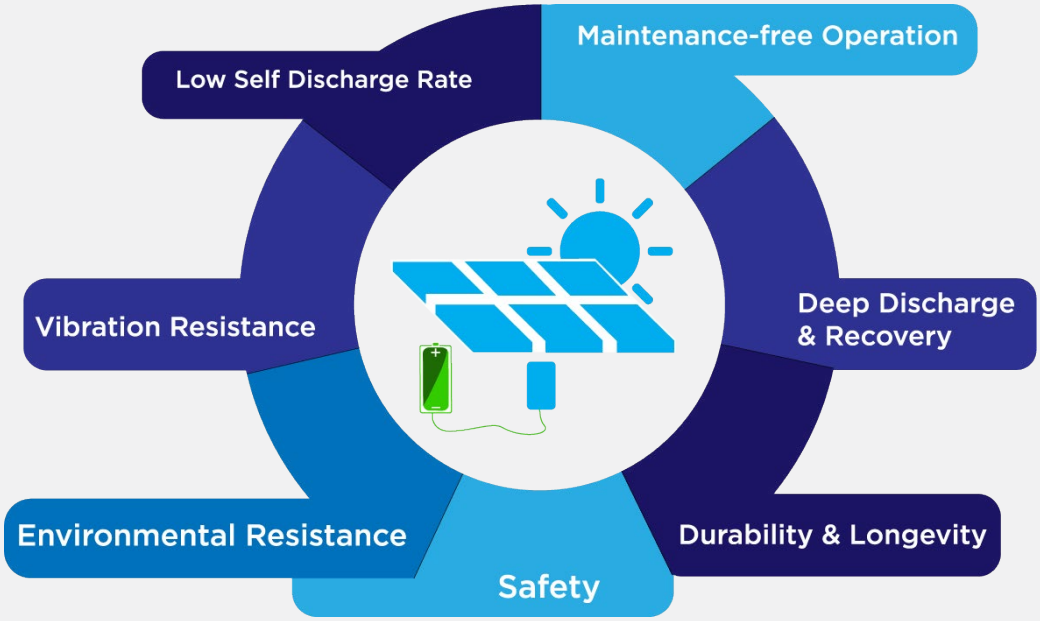
Code Blue solutions provide a 180 watt solar array, while others provide 45 – 145 watt arrays. The wattage capability is important for overall performance, reliability, and the operation of additional features like beacon strobes, cameras, and paging modules. Here's a detailed breakdown of why wattage capacity is so important:

- **Energy Production and Storage:** The wattage capacity of solar panels determines how much electricity they can generate from sunlight. Higher-wattage panels can produce more power, essential for charging the batteries that power the blue lights, especially during periods of low sunlight (e.g., cloudy or rainy days) when the array is not generating full power.
- **Efficiency and Performance:** Solar panels with higher wattage capacity are generally more efficient at converting sunlight into electricity. This efficiency is critical for maintaining consistent light output and operational reliability.
- **Battery Charging Time:** The wattage of the solar panels influences how quickly the batteries can be charged. Higher-wattage panels can charge batteries faster.
- **Scalability and Flexibility:** Solar installations with a higher wattage capacity can more easily accommodate additional lights or other equipment. This scalability and flexibility are important for adapting to changing requirements without completely overhauling the system.
- **Reduced Carbon Footprint:** By maximizing the efficiency and output of solar panels, blue light towers can operate more independently from non-renewable power sources, contributing to a reduced carbon footprint and promoting environmental sustainability.

Batteries

Code Blue Solutions' photovoltaic (PV) batteries hold 147.2 Ah of charge and use an advanced sealed thixotropic gel electrolyte solution, while many others do not specify these aspects, use cheaper absorbed glass mat (AGM) batteries, or have much lower charge capacity (as low as 40 Ah).

WHY PHOTOVOLTAIC (PV) BATTERIES?



PV gel batteries are particularly valuable for blue light emergency phone towers for several reasons, each related to their unique properties and the specific needs of emergency communication systems.

Here's why they are chosen over other types of batteries:

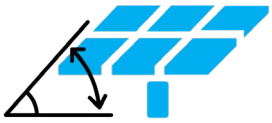
- **Maintenance-Free Operation:** Gel batteries, unlike traditional lead-acid batteries, are a type of sealed battery and do not require regular maintenance, such as adding water to the cells. This feature is crucial for blue light towers, which are often placed in remote or less accessible locations, making maintenance of traditional lead-acid units difficult and costly.
- **Deep Discharge and Recovery:** Gel batteries can handle deep discharge better than other types of batteries. They can recover after being significantly depleted without suffering permanent damage. This is important for emergency phone towers, which must remain functional 24/7, even during extended periods of low sunlight when solar charging may not fully recharge the battery daily.
- **Durability and Longevity:** These batteries are less prone to degradation from temperature extremes and rough handling, which makes them more durable over time. This durability ensures that the emergency towers remain operational for longer periods without needing battery replacements.
- **Vibration Resistance:** Gel batteries are highly resistant to vibrations, which makes them ideal for outdoor environments where wind or other conditions could shake less robust types of batteries.
- **Low Self-Discharge Rate:** They have a low self-discharge rate, meaning they retain their charge for longer periods when not in use. This is particularly useful for emergency phone towers in areas with intermittent use but where immediate readiness is critical.

Code Blue Solutions' photovoltaic (PV) batteries hold 147.2 Ah of charge and use an advanced sealed thixotropic gel electrolyte solution...

- **Environmental Resistance:** Gel batteries are better suited to withstand adverse environmental conditions such as temperature fluctuations, humidity, and precipitation.
- **Safety:** Gel batteries are sealed and do not emit gases under normal operating conditions, making them safer to use in public areas. If the battery housing is compromised, the electrolyte of gel batteries has a consistency similar to putty that will not spill dangerous battery acid, unlike traditional batteries lead-acid batteries. Additionally, in the event of housing damage, gel battery electrolyte does not combust on contact with water vapor the way that lithium-ion batteries can.

A FEW OPERATIONAL TIPS

While Code Blue Solar Help Point ®Towers can be used virtually anywhere, here are some recommendations that will help you enjoy the long-lasting environmental and economic benefits that come with the Code Blue products that utilize solar power:

		
Adjust the Angles: Solar panels can still generate power even if clouds have defused light, but locations that experience regular snowfall should make sure that the panels' tilt is steep enough to prevent snow from building on the solar array.	**Examine the Components:** Checking battery connections for corrosion and proper torque annually and replacing the batteries every 3 to 5 years will help ensure performance isn't affected.	**Clean the Panel Regularly:** We recommend that solar panels be cleaned for dust and dirt to ensure sunlight reaches the solar cells.

A PERFECT PLACE TO START – CB1-w Solar Help Point Tower

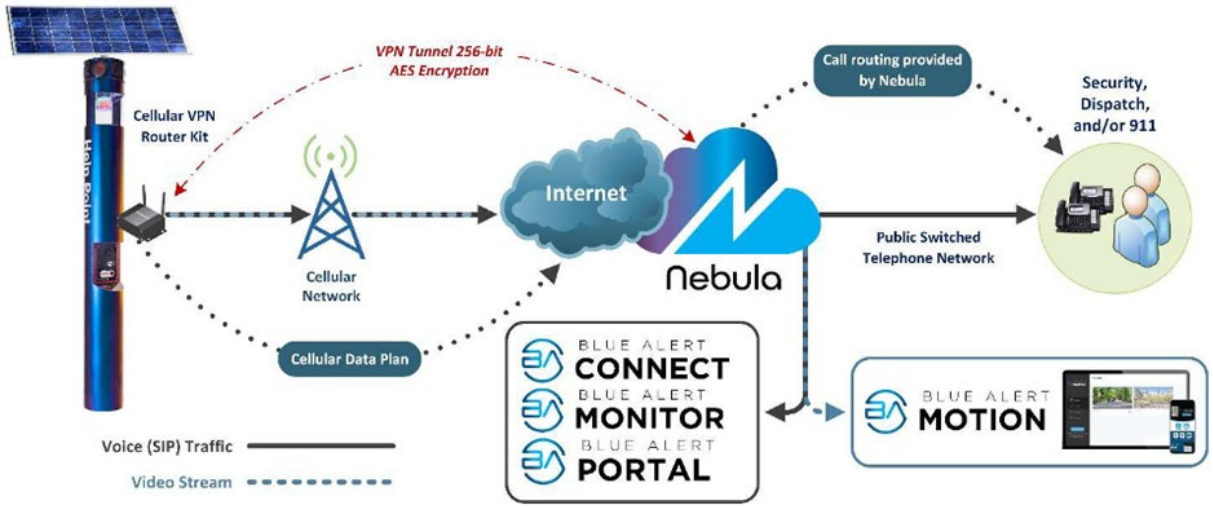
The CB 1-w can be powered and connected almost anywhere. The high-intensity LED beacon/ strobe light provides exceptional visibility, giving a presence of public help, and this Help Point acts as a deterrent to potential crime.

This blue light emergency tower provides direct communication with first responders. It provides optimum performance and reliability in almost any geographic location, including areas where power and phone lines are unavailable. Learn more.

OPTIMIZE YOUR TOTAL VALUE EQUATION – NEBULA ®NETWORK

CB 1-w solar towers are often paired with Nebula, a cloud-hosted communications platform. Nebula is a complete, centric, open platform for modern, automated, and integrated public safety communications.

Through Blue Alert® software, in concert with Nebula Cloud, we offer a unique, complete end-to-end system that utilizes alerting, managing, and responding technology. It is a lifeline to people needing help and empowers your public safety team to act quickly and intelligently before, during, and after an incident. Another way of looking at it: ***It's a network off your network.***



Nebula subscriptions include Code Blue's Managed Services. These services effectively provide system configuration, ongoing support, and proactive monitoring for your emergency speakerphones. The most knowledgeable and experienced technicians deliver a reliable call routing and monitoring system, provide a single source for troubleshooting and updates, implement the most up-to-date software releases, and perform other tasks to maximize your investment.

KEY TAKEAWAYS

Code Blue offers the **best-in-class wattage** capacity for solar panels in blue light towers, which is essential for ensuring effective, reliable, and cost-efficient operation while also supporting environmental goals.

Code Blue selects **PV gel batteries for their robustness, longevity, and low maintenance needs**, ensuring that these critical safety systems remain trusted and ready to use at all times.

We encourage institutions planning for blue light towers with solar power to **evaluate total costs, not just the price**. This approach will ensure that value (benefits and price) drives a decision and avoids degrading public safety and trust.

IN CLOSING

Our approach to solar is the same as our approach to everything we do. At Code Blue, we provide more than safety hardware—we provide a system of device and digital solutions that enable leaders to deliver a higher standard of care on their campuses. From advanced communications devices to customized phone and cloud data services, we are making a difference, one campus at a time.

Please consider contacting Code Blue for help with the standard of care on your campus: https://codeblue.com/contact