

## Emergency Tech Prep: Emergency Charging Devices

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Being prepared for emergencies typically involves having supplies in place such as food, water, flashlights, etc. Being able to power communication devices is also critical. This chart reviews some of the power options for cell phones, laptops, and other electronic and wireless devices needed during an emergency. The chart summarizes features of emergency charging devices including, but not limited to, compatibility, charge time, charging ability, and size/weight for storage. Emergency power sources range from battery, solar, to AC/DC.

The authors found there are no standardized benchmarks and measures for comparing charging devices. Product websites offered non-comparable information on such features as: wattage, connectivity, and compatibility. Product web sites promoted some features and were silent on other features.

As of November 2009, the authors were unable to find independent comparison reviews or testing to verify product claims (does it really do that?). Therefore the authors recommend consumers:

- Access available online information from website and manual (if available) prior to purchase as product packaging may lack details
- Be sure the product can be returned for a full refund within a specified time period
- Test products immediately upon purchase to determine satisfactory performance for your needs.

Information in the chart is taken from product manuals (when available online) and web sites. The chart of equipment is not exhaustive, but rather representative of emergency charging devices. The authors and the Center for Disability and Health Policy at Western University of Health Sciences, Pomona, California do not endorse nor profit in whole nor in part, from any manufacturer or vendor whose equipment appears in this publication. The chart is solely meant to raise awareness of the benefits of emergency power sources and should be used as a reference.

### Definitions:

- Compatibility: type of connectors between the input and output charging devices
- Charge time: time for power source to charge device to full capacity
- Hours of use: the amount of time a fully charged device can run
- Cell tips: input/output adaptors for cell phone manufacturers (i.e. Sony, Samsung, Nokia, Blackberry)
- Connector: connector between the charging device and device being charged (i.e. USB, Cell tips, etc)
- NS- Not stated on product website

#	Product-Charging Device	Power Source				Size WxDxH (in)	Weight (oz)	Compatibility				Charge time (hours)			Hours of use				Devices					Notes	Approx. Price
		AA batteries	Recharg. Battery	AC/DC	Solar			Mini USB	USB	Cell Tips	AC/DC	Connector	AC/DC	Solar <sup>1</sup>	Talk	Music	Video	Laptop	Cell phone	Mp3	Camera/Video	Laptop	Other <sup>2</sup>		
1	<a href="#">iPWR portable charger</a>	-	X <sup>3</sup>	-	-	2.3x.8x0.5	1.6	X	X	-	-	NS	-	-	NS	NS	NS	NS	X	X	-	-	X		\$59.95
2	<a href="#">Mfuel Take Charge</a>	X	-	-	-	NS	16	-	X	X	-	NS	NS	NS	12	8	NS	-	X	X	X	-	X		\$17.99
3	<a href="#">Mfuel Power Bank</a>	-	X <sup>4</sup>	X	-	NS	32	-	X	X	-	4	-	-	65	20	20	-	X	X	X	-	X	1,9	\$149.99
4	<a href="#">Mfuel World Pak</a>	-	-	X	-	NS	41.6	-	X	X	X	NS	NS	-	NS	NS	NS	NS	X	X	X	X	X	7, 8, 9	\$129.99

<sup>1</sup> Charging time of solar panels can be estimated by following equation: (Battery capacity in mAh/150) x 1.2 = charge time in hours  
i.e if a Nokia battery is 650 mAh → (650 mAh/150) x 1.2 = 5.2 hours. It would take a Nokia battery 5.2 hours to fully charge by solar power.  
(Information found at WaganTech Solar eCharger User Manual, 2008)

<sup>2</sup> Other: includes but is not limited to gaming systems, PDAs, GPS, satellite radios, etc.

<sup>3</sup> 2.5 hours to fully recharge charging device

<sup>4</sup> 4 hours to fully recharge charging device

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		AA batteries	Recharg. Battery	AC/DC	Solar			Mini USB	USB	Cell Tips	AC/DC	Connector	AC/DC	Solar <sup>1</sup>	Talk	Music	Video	Laptop	Cell phone	Mp3	Camera/Video	Laptop	Other <sup>2</sup>		
5	<a href="#">Tekkeon MP3450</a>	-	X	X	-	3.3x0.9x6.9	15.3	X	X	X	-	4	-	-	60 - 12 0	42- 82	6- 12	3.5 - 7	X	X	X	X	X	4	\$119.99
6	<a href="#">Zap AA Universal Recharge it All</a>	X	-	-	-	3x3x1	16	-	X	X	X	NS	NS	-	NS	NS	NS	-	X	X	X	-	X		\$29.99
7	<a href="#">ZAP Recharge All M48</a>	-	X	X	-	NS	48	-	X	X	-	NS	NS	-	NS	NS	NS	4	X	X	X	X	X	1, 2	\$149.99
8	<a href="#">Brunton Solo Battpack</a>	X	X	X	-	3x5x1.25	6.6	-	X	-	X	4	2.5	9	NS	NS	NS	-	X	X	X	-	X		\$39.99
9	<a href="#">Brunton Sustain Portable Power Device</a>	-	X	X	-	7.5x3.5x1	21	-	X	X	X	NS	NS	-	NS	NS	NS	NS	X	X	X	X	X	10, 11	Feb. 2010
10	<a href="#">Brunton Solaris 26 solar panels</a>	-	-	X	X	37.5x21.5	28	-	X	X	-	<i>Varies<sup>5</sup></i>			NS	NS	NS	-	X	X	X	-	X	4, 5, 10	\$309.93

<sup>5</sup> 1-3 hrs to fully charge cell; 2-3 hrs to fully charge camera/mp3

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1 1	<a href="#">Solio H1000</a>	-	X	X	X	7.8x2.7x0.7	4.6	X	X	X	-	NS	NS	NS <sub>6</sub>	NS	10	NS	-	X	X	X	-	X	3, 6	\$39.95
1 2	<a href="#">Solio Magnesium Charger</a>	-	X	X	X	4.7x2.5x1.3	6.3	X	X	X	-	6	-	NS <sub>7</sub>	NS	20	NS	-	X	X	X	-	X	3	\$149.95
1 3	<a href="#">Lenmar PPUS20 PowerPort</a>	-	X	X	X	0.1x1.8x3.8	10.9	-	X	X	-	-	NS	4-6	8	NS	NS	-	X	X	X	-	X	3	\$37.99
1 4	<a href="#">iceTECH Solar I-9005</a>	-	X	X	X	5.4x3.1x0.9	8.32	-	X	X	-	-	5	10-12	NS	NS	NS	-	X	X	X	-	X	1	\$79.99
1 5	<a href="#">Wagan 2053 Solar E Power</a>	X	X	X	X	4.5x2.6x1.3	5.6	-	X	X	X	-	-	NS	NS	NS	NS	-	X	X	X	-	X	3, 10	\$54.99

<sup>6</sup> 1 hour of sunshine provides approx 14 minutes of cell phone talk time or 40 minutes of mp3 playback

<sup>7</sup> 1 hour of sunshine provides 20 minutes of cell phone talk time or 50 minutes of mp3 playback

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1 6	<a href="#">Wagan 2558 Solar e Power II</a>	-	X	X	X	4.75x3x .05	7.6	-	X	X	X	NS	NS	8	NS	NS	NS	-	X	X	X	-	X	3	\$69.99

NOTES	
1	LED screen (displays status)
2	Battery charge stores up to 6 months
3	Battery charge stores up to 1 year
4	Can charge rechargeable batteries
5	Can recharge car, motor home, boat, snowmobile batteries
6	Can be recharged by USB or AC/DC
7	Can be recharged from cars, planes, boat or any AC outlet
8	Can be used for data transfer cables and Ethernet cables
9	International use (adaptor/converter)
10	Prevents reverse flow of electricity from batteries to the solar panel (will not drain remaining battery power from device being charged)
11	Water resistant

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