



Cambridge

Clean cooling

HEAT Conference 2008

Alessandro Pastore, Cambridge

Nov 28th, 2008

New Hall Conferences, Huntingdon Road, Cambridge

www.camfridge.com

Cambridge

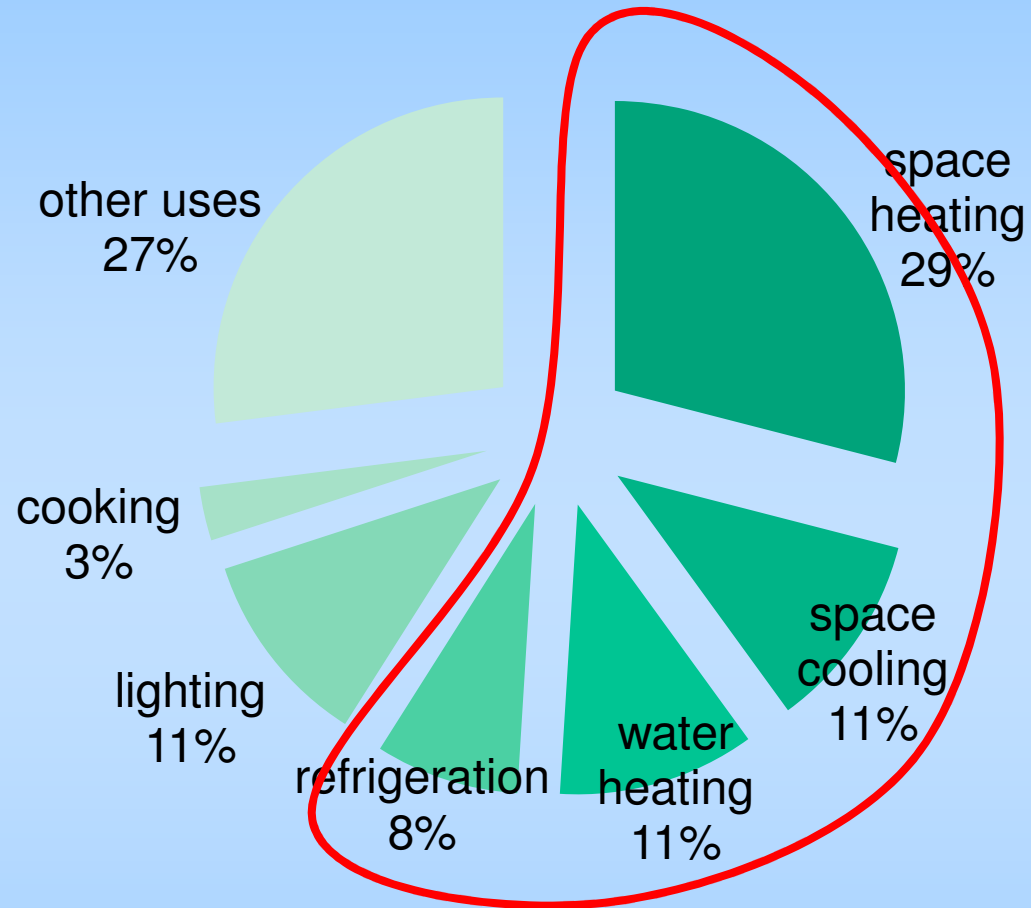
- Magnetic refrigeration technology (regenerators, heat exchangers, magnet assemblies, control) company targeting \$60 billion worldwide cooling and refrigeration market; started 2004
- Funded by investors (Cambridge Capital Group, Cambridge Enterprise, Nesta), the Carbon Trust and FP7
- Working with a number of manufacturers on different applications



**One of the 100 top private European
Clean Technology companies**

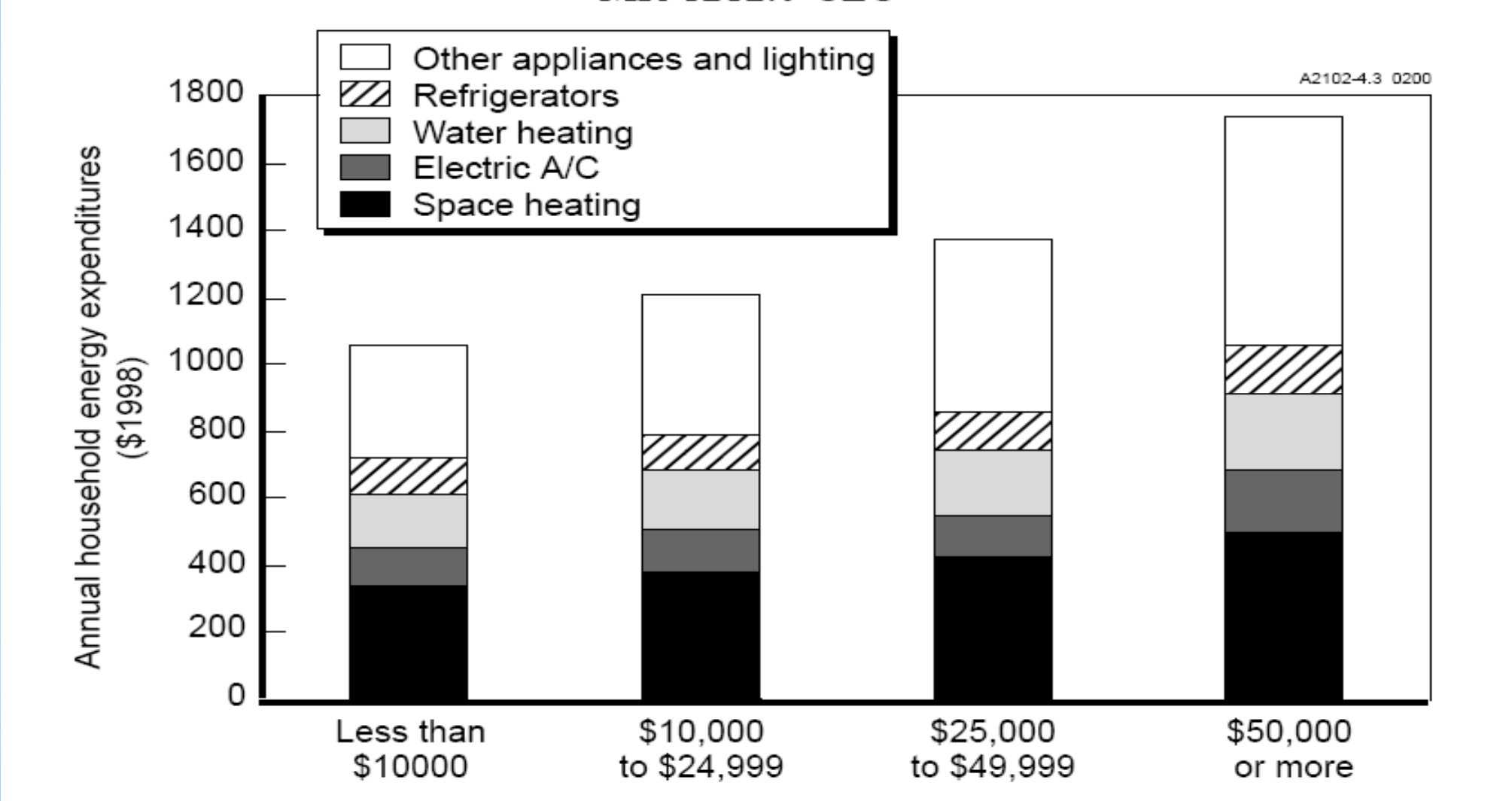
- October 2008

US residential building energy use 2005



Source: EIA, Building energy data book 2006

In California, regardless of income, up to two-thirds of household energy use is for space heating, water heating, and refrigeration



Source: Bernstein, M., R. Lempert, D. Lougharn, and D. Ortiz. 2000. The public benefit of California's investments in energy efficiency. Prepared for the California Energy Commission. RAND Monograph Report MR-1212.0-CEC.

The Business Opportunity

The refrigeration equipment market is worth \$60 billion p.a.

Commercial refrigeration equipment industry is worth \$10 billion

The associated services, maintenance and installation market is worth over \$140 billion p.a.

Mobile Air Conditioning	30%
Unitary Air Conditioning	29%
Domestic Refrigerators	22%
Commercial Refrigeration	13%
Chillers	3%
Refrigerated Transport	2%
Cold Storage	1%

Relative Market Segment Size

US	33%	Japan, Europe and North America have low growth
Japan	33%	
Europe	10%	Environmental legislation is creating a large replacement market in developed countries
China	9%	
Korea	5%	Natural growth is found in Asia, Latin America and Eastern Europe
Brazil	4%	
Taiwan	2%	
Other	4%	

Regional breakdown of refrigeration equipment

Addressable Market (billions \$)

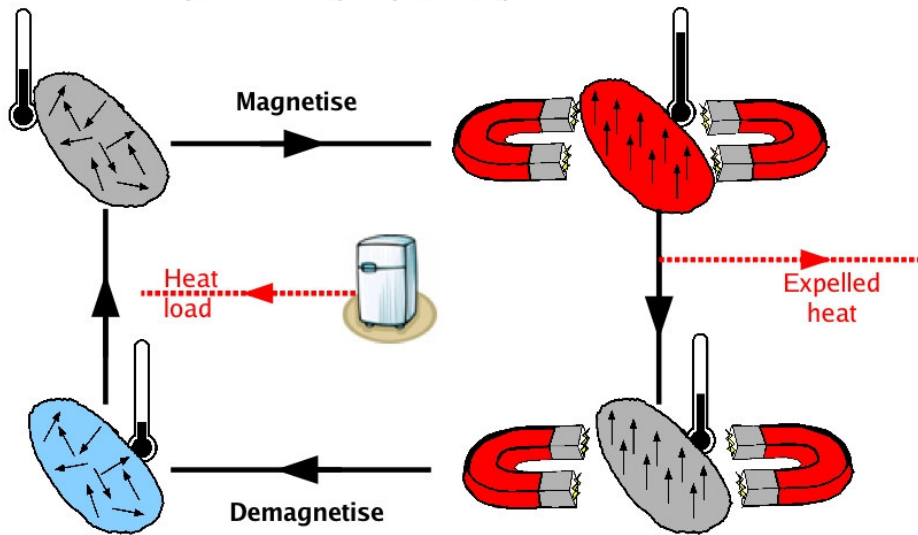
Mobile Air Conditioning	\$6.5
Unitary Air Conditioning	\$6.3
Domestic Refrigerators	\$4.8
Commercial Refrigeration	\$2.7
Chillers	\$0.6
Refrigerated Transport	\$0.5
Cold Storage	\$0.3
Total	\$21.7

Based on % of Camfridge Components

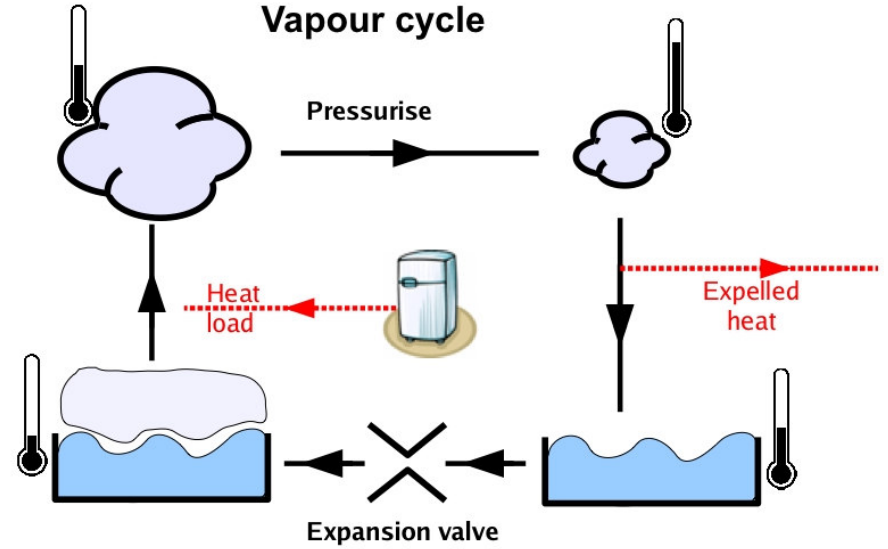
Target markets are “packaged” applications like domestic refrigeration, room air conditioning and heat pumps - growing markets, technically achievable, high-efficiency solutions drives margins

Magnetic refrigeration vs compressor cycle

Magnetic cooling cycle



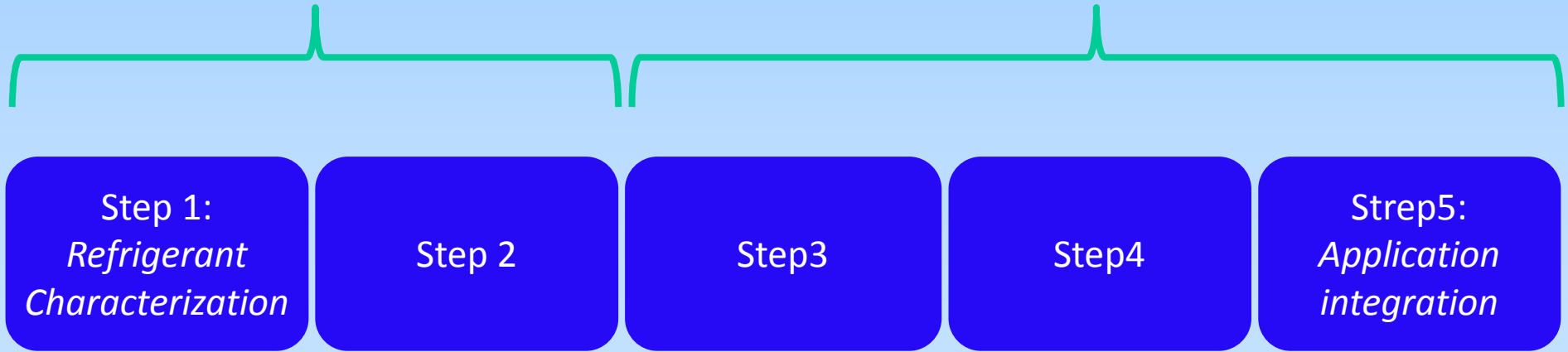
Vapour cycle



Cambridge five steps process to market

Design team

Engineering team



Business Development Team

Business Landscape

Regulatory
authorities

Refrigerant
Suppliers

Camfridge

Packaged cooling
application
manufacturers

R&D Ecosystem

End-users

Motivations and criteria of manufacturing and buying refrigeration appliances with higher efficiency

Manufacturers

- Regulatory compliance
- Standardization
- Financial incentives
- Voluntary commitment
- Lower maintenance

The end user commercial

- Price
- Aesthetics
- Operational cost (lower maintenance, lower energy consumption)
- Environmental performance
- Application coverage
- Regulatory compliance.

Regulatory authorities

- Strong commitment towards reduction of greenhouse gases (i.e. UK, Japan)
- International treaties (i.e. Kyoto)
- Sustain innovation of the industry

The end users Consumers

- Brand
- Price
- Need new appliances
- Aesthetics
- Lifestyle
- Environmental consciousness
- Lower energy consumption
- Financial incentives (TVA)

Camfridge

**Gas-free, low energy
cooling technology for
the 21st Century**

Alessandro Pastore,
Executive VP Business Development

Camfridge Ltd
St. John's Innovation Centre
Cowley Road
Cambridge
CB4 0WS

Email: apastore@camfridge.com
Phone: +447533081171

