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GOOD STORY

Hurricane Sandy: Mobile Power Devices Used to Convert Kinetic Energy to Electricity

The LLIS.gov team identified several innovative Whole Community ideas and practices to support preparedness, response, and recovery following Hurricane Sandy.

SUMMARY

Following Hurricane Sandy, an electronics company provided nPower Personal Energy Generators (PEGs), small, wand-like devices that when shaken or worn during normal daily activities convert kinetic energy into electricity, to relief workers and survivors in some of the most devastated disaster areas. These nPower PEGs enabled relief workers and survivors to recharge their communication devices and maintain communications during the critical days of recovery.

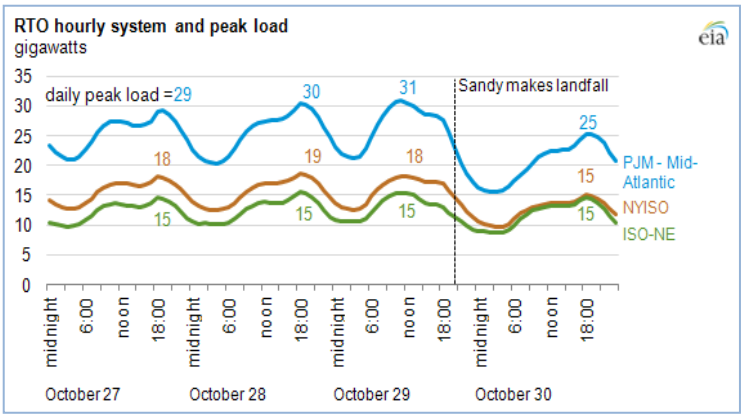
DESCRIPTION

Hurricane Sandy

On Monday, October 29, 2012, Hurricane Sandy made landfall near Atlantic City, New Jersey, pushing a massive storm surge to shore and generating winds to up to 75 miles per hour. The National Hurricane Center downgraded Sandy to a post-tropical cyclone shortly after landfall. Sandy caused storm surge, record flooding, and wind damage. Nine days after the storm, a large nor'easter caused massive snowfall undermining response operations in the disaster-impacted areas.

House damaged by Hurricane Sandy (*Source*: FEMA)

As a result of these events, millions of people were left without power and hundreds were displaced along the East Coast from North Carolina to Maine. More than 70,000 linemen, technicians, and workers conducted power restoration operations after the storm.



(*Source*: U.S. Energy Information Administration)

According to the Department of Energy, Office of Electricity Delivery and Energy Reliability's Final Situation Report, "The combined total peak customer electricity

outages from Hurricane Sandy and the Nor'easter [were] 8,661,527: 8,511,251 from Hurricane Sandy and 150,276 from the Nor'easter Storm, respectively." New York and New Jersey, two of the most populated states in the nation, were particularly impacted by the storm.

In the aftermath of Hurricane Sandy, millions of people, including relief workers, struggled to maintain communication with the rest of the world due to the lack of power to recharge communication devices, especially cell phones.

Over the years, many after action reports (AARs) have highlighted the importance of power for disaster response and recovery. The 1990 Hurricane Hugo: Lessons Learned in Energy Emergency Preparedness AAR states, "**Energy is the common denominator**. In any large-scale natural disaster, energy is the common denominator. Its loss is capable of causing severe economic dislocation. On the other hand, it is essential to recovery as well. In the case of Hurricane Hugo, electric power was the principal infrastructure component that had to be rapidly restored. Because the prolonged disruption of electric power can have profound adverse effects on health, safety, and commerce and industry, emergency planners must be prepared to respond accordingly."

The nPower Personal Energy Generator

At the onset of response operations, a team from Occupy Sandy Recovery, a coalition of people and organizations dedicated to helping neighborhoods and individuals impacted by Hurricane Sandy, approached Cleveland-based Tremont Electronics seeking donations of mobile power devices. The company donated 10 nPower Personal Energy Generators (PEGs) from its Mobile Power for Crisis Mappers project. In addition, the Occupy Sandy team used crowd-funded resources to acquire additional nPower PEGs. These devices then were distributed to relief workers and survivors in some of the areas hit hardest by the storm.

(*Source*: Tremont Electric)

The nPower PEG is a small, wand-like device that when shaken or worn during normal daily activities, converts kinetic energy into electricity that can immediately power small devices such as cell phones. By carrying this device, relief workers and survivors were able to recharge their cellular phones and sustain communications during the critical days of recovery.

REFERENCES

Department of Energy. *Hurricane Sandy and Our Energy Infrastructure. Acting Under Secretary of Energy David Sandalow's remarks, as delivered, at the Columbia University Energy Symposium on November 30, 2012.* (Website accessed on 09 January 2013). http://energy.gov/articles/hurricane-sandy-and-our-energy-infrastructure

Department of Energy, Energy Information Administration. *Despite customer outages, wholesale electric markets operated during Hurricane Sandy*. 13 Nov 2012. (Website accessed on 09 January 2013). http://www.eia.gov/todayinenergy/detail.cfm?id=8750

Occupy Sandy Recovery. http://interoccupy.net/occupysandy/

Strom Thurmond Institute. *Hurricane Hugo: Lessons Learned in Energy Emergency Preparedness*. 22 Feb 1990.

http://www.csc.noaa.gov/hes/docs/general_info/HURRICANE%20HUGO%20LESSONS%20LEARNED%20IN%20ENERGY%20EMERGENCY%20PREPAREDNESS.pdf

Tremont Electric. *nPower PEG.*
http://www.npowerpeg.com/