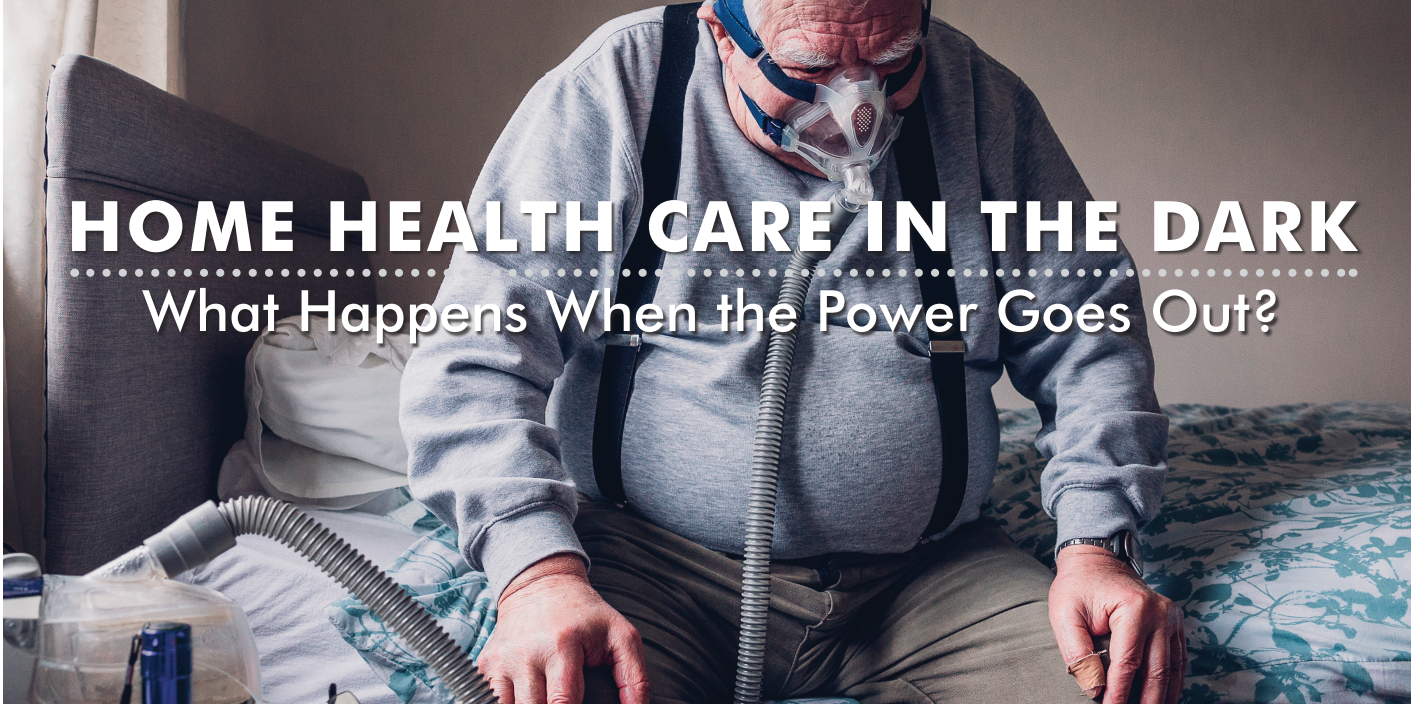


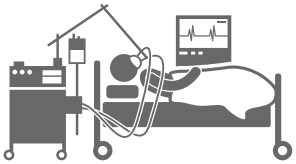
HOME HEALTH CARE IN THE DARK

What Happens When the Power Goes Out?

Clean Energy Group and **Meridian Institute**, two national nonprofit organizations working at the intersection of climate, health, and clean energy, are developing and advancing resilient power strategies to prevent or minimize deaths and public health crises caused by power outages, by placing battery storage power systems in medically vulnerable households and critical health facilities. As more people are encouraged to receive health care at home rather than to seek care in hospitals and nursing homes, the health care community must ensure an equally high standard of emergency care and support in home health settings as exists in medical facilities.

Even short-term power outages adversely affect public health

- For patients dependent on electricity for in-home medical equipment, an outage can quickly become an emergency situation. The elderly, the sick, and the poor are especially vulnerable.
- There are at least 2.5 million people reliant on in-home, electricity-dependent medical equipment, such as oxygen concentrators; many are over 65, and the senior population is expected to double by 2060.
- Millions more rely on electricity to power their daily "home care" services, such as refrigeration for medications, heating and cooling, and mobility devices.
- It is estimated that 73,600 to 184,000 children in the United States rely on electricity-dependent medical technology.



The loss of power can be life-threatening for the medically vulnerable

- Health care complications, including outage-related issues like medical device failure, accounted for nearly one-third of the estimated 4,645 additional deaths in the three months following Hurricane Maria in 2017.
- Mortality data published after Hurricane Irma battered the Gulf Coast in 2017 showed more than 15% of deaths were attributed to power outages that worsened existing medical conditions.
- In 2008, of the 1,400 people that checked into emergency medical shelters during Hurricane Gustav, 20%–40% relied on electrical medical equipment.
- For many dependent on electricity for medical equipment, the local hospital or medical clinic becomes the place of refuge during a grid outage or disaster, compounding a public health emergency at critical facilities.

Growing impacts from outages due to severe weather are an increasing threat

- Electric power outages almost doubled in duration from 2016 to 2017.
- Five months after Hurricane Maria destroyed Puerto Rico's energy systems, 400,000 people remained without power.
- In California, there were 85 deaths due to the 2018 Camp Fire and thousands were forced to seek emergency shelters. Some utilities are now considering shutting down power lines to millions to reduce the risk of accidentally sparking a wildfire. These planned outages could compromise the safety of electricity-dependent customers.
- In 2018, Hurricane Michael and Hurricane Florence each left upward of a million people in the dark across the Southeast United States.

See solutions, page 2 ▶

CleanEnergyGroup
Innovation in Finance, Technology & Policy

www.cleanegroup.org | www.merid.org
June 2019

Meridian Institute
Connecting People to Solve Problems

Battery storage systems can reliably and cost-effectively prevent disruptions in home health services by storing electricity for use when grid power is unavailable.

- Battery storage represents a clean, reliable alternative to noisy and polluting diesel generators.
- When the grid is functioning, battery storage systems can shift and optimize energy demand to reduce electricity bills.
- Battery storage can generate revenue by participating in utility and grid services programs.
- When there is an outage, a battery system can automatically disconnect from the grid to power home devices until grid services are restored.
- Battery storage is becoming more affordable as costs continue to decline.
- Several states and some utilities are offering incentives to consumers to install home battery storage systems.
- Battery storage paired with solar PV, the ideal resilient power solution, can provide longer-duration back-up power than batteries alone.

"Home Health Care in the Dark"

A REPORT FROM CLEAN ENERGY GROUP AND MERIDIAN INSTITUTE

Home Health Care in the Dark examines the risks associated with power outages for individuals reliant on electricity for in-home medical and mobility equipment. Current energy security technologies and polices will need to adjust to meet the needs of the home health care community.

Policy barriers should be replaced with incentives and programs that make battery storage adoption easier. These challenges are not unsurmountable, especially if the agencies responsible for the wellbeing of medically vulnerable residents, like Medicare, Medicaid and the utilities, join in to develop and deploy resilient power solutions.

The report lists a set of recommendations to suggest concrete opportunities to improve access to resilient power technologies. The full report and accompanying references can be downloaded at www.cleanegroup.org/ceg-resources/resource/battery-storage-home-healthcare.

People who are at home with electricity-dependent medical equipment should not have to worry about how to survive the next power outage. The technology to improve resiliency and energy independence exists, and it must be made more accessible to those who could benefit most from it. Learn more about the work of Clean Energy Group and Meridian Institute on resilient power solutions at www.resilient-power.org.

Recommendations for Advancing Battery Storage for Medically Vulnerable Individuals

Support research. The impact that outages have on medically vulnerable households remains narrowly explored, and even fewer resources are available on the role of battery storage in mitigating those impacts. Energy security in home health care should be funded as a priority research field within public health, including issues regarding low-income access to technology innovation and the public health benefits of installing resilient power systems in home health care settings.

Develop better data. The lack of a comprehensive, publicly available dataset makes it difficult to determine the exact size and demographic characteristics of the in-home, electricity-dependent population. To determine the size and scope of the electricity-dependent population, utilities and agencies such as Medicare and Medicaid should pool resources, coordinate data, and fund researchers to develop more reliable information into a single, unified source.

Utility administered residential battery storage programs. Utilities should provide battery storage to homes to protect against outages as part of new utility storage services. States should consider requiring utilities to provide battery storage as an essential customer service for home health care customers. Expanding utility energy efficiency programs to include battery storage also would establish a steady stream of funding for low-income battery storage programs.

Technology innovation and market development. There is no targeted market today for third-party providers to offer battery storage technologies to home health care households. There is an urgent need for a comprehensive market development effort that will focus on technology innovation to develop suitable products and bring down costs.

Expand Medicare coverage to include battery storage. If battery storage was included in the list of Medicare eligible durable medical equipment (DME), doctors would be able to prescribe battery storage. Medical device providers would then supply resilient power systems to home health care residents.