

# THE CLIMATE CHANGE AGREEMENT FOR COLD STORES: AN INDUSTRY WORKING TOGETHER TO IMPROVE ENERGY EFFICIENCY

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## ABSTRACT

The Climate Change Agreements were established in 2003, in response to the introduction of Climate Change Levy as a means to reduce industrial energy and contribute to the UK's commitments under the Kyoto Agreement. The scheme offers energy intensive industries significant discounts on their Levy if they agree to targets for improving their energy efficiency. For cold storage, performance is overseen by the Cold Chain Federation<sup>1</sup>. Cold stores have consistently met the efficiency targets of the scheme and in the process have saved over £10m a year. The Federation has been instrumental in helping the sector to work together to achieve its targets through strong administrative and technical support. The scheme, recently extended until 2025, is popular with both industry and Government and a recent evaluation found they provide value for the economy and the taxpayer, promote energy efficiency and protect the competitiveness of UK business.

## 1. INTRODUCTION

The origins of UK Climate Change Agreements (CCAs) can be traced back to the United Nations Kyoto Conference. In 1997, the UK along with 14 other European nations signed up to a legally binding target of reducing their greenhouse gas (GHG) emissions. For the UK, this target amounted to reducing GHG emissions by 12.5% from their 1990 levels, by 2012.

As part of this commitment the UK government decided to introduce a tax on industrial energy to act as a catalyst for industry to improve their energy efficiency and reduce associated emissions. Under the Finance Act 2000, the Climate Change Levy (CCL) was finally introduced in 2001 and applied to all fossil fuels used by industrial, public services, commercial and agricultural sectors. Applied directly to energy bills, the rates for CCL have steadily increased over the last 20 years<sup>2</sup> – with electricity, the primary commodity in cold stores, nearly doubling in the 20 years since 2001 to its current rate of £0.00811 per kWh. In 2019/20, CCL raised £1.985bn for the UK Treasury.

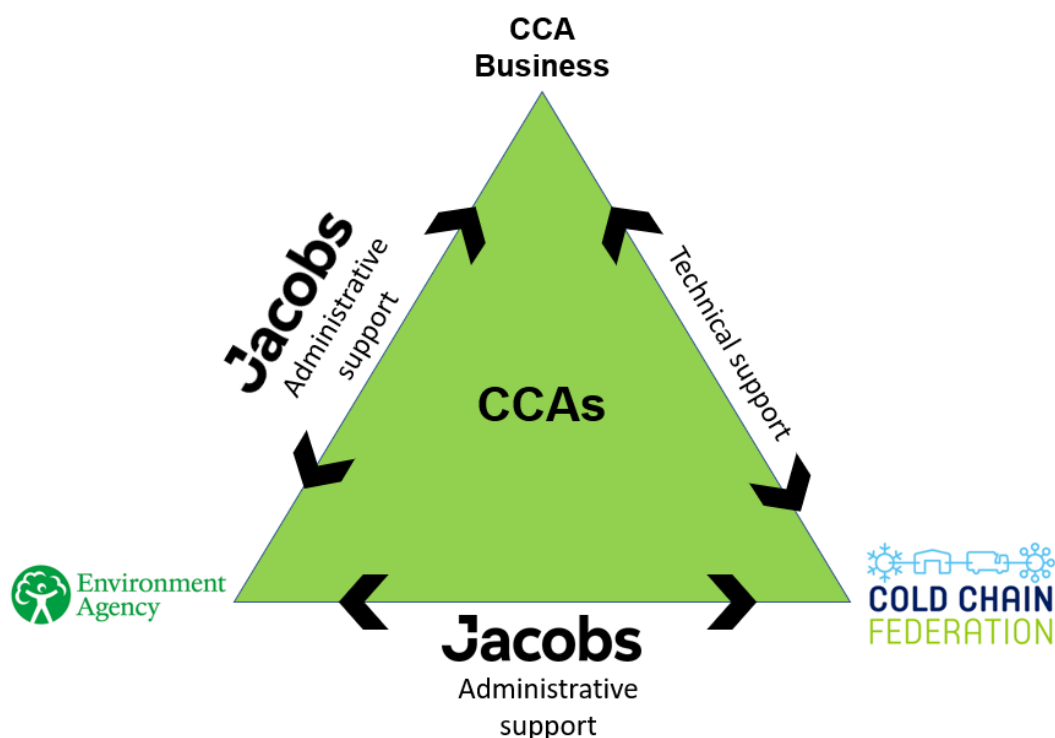
When the CCL was introduced in 2001, it was recognised by the UK Government that businesses needed support to improve their energy efficiency and that the extra taxation could impact the international competitiveness of UK business. As a result, CCAs were introduced to offer energy intensive industries substantial discounts on their CCL in return for agreeing to a voluntary energy efficiency target. CCAs were made available to a wide range of industry sectors from major energy intensive processes, including cold storage.

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<sup>1</sup> The Cold Chain Federation is the trade association for the UK's temperature-controlled logistics industry: <https://www.coldchainfederation.org.uk/>

<sup>2</sup> <https://www.gov.uk/government/statistics/climate-change-levy-ccl-and-carbon-price-floor-cpf-bulletin/climate-change-levy-and-carbon-price-floor-historic-rates>

CCA policy is managed by the UK Department for Business, Energy and Industrial Strategy (BEIS), but the scheme is managed by the Environment Agency (EA). From their inception it was recognised that the large number of businesses applicable and unique challenges of specific sectors meant that they were best coordinated by the industries themselves. As a result each CCA is managed by a sector association, usually a Trade Association, which in the case of cold storage is the Cold Chain Federation (CCF). The CCF retains overall responsibility for CCA performance and support to businesses to achieve their targets, however to manage the day to day administration of the approximately 450 facilities signed up to the CCA for cold storage, the CCF employs Jacobs Engineering Group.



**Figure 1. Administration of the Climate Change Agreement for cold stores**

Each sector with a CCA is assigned a target for energy efficiency measures over successive 2-year ‘Target Periods’ and the sector association must report the performance of their industry as a collective. Each facility, or group of facilities known as ‘Target Units’, however have their own individual targets set by the sector association. Since the first CCA, the Cold Chain Federation has decided to give each Target Unit within our CCA the same target.

Following each Target Period is a ‘Certification Period’ which allows the business to claim CCL discounts based on their performance towards the energy efficiency target for the preceding Target Period. By joining the CCA, businesses receive the full CCL discount, however those not achieving their target must pay a ‘carbon buy out’ at the end of the Certification Period. The current CCA is the 2<sup>nd</sup> iteration, beginning in 2013 and originally due to run until 2023, it set each sector 5 progressive energy improvement targets against a 2008 baseline. In 2020, the scheme was extended for a further 2 years, however the baseline was changed to 2018.

**Table 1. CCA Target Periods, Certification Periods and Efficiency Targets**

Target Period	Certification Period	CCA Energy Efficiency Target for cold storage
	CP1 (Jul 2013 - Jun 2015)*	
TP 1 (2013-14)	CP2 (Jul 2015 – Jun 2017)	-5.85%**
TP 2 (2015-16)	CP3 (Jul 2017 – Jun 2019)	-7.8%**
TP 3 (2017-18)	CP4 (Jul 2019 – Jun 2021)	-9.75%**

Target Period	Certification Period	CCA Energy Efficiency Target for cold storage
TP 4 (2019 -20)	CP5 (Jul 2021 – Jun 2023)	-11.7%**
TP 5 (2021 – 22)	CP6 (Jul 2023 - Mar 2025)	-6.67%***

\*CP1 ensured there was no break in CCL receipts from 1<sup>st</sup> CCA which ran from 2001 – 2012

\*\*2008 baseline

\*\*\*2018 baseline

The CCL discounts for businesses signed up to a CCA are significant, with a 92% discount on electricity and >75% for other commodities, the discount is worth over £10m per year to the cold storage industry<sup>3</sup>. Businesses from across the cold chain are signed up to the CCA for cold stores including retailers (RDCs only, stores are covered under a separate CCA), food wholesalers, third party logistics providers, caterers, dairies, farms and funeral care service providers.

**Table 2. Percentage discount on Climate Change Levy for holders of a CCA from 2018 – 2021<sup>4</sup>**

Taxable commodity	Rate from 1 April 2018	Rate from 1 April 2019	Rate from 1 April 2020	Rate from 1 April 2021
Electricity	90%	93%	92%	92%
Gas	65%	78%	81%	83%
LPG	65%	78%	77%	77%
Any other taxable commodity	65%	78%	81%	83%

At the start of the current CCA, businesses were given the option of deciding between an absolute target, or a relative target. The vast majority opted for a relative target, a measure of energy consumption against throughput of the cold store which allows them sustainable growth as a business without being penalised.

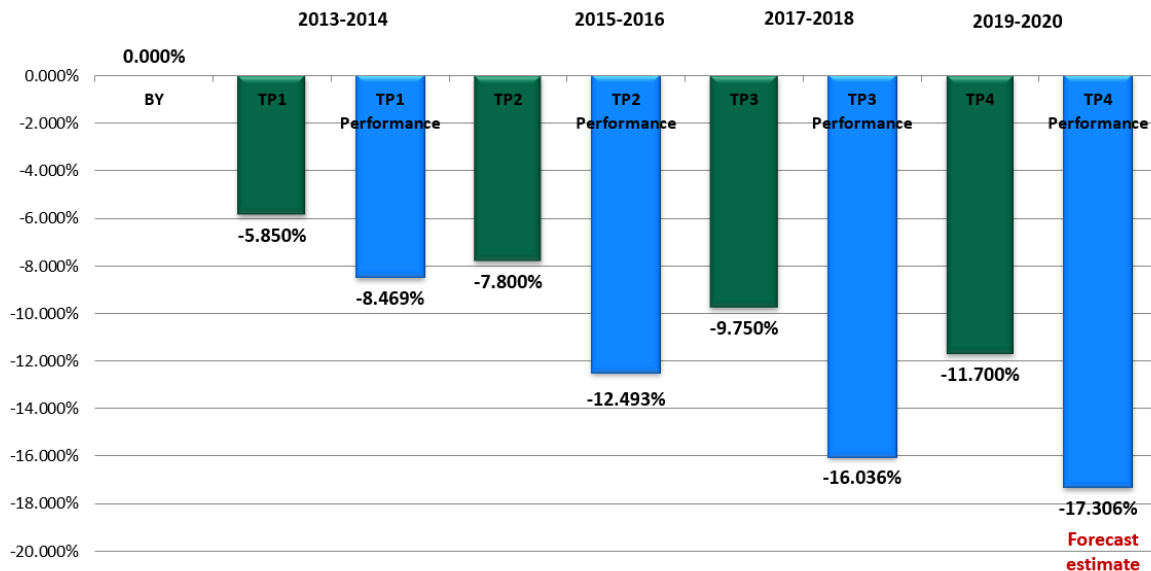
## 2. ENERGY EFFICIENCY PERFORMANCE OF COLD STORES UNDER THE CCA

Since the current CCA began in 2013, the cold storage sector has consistently outperformed against the targets agreed with the Environment Agency in 2012 (See Figure 2). For the most recent period, 2019/20, the sector achieved a 17.3% relative efficiency against a target of 11.7%.

For the first three target periods efficiency performance increased at a faster rate than the incremental targets, with the 2019/20 target of 11.7% actually being reached by 2015/16. The rate of increase for efficiency appears to have levelled of in the most recent Target Period (2019/20) with an improvement of 1.3% from Target Period 3 (2017/18), compared to increases of approximately 4% between TP1 and 2 and TP2 and 3.

<sup>3</sup> CCF data

<sup>4</sup> <https://www.gov.uk/guidance/climate-change-levy-rates>



**Figure 2. The performance of the cold storage sector (blue) against Government targets (green) for each Target Period (TP)**

## 2.1 Varied performance across facilities

As a collective, the cold storage sector has performed well above the efficiency targets set by Government, however within the UK cold store estate there is a wide spread of performance, with 129 Target Units passing the TP3 target, but 107 failing. Those who failed were subject to carbon buyouts totalling £1.1m.

There are several potential reasons for the underperformance of certain cold stores which go some way to explaining this discrepancy.

- The UK cold store estate is aging, with many stores several decades old. For these warehouses it can be technically more difficult to fit energy efficiency measures or they may be costly and beyond the affordability of the business.
- Perhaps most significantly, those businesses who have expanded their services to include energy intensive services such as blast freezing, or tempering, have generally struggled to meet CCA targets. The throughput metric of volume (m<sup>3</sup>) does not suit these operations well as they use a high amount of energy in a relatively small space.
- Businesses who originally chose an absolute target have also generally struggled, especially those operations that have seen growth.

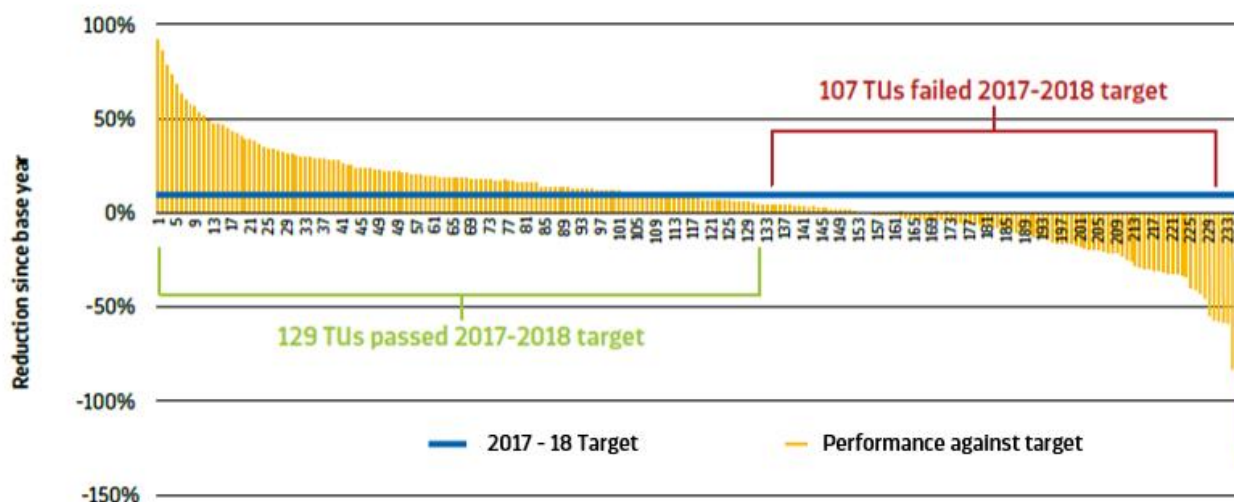


Figure 3. The performance of individual cold stores (TUs) within the CCA for the 2017 -18 period

## 2.2 Measures taken to achieve CCA targets

Measures taken by cold chain businesses to improve their energy efficiency vary, from full rebuild to smaller changes such as replacing lights with LEDs.

A selection of the most common ways to improve efficiency are detailed in Chapter 4 of the CCF publication *'Energy Efficiency in Cold Stores: a practical guide'*<sup>5</sup>. Measures can be broadly split into two areas – reducing heat gain, eg. through improving insulation, door openings etc, or improvement or optimising refrigeration systems.

## 2.3 Evaluation of Second CCA Scheme

In April 2020, BEIS published an evaluation of the CCA Scheme, undertaken by CAG consultants<sup>6</sup>. The report concluded that the scheme had made a positive difference to energy efficiency in industry and delivered benefit for the taxpayer. Furthermore, modelling showed the scheme has made a contribution to the competitiveness of the energy industry in the UK.

## 2.4 2-year extension and Government study into the impact of the CCAs

In the Chancellor's Spring Budget of 2020, it was announced that the CCA Scheme would be extended for an additional 2 years, with a new Target Period added for 2021/22 and subsequent Charging Period until 2025. In addition, a consultation was launched which would look at the detail for the new Target Period, and the options for the CCA post-2025.

Published in July 2020<sup>7</sup>, the Government's response to the consultation confirmed the extension, but with some key changes, including an update baseline (2018) and a new target to be confirmed. This new target will be challenging for the cold storage sector, with the baseline reset essentially all measures already taken by business are wiped clean and with many of the so called 'low hanging fruit' picked, achieving further efficiency will be financially and technically challenging. It remains to be seen how the Covid-19 pandemic will influence performance. Some cold chain businesses have experienced high demand, particularly those serving retail, whilst others have seen a big drop in throughput.

<sup>5</sup> <https://www.coldchainfederation.org.uk/energy/>

<sup>6</sup> <https://www.gov.uk/government/publications/second-climate-change-agreements-scheme-evaluation>

<sup>7</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/905806/cca-extension-consultation-government-response.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/905806/cca-extension-consultation-government-response.pdf)

### 3. ROLE OF THE COLD CHAIN FEDERATION IN BRINGING THE COLD CHAIN TOGETHER TO MEET ENERGY EFFICIENCY TARGETS

At the core of the CCA Scheme is the role of sector associations such as the Cold Chain Federation who have the overall responsibility of coordinating their sectors to submit the relevant performance data and to achieve the efficiency targets set out by the Government. The day-to-day administration and data collation is carried out on behalf of the CCF by Jacobs Engineering, however the Cold Chain Federation provides additional support to businesses with a CCA for cold storage in three primary ways; advice, guidance and events.

#### 3.1 Advice

The teams at both Jacobs and the Cold Chain Federation are available to answer administrative and technical queries about the CCA and energy efficiency measures for cold stores. Jacobs run the CCA helpdesk, which is a hotline and email desk available to provide administrative support 5 days a week, 9:00am to 5:00pm.

Jacobs and the CCF jointly produce a dashboard each year to demonstrate to each business their performance against the scheme targets and to highlight the performance of the sector as a whole. The team is also able to identify common issues experienced by CCA businesses and issue advisory communications to the group as a whole. This might include newsletters, direct emails or webinars to talk through a specific issue or update to the scheme.

#### 3.2 Guidance

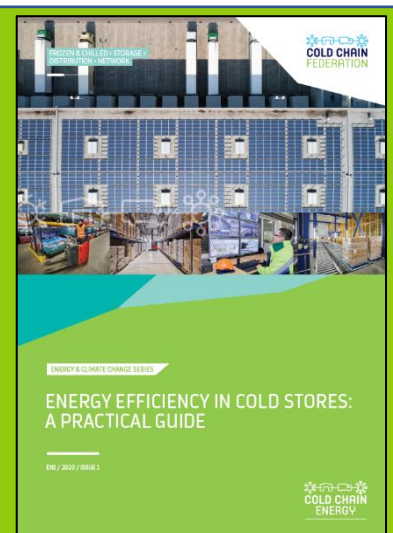
Last year the CCF launched guidance aimed specifically at businesses to help them meet their new CCA target – *Energy Efficiency in a Cold Store: a practical guide*.

#### 3.3 Events

##### ENERGY EFFICIENCY IN A COLD STORE: A PRACTICAL GUIDE

The Cold Chain Federation are committed to providing practical support to businesses to help them achieve their CCA energy efficiency targets. This guide is packed full of tips to help businesses reduce energy usage in cold stores through reducing heat gain and improving refrigeration efficiency. It also features chapters dedicated to building the business case for energy efficiency investments, challenging workforce behaviours and assessing the options for renewable energy.

The guide can be downloaded [here](#).



The Cold Chain Federation is also committed to running events relating to energy and climate change as part of its events programmes. There are opportunities for CCA businesses to come together to hear about latest innovations and case studies from other businesses. They are usually free to all, regardless of whether a business is a full member of the CCF.

## Energy Week

In 2020, The Cold Chain Federation ran two events dedicated to energy efficiency and innovations to reduce energy consumption. Over a total of five workshops we covered a range of topics including optimising refrigeration systems, renewable energy, reusing waste heat and financing energy efficiency projects. Recordings and presentations from these sessions are available to [revisit here](#).



## Cold Chain Live! and commitment to Net Zero

As well as energy efficiency, the CCF is also committed to supporting members to understand how they will need to adapt to meet the challenge of Net Zero. The theme for CCF's headline conference in 2020 was *Towards a net zero cold chain*. Throughout the 4 weeks of Cold Chain Live! contributors generated a raft of content including blogs, presentations, webinar recordings and interviews with cold chain leaders – all of which can be [revisted](#) by businesses with a CCA.

### SHAPING THE COLD CHAIN OF THE FUTURE: THE ROAD TO NET ZERO

The Cold Chain Federation recently launched its Net Zero Project: a long-term commitment to support its members and guide the industry through the challenge of net zero. ['Part One: Setting the Scene'](#), provides an outline of what the project hopes to achieve. Over the coming months and years the Federation will be working to bring the industry together; to define what it means by a net zero cold chain; and to ask where the gaps are in our knowledge and where the potential is for collaboration.

The document can be downloaded, [here](#).



## Cold Chain Connect webinars

Throughout the year the Cold Chain Federation runs short webinars on a range of topics relevant to cold chain businesses, including energy-focussed workshops on policy updates and innovations which might support efficiency within cold stores.

## 4. THE FUTURE OF CCAs

Following the extension to the CCA's in 2020, registered businesses will continue to receive CCL discount until March 2025, although they will only need to report energy use until 2022. What happens to the scheme after this date is yet to be determined, but changes can be expected to a scheme designed over 20 years ago.

There are several factors which point to wholesale reform, or replacement of the CCA scheme as detailed in the 2020 consultation document<sup>8</sup>. The Government's pledge to have a net zero economy by 2050 will place significant burden on UK industry to make larger improvements in energy efficiency than the CCA has previously. In addition, in the last decade there has been more of a focus on decarbonisation – reducing CO<sub>2</sub>

<sup>8</sup> <https://www.gov.uk/government/consultations/climate-change-agreements-scheme-extension-and-reforms-for-any-future-scheme>

and other GHG's compared to simply becoming more energy efficient. This has resulted in additional administrative requirements for certain businesses under ESOS or ETS and any future scheme may look to streamline carbon and energy reporting. The drive for decarbonisation of the economy has led to conflicts, for example a business looking to 'electrify' their operation, perhaps by adding electric charging points, this would worsen their energy efficiency position and result in a penalty despite such an investment being in line with the Government's Energy Strategy and reducing the business's carbon emissions.

Any future scheme will likely need to factor in absolute carbon savings, including taking into account investment in renewables and perhaps even mitigation for carbon emissions.

## **5. CONCLUSIONS**

The Climate Change Agreement (CCA) is a rare Government initiative in that is popular with both industry and Government. It has achieved its aims and has also been proven to deliver value for money to the UK taxpayer. The structure has also been proven to support success, with sector associations providing the perfect independent space for businesses to come together to seek advice, guidance and take part in events all aimed to support them to exceed the targets set by the scheme.

In the future, targets for energy efficiency and carbon reduction are likely to be significantly more demanding than those of the last 10 years in order to align with the Government's targets for a net zero economy by 2050 and any future scheme will need to reform in order to stay relevant.