BIDIRECTIONAL MOBILE CHARGING VEHICLES FOR USE IN DISASTER RELIEF

The convergence of a warming climate and intense weather impacts many dimensions of society. Resilience means much more than just engineering, architecture and physics, it also includes strategies to adapt emergency management and public health to help in the aftermath of disasters which are linked to a warming world.

This Climate Monitor report focuses on a new and exciting potential solution…mobile charging centers that can be quickly deployed to areas which suffer unexpected power outages, hurricane impacted areas, tornado-stricken communities and whole towns scorched by wild fires.

Each hurricane and wildfire that strikes and scars our nation provides valuable lessons and opportunities for the next catastrophic event. As technology surges ahead with new tools and options to be employed in the recovery phase of such disasters, we can learn a lot.

Canary Media.com reported on October 18, 2022 about a California project that is testing transit buses to serve as sources of mobile back up power. According to the article, the state-funded pilot effort can, if it works, replace the pollutant spewing diesel generators used when blackouts occur.

Imagine what immediate power-supplying relief could do to assist a community which loses power for hours, days or weeks when the grid is destroyed or interrupted. With the advent of electric buses serving as mobile power centers, sections of affected areas can still electrify compact air conditioners, lights and small refrigerators.

In a press release dated October 11, 2022, Business Wire reported the California Energy Commission is planning to demonstrate how a bi-directional electric vehicle can be used to charge buildings. For example, the experiment will endeavor to use zero-emission electric buses to provide air conditioning to a public library in the City of Oakland, California. This process can be used during extreme high temperature days or when outside wild fire smoke inhalation is dangerous to human health.

The Project, named V2B Oakland, (V2B stands for vehicle to building) is to create "community resilience hubs" powered by the bidirectional V2B charging system. According to The Mobility House, one of the entities involved in this innovative project, quote, Each battery electric bus will contribute 6 hours of back-up power. Buses equipped with hydrogen fuel will provide up to 11 continuous hours of backup power. The Press Release claims the 11 continuous

hours of hydrogen power can eliminate nearly 100 pounds of carbon emissions per hour when compared to emergency generators which are powered by dirty diesel.

Let's game this out. Instead of requiring traditional greenhouse gas producing backup generators, buses, including school buses, equipped with this technology can be driven to energy deprived areas as soon as local disaster response officials clear entrance to an emergency venue. For those that do not have the resources to afford backup generators, such technology, when proven, can provide energy relief to keep survivors and those displaced in more comfortable surroundings until additional disaster relief assistance arrives or relocations begin.

A fleet of electric buses which serve as bidirectional mobile energy systems can be disbursed to many different areas for immediate relief. That's exciting, because people with special needs, health problems and residents exposed to the elements can use emergency shelters to rest in air-conditioned comfort. These days, with record breaking highs and higher temperatures projected in the coming years, the buses can make the difference between heat stroke and smoke inhalation versus small safer inside environments.

Once this concept is perfected, electric or hydrogen fueled buses can be key tools for emergency managers, fire departments and front-line community health care providers.

Business Wire reports the California pilot project will continue until July 2025. It is a joint project with The Mobility House, the Center for Transportation and the Environment, NFI, New Flyer, Schneider Electric and the California Energy Commission. Contact information is provided in the Business Wire Report which is linked to the show notes for this episode of Climate Monitor.

Let's think about hurricane vulnerable areas. If fleets of these new generation buses are ready to respond to community recovery needs, public safety and health efforts can be provided with just a moment's notice…instead of days or weeks until power is restored from the grid.

In the immediate aftermath of Hurricane Irma in 2017, a nursing home in Broward County, Florida lost its air conditioning for days. Twelve residents of the facility perished by remaining in the facility, as opposed to being moved to a hospital just across the street. With this kind of innovative technology, such a tragedy should never happen again.

Even without hurricanes or wildfires, air conditioning units fail without warning during thunder storms and even during sunny-day events. Schools, clinics and hospitals fitted with bidirectional electric chargers can benefit from mobile energy centers when this technology is commercialized.

But large bus power plants are just one answer. Bidirectional power to and from personal pickup trucks and electric vehicles can provide power to a house when the local utility cannot provide energy in the aftermath of emergency conditions or electric infrastructure failures.

The new battery powered Ford F150 is an example of personal vehicle to grid technology. Canary Media reported as far back as June, 2021, that these new E powered vehicles can send back up power to homes without creating greenhouse gas pollution.

In a promotional video, Ford explains that with the use of a Ford Charging Station Pro, which can be purchased with the F-150 Lightening Extended Range Truck, along with a home integration system called Ford Intelligent Back up Power can come to the rescue. When energy stoppages occur, the truck can power your house.

That means your truck is a personal power generator on wheels.

Besides Ford, Canary Media reported on that General Motors, BMW, Volkswagen and Hyundai and Nissan are working in the bidirectional arena as well.

ENDING REMARKS

You can learn more about this topic by visiting Canary Media.com. In an article dated April 27, 2022, it published an article about bidirectional charging for home backup power, and the involvement of the U.S. Department of Energy's efforts in a "Vehicle to everything" collaboration with the private sector.

I'm Mitch Chester. Thanks for joining us on the Climate Monitor podcast. Please check back for more exploration about the issues raised by increasing climate pollution and what we can do to start taking control… to secure our future.