



# Thermal Energy Storage in Supermarkets: Market Trends & Opportunities

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### Why Supermarkets Are Heating Up the TES Market

Imagine your local grocery store humming like a beehive of energy efficiency - that's exactly what thermal energy storage (TES) systems are enabling. The supermarket sector now accounts for 18-22% of commercial TES installations globally, according to 2024 industry analyses. Let's unpack why frozen food aisles aren't the only "cool" part of modern grocery stores anymore.

### Cold Hard Numbers: Market Share Breakdown

Refrigeration systems dominate 63% of TES applications in supermarkets

HVAC optimization claims 28% market share

Peak shaving solutions make up the remaining 9%

### The Iceberg Beneath the Surface: Key Growth Drivers

Walmart's recent pilot program tells the story - their Phoenix stores achieved 40% energy cost reduction using phase-change materials. Three market accelerators are reshaping the landscape:

#### 1. The Refrigeration Revolution

Modern TES systems now integrate with CO<sub>2</sub> refrigeration units, creating hybrid systems that could power a spaceship (or at least keep your lettuce crisp). The magic number? 72-hour thermal autonomy becoming the new industry standard.

#### 2. Demand Response 2.0

California's 2025 grid regulations have turned supermarkets into accidental energy traders. TES allows stores to "buy low, use smart" - shifting up to 80% of their energy consumption to off-peak hours.

#### 3. Sustainability Showdown

When Tesco introduced visible "energy dashboards" in UK stores, customer dwell time increased by 14%. Consumers now vote with their wallets - stores with TES certifications see 23% higher premium product sales.

### Frosty Challenges & Hot Opportunities

The road hasn't been all smooth sailing. Remember when a Midwest grocery chain's ice storage system froze over... literally? Current solutions focus on:

AI-driven load prediction algorithms

Modular TES units (think "energy Legos")

Blockchain-enabled energy trading between stores



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## The \$2.7 Billion Question

As the commercial TES market eyes \$8.9 billion by 2028, supermarkets are positioned to capture 30-35% of this growth. The secret sauce? Combining thermal storage with rooftop solar - a combo that's proving more popular than peanut butter and jelly.

## Future-Proofing the Frozen Aisle

Emerging technologies like cryogenic energy storage are turning freezer sections into power plants. One European pilot program achieved 107% energy self-sufficiency - your ice cream might soon help power the checkout lanes.

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