

STAYING POWER

Renewable microgrids increasingly keep businesses running.



Hospitals can't lose power. Period. Doctors and patients depend on electricity to run the sensors, monitors, infusion devices and other equipment needed to deliver care and save lives.

Traditionally, hospitals relied on their own microgrids for backup power when outages occurred. A microgrid is a source of electricity that serves a specific local area, such as a hospital, campus or business complex, and can be operated independently from the traditional utility electricity grid.

Most microgrids are powered by diesel generators which emit large amounts of carbon dioxide and more than 40 toxic air contaminants, including known carcinogens. That's not the healthiest solution, especially for a healthcare provider.

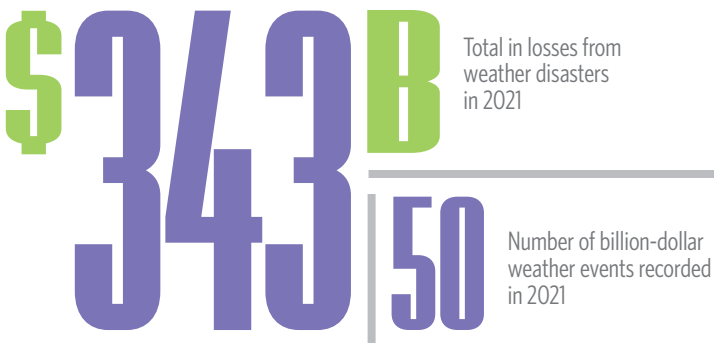
This is why hospitals have been among the earliest adopters of renewable microgrids, which are based on sources such

as solar, wind, biofuel and fuel cells, often accompanied by battery storage.

In 2017, healthcare provider Kaiser Permanente integrated a microgrid consisting of 250 kilowatts of solar and a one-megawatt battery system to its existing diesel-powered backup system at its Richmond Medical Center in California. Besides ensuring uninterrupted power to the hospital's acute-care facility, the microgrid helps Kaiser Permanente maintain the carbon neutral status it achieved in 2020. It's also projected to save nearly \$400,000 annually by lowering the amount of electricity

Shock Value: The war in Ukraine has driven home the volatility of fossil-fuel-based energy.

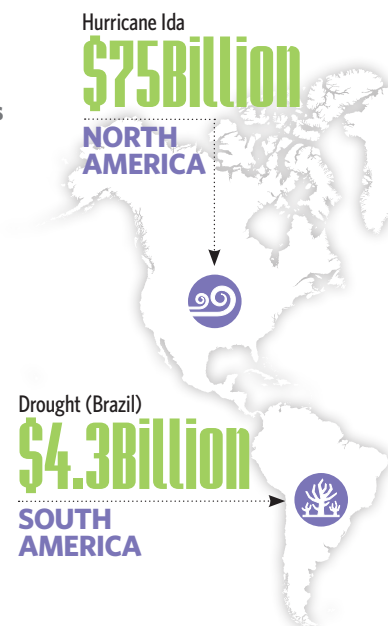
THE BIG NUMBERS



2021 COSTLIEST CLIMATE DISASTERS BY REGION

Climate Change Costs

As climate change fuels more extreme weather events, the human and economic impact becomes greater. Across the world in 2021, there were over 400 natural disasters. Fifty of them exceeded a billion dollars in damage, according to global reinsurer Aon's 2021 Weather, Climate and Catastrophe Report.





BELOW, ???/?/ISTOCK; ABOVE, STEVE PROEHL/GETTY IMAGES

the facility must purchase from the utility.

The need for microgrids is growing as extreme weather events associated with climate change increase the frequency of grid outages that impact business operations. A recent Associated Press analysis of utility data submitted to the U.S. Department of Energy (DOE) found that the annual number of severe weather-related outages have more than doubled since the early 2000s. Across the economy, the DOE estimates that power outages cost businesses \$150 billion each year.

Last year, consultancy Wood Mackenzie

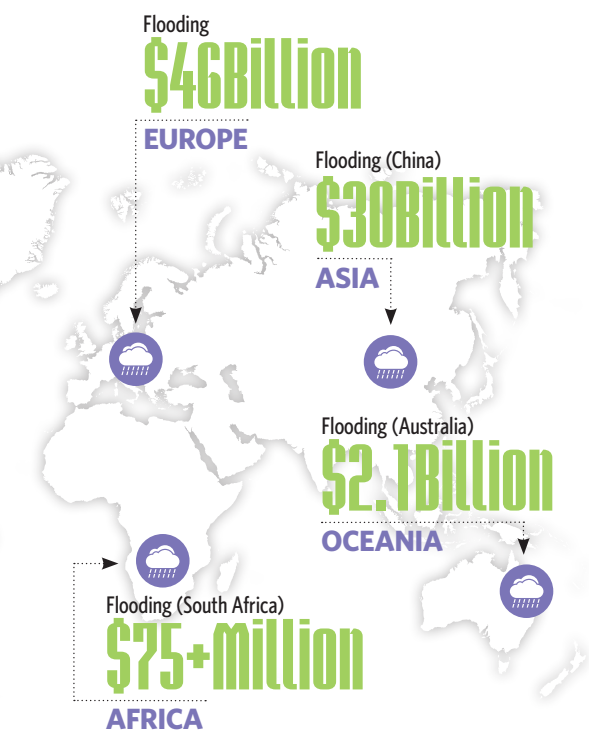
Power and Renewables (WoodMac) reported that 2021 was on track to be a record year for microgrid installations in the U.S. and estimated that 800 megawatts of microgrid projects would be installed by 2024. According to WoodMac, companies that have already installed microgrids include The Home Depot, Whole Foods, GM, Toyota, Stop & Shop and Kaiser Permanente.

Some of these microgrid programs aren't quite so micro: The JFK airport modernization project, for example, will use microgrids as part of an effort to move the airport to 100 percent renewable energy over the coming decade.

For organizations with lesser needs, the "microgrids as a service," or MaaS, model offers a more affordable alternative. Microgrid developers are responsible for designing, financing and installing a microgrid at a company's facility. The company in turn agrees to purchase electricity produced by the microgrid at a set price for a set period of time, usually 25 years, which can help insulate a business from future utility price hikes. Market researcher Knowledge Sourcing Intelligence projects the global MaaS market to grow to \$2.6 billion by 2026, from \$812.5 million in 2019.

Increasingly frequent power outages take a toll on companies' financial performance. Yet traditional fossil fuel backup solutions only contribute to climate-change-fueled extreme weather. Renewable microgrids can help companies make progress towards decarbonization goals while also ensuring they stay open and operating at all times. **IQ**—Chris Warren

Flight Plan:
Microgrids can provide clean power for airports and help them avoid power outages.



EXECUTIVE MINDSET

Backup plan:

*"Our stores are **an important community resource for our customers**, particularly when severe weather strikes. Whether customers need to stock up on food, batteries, flashlights, other emergency items, or even their prescription medications, we know how vital the products and services our stores provide are. [Microgrids] will not only reduce our stores' impact on the environment but also ensure our stores can stay open when needed most."*

—Gordon Reid,

President of Stop & Shop, in a 2020 announcement about microgrids being installed at 40 of the company's stores