



# Powering Medium-Sized Businesses with 100kWh Battery Storage

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### Table of Contents

The Core Question: How Long Can It Last?

Modern Business Energy Appetite

Real-World Power Scenarios

Smart Energy Solutions from Highjoule

Making Every Watt Count

### The Core Question: How Long Can It Last?

How long will a 100kWh battery power a medium-sized business? Well, that's the million-dollar question - or should we say, the 100-kilowatt-hour puzzle. You're running a 5,000 sq ft office space with computers humming, HVAC systems purring, and production equipment buzzing. Could our hypothetical battery keep things running through a blackout? The short answer: It depends. But let's dig deeper.

During last month's Texas heatwave, we saw retail stores drawing 25kW during peak hours. At that rate, a 100kWh system would last just 4 hours. But here's the kicker - many Highjoule clients using our SmartLoad(TM) systems stretch that same capacity to 8+ hours through intelligent load management. It's not just about storage size, but how you dance with the power you've got.

### The Modern Business Energy Appetite

Commercial facilities are energy snackers turned ravenous eaters. From LED lighting to industrial 3D printers, the typical mid-sized operation now uses:

15-30kW for basic office operations

Up to 50kW for light manufacturing

20kW+ for commercial kitchens

Our analysis of 150 businesses shows most hit peak loads between 2-5 PM. That's when solar production typically wanes, creating the perfect storm for battery dependency. But wait - does that mean your 100kWh system is doomed? Not if you pair it with Highjoule's predictive charging algorithms that anticipate usage spikes.



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## Real-World Power Scenarios

Let's break it down with actual 2024 data from Highjoule's client portal:

Business Type	Average Load	Backup Duration
Dental Clinic	8kW	12.5 hours
Microbrewery	35kW	2.8 hours
E-commerce Warehouse	22kW	4.5 hours

The microbrewery example hits hard - 100kWh disappears faster than last call. But here's where our EnergyBuffer(TM) systems shine. By staggering refrigeration cycles and prioritizing critical loads, they've stretched runtime to 5 hours. Not perfect, but enough to prevent a \$15,000 batch from spoiling.

## Highjoule's Game-Changing Approach

Since 2005, we've been flipping the script on static battery solutions. Our modular MatrixBank systems let businesses:

- Scale storage incrementally
- Integrate real-time load monitoring
- Pair with onsite solar/wind

Take Chicago's GreenBean Roastery - they combined 100kWh storage with our CloudSync(TM) management. During October's grid instability, they maintained operations for 7 hours by dynamically adjusting roaster schedules and retail lighting. That's the beauty of adaptive energy management.

## Making Every Watt Count

Three game-changing tactics for extending runtime:

1. Load Shifting: Running heavy equipment during off-peak solar hours
2. Demand Response: Automatically shedding non-essential loads
3. Thermal Banking: Pre-cooling spaces before peak rates hit

Our UK-based partner, BakeStreet Ltd., used thermal banking in their commercial kitchens. Precooling walk-in fridges during cheap-rate hours reduced their peak demand by 40%. Suddenly,



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that 100kWh battery looks like it's packing an extra shot of espresso.

### The Future-Proof Factor

With energy prices swinging like a pendulum, businesses need storage that adapts. Highjoule's systems come with forward-compatible architecture - today's 100kWh unit can expand to 500kWh as needs grow. It's like building a power LEGO set that evolves with your business.

As the EPA tightens emissions rules, dual-use systems are becoming the new normal. Think: Using battery storage for daily load balancing while keeping emergency reserves. It's not cheating the system - it's working smarter in an energy-crunched world.

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