Powering Through a Blackout

Make affordable small-scale investments in renewable energy and batteries so you are better prepared the next time the lights go out.

CGTC
Caribbean Green Technology Center

Please check out our website for more information
Scan the QR code or use the link below
www.cgtc-usvi.com/powering-through-a-blackout

Powering Through a Blackout

Off-grid devices to save your life

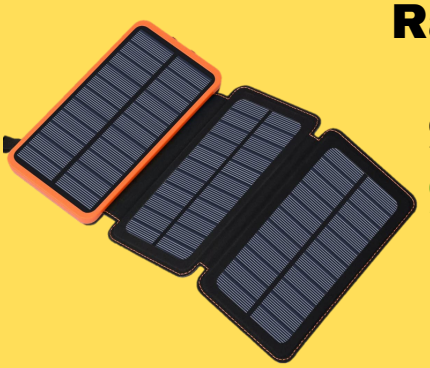
1 Lighting

Inflatable Solar Lantern + Powerbank*: $15

Solar LED Light-bulb*: $10

Outdoor Motion Sensor Solar Light*: $20

2 Communication: Cell Phone and Radio



Solar Powerbank*: $30

Solar & Hand Crank Radio with Flashlight & USB Charging*: $30

3 Water

Solar Shower: $15

Water Filter**: $25

Solar Water Pump: $150-$250

**Non powered but life-saving

4 Comfort

USB Powered Mosquito Zapper $15

USB Powered Fan: $15

*Some solar powered items can also be charged using a USB cord.

Powering Through a Blackout

What can I power using batteries?

Portable Powerbanks 1

What can you power?

- cellphones, USB devices, wifi, laptops

Car Battery +Inverter 2

What can you power?

- Small water pump
- Battery power tools
- Laptop, small TV

*Charge for 30-60 min before starting up your engine

Marine or RV Battery +Inverter 3

What can you power?

- Breathing machine, CPAP, Wheelchair
- TV, Laptop, Cellphone, Wi-Fi
- Portable Washing Machine
- Mini Fridge

Batteries can be charged with different sources of power. It is best to use a renewable source, such as solar.

1 Access Power from Battery

USB Powerbanks* $15-30

Large Powerbanks* $50-200

***Power battery using charger cord or device**

*Battery can be a car battery, deep cycle lead-acid, AGM or Li-ion.

$175

Battery*

+

*Inverter size depends on number of watts. 500-2000 W is recommended.

$150-500

Inverter

2 Charge Battery using Solar PV

*Connect 2 to 4 panels in parallel to increase current

$200

100 W Solar PV Panel

+

*A charge controller protects the battery from over-charging or depleting

$50

Charge Controller

Powering Through a Blackout

How much power do I use?

Time plugged in out of 24 hours

Energy: kWh/day

1 = 0.1 kWh

1 Under 10 Watts

- Cell phone
- LED Lightbulb
- Radio
- Wi-Fi Router

2 10-50 Watts

- Battery Power Tools
- Mini Water Pump
- Laptop
- Small Floor Fan
- CPAP Machine

3 50-250 Watts

- Portable Washer
- TV
- Mini Fridge
- Electric Wheelchair x 2
- Breathing Machine x 9

4 250-2,000 Watts

- Microwave
- Washing Machine
- Regular Water Pump x 2
- Regular ENERGY STAR Fridge x 2
- Electric Stove x 4
- Single Room A/C x 8

Powering Through a Blackout

How much power do I use? Give me the numbers!

Under 10 Watts 1

Cell phone *(1.5 hour charge)*
- 2 - 6 W, 0.005 kWh

LED Lightbulb *(run for 8 hours)*
- 4 - 13 W, <0.07 kWh

Radio *(all day)*
- 1 - 2 W, 0.04 kWh

Wi-Fi Router *(all day)*
- 2 - 20 W, 0.14 kWh

10-50 Watts 2

Battery Power Tools *(1 hour)*
- 30 - 60 W, 0.04 kWh/day

Mini Water Pump *(6 hours)*
- 50 - 60 W, 0.36 kWh/day

Laptop *(plugged in 6 hours)*
- 20 - 100 W, 0.4 kWh/day

Small Floor Fan *(8 hours)*
- 55 W, 0.44 kWh/day

CPAP Machine *(12 hours)*
- 30 - 60 W, 0.54 kWh/day

50-250 Watts 3

Portable Washer *(30 min)*
- 250 W, 0.01 kWh/day

TV *(5 hours)*
- 20 - 100 W, 0.3 kWh/day

Mini Fridge *(cycling, ~4-5 hours)*
- 85 - 200 W, 0.65 kWh/day

Electric Wheelchair *(8 hours charge)*
- 90 - 325 W, 1.7 kWh/day

Breathing Machine *(all day)*
- 120 - 600 W, 8.6 kWh/day

250-2,000 Watts 4

Microwave *(30 min)*
- 600 - 1,800 W, 0.6 kWh/day

Washing Machine *(1 hour)*
- 400 - 1,300 W, 0.85 kWh/day

Regular Water Pump *(3 hours)*
- 250 - 1,100 W, 2 kWh/day

Regular ENERGY STAR Fridge *(cycling)*
- 200 - 725 W, 2.1 kWh/day

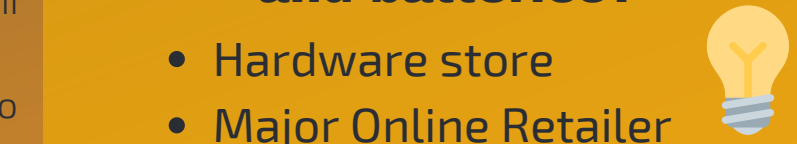
Electric Stove *(2 hours)*
- 1,000 - 3,000 W, 4 kWh

Single Room A/C *(8 hours)*
- 500 - 1,500 W, 8 kWh/day

Sources:

- http://energyusecalculator.com/
- https://keepsafeguide.enterprisecommunity.org/en/reduce-your-energy-use
- https://www.nytimes.com/wirecutter/blog/set-up-off-grid-solar-power/
- https://www.nytimes.com/wirecutter/reviews/emergency-preparedness/

Where can I purchase small renewable energy devices and batteries?



- Hardware store
- Major Online Retailer
- Ship directly from the company