



Refrigeration and the Innovation Agenda

The three day 1st IIR international conference on sustainability and the cold chain held in March 2010 in Cambridge, UK brought together 150 people from 25 countries with the knowledge and experience to influence the future of the food cold chain. What did they achieve?

Innovation & Sustainability

The papers at the conference were by their nature wide ranging – from novel applications for novel refrigerants to case studies of the impact of packaging and food quality via improvements in transport processes. With over 80 presentations divided between three parallel streams – there were difficult choices to be made. Although originally conceived as two separate conferences – one on sustainability and the other on the cold chain – the conference programme had at some point evolved into more strategic theme of “sustainability in the cold chain” and provided the basis for some of the more challenging questions to speakers.

Robert Heap proposed in his opening address that: *“To achieve sustainable growth in any technology, there are two fundamental requirements; the ability to improve systems and applications so that they are in some sense more efficient, and the ability to demonstrate this improvement by some sort of life cycle assessment.”* Key note speaker Don Cleland of Massey University, New Zealand echoed this view: *“Sustainability involves a complex trade-off between environmental, social and economic factors. Life Cycle Analysis approaches are needed to compare alternative supply chains because the system with least impact is not always obvious”*

Measuring, modelling and quality

Whether in the plenary sessions, paper presentations, workshops or technical tours the same issues around the criteria for sustainability emerged as key questions – measuring gains against cost and over time (environment concerns played against commercial concerns and the necessary investment).

It was clear that industry was now making rapid progress. No longer is the environment seen as a quick PR response or a single aspect of the refrigeration solution. It is becoming part of an integrated development process underpinned by research, measured results and improved quality of product (whether that product is a well preserved food item or a more efficient piece of equipment).

The conference kicked off with a well received example of effective collaboration – the launch of a Carbon Trust Retail Refrigeration Road Map. The result of a working group which also included the British Refrigeration Association and the Institute of Refrigeration, this UK project presents technology options for retailers in terms of potential carbon savings, cost, payback and timescale. This has sparked much interest in extending the model to larger/smaller retailers as well as further along the cold chain to cold stores and food manufacturing plant. The Road map

provides a welcomed framework to understand the complexities of the impact of over 70 technological options.

Putting innovation into practice

A workshop organised by the UK Sustainable Innovation in Refrigeration and Air Conditioning (SIRAC) network addressed the barriers to the early adoption of new technology head on. The outcomes of this highly interactive session which included bullet point talks from technology developers and challenging questions from businesses identified:

- The need to be clear about the market need that new technologies are addressing and the route to that market
- There are often misconceptions about new technology and that we have a responsibility to encourage dissemination of good quality information
- There are some fantastic technical solutions being development and some excellent business opportunities out there

The conclusion from the workshop was that we need to look for more opportunities to get the people with the needs and those with the ideas in the same room to make business links as well as finding champions who can bridge the communications gaps between technologies, industry and investors. Something that SIRAC has already set as an objective to progress over the next 18 months

Ideas to take away

Packed in their biodegradable canvas conference bag all of the delegates took away a CD of proceedings, lots of business cards of useful contacts and the lucky few managed to obtain a copy of the Carbon Trust Retail Refrigeration Road Map report. In addition there was plenty of food for thought on:

- how the cold chain sector is moving towards sustainability
- ideas and opportunities to improve current performance of systems and processes
- how to use measurement tools and models to value, evaluate and minimise environmental impact and maximise the application of new technology
- how the sector can contribute to improving food security and reducing spoilage
- underlying international policy issues that can recognise and support innovation

And the certain knowledge that there is still much to be done and many opportunities not yet capitalised to reduce refrigeration's environmental footprint.

A need to influence policy

The conference was closed by Andy Pearson, in one of his first official roles as the new President of the Institute of Refrigeration. In concluding the event which is planned as the first in a regular series, he issued a call to industry, researchers and government to support innovation. He drew from the experience of Thomas Midgley inventor of modern refrigerants, as well as current UK Government policy on "The Innovation Nation" to propose a recipe for innovation:

"The industries which serve and support the cold chain should be creating multi-discipline, multi-age teams blending creativity and experience and battling vigorously for a share of investment in renewables and sustainability, in preparation for the next ten years. As we move towards the development of a new family of halogenated fluorocarbons we are duty bound to take a more thorough approach to short and long term environmental effects"

Money for innovative, low carbon technologies is available now from many sources and the refrigeration industry needs to develop a strategy to make this more widely available in order to address technological issues, commercialisation and food security particularly for developing nations.

Next steps

“More difficult questions are being asked, and less time is being given to answer them. Much of this acceleration is driven by the twin international agreements, Montreal and Kyoto, with a growing realisation that a holistic approach to climate impacts is required if policy is to be effective.” Concluded Dr Pearson.

Groups such as the International Institute of Refrigeration and the SIRAC network – as well as supporting organisations such as The Carbon Trust and the OECD- are crucial to the success of our sector in the future.

The International Institute of Refrigeration is well on its way to addressing both international policy and innovation issues through its programme of forthcoming events and research on refrigerant charge minimisation, reducing global warming emissions, alternative refrigerants and sustainability as a core theme for the Congress in 2011.

In the UK SIRAC exists to bring together academia and business to accelerate the adoption of new technology through regular network meetings, site tours and an interactive website – free to all and funded by the EPSCR for the next two years.

The OECD, a key conference sponsor, can provide a setting for comparing policy experiences, answers to common problems and good practice in policy. Their interest in this conference was such that they extended offers for future contributions to their priority themes of sustainability in practice and the food chain, as well as collaborative research fellowships between member countries.

The Carbon Trust sees the Retail Refrigeration Road map as a starting point for a range of initiatives to help reduce carbon in the refrigeration industry.

“In many cases, opportunities for substantial improvement in energy efficiency in existing cold chains are not rocket science – just plain boring good engineering and operational management” according to Don Cleland. But this in no way undermines the importance of engineering, management or innovation.

It was Jacques Gilpart who captured what many felt by the end of the event. *“Refrigeration demand will continue to grow steadily in the future, particularly in developing countries. From a strictly technological and scientific point of view... it is now possible to mitigate the environmental impact of refrigeration technologies. Research has to be continued, for the welfare of the planet and its inhabitants.”*

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Notes:

Issued on behalf of the International Refrigeration Committee of the UK Institute of Refrigeration

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Conference website www.icccuk2010.com

Conference organiser – IOR (Institute of Refrigeration in the UK) www.ior.org.uk/international

The Conference was part of a programme of international events offered by the International Institute of Refrigeration www.iifir.org and inter-governmental organisation to promote the advancement of refrigeration technology.