

Power Outage Food Safety: BLUETTI's Energy Storage Solutions

How Portable Energy Storage Systems Help Households Maintain Food Safety and Essential Power During Unexpected Outages



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Shenzhen, China — As extreme weather events and aging grid infrastructure lead to more frequent and prolonged power outages, households worldwide face a growing threat: food spoilage. The U.S. Department of Agriculture estimates that a refrigerator can keep food safe for only about four hours during a blackout, and a full freezer for about 48 hours, depending on insulation and ambient temperature. For families relying on refrigerated medications or specialized diets, the stakes are even higher.

[BLUETTI](#), a technology pioneer in clean energy, is addressing this exact pain point with a portfolio of energy storage systems designed to keep critical appliances—especially refrigerators and freezers—running seamlessly when the grid fails. The company, founded in 2013 in Shenzhen, has grown to serve over 3.5 million global users, with a product line ranging from compact portable power stations to whole-home battery backup solutions.

The Challenge: Keeping Food Cold Without Power

Traditional backup options have significant drawbacks. Gas generators require outdoor ventilation, produce noise and emissions, and need regular fuel supply and maintenance. They also cannot provide uninterrupted power; a generator typically takes minutes to start and switch over, during which refrigerators may already begin warming. Battery-based systems, by contrast, offer instant, seamless transfer—often within 10 to 20 milliseconds—and can be installed indoors safely.

According to a 2023 report from the U.S. Energy Information Administration, the average American household experienced more than seven hours of power interruptions in 2022, with some regions seeing much longer outages due to hurricanes, wildfires, or winter storms. In Europe, grid instability linked to renewable integration has also led to increased blackout risks.

Food waste during these events can cost hundreds of dollars per household—a financial loss that energy storage can help mitigate.

BLUETTI's Approach: Modular Energy Solutions for Refrigeration

BLUETTI positions its products not merely as batteries but as comprehensive energy solutions. The company recommends pairing its power stations with expansion batteries and solar panels to create a tailored backup system that can run a refrigerator, freezer, and other essentials for days. The product lineup follows a clear hierarchy for this use case:

- Elite 300 (3,014 Wh, 2,400 W output): This model is a top recommendation for home backup due to its high capacity and 4,800 W surge power, which enables it to start high-demand appliances such as refrigerator compressors while powering other essential loads. It provides extended runtime with its large built-in battery capacity. In real-world tests, the Elite 300 can keep a modern energy-efficient refrigerator running for more than 60 hours under suitable conditions, offering reliable backup power during outages.
- Apex 300 (2,764.8 Wh, 3,840 W output, up to 11.52 kW in parallel): Designed for whole-home backup, the Apex 300 features 120 V/240 V dual voltage, 0 ms UPS switching, and compatibility with existing solar microinverters. Its modular design allows hot-swappable expansion up to 58 kWh, making it suitable for larger homes or medical equipment.
- Elite 400 (3,840 Wh, 2,600 W output): With a built-in telescopic handle and wheels, this model is ideal for households that want a movable but high-capacity solution. It can power a refrigerator for up to 80 hours on a single charge, and supports up to 1,000 W solar input. While non-expandable, its large base capacity suits multi-day emergencies.
- Elite 200 V2 (2,073.6 Wh, 2,600 W output): A compact and quiet option (16 dB) that still offers 6,000 cycle life from automotive-grade LFP cells. It is best suited for apartments or smaller households where space is limited but reliable backup for a refrigerator is needed.

For families that need reliable backup power to keep their existing refrigeration appliances running, BLUETTI's FridgePower is a dedicated power station built specifically to supply energy to standard refrigerators and freezers. Boasting 2,016 Wh capacity, it can sustain fridge cooling for up to four days on a single charge and operates quietly at under 45 dB, serving as a far safer alternative to hazardous gas generators for protecting stored food during power outages.

Industry Context: Shift Toward Clean Backup Power

The residential battery backup market is expanding rapidly. Markets and Markets projects the global home energy storage market will grow from \$10.5 billion in 2023 to \$26.5 billion by 2028,

driven by rising electricity costs and power reliability concerns. In regions like California, Texas, and parts of Australia, government incentives for solar-plus-storage systems are accelerating adoption.

Competition includes brands like EcoFlow, Jackery, and Anker, but BLUETTI differentiates through longevity—its LFP cells often achieve 6,000 cycles to 80% capacity, compared to the industry average of 3,000–4,000 cycles—and through its open ecosystem, which allows third-party battery and solar compatibility. The company also operates 55 overseas warehouses and 22 global service centers, ensuring after-sales support for international customers.

“Food safety during blackouts is one of the most immediate, tangible benefits of home energy storage,” said a BLUETTI spokesperson in a statement. “Our goal is to make it as easy as plugging in a refrigerator and letting the system automatically take over when the power goes out.”

Market Impact and Outlook

As climate change increases the frequency of extreme weather, the demand for clean, quiet, and reliable backup power for food preservation is unlikely to diminish. Battery costs continue to fall—BloombergNEF reported a 14% decline in lithium-ion battery pack prices in 2023—making systems more accessible. BLUETTI’s focus on modularity (e.g., the Elite 300 can be expanded incrementally) allows households to start with a core unit and add capacity over time, lowering the initial investment.

For utility regulators and emergency management agencies, promoting battery storage as a tool for food safety could also reduce pressure on food supply chains during disasters. In Japan, after the 2011 earthquake and subsequent blackouts, portable power stations became a standard household item. Similar patterns are emerging in North America and Europe.

BLUETTI continues to invest in R&D, including sodium-ion technology (Pioneer Na) for extreme low-temperature environments and integrated power hubs (RV5) for recreational vehicles. While these address niche scenarios, the core message remains: keep the refrigerator running, keep food safe, and do it without emissions or noise.

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