

# Laboratory Products

## Climate change set to have big impact on lab chillers

### Lab cooling to be folded into same regulatory environment as commercial chillers

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Discussions at a recent All-Party Parliamentary Manufacturing Group meeting shed light on the increasing impact of climate change on cooling demands, with key experts calling for action to address future challenges.

Jenni McDonnell from Innovate UK and Professor Judith Evans from London South Bank University highlighted the strain rising temperatures will place on cooling equipment. While commercial chillers typically last about 20 years, industrial equipment can operate for 50-60 years, often with outdated technology not suited for the rising temperatures. Even newer equipment designed to function at temperatures up to 35°C may struggle with the temperature fluctuations expected over the next two decades.

“Our current higher ambient temperatures are already putting strain on this equipment, which becomes inefficient when temperatures rise to around 40°C, which is becoming increasingly common during UK summers,” noted Professor Evans, who recently addressed the GAMBICA lab refrigeration group.

Aging and strained equipment is less reliable, but too few businesses are preparing for frequent failures the committee heard. The greater frequency of multiple cooling outages will be made significantly harder to address by a dwindling pool of skilled personnel capable of maintaining and repairing older systems. The refrigeration brain drain has intensified because of the government’s ambitious targets for heat pump installations, which has caused a substantial shift of talent away from traditional refrigeration providers.

Dr Rob Lamb from Star Refrigeration highlighted the dual challenge faced by chiller manufacturers: meeting escalating cooling demands amidst rising ambient temperatures, while simultaneously reducing energy consumption to align with net-zero goals. “Climate change exacerbates these challenges, requiring cooling systems to work harder and consume more energy,” he explained. “Aging infrastructure compounds the issue; nearly half of the cold stores owned by members of the Cold Chain Federation are over 20 years old, with many designed to operate in temperatures below 30°C - conditions now regularly exceeded.”

The green revolution in refrigeration is progressing only slowly because of industry uncertainty about the direction of travel. Lack of clarity, particularly regarding F-gas regulations, discourages companies from developing equipment capable of using newer, low Global Warming Potential refrigerants. “Greater regulatory certainty is essential for businesses to invest confidently in long-term solutions,” asserted Dr Lamb.

### What does this mean for lab chillers and cold storage?

GAMBICA, which was present at the meeting, lobbied for the better promotion of the Energy Technology List (ETL) and to re-instate tax credits for the purchase of equipment listed, since laboratory cooling is now included on the ETL. It also drew attention to the fact that lab refrigeration can also have a long lifetime, especially in NHS and academic settings.

Older, inefficient chillers can add significantly to the load placed on general air conditioning systems, but this operational expenditure is generally not correlated with the capital expenditure on new refrigeration equipment. As universities and the NHS become more focussed in sustainability matters this is likely to change – but how quickly?

Taking a whole building approach to heating and cooling can require staff with wider competence and lab companies often struggle to find competent service personnel. Some GAMBICA members have been sharing information on their positive experiences of introducing degree apprenticeships which have helped them to attract able young people who do not wish to incur the debt associated with university study. Others have formed allegiances via the GAMBICA universities group to help them spot talent early.

But more regulation in this area is inevitable and GAMBICA will help to keep members abreast of what’s coming down the track.

Regular readers will remember that GAMBICA members have been helping with an EU initiative to include lab cooling in the remit of the Eco Design and Energy Labelling Regulations (EDEL). A standard has now been developed to help assess scientific and medical refrigerators and bring them into the ambit of the regulations. Details on the new standard; prEN 18151 Refrigerators and freezers for laboratory and medical applications – Terminology, requirements, testing can be found here: [https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12851-Energy-efficiency-review-of-energy-labelling-for-professional-refrigerators\\_en](https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12851-Energy-efficiency-review-of-energy-labelling-for-professional-refrigerators_en)

An updated version of the EDEL Regulation is now undergoing an internal Impact Assessment and a call for evidence is open here: <https://www.din.de/en/getting-involved/standards-committees/nagesutech/projects/wdc-proj:din21:368087846>. Information is particularly sought on two issues:

1. Whether energy labelling poses any risk to the health outcomes from the cabinets affected, i.e., if design of cabinets for improved energy efficiency might make them less effective in critical functionality.
2. Could minimum performance standards be applied to one or more sub-types of cabinet, even if they were not appropriate for types with critical and varied performance requirements.

If you have feedback on these or any other aspect of the report, please let me know and I will pass the information on. Email [jacqueline.balian@gambica.org.uk](mailto:jacqueline.balian@gambica.org.uk)

### F-Gas non-compliance costs

There has been another wave of fines issued for contraventions of F-Gas Regulations in the UK after the previous November’s wave hit a number of lab companies. The latest fines included:

- German biotech and pharma chiller provider Lauda Technology Ltd was fined £4,750 for HFC quota failures.
- Chiller company, Klima Therm Ltd was fined £20,000 for quota failures.
- Electrolux PI was fined over £50,000 for quota and training failures and for placing non-refillable containers of fluorinated greenhouse gases on the market.

- Fuel wholesaler Kool Blast Gas Europe Ltd fined £3,451.85 on each of four separate failures to obtain HFC quotas.
- John Brett was fined a total of over £1 million for failures to report imports of HFCs or to obtain sufficient quotas.
- Truck company Scania Great Britain Limited was fined £90,511 for failing to obtain sufficient HFC quota.
- Truck company, Schmitz Cargobull (UK) Ltd was fined £152,900 for quota failures.
- American agricultural machinery supplier, AGCO was fined £60,000 for quota failures.
- EDF Energy Nuclear Generation Ltd was fined £75,000 for failure to ensure that equipment is provided with a leakage detection system.

## Cold stores as batteries

Greater reliance on renewable energy and the switch-over to electrical power means that peaks in demand will become higher and more difficult to manage. Batteries will become hugely important and speakers including Tom Southall of the Cold Chain Federation made pleas for regulatory requirements that users provide energy storage mechanisms after the meter. Because of the huge amount of cold storage in the UK, the cooling industry has the potential to help alleviate periods of peak demand within the energy grid, by periodically reducing energy consumption and allowing temperatures to rise, within safe limits.

This flexing of businesses' 'thermal batteries' is currently done on an individual basis to save cost, but there is a huge opportunity for a more coordinated approach. In the UK, cold storage warehousing uses around 3.5TW of energy every year, which could be cut significantly using these techniques. However, more support is needed for businesses to better understand and monitor their energy consumption and be encouraged to operate in this manner.

## Networking and information the big benefits of the GAMBICA Lab Industry Conference

The recent GAMBICA lab industry conference proved a hit with attendees who praised the program's breadth of customer insights and economic forecasts. Speakers like economist Lee Hopley and TV commentator, Anand Menon provided candid assessments of the UK's economic and political landscape, particularly noting that throwing money at additional staffing is not going to solve the UK's productivity crisis. (See graphs in the next column)

Industry leaders shared insights on sustainability efforts and carbon footprint reduction strategies. Customers also highlighted the potential of AI and automation in enhancing operational efficiency

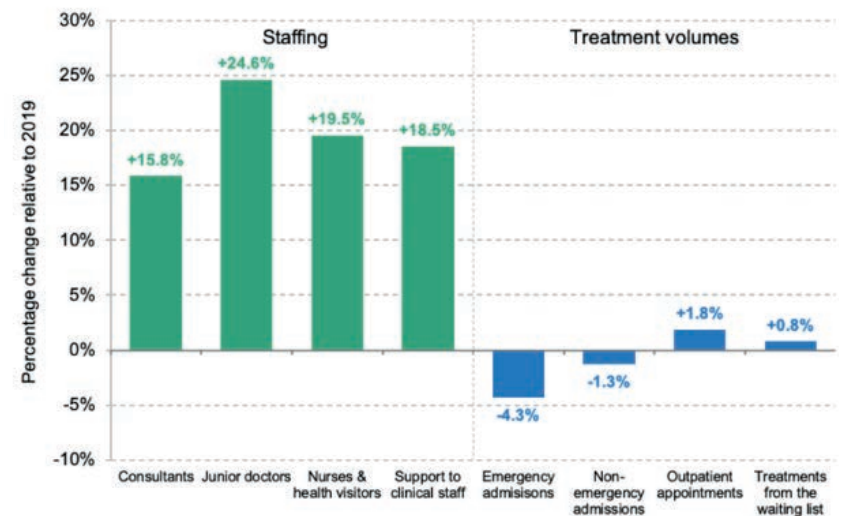
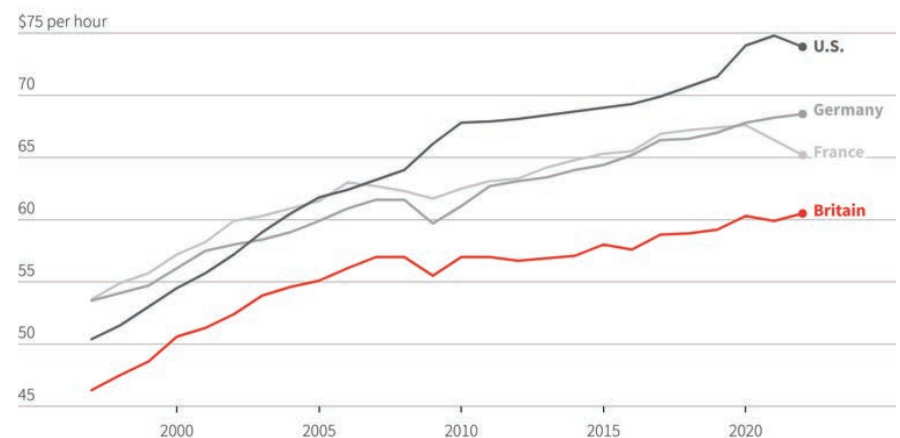


Figure 1: Hospital staffing and treatment volumes in 2023 compared with 2019

GDP per hour worked, a measure of labour productivity, has been lower in Britain than in the United States, Germany, France for decades.



Note: 2010 US \$ constant prices and PPPs  
Source: OECD

The day was closed by Jayne Green and Christian Walter from Lab training company, George James giving a very funny and insightful run through of how to sell in Europe. This year GAMBICA has been working closely with George James which has offered very well-received sales training on a shared cost basis for GAMBICA members – more is to be scheduled at the start of the summer, but before that we have been lucky enough to persuade George James and Biochannel Partners to offer their famous, selling to distributors training on a shared cost basis for GAMBICA members. This has brought the cost of the two-day training down from £3600 per person, to under £800 per person for GAMBICA members.

## Future directions and feedback

As preparations begin for next year's conference, stakeholders expressed interest in deeper dives into academia-industry funding collaborations, ESG compliance, and advancements in biological sciences and AI applications.

If you have subjects you would like us to cover, do get in touch. [jacqueline.balian@gambica.org.uk](mailto:jacqueline.balian@gambica.org.uk)