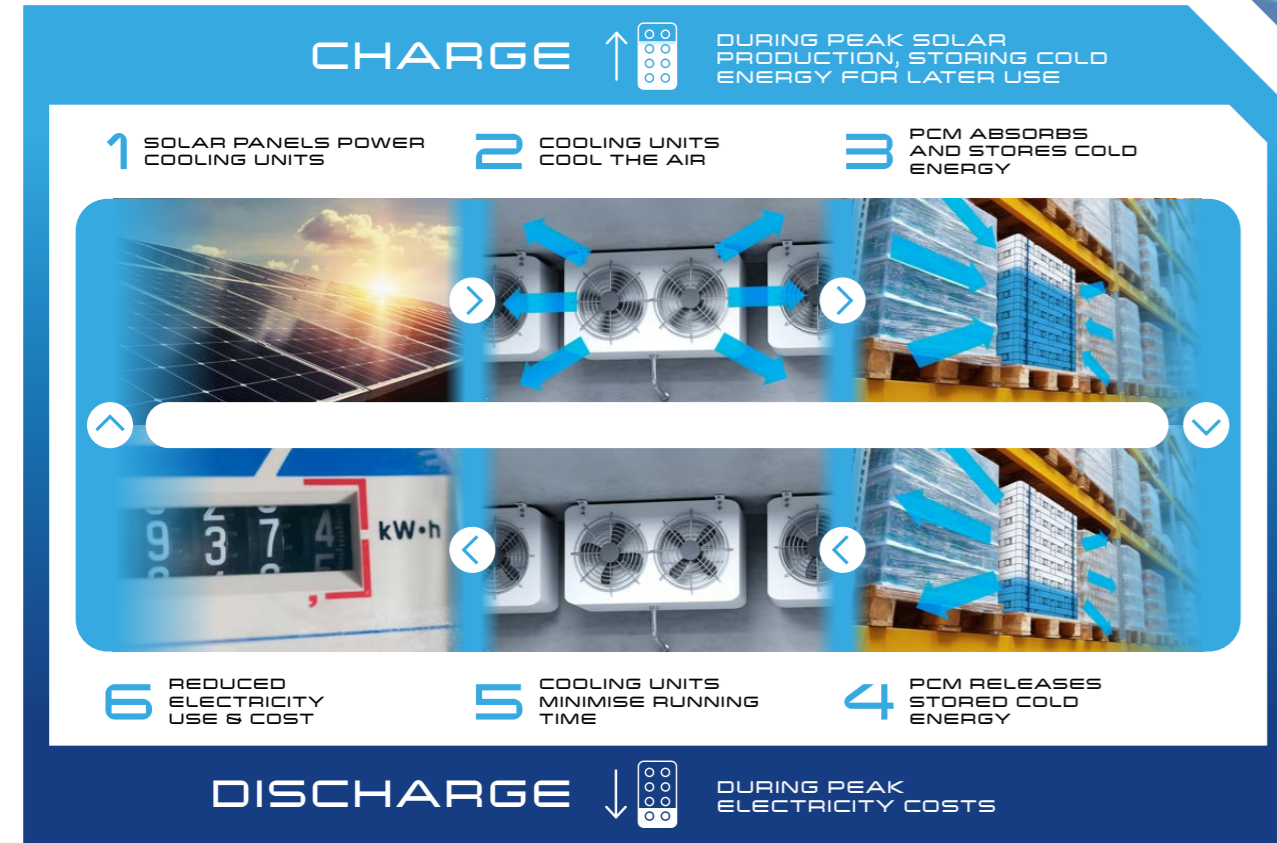


HARNESSING SOLAR POWER

Glacier Storage solutions work in perfect harmony with solar PV systems – using free renewable energy to charge PCM during the sunniest hours of the day, even when refrigeration isn't actively running.



PCM VS. ELECTRICAL STORAGE

- ✓ **LONGER LIFE EXPECTANCY**
PCM lasts for decades with zero degradation, unlike lithium-ion batteries that degrade over time.
- ✓ **HIGHER EFFICIENCY**
Thermal energy storage avoids the conversion losses associated with electrical charge/discharge cycles.
- ✓ **REDUCED GRID DEPENDENCY**
Shift your cooling demand away from the grid and cut operational costs without compromising performance.
- ✓ **LOWER COSTS & EASIER SCALABILITY**
PCM systems are maintenance-free, cost-effective, and scale naturally – ideal for growing facilities.

REAL-WORLD INSTALLATIONS'

Trusted solutions, proven performance – Glacier Storage at work in real cold stores worldwide.



PARTNER WITH GLACIER STORAGE

Whether you operate a warehouse, distribution centre, or temperature-sensitive supply chain, our solutions provide unmatched energy savings, system reliability, and sustainability.

+44 (0) 1733 245511
info@glacierstoragesolutions.com

glacierstoragesolutions.com

SMARTER, GREENER, MORE RESILIENT COLD CHAIN SOLUTIONS

glacierstoragesolutions.com



WHY CHOOSE GLACIER STORAGE?

LOWER ENERGY COSTS & PEAK LOAD SHIFTING

Reduce electricity usage by up to 45% by shifting cooling loads to off-peak hours and avoiding demand charges.

BOOST REFRIGERATION EFFICIENCY & LONGEVITY

PCM reduces compressor runtime, allowing systems to operate at optimal efficiency while extending equipment life.

ENHANCED TEMPERATURE CONTROL & RESILIENCE

PCM absorbs up to 80% of heat infiltration, minimising temperature fluctuations and providing backup cooling during power failures.

PRESERVE PRODUCT INTEGRITY

Maintain stable storage temperatures to prevent spoilage, micro-thawing, and quality loss in food and pharmaceuticals.

OPTIMISE RENEWABLE ENERGY INTEGRATION

Store excess cooling from solar and off-peak power for more sustainable energy usage.

SIMPLE INTEGRATION & SCALABILITY

Works with existing cold storage systems and can be easily retrofitted or installed in new builds.

STORE2SHELF

COMPLETE COLD CHAIN SOLUTIONS

Glacier Storage provides PCM-based thermal energy solutions for every stage of the cold chain, ensuring efficiency and reliability from cold storage to final delivery. Our Store2Shelf concept highlights how our full range of PCM products can be applied at each step of the process:

COLD STORAGE FACILITIES

Large-scale TES solutions optimise energy use and reduce peak demand.

DISTRIBUTION & LOGISTICS

PCM thermal storage in transport vehicles ensures stable temperatures during transit.

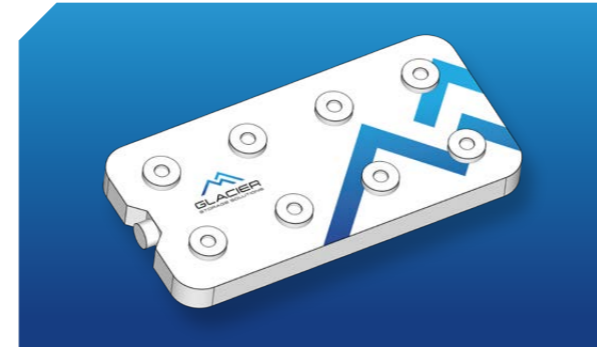
LAST-MILE DELIVERY

GlacierPack™ and GlacierFlex™ solutions maintain product integrity right up to final delivery.

By integrating PCM technology across every stage of the supply chain, Glacier Storage ensures the highest level of temperature control, cost savings, and energy efficiency.

INNOVATIVE TES SOLUTIONS

OUR WORLD-LEADING ENCAPSULATION RANGE ENSURES MAXIMUM THERMAL PERFORMANCE, ACROSS DIVERSE APPLICATIONS:



GLACIER PANEL™

Rigid and stackable PCM panels for large-scale cold storage energy management.



GLACIER CORE™+MODULE

Cylindrical PCM tubes in a frame for adaptable placement in refrigeration systems.



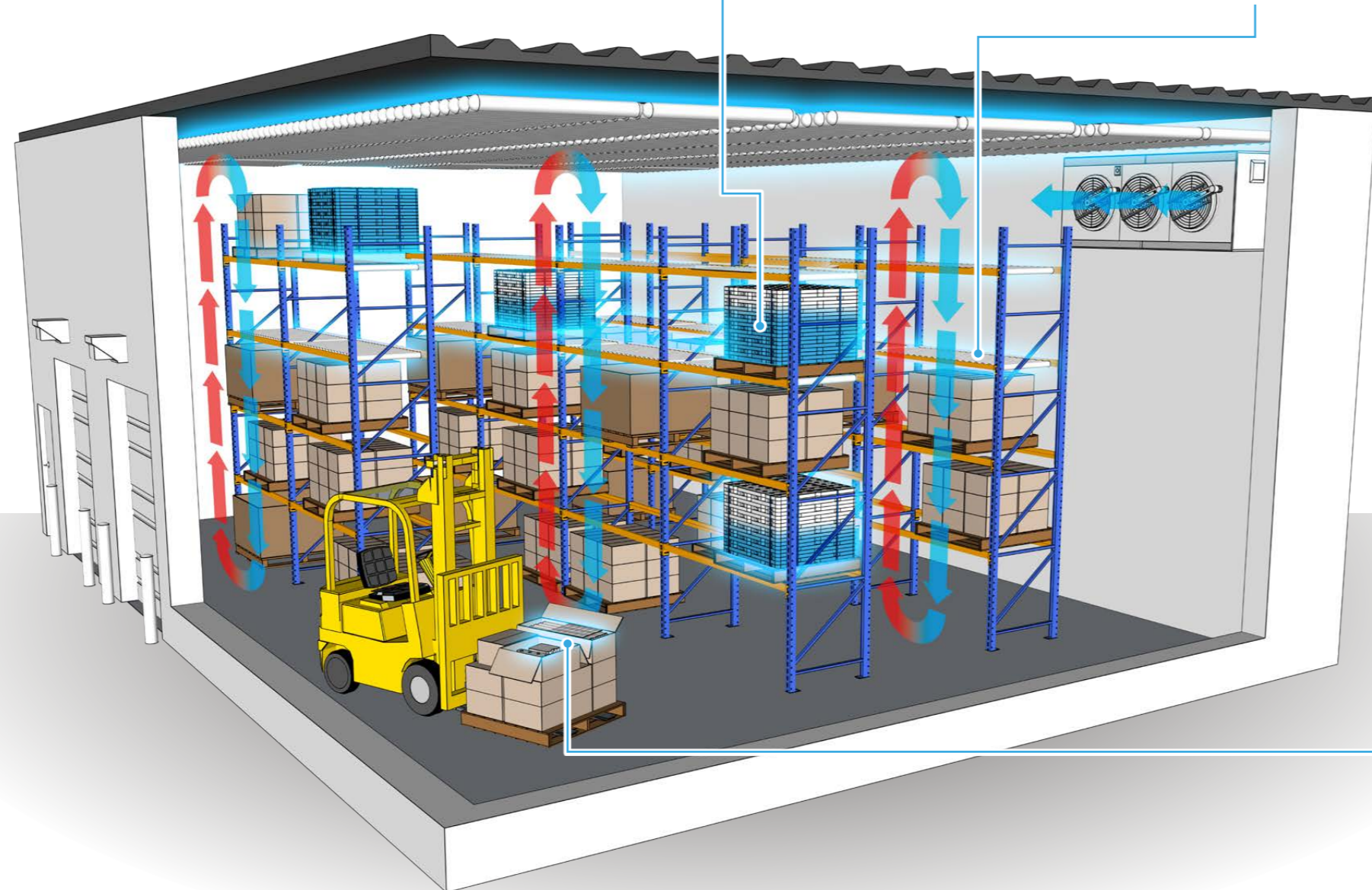
GLACIER PACK™

Compact and portable thermal storage for logistics and transport.



GLACIER FLEX™

Flexible PCM sheets for custom cold storage applications and distribution.



HOW IT WORKS

WHAT IS PCM?

Phase Change Materials (PCM) are chemical substances that store and release thermal energy during the process of changing phase (like ice melting to water). In cold storage, PCMs act like thermal batteries, absorbing excess cold when it's cheap and releasing it when needed. This cuts energy costs, reduces strain on refrigeration systems, and stabilises temperatures.

CHARGE

STORE COLD ENERGY



During off-peak hours or when solar power is available, PCM absorbs and stores cold energy.

BENEFITS:

- Reduces compressor workload at night
- Takes advantage of cooler ambient temperatures
- Lowers operating costs
- Prepares for peak daytime demand

DISCHARGE

RELEASE COLD ENERGY



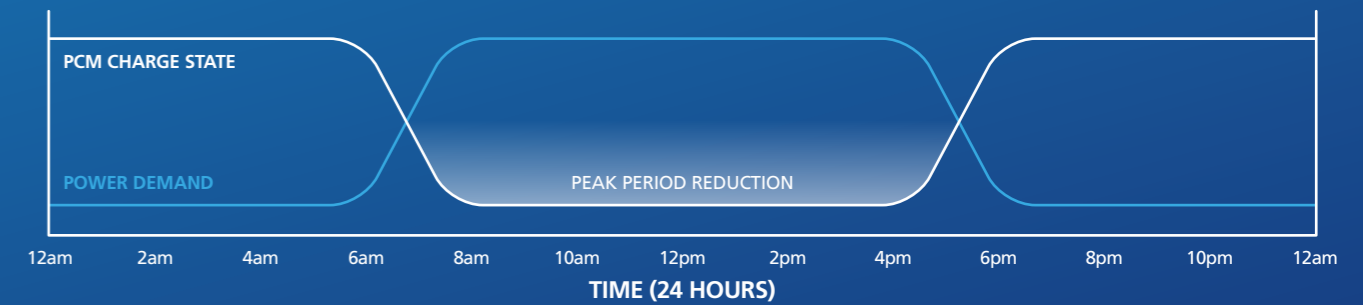
When electricity prices are high or demand increases, PCM releases the stored cold energy.

BENEFITS:

- Cuts peak-time electricity costs
- Maintains consistent temperature control
- Reduces equipment wear and maintenance
- Enhances system resilience
- Standby / backup capability

PCM CHARGE STATE VS POWER DEMAND

This chart shows how our PCM thermal battery charges during low-demand periods and discharges when cooling demand is highest. By shifting refrigeration loads away from peak hours, facilities reduce compressor runtime, cut electricity use, and maintain stable temperatures even when demand spikes.



UTILITY PRICE & AMBIENT TEMPERATURE

This chart highlights the two biggest challenges for cold storage operators: high electricity prices and high ambient temperatures during the day. Glacier Storage solves both by charging PCM overnight using cheaper off-peak electricity and cooler ambient air. During the day, stored cold energy is released to reduce compressor strain, lowering costs and improving system efficiency when it matters most.

