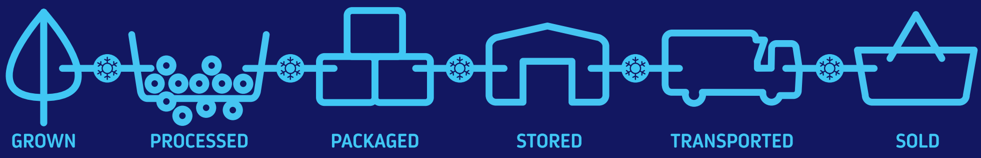
COLD CHAIN FEDERATION

COLD CHAIN REPORT / 23

FROM PRODUCER TO CONSUMER



THE UK COLD CHAIN IS:

- Critical to the food supply chain
- Vital to our economy
- At the forefront of global environmental challenges

CONTENTS / COLD CHAIN REPORT 2023

INTRODUCTION TO THE COLD CHAIN REPORT 2023

In July 2022, the Cold Chain Federation launched the first ever report bringing together information on the nation's cold chain, including our cold stores, temperature-controlled vehicles and the environment and market we operate in – it was a major landmark for our industry and its representative body.

One year on, we are delighted to reveal the 2023 edition of the Cold Chain Report which not only includes updates and new insight on our industry but also includes a new section detailing the headlines from our recent census of members which sought to gather opinions from professionals across the cold chain on the health and future outlook of our industry.

The anonymous survey asked for responses and comments on areas such as how cold chain resilience has changed in the face of recent disruption, the impact of changing consumer and customer demands as well as attitudes to sustainability and opinions on the future opportunities and challenges for businesses in the temperature-controlled logistics sector. We received responses from professionals across the breadth of the cold chain, including from third party logistics operators, retail and wholesalers, food manufacturers, suppliers of services and products to the industry and other industry experts. Responses were received from businesses storing food, pharmaceuticals and horticultural products and from those distributing by land, air and sea.

We are pleased to present the Cold Chain Report 2023 which is split into two sections; Part 1: The State of the Cold Chain and Part 2: The Cold Chain in Numbers.

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CONTENTS / PART 1: THE STATE OF THE COLD CHAIN

THE HEALTH OF OUR SECTOR TODAY

The landscape in which the UK's temperature-controlled logistics business operate has undergone profound change in recent years. In the face of a multitude of pressures from rapidly changing consumer demands during the pandemic to changes in trade flows following Brexit, the industry like many others has also had to adapt to rapidly inflationary pressures from energy, labour and costs.

It is with some pride that I reflect on the achievements of our sector in proving not only our resilience in the face of such profound change, but also our absolute criticality to balancing UK food, pharmaceutical and horticulture availability.

Change brings challenges, but it also presents opportunities for the cold chain. With demand for our services on the rise, we have an opportunity to adapt and grow sustainably to serve new customers both within the UK and beyond.

I am delighted to introduce the result of Cold Chain Federation's first comprehensive survey of our members, designed to gauge the general feeling of our members on the health of our sector today and into the future. I am greatly encouraged by the positivity which shines through in the responses. There is a real sense that despite the challenges, the future is bright for the UK cold chain.

Tom Southall,
Executive Director

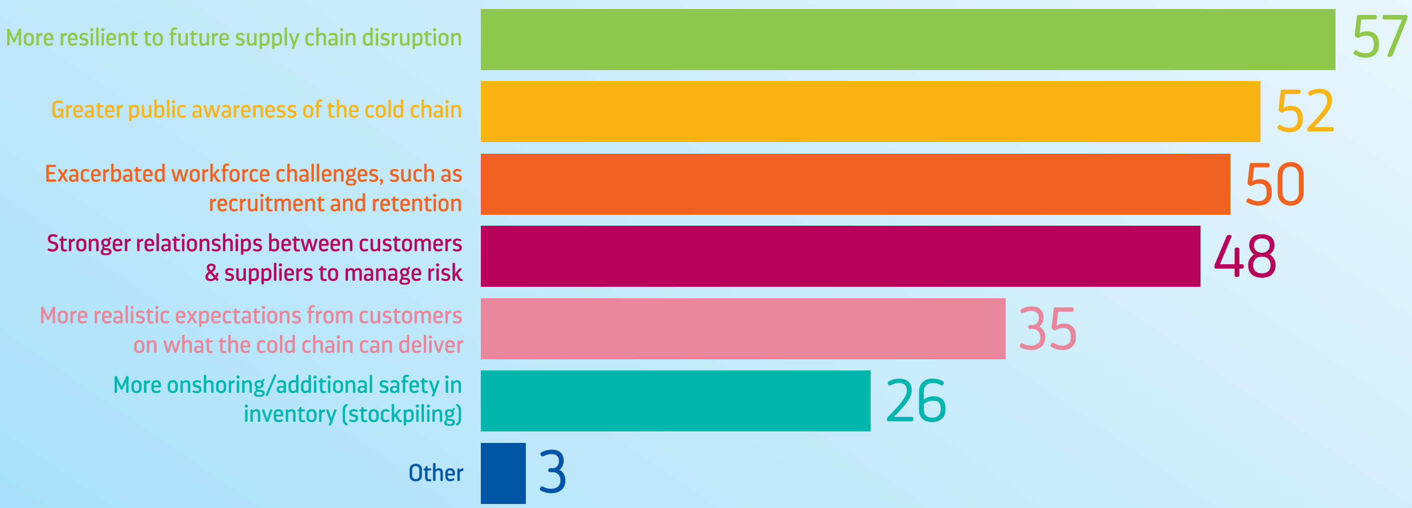
COLD CHAIN FEDERATION

? Has the cold chain emerged from recent supply chain challenges (eg. Brexit, Covid-19, energy crisis) more resilient than it was before?

YES 74%

NO 26%

? Long term impacts of Covid



ANALYSIS: TOM SOUTHALL EXECUTIVE DIRECTOR

Supply chains work best during times of predictability and stability, but the last three years have been anything but. The cold chain has been placed under strain from rapidly changing demands for our services driven by rapidly changing consumer demands, increasing costs, manufacturing delays and labour shortages due to Covid-19 and the war in Ukraine. Despite all of this, the cold chain and its people have worked overtime to ensure temperature-controlled products have remained in good supply. The responses to questions on resilience show a strong view that the cold chain has been strengthened by these challenges and more resilient to future disruption. They also reveal a feeling that the public are now more aware of the importance of cold chain and that stronger relationships between customers and suppliers have been forged. The challenge will be to continue building these links if/when we return to a more stable economy.

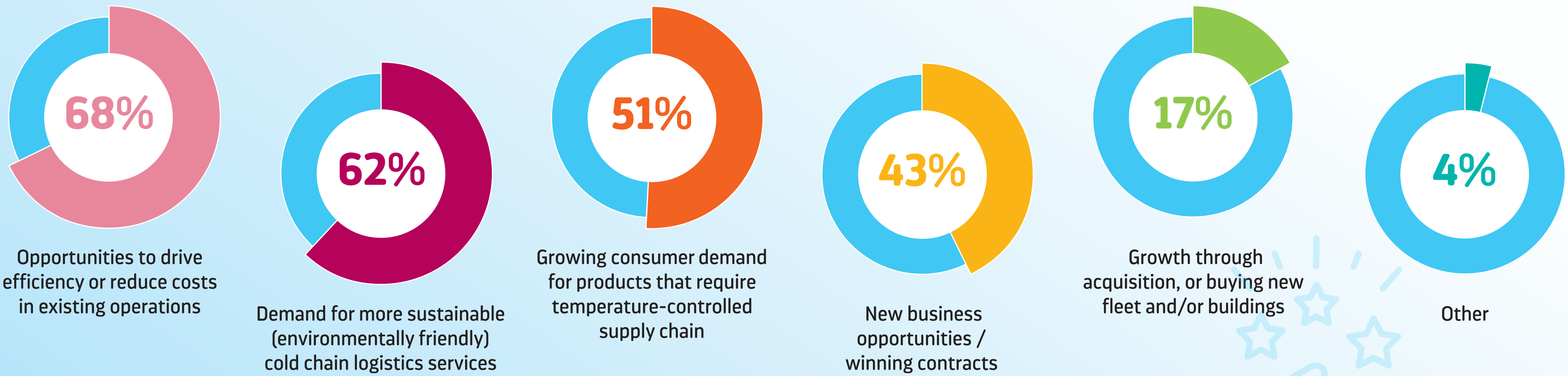
INDUSTRY VIEW:

"The pandemic has reinforced the importance of the cold chain with customers and consumers alike. This, in turn will drive investment into the industry and attract suppliers to the cold chain to develop their own products to sell to a growing market"
Senior Manager at a medium sized, mix temperature 3PL operator.

"With the many factors impacting the industry over recent years, we have not only managed these issue well, we have demonstrated true resilience and an ability to adapt which in turn has placed us in good stead for future growth."
Senior Manager at a large frozen 3PL operator

"The driver/worker shortages left by Brexit and Covid led to supermarkets with little on their shelves. Consumers have a better understanding as to just how vital the cold chain is to the smooth running of the country's food and pharmaceutical availability."
Manager in a small cold storage business

What are the top opportunities for cold chain businesses?



KEY INSIGHT: Whilst increasing operating costs and the need to be seen to be acting on sustainability all present potential challenges for cold chain operators, 68% of respondents felt driving and efficiencies to reduce costs was actually an opportunity, with 62% responding the same way about the growing demand for sustainable cold chain logistics services.

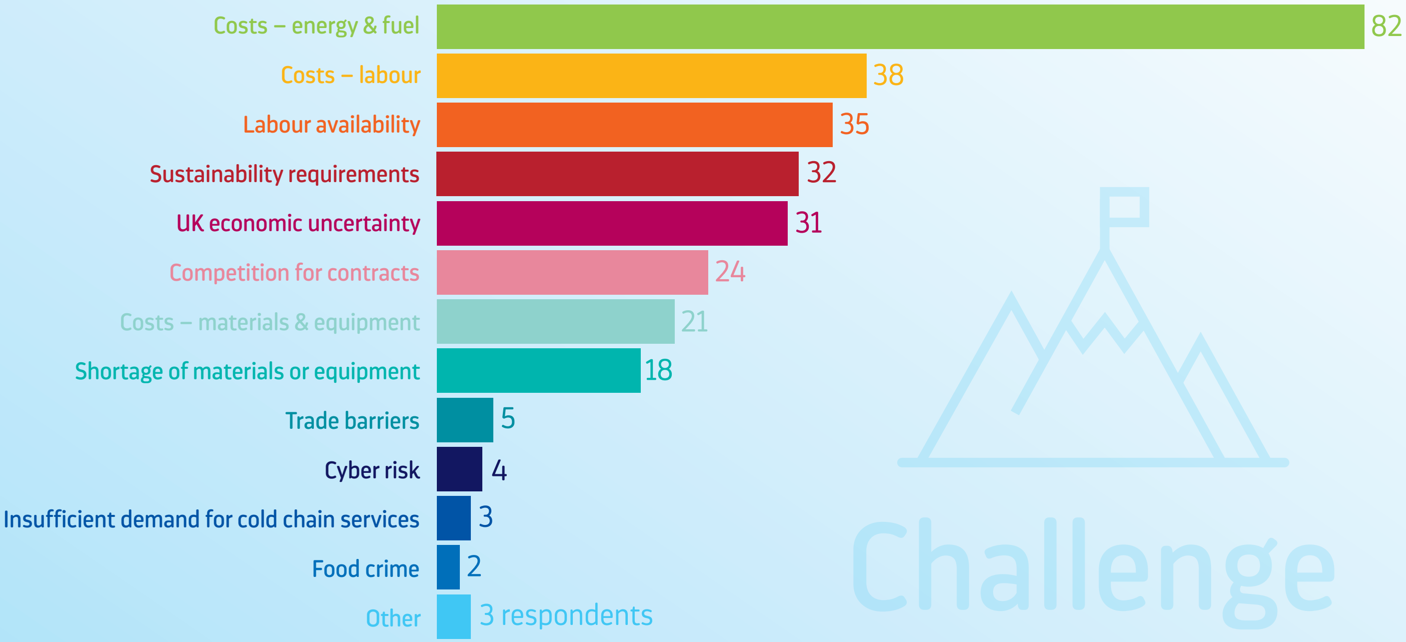
Opportunity

INDUSTRY VIEW:

"The sector is in the strongest position it has been in the last 15 years or so, demand is out stripping supply."
Senior Manager at a mixed temp 3PL storage and distribution business.

"Following Brexit, the Covid outbreak and the change in our climate, as a result of increasing world temperatures, affecting crop production, hence availability, we are starting to see manufacturers de-risking the supply of their goods to their customers thus holding a higher stockholding with third party operators. We have also seen a positive shift by the general public to the purchasing more frozen food in lieu of chilled goods thus increasing demand. This increase in demand has generally led to an increased reliance on the temperature controlled supply chain."
Leader of a medium size cold storage business

? What are the top challenges for cold chain businesses?



KEY INSIGHT: 79% of respondents to the State of the Cold Chain survey cited the cost of energy and other fuel as a top challenge for cold chain business, significantly ahead of the second biggest challenge, the cost of labour (37%).

ANALYSIS:
TOM SOUTHALL
EXECUTIVE DIRECTOR

Cost, cost, cost. The message is clear that the rising costs of energy, labour, and to a lesser extent materials, present the greatest challenges to cold chain businesses. The ability of an individual business to mitigate these cost rises is extremely variable due to differing energy contracts and relationships with customers. Pressure from governments and retailers to limit food inflation in particular is squeezing operating margins and risks restricting the ability of businesses to invest in new facilities and equipment.

Despite this, there is a clear view that investing in efficiency or reducing costs represents an opportunity not only to manage the energy crisis, but also to take advantage of the growing need for cold chain services in the UK and the increasing requirement for those services to be provided as sustainably as possible.

INDUSTRY VIEW:

“Greater visibility of this industry has lead to strides forward in recent years. Whilst there are significant challenges ahead the cold chain will always be a necessity and regardless of changing consumer habits and driving towards sustainability we will never deviate from the main stay being A to B transportation of food goods across the UK so in this sense there is a still a strong decade to come.”
Supplier/industry expert

“Demand for our service is likely to increase through growth of e-commerce and online grocery shopping. Areas of technological break throughs will benefit the industry, e.g. blockchain and automation this will improve services and help lower costs. Increasing demand generally for temperature controlled services will continue to grow into the future.”
Senior Manager at a large retailer

“Temp control is a base requirement for end customers. Frozen in particular will help customers spend and waste less. So long as the industry leads on sustainability it has a great future. If it gets dragged and is shown to be slow to follow then there might be a different approach, from end and primary customers.”
Senior Manager at a large retailer

THE STATE OF THE COLD CHAIN / ATTITUDES TO SUSTAINABILITY

? Do you view net zero policy and the drive for sustainability as a challenge or opportunity for temperature-controlled logistics businesses?

? What do you think are the main business drivers for investing in sustainability measures?

1st	Reducing emissions
2nd	Saving money
3rd	Satisfying customer requirements
4th	Corporate image (CSR)
5th	Getting ahead of government policy

KEY INSIGHT: When a weighted average was applied 'reducing emissions' came top, 'saving money' was actually ranked first by the most people (30%).

INDUSTRY VIEW:

"It is an opportunity to help the wider population understand how energy effective temperature controlled logistics could improve overall emissions in food supply chain, but the challenges on the availability and affordability of solutions will increase pressures on profitability."
Senior Manager at a large, frozen 3PL providing storage and distribution

"Whilst we must do our uppermost to get to Net Zero there are factors which still are not clear in how we attain this, as there is still much development on technologies but also infrastructure, also as much as we all want to make the world a better place for future generations, business will also have to have an eye on the commercials as there is often investment needed to get to net zero but the business also has to be able to support such investment."
Head of a large, frozen & chilled 3PL providing storage and distribution

"Sustainability is a key factor to the future of the supply chain, the challenges are brought on by the cost and investment needed and the customer not wanting to incur any additional costs. More research and development is needed and government funding to allow us to invest and protect the future."
Head of a medium sized food service business offering multi temp food and pharmaceutical storage and distribution

? What are the most important actions a temperature-controlled logistics business can take to reduce their carbon emissions?

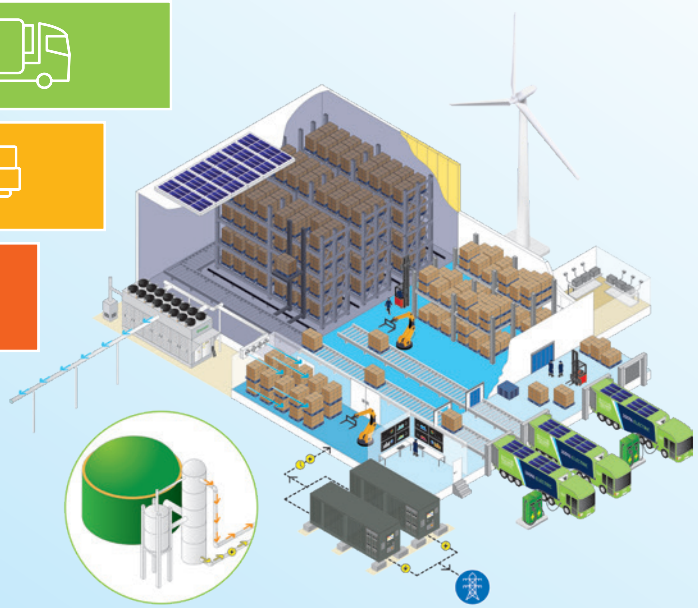
1st Invest in new, low carbon, equipment

2nd Improve efficiency of existing equipment

3rd Reduce/eliminate use of high GWP refrigerants

4th Improve efficiency of operational processes

5th Train workforce to operate equipment sustainably



KEY INSIGHT: 40% of respondents ranked ‘Invest in new, low carbon equipment’ as the most important action, with an 21% of respondents opting for ‘Improve efficiency of existing equipment’ and ‘Reduce/eliminate use of high GWP refrigerants’ as their top action.

INDUSTRY VIEW:

“Those that can help their customers scope three targets will thrive. Long term targets will become ambitious with many moving the post from 2050 to 2040 or earlier. End customers are more aware of climate and demand change. Without it habits will change.”
Senior Manager at a large retail operation

“It is both a challenge and an opportunity to demonstrate our resilience as an industry further.”
Director of a small food manufacturing businesses with ancillary frozen cold storage

ANALYSIS:
TOM SOUTHALL
EXECUTIVE DIRECTOR

There is no doubt that the greatest long-term impact affecting the way the cold chain operates is the need to be more sustainable and aim for net zero. Fundamental changes to the way our buildings and vehicles operate, as well as the ecosystem which joins them together, are needed for us to support the UK’s sustainability goals. This change brings challenges, including significant cost and adaptation to new technologies and approaches but there is a real sense that it also offers opportunities for those early adopters and pioneers of sustainable logistics. This mix of optimism and pessimism between individual businesses is evident in the responses to our survey which show 20% of respondents positive or negative but most (60%) viewing the need to be more sustainable as both a challenge and an opportunity for the sector as a whole.

The need to reduce emissions as well as realise the savings which can be made from using energy differently scored highest in our survey of business drivers for sustainability, but it will be interesting to see how satisfying customer requirements and getting ahead of government policy become equally important as we get ever closer to 2050.

? Thinking about the 12 months ahead, what do you think are customers of the temperature-controlled logistics industry's main priorities?

1st Maintaining high service levels and reliability

2nd Reducing costs

3rd Action on sustainability

4th Flexibility from their customers

KEY INSIGHT: An equal number of respondents (44%) ranked 'Maintaining high service levels and reliability' or 'Reducing costs' as their top priority for cold chain customers with maintaining service levels just coming out top overall with the weighted ranking applied.

ANALYSIS:
TOM SOUTHALL
EXECUTIVE DIRECTOR

Changing consumer demand, inflationary pressure and the need for all businesses to show that they are making progress on reducing supply chain emissions is resulting in changing relationships between customers and operators of the cold chain.

Our survey shows over the next 12 months, maintaining service levels, reliability and reducing costs are expected to be the main driver, with action on sustainability in third place. What really shone through in the survey's responses however was the view that recent disruption has led to some improvement in collaboration and communication between businesses along individual cold chains, but also a general feeling that these relationships need to improve much further to meet future demands placed on the cold chain.

INDUSTRY VIEW:

"There has been significant progress in coordinating the sector through the efforts of the CCF, however the sector remains fairly fragmented and uncoordinated. Many operations are not significantly integrated into customer supply chains meaning that the cold storage operators tend to optimise their operations as opposed to the wider supply chain. The growth in venture capital ownership may also be increased a focus on short term return as opposed to long term growth in people, infrastructure and customer base."
Senior Manager at a medium sized frozen 3PL operator

"The need for a thriving cold-chain sector in the UK is fully cemented, so I have no doubts that more investment and attention will be due in the years to come as demands and tastes change. Healthy collaboration between members of the cold chain is key to making sure that we as a sector can achieve our goals on waste, sustainability, and efficiency. I would like to see this become more of a theme in the future as technologies around business connectivity grow and become cost-effective for distributors and warehouses both large and small."
Recent graduate at a large, chilled 3PL operator and distribution

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? What government interventions do you think would most encourage the sustainable growth of the temperature-controlled logistics industry?

1st
Grants or other funding for capital investments

2nd
Long term clarity on how businesses will be expected to reduce their climate impact

3rd
Planning policy reforms to better suit logistics sites

4th
More targeted employment schemes to encourage workers to the industry

KEY INSIGHT: 52% of respondents ranked ‘Grants or other funding for capital investments’ as their top ask from government to encourage sustainable growth.

ANALYSIS: TOM SOUTHALL
EXECUTIVE DIRECTOR

The UK’s cold chain is recognised as one of the best in the world, with much of our infrastructure the result of significant private investment in buildings and vehicles over many decades. However, the drive for a net zero economy by 2050 requires an unprecedented level of new investment to rebuild or upgrade our cold stores and to transition fleets of temperature-controlled vehicles to emission free fuels. As well as planning reform and long-term clarity on exactly how business will be expected to reduce their climate impact, it is no surprise support with funding the transition is top of businesses wish list for Government. However, with pretty much every sector of the UK economy also requiring huge investment to reach net zero, exactly where and when this support comes from remains unclear.

INDUSTRY VIEW:

“It is an exciting time for the cold chain, but made more difficult because of a lack of Government direction. There needs to be one route for vehicle/fuel replacement and grants made available to make the step forward.”
Senior Manager at a medium size temperature-controlled distribution business

“I am positive about the future, but the industry does need change and reform. Old energy intensive sites can significantly influence the image and reputation of the cold chain, but improvements will need government support.”
Senior Manager at a large mixed temp 3PL

“Utility, labour and compliance costs and complexity serve to inhibit the investment required to invest in sustainable cold chain solutions. This leaves the market in limited supply of quality providers whose agenda has sustainability as a high priority and will leave the market vulnerable to government policy in driving the changes that are necessary to meet public promises.”
Senior Manager at a large mixed temp food and pharmaceutical 3PL operator

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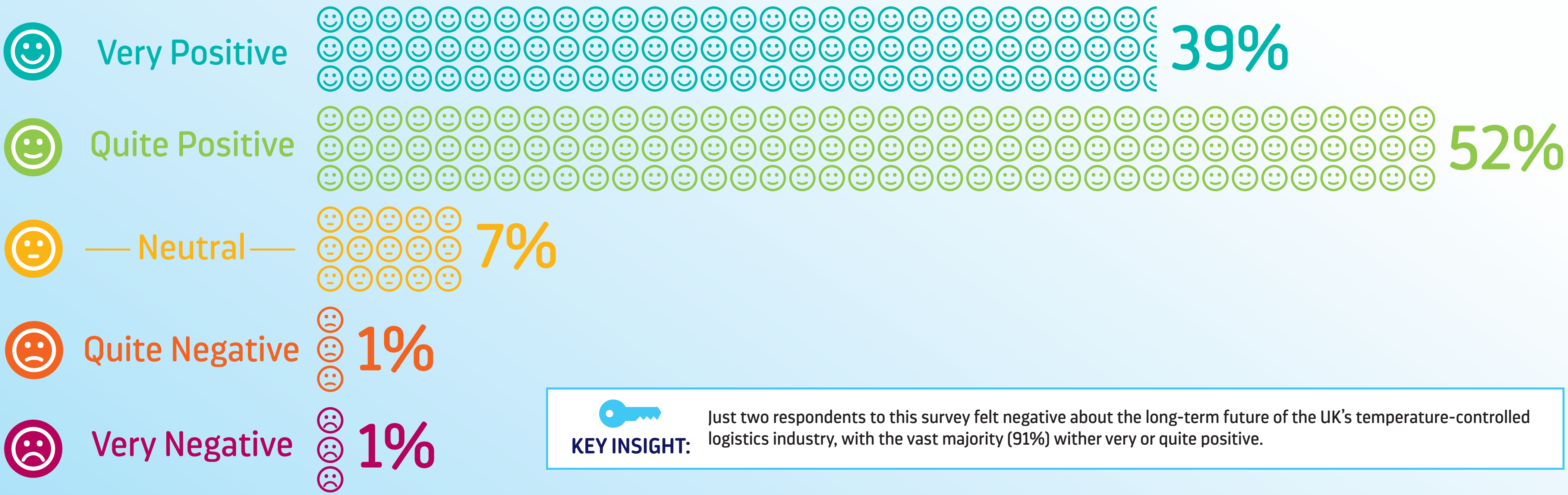
? Would you describe yourself as positive or negative about the long-term future of the temperature-controlled logistics industry in the UK?



KEY INSIGHT: Just two respondents to this survey felt negative about the long-term future of the UK's temperature-controlled logistics industry, with the vast majority (91%) wither very or quite positive.

INDUSTRY VIEW:

"The way we operate as a business has changed drastically since the 2020 step change; it has kick started a lot of improvements across the business and changed our core operation to just-in-case leaving just-in-time in the past. The external business risk readiness has been tested and improved with many challenges coming as food security is tested. Food security will continue to be strengthened and protected as a precious commodity."
Manager of a private cold storage and distribution operation

"I think the UK has for many years been the most efficient and in many ways ahead of other countries including USA. This has been driven in some way by the very demanding retail sector and by the innovations of the operators to meet those demands and still be profitable."
Business owner of a small mixed temp food and pharmaceutical 3PL operation.

"Our industry is split in two sectors. The big players have chosen the route of automation which is not flexible enough for a lot of customers, this leave the independent storage providers the opportunity to service the customers that don't fit the criteria of the big automated centres. I also believe there will be more opportunities from suppliers outside of the UK as trade agreements are signed."
Leader of a medium sized wholesale businesses

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? Which of the following do you think is most likely to influence how we operate temperature-controlled logistics in the next decade?

1st — Energy management, eg. renewable energy, battery storage

2nd — Automation

3rd — Data transparency, eg. blockchain, end-to-end visibility

4th — Changes to demand for cold chain products

5th — Temperature management, eg. reviewing commonly held setpoints

6th — Changing risk from food safety

KEY INSIGHT: Energy management (ranked top by 56% of respondents) and Automation (ranked top by 25% of respondents) were strongly backed as the top 2 future technologies which will shape the cold chain.

INDUSTRY VIEW:

"Our industry is split in two sectors. The big players have chosen the route of automation which is not flexible enough for a lot of customers, this leave the independent storage providers the opportunity to service the customers that don't fit the criteria of the big automated centres."
Leader of a medium sized wholesale businesses

"The future is likely to see the development of new revenue streams for the industry, for example finding ways of making use of the large amounts of waste heat generated which has potential uses in district heating/surrounding industry heating requirements."
Supplier/industry expert

ANALYSIS:
TOM SOUTHALL
EXECUTIVE DIRECTOR

Despite the considerable challenges and uncertainty facing all UK businesses in 2023, this survey has revealed that for cold chain at least, there is an extraordinarily strong consensus within the industry that in most cases the opportunities out weight the difficulties and that the future is a positive one. It is striking that only two respondents out of over 100 felt negatively.

There is also a strong feeling amongst business leaders, that whilst energy prices are a short-term headache, the long-term impact will be to bring forward the changing way energy is managed. Whether it be electrification of refrigerated vehicles, harnessing the power of renewables or thinking differently about energy storage and reusing the heat from our warehouses, the opportunities are clear.

Automation is clearly set to play a major role in the future cold chain too. With the number of high bay, fully automated cold stores in the UK steadily rising and a growing number of businesses looking at how robotics or other forms of automation could support more efficient operations and added value to their customers. We should not underestimate the impact greater data visibility and transparency could have on the way future cold chains are operated either.

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CONTENTS / PART 2: THE COLD CHAIN IN NUMBERS

VISUALISING THE COLD CHAIN

The cold chain is the network of specialist facilities and vehicles which store perishable goods in a secure temperature-controlled environment. In recent years the people and businesses that manage the UK's cold chain have proved just how vitally important we are. From the Covid-19 pandemic to worker shortages and huge rises in energy and fuel costs, these businesses have stood up to the challenge and kept our fridges stocked throughout.

As the trade association for the UK's temperature-controlled logistics industry, a strategic goal of the Cold Chain Federation is to be the go-to source for trusted and accurate data on our members and our sector. Last year and for the first time ever, we brought together information on the nation's cold chain, including our cold stores, temperature-controlled vehicles and the environment and market we operate in.

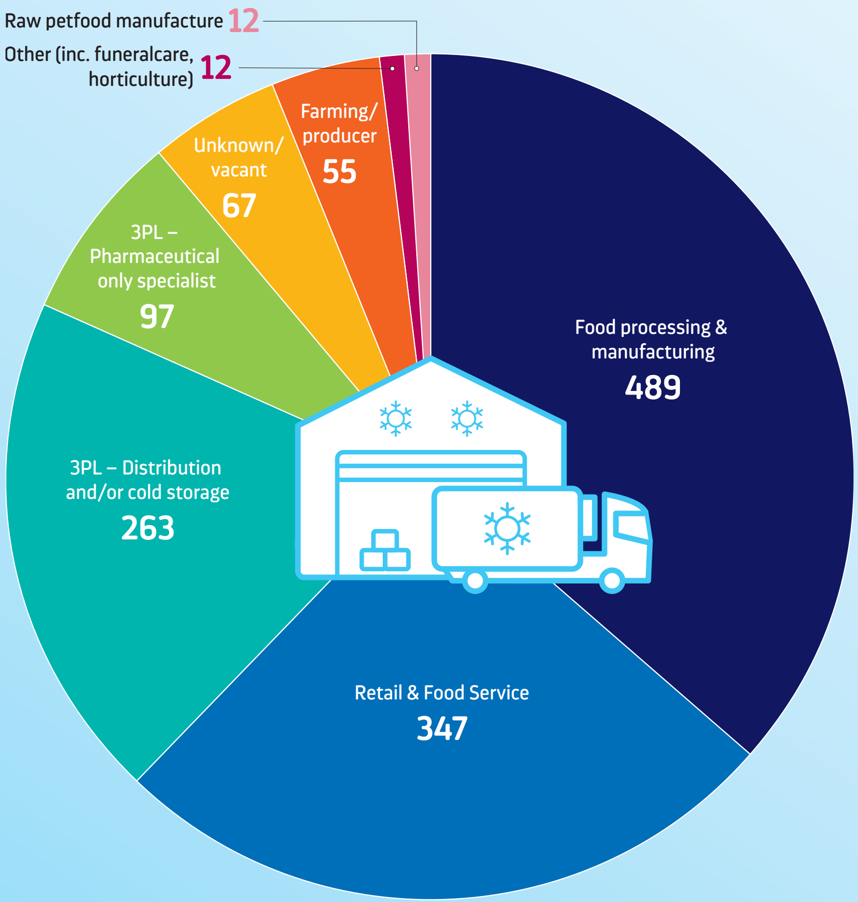
In 2022 we also set out our ambition to expand and improve upon information on the cold chain and in this year's Cold Chain in Numbers report we have done just that. Alongside updated figures on areas such as the number of cold chain facilities in the UK, the cost of energy and diesel to the sector and its carbon emissions we have added new research on the uptake of renewable technologies in cold storage, new analysis of refrigerant use in cold stores of different ages and the global reach of our industry leading guidance.

Alongside The State of the Cold Chain, which outlines the mood of the businesses and individuals in the cold chain, we hope Cold Chain in Numbers will aid businesses and policy makers to better understand the cold chain, including our infrastructure, services, successes and the challenges we face.

Tom Southall,
Executive Director

TYPES OF BUSINESS IN THE COLD CHAIN

This information is sourced from the Cold Chain Federation's own live database of businesses across the cold chain (member and non-member) and is derived from a variety of sources detailed (along with references for all the information presented herein) at the end of this report.

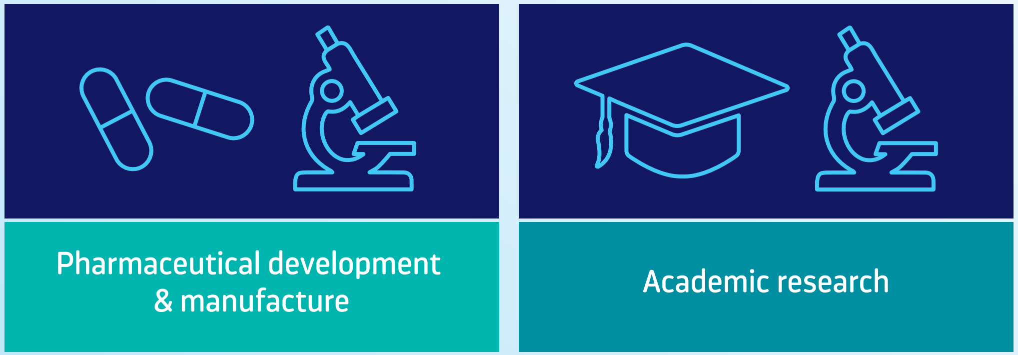


OTHER TYPES OF COLD CHAIN

The Cold Chain Federation is the voice for temperature-controlled logistics, but there are other types of application for refrigeration in the UK. Our strategy includes building new relationships with these sectors and understanding their impacts on our members.

Consumer refrigeration

Refrigeration in research and development



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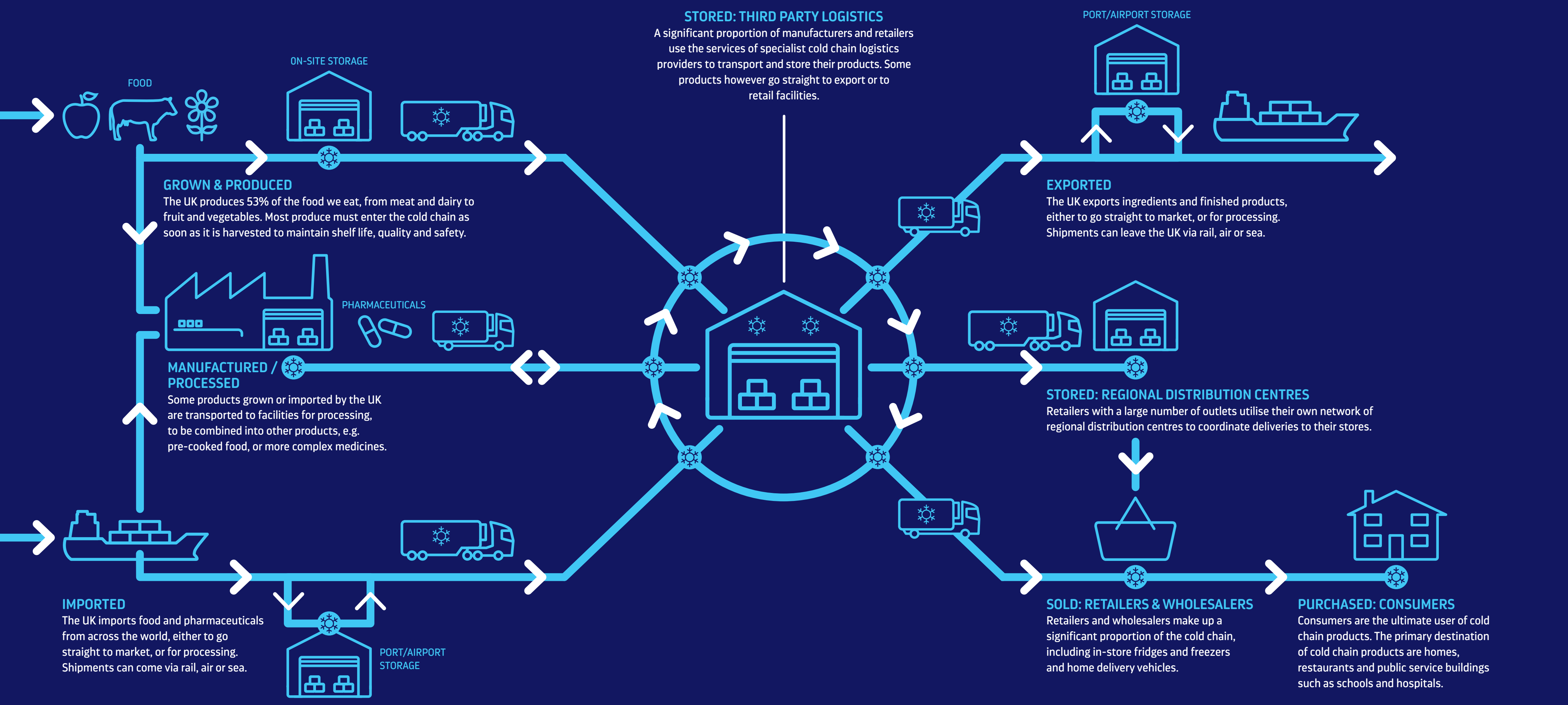
REGIONAL DISTRIBUTION OF COLD CHAIN FACILITIES

WHAT'S CHANGED IN 2023?

We have used new sources to improve our database of cold storage in Wales, Scotland and Northern Ireland.

Northern Ireland	28
North West	140
Wales	115
West Midlands	110
South West	136
Scotland	165
North East	35
Yorkshire & Humber	146
East Midlands	176
East of England	107
Greater London	30
South East	154

HOW IT ALL FITS TOGETHER



GROWN & PRODUCED
The UK produces 53% of the food we eat, from meat and dairy to fruit and vegetables. Most produce must enter the cold chain as soon as it is harvested to maintain shelf life, quality and safety.

MANUFACTURED / PROCESSED
Some products grown or imported by the UK are transported to facilities for processing, to be combined into other products, e.g. pre-cooked food, or more complex medicines.

IMPORTED
The UK imports food and pharmaceuticals from across the world, either to go straight to market, or for processing. Shipments can come via rail, air or sea.

STORED: THIRD PARTY LOGISTICS
A significant proportion of manufacturers and retailers use the services of specialist cold chain logistics providers to transport and store their products. Some products however go straight to export or to retail facilities.

EXPORTED
The UK exports ingredients and finished products, either to go straight to market, or for processing. Shipments can leave the UK via rail, air or sea.

STORED: REGIONAL DISTRIBUTION CENTRES
Retailers with a large number of outlets utilise their own network of regional distribution centres to coordinate deliveries to their stores.

SOLD: RETAILERS & WHOLESALERS
Retailers and wholesalers make up a significant proportion of the cold chain, including in-store fridges and freezers and home delivery vehicles.

PURCHASED: CONSUMERS
Consumers are the ultimate user of cold chain products. The primary destination of cold chain products are homes, restaurants and public service buildings such as schools and hospitals.

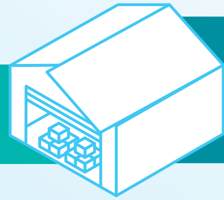
THE COLD CHAIN IN NUMBERS / OUR BUILDINGS

This section details information about the cold stores operated by members of the Cold Chain Federation. Unless stated, the information presented is from the facilities registered with our Climate Change Agreement (CCA) Scheme which includes around 450 facilities. Due to the way we collect data for the CCA, this information has not been updated in 2023.

SIZE OF UK COLD STORES

- 0 –50,000m³: 250 SITES
- 50,000 – 100,000m³: 68 SITES
- 100,000 – 150,000m³: 37 SITES
- 150,000 – 200,000m³: 26 SITES
- 200,000 – 250,000m³: 10 SITES
- 250,000 – 300,000m³: 11 SITES
- 300,000m³+: 25 SITES

Average size of a UK cold store



95,693m³

Total volume of UK cold storage

40,860,853m³

That's the equivalent of:

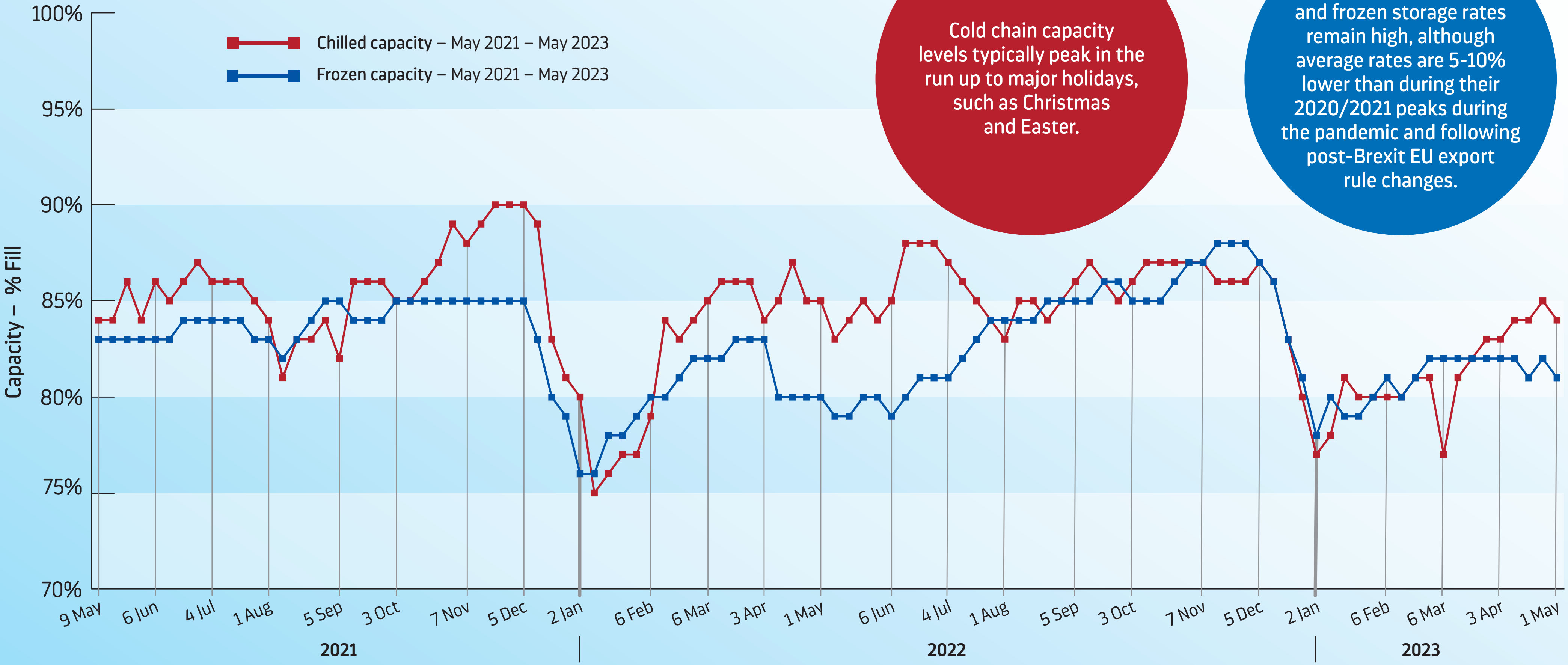
35 WEMBLEY STADIUMS

COLD STORAGE CAPACITY LEVELS

We collect capacity data from our members on a monthly basis and feed this information directly to the UK Government. This was developed during the Covid pandemic when the lack of available cold storage space presented real resilience concerns for the UK's food supply.

Cold chain capacity levels typically peak in the run up to major holidays, such as Christmas and Easter.

In 2023, both chilled and frozen storage rates remain high, although average rates are 5-10% lower than during their 2020/2021 peaks during the pandemic and following post-Brexit EU export rule changes.



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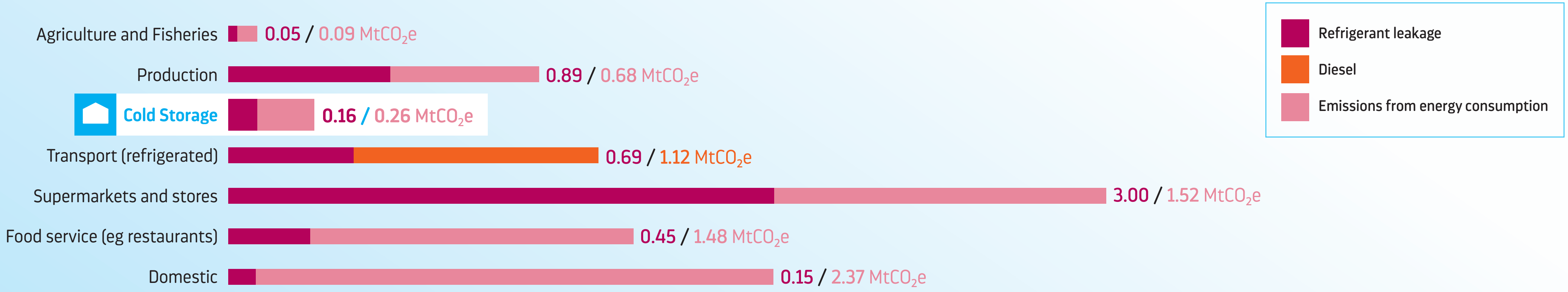
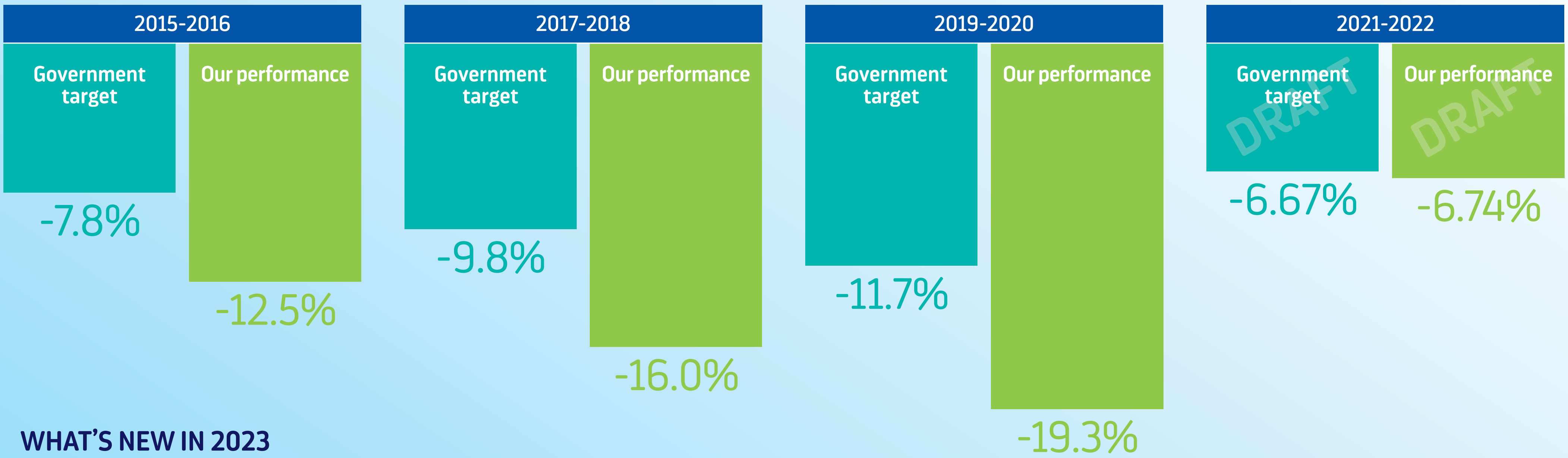
EMISSIONS FROM COLD STORAGE (FOOD ONLY)



RELATIVE ENERGY EFFICIENCY PROGRESS IN COLD STORAGE UNDER THE CLIMATE CHANGE AGREEMENT



WHAT'S NEW IN 2023

We have added draft data for 2021-2022. For this period, the government reset the energy baseline from which efficiency is measured to 2018 (prior to this it was 2008).

Despite this, cold stores still managed to meet the new target of 6.67% of relative efficiency improvement between 2018 and 2022.

This was across circa **450 UK cold stores.**

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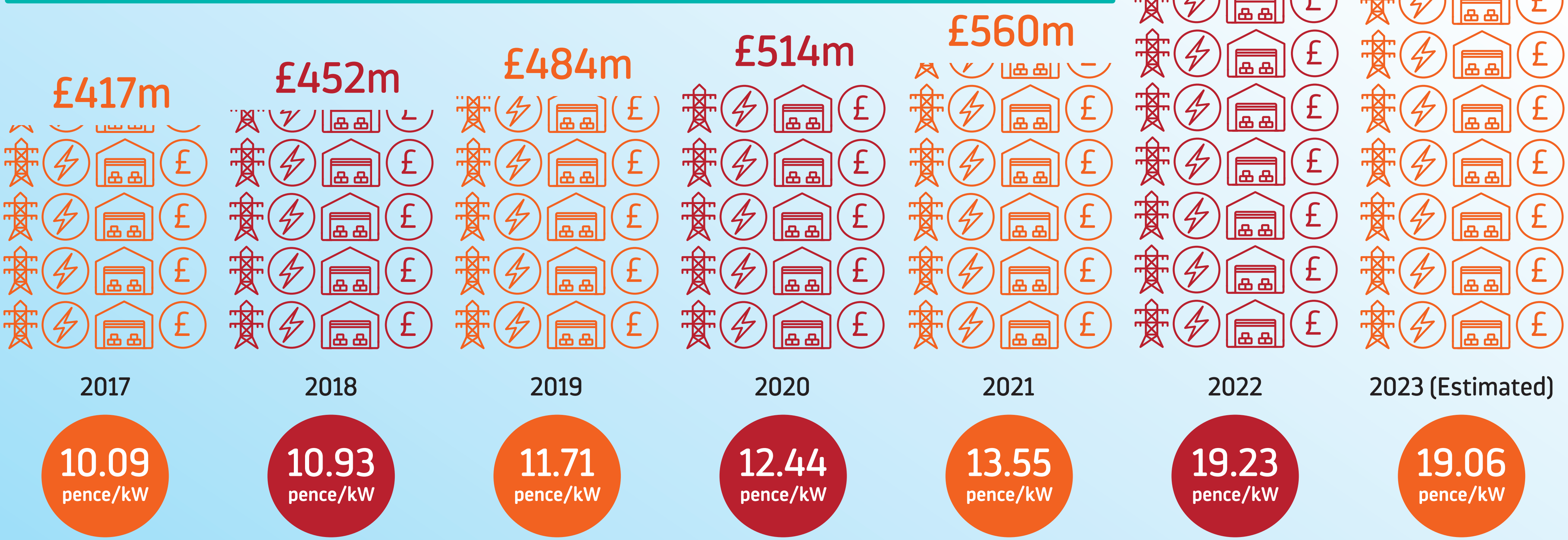
ELECTRICITY COST IN COLD STORAGE

The estimated energy cost for 2023 is based on actual rates up to the 5th of July and predicted costs for the remainder of the year.

WHOLESALE ENERGY COSTS BETWEEN 2017 AND 2023 HAVE SHOWN A **89%** INCREASE



THE COLD CHAIN IN NUMBERS / OUR BUILDINGS

BLAST FREEZING OFFERED AS AN ADDITIONAL SERVICE

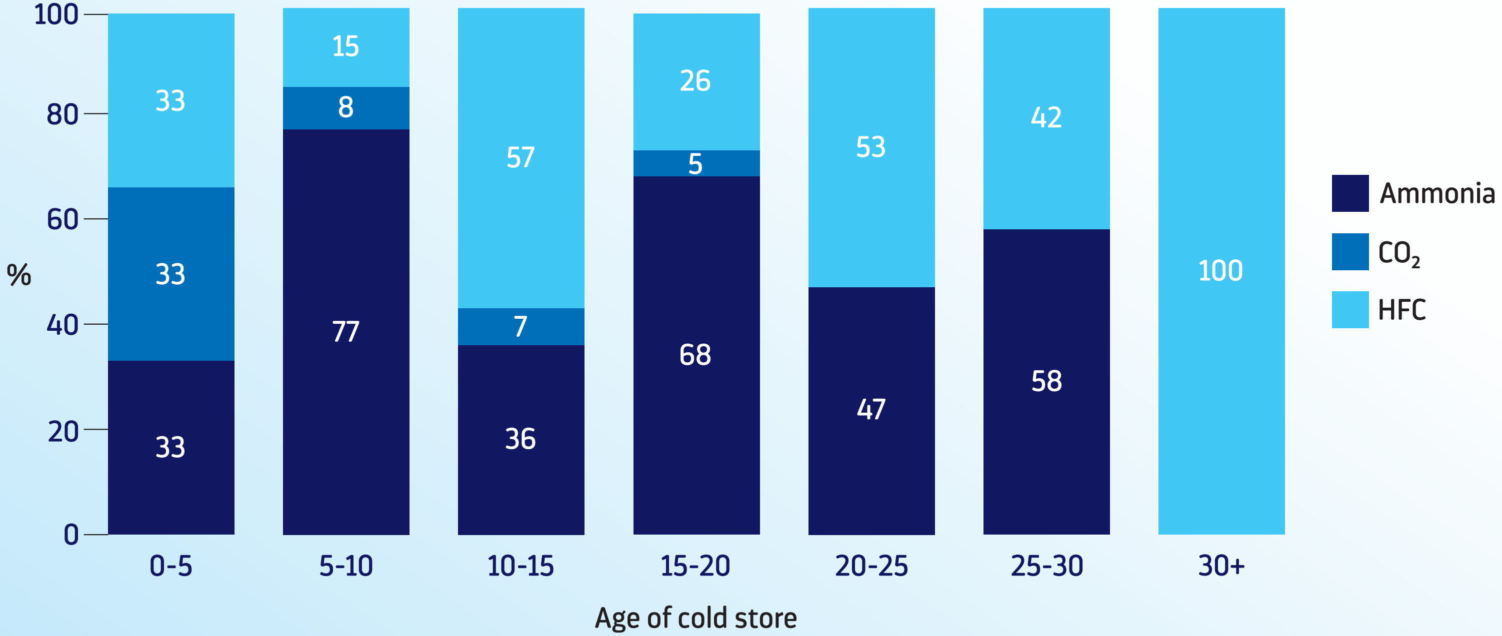
YES 21%

NO 79%

RENEWABLE ENERGY TAKE UP

25% of UK cold storage sites are fitted with renewable energy technology.

REFRIGERANT USED IN PRIMARY REFRIGERATION SYSTEM



SUSTAINABILITY TRANSITION

The Cold Store of 2050 is the industry's vision for how temperature-controlled warehouses could evolve to achieve a step change in energy efficiency whilst driving energy transformation in the UK as part of the transition towards a net zero economy by 2050. The report details the technologies which could become more widespread, the barriers to their adoption and how businesses, government and those responsible for the UK energy network will need to collaborate to ensure the opportunities and benefits detailed in this report are achieved.

TOP THREE POLICY CHALLENGES FOR COLD STORAGE

- Clarity on expectations for energy efficiency improvement in cold stores to 2050 and a long term commitment to the climate change agreement scheme.
- Overcoming grid capacity restrictions at logistics sites which are severely inhibiting sustainable investments in renewables and other energy management processes.
- Reviewing commonly held temperature setpoints for frozen food storage to end overchilling whilst significantly saving energy without compromising on product safety or quality.

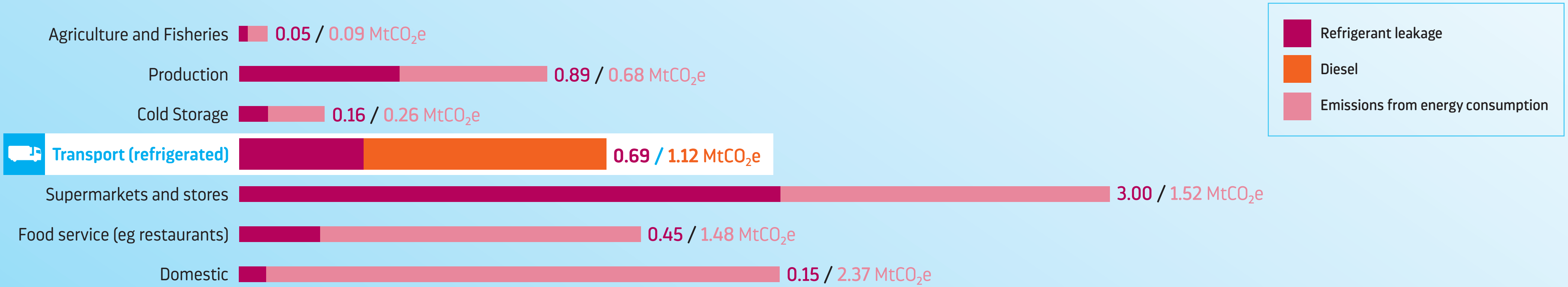
COLD CHAIN FEDERATION

The UK's fleet of temperature-controlled vehicles ensures perishable products are kept safe as they are transported throughout the cold chain. This section includes information on the vehicles operated by our members only.

NUMBER OF VEHICLES

EMISSIONS FROM TRANSPORT REFRIGERATION UNITS (TRUs - FOOD ONLY)

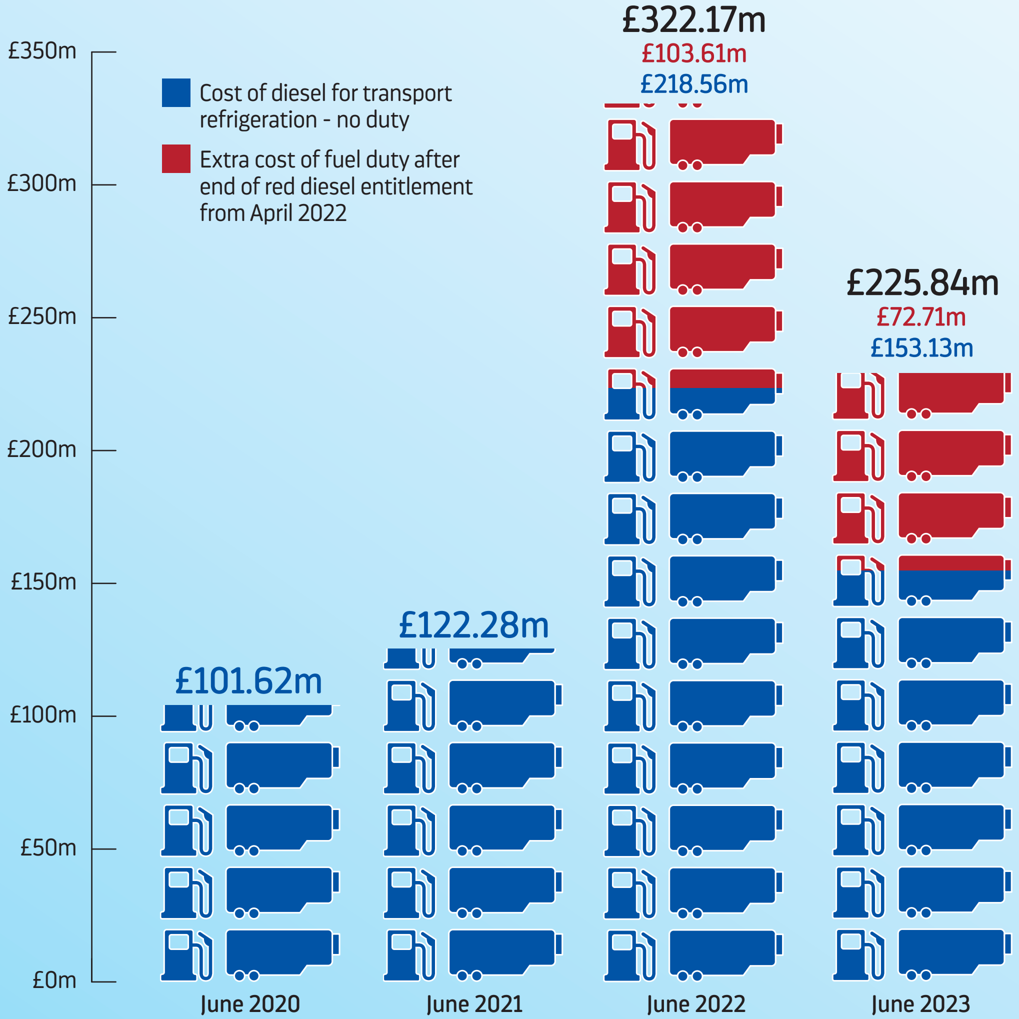
As well as carbon emissions, TRUs also contribute to harmful air pollution, including NOx and Particulate Matter. The exact emissions are highly variable depending on factors such as age and how they are operated, however transitioning from diesel powered TRUs to sustainable alternatives will be crucial to reducing this impact.



THE COLD CHAIN IN NUMBERS / OUR VEHICLES

COST OF DIESEL IN UK TRANSPORT REFRIGERATION

From April 2022, operators of transport refrigeration units (TRUs) were no longer entitled to use red diesel, adding to the inflationary costs of fuel for transport refrigeration.



SUSTAINABILITY TRANSITION

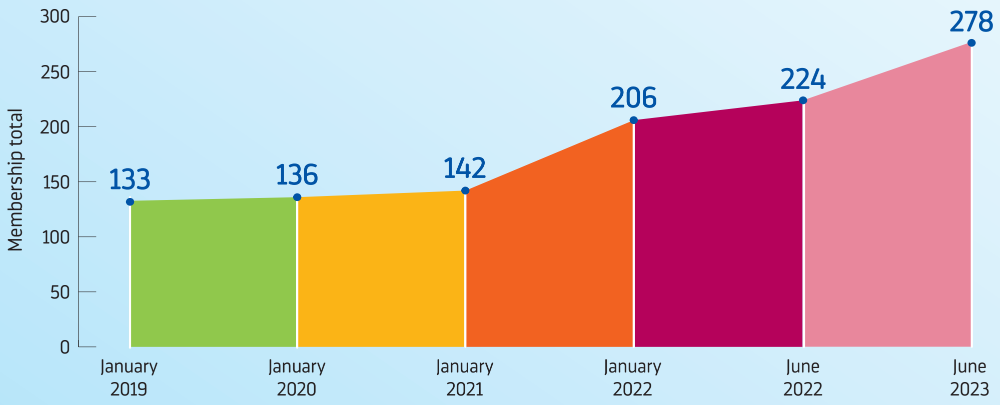
The Journey Towards Emission Free Temperature-controlled Distribution on Road Vehicles is our vision for how transport refrigeration units (TRUs) can transition away from diesel, to emission free alternatives in line with the UK's decarbonisation and air quality targets. It sets out our view on the technological outlook for TRUs, how operators and manufacturers will adapt to drive down emissions and finally the financial, infrastructural and regulatory support which will be required to enable us to meet our ambitious targets.

TOP THREE POLICY CHALLENGES FOR TEMPERATURE-CONTROLLED DISTRIBUTION

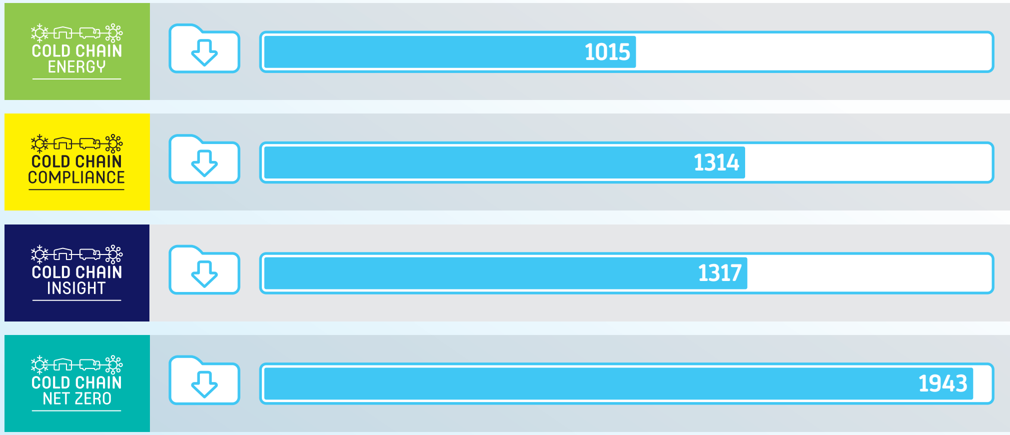
- Ensuring the unique requirements of temperature-controlled operators are recognised and considered when developing the UK future freight system.
- Establishment of grant based support for the investment in trials, or adoption of lower emission Transport Refrigeration Unit technologies to enable operators to bridge the enhanced capital cost of emerging technology.
- Lack of a government strategy for establishing the network of electric charging and hydrogen refuelling for temperature-controlled trailers at depots and rest areas along the road network.

The Cold Chain Federation is the voice of the UK's cold chain, providing our members with the latest and best advice and opportunities to network. Since our formation in 2019, we have significantly grown our membership and are supporting more cold chain professionals than ever through our bespoke events and guidance.

REPRESENTATION: MEMBERSHIP GROWTH

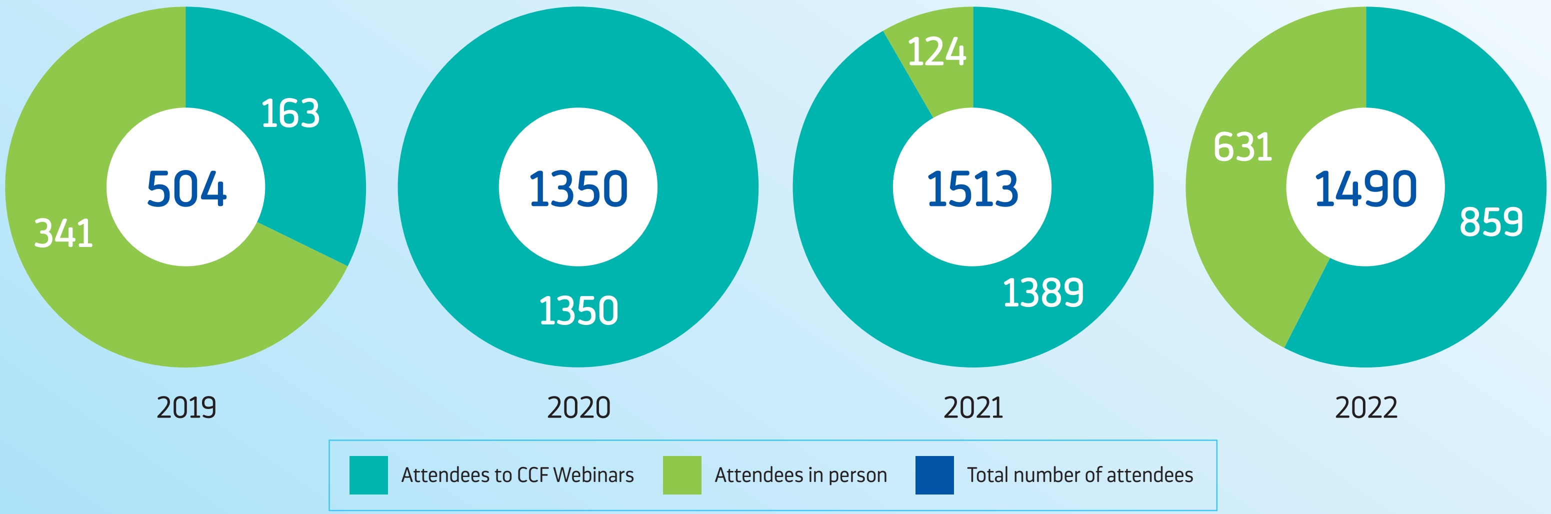


ADVICE: CCF GUIDE DOWNLOADS



EVENTS: ATTENDEES TO CCF WEBINARS

When the Covid pandemic hit in 2020, the Federation quickly transitioned to virtual events and briefings – providing our members with crucial support in a time of huge uncertainty. Following the nation's emergence from lockdowns, we have succesfully implemented a hybrid programme of events which includes in person events such as Cold Chain Live! and the Cold Chain Climate Summit as well as virtual Insight conferences and Cold Chain Connect webinars.



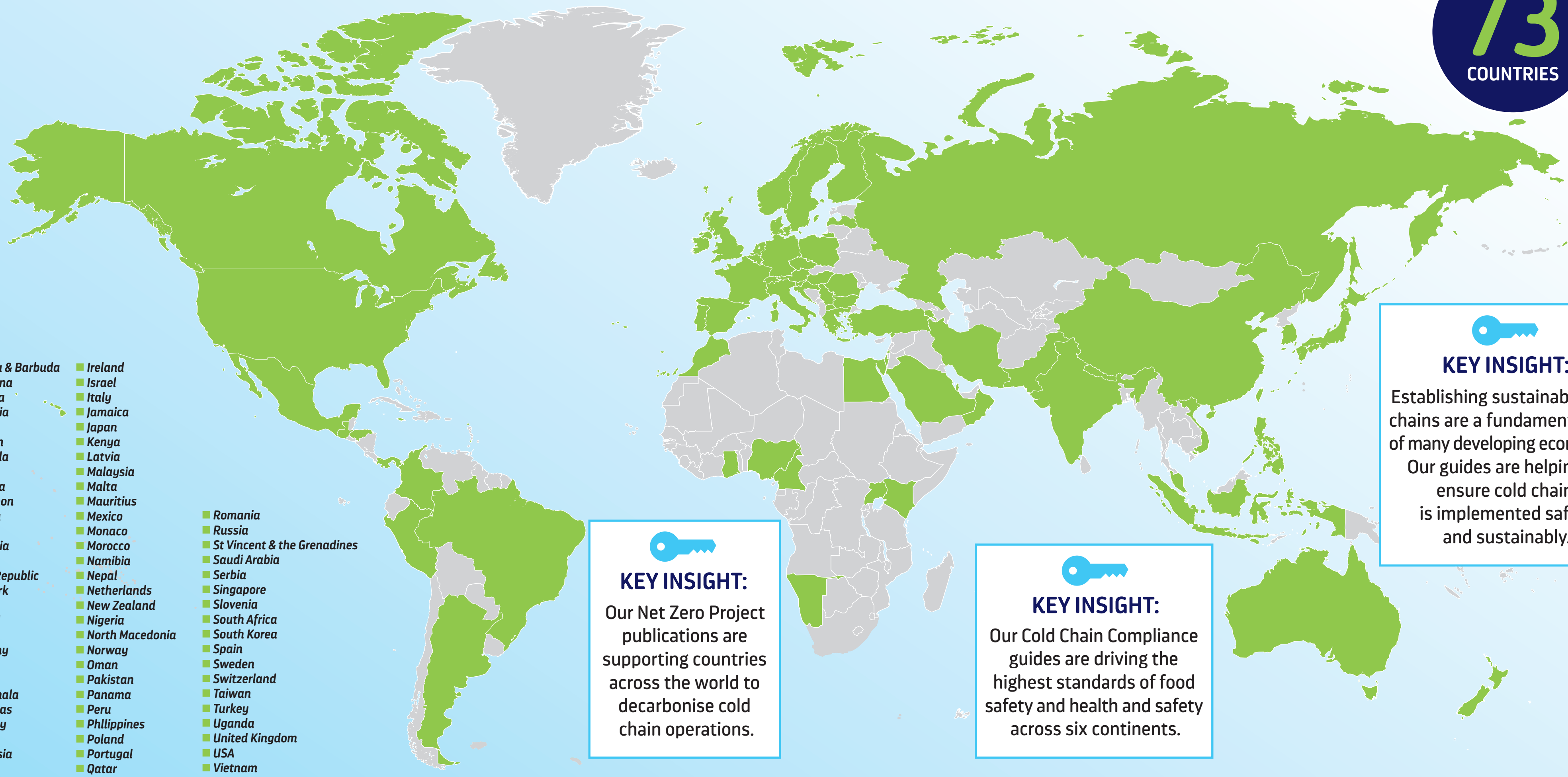
COLD CHAIN FEDERATION

GLOBAL INFLUENCE

Our industry leading cold chain guidance is not only supporting our members in the UK, but also being utilised in over 70 countries across the world.

Countries downloading CCF guidance/advice as of 31/05/2023

73
COUNTRIES



- Antigua & Barbuda
- Argentina
- Armenia
- Australia
- Austria
- Belgium
- Bermuda
- Brazil
- Bulgaria
- Cameroon
- Canada
- China
- Colombia
- Croatia
- Czech Republic
- Denmark
- Egypt
- Finland
- France
- Germany
- Ghana
- Greece
- Guatemala
- Honduras
- India
- Indonesia
- Iran
- Ireland
- Israel
- Italy
- Jamaica
- Japan
- Kenya
- Latvia
- Malaysia
- Malta
- Mauritius
- Mexico
- Monaco
- Morocco
- Namibia
- Nepal
- Netherlands
- New Zealand
- Nigeria
- North Macedonia
- Norway
- Oman
- Pakistan
- Panama
- Peru
- Phllippines
- Poland
- Portugal
- Qatar
- Romania
- Russia
- St Vincent & the Grenadines
- Saudi Arabia
- Serbia
- Singapore
- Slovenia
- South Africa
- South Korea
- Spain
- Sweden
- Switzerland
- Taiwan
- Turkey
- Uganda
- United Kingdom
- USA
- Vietnam

KEY INSIGHT:
Our Net Zero Project publications are supporting countries across the world to decarbonise cold chain operations.

KEY INSIGHT:
Our Cold Chain Compliance guides are driving the highest standards of food safety and health and safety across six continents.

KEY INSIGHT:
Establishing sustainable cold chains are a fundamental aim of many developing economies. Our guides are helping to ensure cold chain is implemented safely and sustainably.

SUPPORTING & REPRESENTING OUR MEMBERS

In 2023 we have campaigned for increased recognition of the importance of the cold chain to our nation, as well as action on policy areas negatively impacting the prosperity and growth of the temperature-controlled logistics industry. Our highlights have included:

Meeting Richard Holden MP, Secretary of State for Roads to discuss our transition to Net Zero, the work our members do across the country and the support we need from Government.

The CCF was represented by our outgoing president, Tim Moran, at Number 10 Downing Street for a reception on the progress of the Montreal Protocol.

We are making sure our voice is heard across government and have taken our place on several working groups and committees including Freight Council, Freight Energy Forum and an inquiry into the future of the sector.

In May we hosted our 2nd Parliamentary Reception with over 140 members attending and many meeting their local MP to discuss the need to attract the next generation of cold chain talent as well as local issues.

We have built relationships with devolved governments, from briefings on the Windsor Agreement, meeting SNP MPs and MSPs with members to contributing to a Welsh Government study on cold stores.

The Shadow Minister for Environment, Food and Rural Affairs, Daniel Zeichner, raised questions in the House of Commons about delays in grid connection restricting sustainable investments by cold store operators.

COLD CHAIN FEDERATION

We are the voice of the UK cold chain. Our 278 members operate more than 450 specialist storage facilities and run more than 40,000 vehicles and refrigerated trailers across England, Wales, Scotland and Northern Ireland. They operate within the UK and internationally.

The organisation can trace its history back to original formation in 1911. Formerly FSDF (Food Storage and Distribution Federation), we became Cold Chain Federation in 2019. Find out more **www.coldchainfederation.org.uk**

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@ColdChainFed

SOURCES AND REFERENCES

THE COLD CHAIN

All data in this section is derived from the Cold Chain Federation's own live database of UK cold chain premises. This includes information on temperature-controlled buildings and vehicle depots from a wide range of sources including Savills, the Valuation Office Agency, MHRA registered premises, Department for Transport O-Licence data, the CCF Climate Change Agreement, Defra data on Businesses approved for export to the EU and our own research.

OUR BUILDINGS

All information displayed in this section is derived from data obtained using the reporting process for the CCF's Climate Change Agreement for Cold Stores, except:

Cold Storage Capacity Levels: Monthly data obtained from CCF monthly survey of members undertaking public cold storage.

Emissions from Cold Storage: Foster, A., Brown, T. and Evans, J. (2023). Carbon emissions from refrigeration used in the UK food industry. International Journal of Refrigeration **https://doi.org/10.1016/j.ijrefrig.2023.01.022**

Electricity Cost in Cold Storage: Analysis was carried out using energy usage from 460 cold stores in the Climate Change Agreement for Cold Stores using pricing information from the BEIS statistical dataset: ***Gas and electricity prices in the non-domestic sector:*** **https://www.gov.uk/government/statistical-data-sets/gas-and-electricity-prices-in-the-non-domestic-sector**. Version published 30/03/2023.
Forward look analysis was undertaken by Ameresco based on forward curve estimates (as of 05/07/2023).

OUR VEHICLES

All data in this section was obtained from the Department for Transport dataset:
Traffic Commissioners: goods and public service vehicle operator licence records: Accessed June 2023. **https://data.gov.uk/dataset/2a67d1ee-8f1b-43a3-8bc6-e8772d162a3c/traffic-commissioners-goodsand-public-service-vehicle-operator-licence-records**, except:

Emissions from Transport Refrigeration Units: Foster, A., Brown, T. and Evans, J. (2023). Carbon emissions from refrigeration used in the UK food industry. International Journal of Refrigeration. **https://doi.org/10.1016/j.ijrefrig.2023.01.022**

Cost of diesel in UK Transport Refrigeration: Data calculated from a 2019 CCF member survey on red diesel usage in 4,839 TRUs and wholesale diesel prices from RAC Fuel Watch (accessed June 2023) and average red diesel pricing from Boiler Juice (**https://www.boilerjuice.com/red-diesel-prices/**).

OUR FEDERATION

All information displayed in this section is from CCF analysis.