



PATHWAYS TO NET-ZERO COLD-CHAINS
Meeting the world's shared climate and social goals

Friday 14 May, 2:00PM – 4:00PM BST

PROGRAMME

An industry webinar to discuss academic, industry and policy-maker collaborations to steer the future of cold-chains in the UK and globally.

Temperature-controlled supply chains are central to many aspects of a modern society and underpin socio-economic well-being as well as public health. They enable access to pharmaceuticals, vaccines and nutritious foods while reducing food loss and fostering new market opportunities for rural workers. Cold-chains are however energy intensive and currently reliant on diesel in a wide range of transport and weak grid/off-grid applications, and in many cases coal and/or natural gas-based power grids.

If we are to transform the cold-chain sectors from farm to fork or “pharmaceutical manufacturer to arm” and deliver access to cooling for all who need it sustainably in the shortest possible time, we have to work together at all levels – industry, private sector, governments, academia, development institutions and civil society among others – to make it happen.

A collaboration of University of Birmingham (UoB), London South Bank University (LSBU), Cranfield University (CU) and Heriot-Watt University (HWU) have won £multi-million funding in partnership with UK and international partners to work across a series of significant Post-Harvest Management (PHM) and cold-chain research projects in both developed and developing markets. Additional projects are planned to be announced later this year.

As central to this activity, we are keen to engage industry in these programmes and are hosting a high-level webinar to introduce our work plan and solicit collaborative engagement.

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The webinar will explore:

Developing Nations Needs and Solutions

The new first of a kind [Africa Centre of Excellence for Sustainable Cooling and Cold-Chain](#) (ACES), established in collaboration with the Governments of Rwanda and the UK, along with the United Nations Environment Programme's United for Efficiency initiative, is headquartered at its own campus provided by the University of Rwanda in Kigali, Rwanda. Emerging activities at the Centre include:

- Create the fit-for-market step-change pathways and business models to net zero cold-chain and cooling for all (Community Cooling Hubs).
- Collaborate with industry to test and demonstrate the technologies that will help steer the future of cold-chains.
- Conduct applied research, teaching and industrial collaboration to put into action the defined integrated sustainable cooling solutions, the finance and business models and build local capacity and a trained workforce.
- Establish Living Labs in strategic locations across Africa to provide a pan-continent network for deployment and implementation, driving the adoption and uptake of energy efficient and climate friendly solutions and their business models as well as build local capacity and a trained workforce.

Developed World (UK)

With major new UK Government-grant funding, a whole systems “farm to customer fridge” approach to [redefine the UK's cold-chain architecture is being explored](#) and mapped to assess the opportunities available to reach net-zero emissions by 2050. The aim of the work is to deliver a clear industry-led pathway to achieve the UK's net zero 2050 target whilst maintaining food security and affordability for UK consumers and supporting economic opportunities for the UK food industry. Outputs will include:

- Update and add to current information on energy usage and CO₂ emissions from UK cold chain infrastructure.
 - Evaluate future cold-chain and cooling energy consumption demands (from both a technical and non-technical perspective) and the impact on UK energy consumption and peak electricity demand.
 - Determine areas of intervention considering available energy and thermal resources, emission targets and other commitments as well as costs.
 - Provide a comprehensive evidence driven set of road maps for the UK food cold chain to be able to achieve zero carbon emissions by 2050.
 - Identify the roles for cooling and its technologies in providing flexibility and resilience in the wider energy systems.
- ⇒ Given the cold-chain is intrinsically about global interconnectivity, these projects will present significant opportunities across geographies for synergy and shared thinking, approaches, learning and knowledge.

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The webinar will be designed in 3 interwoven sessions that can either be attended in full or as stand-alone elements - delegates can join all three or any combination they wish to participate in.

The sessions will be chaired by Dr Tim Fox

SESSION 1: THE UNIQUE OPPORTUNITY

Start: 2:00PM BST

Duration: 45 Minutes

Welcome and overview	Dr Tim Fox
Introduction and thinking	Professor Toby Peters
Cooling and the pathway to zero	Mr. Dan Hamza-Goodacre,
The trade opportunity and the global bigger picture	Dr Elizabeth Warham
Objectives, overview and role of collaboration	Professor Judith Evans Dr Natalia Falagan
Panel discussion	Session will be introduced and chaired by Dr Tim Fox

SESSION 2: AFRICA CENTRE OF EXCELLENCE

Start: 2:45PM BST

Duration: 30 Minutes

Overview of ACES and programme. Objectives and what success looks like	Dr Natalia Falagan Mr. Brian Holuj
How this responds to Rome Declaration, Paris and the Sdgs ¹	Mr. Steve Cowperthwaite
Deputy Director General of Rwanda Environment Management Authority	Mr. Faustin Munyazikwiye
How can industry engage? What are the opportunities and next steps to participation?	Professor Toby Peters
Questions and answers	Introduced and chaired by Dr Tim Fox

Short Break

¹ The Rome Declaration on the Contribution of the Montreal Protocol to Food Loss Reduction through Sustainable Cold Chain Development was a key outcome at the Thirty-First Meeting of the Parties to the Montreal Protocol, held in Rome in 2019. The Declaration¹ highlighted the key role of the cold chain in the implementation of the 2030 Agenda for Sustainable Development and the achievement of the Sustainable Development Goals related, inter alia, to ending hunger and poverty, food security, improved nutrition, climate action, sustainable agriculture and fisheries, and health and well-being.

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SESSION 3: UK COLD-CHAIN – PATHWAYS TO NET ZERO

Start: 3:25PM BST

Duration: 35 Minutes

Intro and transition to UK	Dr Tim Fox
Vision 2050 – net-zero UK cold chains and energy systems	Mr. Tom Southall
Overview of work programme, objectives and what success looks like	Professor Judith Evans Dr Dhanan Sarwo Utomo
How can industry engage, what are the opportunities and next steps to participation?	
Audience questions	Introduced and Chaired by Dr Tim Fox
Next steps and close	Dr Tim Fox

SPEAKERS

	<p>MR STEVE COWPERTHWAITE UK Department for Environment, Food and Rural Affairs Steve Cowperthwaite has worked on EU and International policy issues for the UK Government for nearly twenty years. This has included work on environmental policy including climate change, international waste and ship recycling as well as food safety policy. Currently heads up the international team responsible for protection of the ozone layer and the phase down of fluorinated greenhouse gases at the Department for Environment, Food and Rural Affairs.</p>
	<p>PROFESSOR JUDITH EVANS Researcher, London South Bank University Judith is a Professor at London South Bank University (LSBU). She has 30 years' experience of working on food refrigeration operations throughout the food cold chain. Her main areas of interest are related to efficiency and energy reduction as well as design and performance of refrigeration equipment.</p>

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DR NATALIA FALAGAN
Lecturer in Food Science and Technology, Cranfield University

Natalia is driven by the need to reduce food waste and improve food security; while maintaining the quality and safety of fresh produce across the supply chain. She investigates the underlying ripening and senescence mechanisms of fruit and vegetables and develops innovative strategies for postharvest management. Natalia has international experience in food production systems through collaboration with private companies and government funded research. She publishes her work in peer-reviewed journals focusing on postharvest biology, and sustainable technology and packaging.



DR TIM FOX
Chair, Sustainable Net-Zero Cooling WG, Institution of Mechanical Engineers

An internationally recognised expert in climate change mitigation and adaptation with specialist knowledge of clean energy, sustainable cooling, process engineering based industries and sustainable food systems, Dr Fox works as an independent consultant operating at the intersection of science-engineering-policy-business-communications. Tim is a Chartered Engineer (CEng) and Fellow of the Institution of Mechanical Engineers (FIMechE), where he chairs the Sustainable Net-Zero Cooling Working Group, is a member of the Policy Working Group, and is the immediate past Chair of the Process Industries Division Board.



MR DAN HAMZA-GOODACRE
COP26 Champions Team

Dan Hamza-Goodacre has been providing climate and energy solutions for governments, philanthropic foundations, international organisations and businesses for 25 years. He is currently supporting the COP26 High Level Champions Tea, the Energy Transitions Council and the COP26 Presidency Team. Dan is a Fellow of the Institute of Environmental Management and Assessment and a Chartered Environmentalist.



MR BRIAN HOLUJ
Programme Management Officer, UNEP

Brian leads the cooling portfolio for UNEP's United for Efficiency initiative. He coordinates the development of a variety of tools and guides, capacity building, awareness raising campaigns, and regional and national market transformation projects to accelerate the global shift to sustainable cooling solutions.

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MR FAUSTIN MUNYAZIKWIYE

Deputy Director General of Rwanda Environment Management Authority

Munyazikwiye Faustin began his role as Deputy Director General (DDG) of Rwanda Environment Management Authority (REMA) in November 2017. He is the United Nations Framework Convention on Climate Change (UNFCCC) National focal point for Rwanda and Coordinates Green Climate Fund (GCF) NDA secretariat, Global Environment Facility (GEF) operation FP office, Clean Development Mechanism (CDM) on Carbon market DNA office for Rwanda and Climate Technology Centre and Network (CTCN) NDE for Rwanda.



PROFESSOR TOBY PETERS

Professor of Cold Economy, University of Birmingham and Co-Director of the Centre for Sustainable Cooling

Professor Toby Peters is an award-winning technology developer and industrial academic with more than 14 years of experience in energy storage /energy systems (incl. policy and regulatory environments); clean cooling/the “cold economy” and the environmental, societal and economic impacts of cooling; novel technologies for refrigeration and cooling and their development and system integration. He was the joint-academic lead for the Doing Cold Smarter Policy Commission (October 2015).



MR TOM SOUTHALL

Policy Director, Cold Chain Federation

Tom leads the policy and advisory work of the Cold Chain Federation, the UK’s trade association for the temperature-controlled logistics industry. With a background including public sector environmental policy and private consultancy, Tom’s work at the CCF covers a wide range of policy areas including energy and climate change, food safety, health and safety and transport policy. The cold chain is critical to us all, from maintaining the UK’s food supply to minimising food waste and the Cold Chain Federation exists to provide a voice for this vital, but largely unseen, part of the food chain.



DR DHANAN SARWO UTOMO

Research Associate, Heriot-Watt University

Dhanan Utomo is a Research Associate in Centre for Sustainable Road Freight at Heriot-Watt University. He received his MS degree from Institut Teknologi Bandung, and earned his PhD from Lancaster University. His research interests are in computer simulation and modelling areas i.e., system dynamics and agent-based simulation. He is also interested in the application of computer simulation and modelling e.g., in agri-food supply chain, public sector, and environment.

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DR ELIZABETH WARHAM

Head of Agritech, Department for International Trade

Dr Warham FRSB leads the Department for International Trade Agri-Tech team promoting investment and trade of innovative agricultural businesses, products and services to improve agriculture through the cutting edge of innovation. Help is provided to institutions, large businesses and SMEs to entice foreign investment and encourage sales of UK products abroad. Previously, in the Government Office for Science, she supported the Government Chief Scientific Adviser as head of the food, water and environmental issues team; and led the GO-Science Review of how the Department of Health manages and uses science to inform policy development.

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