

**Cold Energy Storage
at 1/5 of cost of
lithium-ion
batteries**



O-HX

ORGANIC HEAT EXCHANGERS

Here comes Cool Net Zero

Worldwide, offshore wind has become the de facto utility scale renewable energy providing LCOE's (*Levelised Cost of Electricity*) below all fossil fuels. But wind comes with its own difficulties and costs.

It's intermittent, can't be stored and there are grid constraints.

Hence the explosion of energy storage solutions around the world.

Organic Heat Exchanger's EnergiVault, provides the ultimate solution if you need to store cold or COOL.

EnergiVault assists businesses globally with their cooling requirements on their journey to cool net zeros - making a significant contribution to reducing the level of CO₂e in the atmosphere and reducing global temperatures.

Key points

Globally, cooling demands are ever-increasing, and a huge energy burden. In some locations, as much as 80% of power generation is utilised by cooling.

Designed for use in pharma, data centres, food and drink production and storage, plastics, chilled water storage and of course HVAC (*Heating, Ventilation & Air Conditioning*).

1

EnergiVault charges when electricity prices are low or in some cases negative, on low carbon electricity.

2

EnergiVault banks your renewables for use when it's not sunny or windy.

3

EnergiVault builds resilience within your existing systems.

4

EnergiVault moves the world towards cool net Zero: zero carbon cooling.

A problem worth solving

Globally, there are millions of large industrial refrigeration systems, drawing more than 10% of global electricity produced.

In some hotter countries more than 70% of energy produced is used in cooling.

“Cold has been much neglected in the energy debate...This is a serious oversight, since making things cold is energy intensive and can be highly polluting, and demand for cooling in all its forms is booming worldwide.”

PROFESSOR TOBY PETERS
THE COLD ECONOMY & CRYOGENIC ENERGY
STORAGE

EnergiVault: The solution

Cold Energy Storage

- Cold energy is stored as liquid ice; tiny ice crystals suspended, not larger than 1/10 of a millimetre, in a fluid.
- Use of liquid ice to store energy is patented by O-Hx around the world.
- High energy density – 1MWh stored in 20 ft container – minimising operational footprint.
- Ultra-fast discharge rate – 2 hour discharge from 20-hour charge, giving huge operational flexibility.





Cold energystorage

What our customers are saying about us:

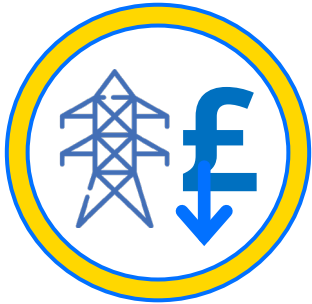
“Quotient Sciences is committed to reducing its carbon footprint and energy consumption at every opportunity. It is innovations such as the EnergiVault, and engineers committed to change, that our planet needs now.”

Stuart Munro
Head of Facilities, Quotient Sciences (Alnwick), location of O-HX’s first installed unit



Compelling customer proposition

EnergiVault drives costs and emissions down and increases operational efficiency and capabilities



Reduced energy costs

Financial payback typically 2-5 years



Digitally connected

Maximised economics and carbon savings from AI development



Operational resilience

Continued operations when existing systems off-line



Smart grid

EnergiVault through its AI function facilitates the smart grid

Net zero cooling

O-Hx envisions a future where industrial cooling is sustainably managed on a global scale.

Generation of renewable energy is not constant – it wavers.

To bridge the gaps of this fluctuation, and truly embrace renewable energy sources, a diverse set of energy storage solutions is crucial.

EnergiVault plays a pivotal role in this transition by handling all cold energy storage applications

“Storing energy so it can be used later, when and where it is most needed, is key for an increased renewable energy production, energy efficiency and for energy security.”

EU's European Commission

Market Potential

For new installations, retrofit to existing chiller systems or substitute a new chiller with EnergiVault and add 1.25 MWh of cooling energy storage

TAM

Globally,
number of
>400kW systems

2,014,235

systems

SAM

Europe and North
America only;
5°C+ systems only

361,354

systems

SOM

Forecast unit sales of
EnergiVault
in Year 5

~1,000 EV

installations

“The potential value that EnergiVault can add to our operations is vast, and includes increased performance, power-flexing add-on, and straight-forward integration. We are hopeful that by integrating this technology into our systems we’ll be able to deliver tangible benefits to our customers, increasing their operational efficiency and ultimately boosting their productivity both in terms of crop yield and profit.

“Initial results from the trials are looking really encouraging, and we’re looking forward to working closely with the team from O-Hx over the coming months to optimise the technology’s functionality alongside our vertical farming Growth Towers.”

DAVE SCOTT
CTO AT INTELLIGENT GROWTH SOLUTIONS (IGS)

Competitive landscape

EnergiVault will revolutionise industrial cooling with its unique energy storage solution.

BATTERY TECHNOLOGY OPTIONS	Liquid Ice	Block Ice	Chilled water	Electrical
MARKET PARTICIPANTS (FOR INDUSTRIAL APPLICATIONS)	EnergiVault	Calmac; Ice Bear; IceStor; Baltimor Aircoil	Bespoke	Multiple providers
CHARGEABLE FROM ON-SITE RENEWABLES	✓	✓	✓	✓
CHARGING EFFICIENCY	High	Low	Med	High
RAPID AND FLEXIBLE DISCHARGE	✓	○	○	○
MAINTAINS PERFORMANCE OVER TIME	✓	✓	✓	○
STATE-OF-CHARGE AWARENESS	High	Med	Low	Med
ENERGY DENSITY	High	High	Low	Med
COMPACT FOOTPRINT	High	Med	Very low	High
APPLICABLE TO PROCESS COOLING	✓	○	○	✓
PRICE - PAYBACK	< 3 years	~ 7 years	Design specific	< 10 years

Our team



Bob Long

Founder & Executive Chairman

40+ years in refrigeration industry, Fellow of Institute of Refrigeration. Professional journey began in the merchant navy. Set up Cape Cooling in South Africa, spearheading a major refrigeration business. On return to UK he set up Coolideas, a specialist refrigeration contractor, building expertise in thermal energy management, culminating in development of EnergiVault energy storage concept.



David Grundy

Finance & Commercial Director

Extensive track record in finance sector. 20 years at Grant Thornton, specialising in M&A and IPOs, eventually ascending to management roles as a Partner. 12 years as independent consultant, acting as Chairman, NED and portfolio CFO for a diverse array of businesses across public and private sectors, driving their growth strategies forward.



Geoff Barker

Product director

Geoff brings over 30 years of engineering experience. Originally specialising in pressure equipment engineering, his career trajectory has seen him occupy numerous roles in heating, generation and energy management sectors. His roles have evolved from pure engineering to blending technical expertise with product offerings and alignment to market demand.



Dr David Kane

Software Director

Energy management expert, with over 2 decades experience. As a Chartered Engineer, he has a focus on optimisation and control of energy generation and storage systems. Held CTO roles in energy storage and IoT businesses, before setting up an independent consultancy providing strategic guidance on energy generation and storage technologies to businesses navigating this complex landscape.

Our team



Steve Booton
O-Hx Oceania

An experienced and transformational leader with a reputation for delivering and exceeding revenue and profitability in highly competitive markets. He has more than two decades of experience in the environmental sector underpinning his guidance on ESG, circular economy and sustainable strategies for businesses.



Bob Furness
O-Hx Africa

A thought leader in sustainable development and green technology, Bob is a graduate of the Defence College of Aeronautical Engineering, and his illustrious career includes groundbreaking subsea engineering innovation. Laterally, he has more than two decades of experience spearheading renewable energy projects across Africa.



Roger Ford
Advisor

Extensive experience leading research and development activities including his role in ICI's chlorine technology division and United Utilities. As former Chair of Innovation & Technology at the University of Salford, Roger has a strong track record in early-stage businesses, particularly international product development, ensuring he is well-equipped to provide strategic guidance and leadership.



Tony Mckee
Advisor

A skilled mechanical engineer and information technology professional with an MBA from Robert Gordon University. He is currently Head of B2B Manufacturing at Britvic plc.

Our team



Nicholas Dimmock
Head of Investor Relations

Involved in the environmental sector since 2007, with more than 50 environmental projects from municipal solid waste composting in India, to 1500 MW hydroelectric projects in Ecuador and the pre-construction development of over 260MW of solar sites in Mexico.



Paul Vousden
Client Development

Experienced and successful senior executive. A seasoned entrepreneur who built his own PR and marketing company from zero to a million-pound fee business; followed by an interim career in large public and private sector organisations. He has worked with many early-stage companies on strategic planning, market positioning and raising investment.



Alexandra Ellison
Head of Client Services

Using her excellent organisational and creative skills, Alex ensures the smooth operation of our administrative and office management functions. Her extensive experience in corporate financial institutions ensures her attention to detail, can-do approach and excellent client management skills help to support the whole team in the delivery of our wide range of client services to support company growth.



350 PPM Team

The team at 350 PPM includes ten specialists who will support O-Hx through the delivery of fund-raising and investor management; Business plan development and commercial support ; board appointments; accountancy and financial management; sales and marketing; access to professional services network; general administration

Progress to date

2021 AND PRIOR

Self-funded – time and cash from Directors

- Proof-of-concept trials successfully concluded; awards achieved
- Patents awarded, across key geographies

2022

Seed investment (£520k) + RedCat grant (£150k)

- Commercial demonstration unit designed, and in production
- Key supplier relationships established
- AI-led optimising software developed, alongside control/reporting systems
- Directors and Advisory Board established

2023 / EARLY 2024

Round 2 investment (£525k)

- Commercial demonstration unit installed, rigorously tested, successful trials conducted
- Production design completed (CE certified)
- Developed higher capacity battery
- Operational and commercial planning completed
- Reinforced sales campaign, pipeline building, quotes now being issued
- International market research completed

Traction / routes to market

Direct sales

O-Hx is sector-agnostic, and not targeting end-users. Rather, our target audience / customers are refrigeration contractors and energy management consultants, who hold the end-user customer relationships. These groups each have their own wide end-user customer base, capable of providing repeat sales enquiries.

With minimal marketing spend, sales enquiries received during 2024 include:

- Sosteca – £1m²
- Interfish - £925k²
- Quotient Sciences - £175k¹
- Organon – £500k²
- Veolia (UK) – £5m³
- CB Refrigeration - £1.4m²
- Veolia (HK) - £20m³
- SNRG / IGS / Ice Rinks: 100M +

1 = direct

2 = refrigeration contractor

3 = energy management consultant

Partnerships

Strategic partnerships will be entered into, generating revenue from integration into partner's wider services and offerings. Relationships established to date:

1. IGS – global supplier of vertical farming solutions, EnergiVault provides climate management:
Dave Scott, Founder and CTO: "The potential value that EnergiVault can add to the IGS Growth Towers is vast ... increased performance ... power-flexing add-on ... straight-forward integration."
2. SNRG – developer and operator of micro-grid energy services solutions, EnergiVault provides cooling management:
Dan Nicholls, Chief Product Officer: "EnergiVault represents a great extension to our micro-grid offering. The flexibility it offers makes it an essential part of a smart cooling system, materially improving energy efficiency, operating costs and carbon savings for our customers."
3. Exergy Energy – North American concierge service, EnergiVault provides cooling management:
Dave March, CEO: "EnergiVault has huge potential in the American market. It's rapid and flexible discharge capabilities makes it the best thermal storage system in the market, and we are excited to be working with O-Hx in bringing this to our customers."

Global Opportunities

The global market potential, and evidence from enquiries received to date, necessitates an expedited expansion strategy:

1. Current focus is on gaining commercial traction in the UK market, and represents key milestones for current funding round. This will target refrigeration contractors and energy manager consultants as the route to end-customers. Sub-contract manufacturing will deliver product, with capital sales representing primary income stream. European enquiries can be serviced from UK.
2. Once established in UK, internationalisation will be key milestones for a subsequent funding round. Overseas markets will be exploited by technology license arrangements with distributors and manufacturers in respective territories:
 - To be established as Joint Venture, with O-Hx representatives also recruited locally.
 - Growth model will replicate UK.
 - Income earned as license fees.
3. Product diversification, and add-on services such as financing, will follow successful internationalisation.

Financial projections

£'000	NOV -24	FEB -25	MAY -25	AUG -25	NOV -25	FEB -26	MAY -26	AUG -26	NOV -26	FEB -27	MAY -27	AUG -27
Revenue	201	604	1,009	1,416	2,026	3,041	4,166	5,301	6,131	7,713	9,412	10,942
Cost of sales	-180	-540	-901	-1,262	-1,653	-2,479	-3,317	-4,155	-4,536	-5,609	-6,694	-7,632
Gross margin	21	64	108	154	373	562	849	1,146	1,595	2,104	2,718	3,310
%age Revenue	10%	11%	11%	11%	18%	18%	20%	22%	26%	27%	29%	30%
Overheads	-143	-172	-290	-393	-588	-732	-903	-1,051	-1,141	-1,261	-1,496	-1,630
Depreciation	-41	-41	-41	-41	-35	-76	-80	-84	-88	-91	-94	-97
Profit before tax	-163	-149	-223	-279	-250	-246	-134	11	367	752	1,128	1,584
Tax	41	37	56	70	63	62	33	-3	-92	-188	-282	-396
Profit after tax	-122	-112	-167	-209	-188	-185	-100	8	275	564	846	1,188
Equity funding requirement (gross)	1,000	0	0	0	5,000	0	0	0	0	0	0	0
Valuation												
Discount rate (per quarter)	10.00%	7.50%	6.50%	6.00%	5.50%	5.00%	4.50%	4.00%	3.50%	3.00%	2.50%	2.25%
Profit NPV (7 years)	20,106	38,737	54,833	69,782	88,236	110,861	138,547	172,270	213,287	263,000	323,295	377,889
Share structure												
Number of shares/options in issue pre investment	50,855,415	53,384,771	53,384,771	53,384,771	53,384,771	56,409,877	56,409,877	56,409,877	56,409,877	56,409,877	56,409,877	56,409,877
Value per share	£0.40	£0.73	£1.03	£1.31	£1.65	£1.97	£2.46	£3.05	£3.78	£4.66	£5.73	£6.70
New shares issued	2,529,356	0	0	0	3,025,106	0	0	0	0	0	0	0
Number of shares in issue post investment	53,384,771	53,384,771	53,384,771	53,384,771	56,409,877	56,409,877	56,409,877	56,409,877	56,409,877	56,409,877	56,409,877	56,409,877

What our customers are saying
about us:

**“Marks out of 100?
95% because I
never give 100.”**

STUART MUNRO
HEAD OF FACILITIES, QUOTIENT SCIENCES

Watch the video [here](#)

Funding requirements

O-Hx is embarking on an equity fundraising initiative of £1 million to propel our commercialisation strategy forward and underpin a series of pivotal activities.

Organic Heat Exchangers Ltd has Enterprise Investment Advanced Assurance.

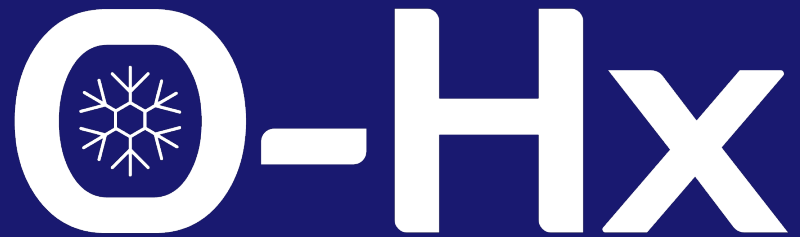
For further information please contact:

Nicholas Dimmock: nickd@o-hx.com

Paul Vousden: paulv@o-hx.com

“This fundraising round presents an exceptional opportunity for early investors to be part of a visionary journey towards reshaping the landscape of industrial cooling with a sustainable, profitable, and scalable solution. O-Hx is poised to be one of the fastest growing global industrial brands over the next three years.”

BOB LONG, EXECUTIVE CHAIRMAN



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