

Carbon Literacy Project



The Carbon Literacy Project: Carbon Literacy Standard

Version 2.5 Changes in Red

“Carbon Literacy is an awareness of the carbon dioxide costs and impacts of everyday activities, and the ability and motivation to reduce emissions, on an individual, community and organisational basis.”

Acknowledgements

The Carbon Literacy Trust would like to gratefully acknowledge and thank Cooler Projects CIC and all the people and organisations who have contributed their time, knowledge and goodwill to influence and improve this Standard, and support The Carbon Literacy Project.

We would particularly like to thank:

The founding members of The Carbon Literacy Working Group;

The current and former trustees of The Carbon Literacy Trust

But particularly Project Workers:

Jane Mörk, Safia Griffin, Rebecca Hardy, Pedro Rubio,
Virginia Harvey, Matilde Christensen, Ayma Kazmi, Maria Tomczik,
Amy Bennett, Parisa Azar, Brittany Heap, Mariana Grava,
Jack Smith, Josh West, Ned Gatenby, Emma Richards, Kate Howat,
Rachel Harding, Joe Dodd, Angus Robertson, Belkais Zagandi, and Henry Greenwood

We gratefully acknowledge the original founding support of Manchester City Council

and

Founding Sponsor of The Carbon Literacy Project:

Westford Mill

www.westfordmill.com

The Carbon Literacy Project is owned for the public benefit by:
The Carbon Literacy Trust Registered Charity Number 1156722

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Introduction:

What Is Carbon Literacy?

It is imperative that we change the aspects of our collective behaviour that result in the generation of carbon dioxide and other greenhouse gases. If we do not change our behaviour, the scale of change demanded of us by the science in order to maintain a safe and healthy place to live, will simply not be achieved. The consequence of this failure will be **catastrophic climate change**.

Carbon Literacy is the **underpinning knowledge** required to create this **vital shift** in how we live, work and study. The Project is built on the principle that residents, workers and learners who are Carbon Literate will have an embedded and instinctive understanding of the carbon impacts of their activities, and will therefore make more informed choices about the most energy and resource efficient and lowest carbon options available to them.

Background:

Appropriately for the world's first industrial city, **Manchester was the first city** to undertake the initiative to empower all its residents with Carbon Literacy.

In 2009, **Manchester: A Certain Future (MACF)**, the city's climate change action plan, pledged the city to a 41% cut in CO₂ emissions by 2020 and the creation of a '**low carbon culture**'. The Carbon Literacy Project is a direct result of this latter aim.

This Carbon Literacy Standard is based on the work of the **Carbon Literacy Working Group (CLWG)**, which was convened by **Cooler Projects CIC (Cooler)** in 2011. This Working Group included representatives of large employers, businesses, universities, schools and colleges, as well as the private, voluntary and public sectors. The Working Group created the first definition of the term Carbon Literacy, initially for use internally, but then within training organisations and thence more widely in society: -

“An awareness of the carbon dioxide costs and impacts of everyday activities and the ability and motivation to reduce emissions on an individual, community and organisational basis”.

But more succinctly for participants: -

“Carbon Literacy is about understanding what I actually need to do, where I can get help to do it, actually doing it and seeing that I've done it”.

The CLWG also concluded that the only thing worse than *no* climate-change learning was **bad climate change learning**. Therefore this Carbon Literacy Standard contains both content and substantial **emphasis on the training methods required for the delivery of Carbon Literacy**, to ensure that Carbon Literacy learning under this Standard is always effective and relevant to the learner.

Cooler Projects was funded (initially by Manchester City Council in 2011, and then founding sponsor, Westford Mill) to initiate the roll-out of Carbon Literacy across Manchester. In January 2012 Cooler began to pilot the Standard, working with some 50 organisations across the city, including businesses small and large, primary and secondary schools, community groups, social enterprises, housing providers, the city's universities and more.

In October 2012 the first version of the Standard was published, and The Project was launched publicly.

In 2013 The Project expanded into Greater Manchester and then rapidly beyond. Amongst other recognition, The Project received the national Climate Week “Community Initiative of the Year” Award, was short-listed for Business Green's WWF Game-Changers Innovation Award, and received the North-West Green Heroes Award for sustainability.

From the outset, Cooler had made it clear that The Project was a not-for-profit initiative that, once consolidated, would be established as an independent charitable trust, so that its assets and IP would be maintained and its future development secured.

In 2014 The Carbon Literacy Trust (registered charity number 1156722) was established and incorporated to ensure the advocacy, dissemination and management of Carbon Literacy for the public benefit.

In 2015 new tools to support dissemination were launched, including the Carbon Literacy: Knowledge (CLK) e-learning framework. This e-learning framework covers the science of climate change, supporting the development of sectoral e-learning courses with audience-contributed content. This then meets the Knowledge requirements of the Standard, and is supported by further face-to-face work to meet the full Method, Values, and Action requirements of Carbon Literacy.

In the same year, The Project was recognised by ICLEI / C40 / the United Nations, as a Transformative Action Programme (TAP) Project at the UN Climate Negotiations (COP 21) in Paris, defined as a project which; “if rolled-out at scale could materially change our response to climate-change”.

In addition, new and additional Standards were issued: A Carbon Literacy Trainer Standard to offer additional certification to professional facilitators, trainers, and consultants who work with organisations to support their roll-out of Carbon Literacy, and a Carbon Literate Organisation Standard, to evidence an organisation's commitment to support its Carbon Literate people and maintain its low carbon culture, and a Carbon Literacy Training Organisation Standard to evidence an organisation's depth of capacity, experience and expertise in supporting and training others in Carbon Literacy.

With the Carbon Literacy Standard having been in the public domain for 5 years, it was decided that it was time for it to be refreshed, both to reflect both the progress of 5 years of dissemination in the supporting text, and the lessons learned during that period. The CLWG were consulted once more on all of the material changes that have been implemented in Version 2 of the Carbon Literacy Standard, and the trustees then approved this revision.

The bulk of this version of the Standard is unchanged, but the focus on the quality and context of action being taken by learners has been sharpened. An additional section has been added to the Standard to cover Process, and to reflect some of the practical approaches taken to support learners whose initial evidence is insufficient to allow them to be certified as Carbon Literate. Some of the wording has been amended to reflect the national and international usage and reach of The Project, and finally the opportunity has been taken to add clarity to the wording of one or two clauses.

The Future:

The Project continues to work with communities, workplaces, educational establishments, public bodies, local authorities and regional governments, to demonstrate the vital relevance of Carbon Literacy in all of these places.

The Carbon Literacy Project remains hugely ambitious in its scale, and necessarily so, but none of what it asks of participants, their workplaces, communities or places of education, is either impractical or unreasonable. Indeed, it is hoped that this programme continues to enhance the quality of life, productivity and life chances of all those who do participate, and at the same time supports and helps drive and expand the growing low-carbon economy, to the benefit of us all.

Principles of the Carbon Literacy Approach

In approaching this Project, a number of principles have been applied in order to deliver the scale and impact required:

- The Project is delivered by many different organisations and individuals working in **partnership**;
- Rather than re-inventing the wheel, The Project utilises and builds upon **the best of existing resources, existing initiatives and best practice**;
- Learning and learning outcomes are context-sensitive and, "meet learners where they are". They must be **relevant to learners in their method of delivery and to learner's daily lives**;
- Learning content is appropriate to each audience. There is **core content** common to all and **customised content** appropriate to each audience;
- **Rather than it being abstract education, successful participants commit to or carry out an action both as an individual and as part of a wider group as part of their learning**;
- Delivery is organised around the **three audiences** or channels identified in the headline objective: those who **live, work or study** in the area;
- Participation and delivery follows "**open-source**" **principles wherever possible**. Delivery partners and participants are happy that - within the context of The Carbon Literacy Project - materials are in a shared commons and non-profit in principle;
- There is no central funding for Project delivery, so delivery partners are **actively involved in helping source resources, support and funding** for the sections of The Project in which they are involved;
- Quality of information, training and learning are paramount and The Project **certifies** or "kite-marks" both **training delivery** and **training outcomes** for the benefit of recipients, but also directly for the benefit of those delivering the training. This approach balances the need to engage a number of delivery partners for different audiences with the need to safeguard quality;
- Wherever possible both "hard" and "soft" **outcomes are measured to assess the effectiveness** of training and of the wider Project;
- "One day's worth of training" may be delivered in many forms. It does not need to be delivered in a single unit or in isolation from other learning or activity. In fact the opposite is a positive advantage.

Core and Customised Elements

Carbon Literacy straddles a vast **range** of learning environments. It must remain **relevant** to all participants but with sufficient consistency to be credible to employers and learning establishments, and for the kite-marked certification to have currency across all three audiences.

The CLWG therefore determined at an early stage that The Project would define some of the elements of learning as 'core' and some as 'customised'. This does not apply just to **what is learned** but also **how it is learned**. To have Carbon Literacy delivered in a boring, irrelevant or ineffective way that does not emphasise the role of the participant in **devising solutions** to climate change, is probably worse than not having the training delivered at all.

Core elements are described below and are mandatory. By adhering to these elements participants,

trainers, training organisations and host organisations (e.g. employers, learning establishments, voluntary or community groups) will ensure that participants in their delivery can become accredited or kite-marked.

Customised elements are those parts of Carbon Literacy that ensure that **what is learned** is both **directly relevant** to the participant *and* **engages them** in the devising of solutions to address climate change.

Carbon Literacy **may become integrated into or become** an addition or enhancement to an activity that is already happening (e.g. workplace induction, CPD, or an existing curriculum or community activity), or may be part of an initiative especially devised for the delivery of Carbon Literacy.

It is hoped that the customised content that flourishes through Carbon Literacy will be diverse, exciting and fun, as it is within the delivery of the customised elements that the '**social learning**' elements of The Project really come to the fore.

How to Use This Standard

This Standard is used by organisations and trainers who wish to deliver Carbon Literacy training and gain the certifications associated with The Project, for their participants and themselves.

This Standard is intended as an introduction and explanation of the principles of Carbon Literacy, as an initial check list for **existing projects**, or to be used as a building block for **new projects**, as it sets out the elements against which assessment takes place.

The Project is supported by an extensive online library of resources which is hosted at the main project website: www.carbonliteracy.com. This includes articles highlighting the most effective "Top 5" resources to communicate climate change, downloadable presentation materials, a library of cartoons for inclusion in presentations and training materials, and a huge and growing database of online training materials organised by topic, audience, and use, to support the development of excellent training materials by all.

Almost all Carbon Literacy Project resources are entirely free unless the original authors charge a fee.

The Carbon Literacy: Knowledge (CLK) e-learning framework covers the science of climate change, and has been designed to support the development of sectoral e-learning courses through audience-contributed content to meet the Knowledge requirements of this Carbon Literacy Standard. In use, this e-learning component will then be supported by further face-to-face work to meet the full Method, Values, and Action requirements of this Carbon Literacy Standard. **A range of sectoral e-learning courses are therefore now available via Project partner The Virtual College (www.virtual-college.co.uk), and more continue to be developed.** More information about these is available at www.carbonliteracy.com or by contacting The Project directly.

In addition, The Project identifies new materials, resources and opportunities daily, via its website, blog and social media feeds.

Whilst it works in isolation, any queries about the use of this Standard should be raised directly, either with any professional trainer or parent organisation that you are working with, checked against the Frequently Asked Questions section of the website, or submitted as a question via the contact form on www.carbonliteracy.com.

Section 1: The Consistent Elements of Carbon Literacy (Core Elements 1 – 5)

Core Element 1: Learning Method

- One 'Days' Worth of Learning': All individuals that have been certified as Carbon Literate have, as a minimum, undertaken one day's worth of relevant climate change learning. Learning may be delivered in many forms (face-to-face, self-directed etc.). It does not need to be delivered in a single unit or in isolation from other learning or activity. In fact the opposite is positively advantageous.
- The delivery of Carbon Literacy creates a learning environment that leads to participants maximising their sense of independence, expertise and purpose (see Notes) in responding to climate change and thus maximises their motivation to act further.
- Guidance will be given to trainers and training organisations seeking the Carbon Literacy kite-mark to use the methods outlined here in their training delivery.
- Trainers are expected to be able to deliver training to learners with different learning styles and be able to accommodate differences between groups and within groups. Group size should not exceed the carrying capacity of the trainers' capabilities.
- As well as being a learning programme in its own right, Carbon Literacy can be an outcome of other activities or projects originating in the learner's community e.g. local growing, waste reduction or energy efficiency projects and form part of the 'content' for other learning programmes such as team working, volunteering etc.

Carbon Literacy *Learning Method* is characterised by:

One Day's Worth of Learning

One day's worth of training may be delivered in many forms.

"Local" Learning:

The relevance of what is learned to the learner's own environment is maximised at all times.

Delivery by Peers:

Training is most trusted and best delivered by peers; people who, to the learner, "feel like themselves".

Group Enquiry:

CL learning takes place in an environment where, with the input of expert knowledge and peer support, learners jointly find their own answers and devise their own solutions.

Positivity:

CL learning emphasises the things that can be done as opposed to the things that cannot.

Supporting Information:

“Local” Learning:

The relevance of what is learned to the learner’s own environment is maximised at all times.

“Local” Learning – or ‘social’ learning is recognised as an effective means of embedding behavioural change in a group, especially when used alongside the other learning methods as suggested for Carbon Literacy. This means that the subject material must be introduced **from the start** as being directly relevant to where the learner is, and ‘modelled’ for learners. This is especially important when the training is mandatory and the learner might not be clear about its relevance. There is a summary on Wikipedia...

Social learning theory outlines three requirements for people to learn and model behaviour: 1: attention / spaced repetition (remembering what one observed), 2: reproduction (ability to reproduce the behaviour), and 3: motivation (good reason) to want to adopt the behaviour.

Delivery by Peers:

Training is most trusted and best delivered by peers; people who, to the learner, “feel like themselves”.

Organisations and trainers should seek to ensure that Carbon Literacy training is, wherever possible, delivered by people who share a common background with the participants. This might not always be possible (e.g. in a formal education setting) but we still encourage organisations to introduce elements of this method into their delivery. This could take the form of having learning group members taking the lead for parts of the training. Outside experts may be used, where no peer is available, to train trainers and help devise learning programmes. To minimise any potential lack of credibility, peer leaders should be equipped with sufficient expertise to perform this function – either through the use of properly referenced resources or input from topic experts (such as a colleague, facility manager or responsible peer).

Group Enquiry:

Learning will take place in an environment where, with the input of expert knowledge and peer support, learners jointly find their own answers and devise their own solutions. Group or collaborative enquiry (see [link](#)), proposes a cycle of learning that moves from the group to the individual and back again, with structured reflection in-between. This will reinforce the delivery methods outlined in Local Learning and Delivery by Peers above.

Positivity:

Learning will emphasise the things that **can** be done as opposed to the things that cannot. Whilst still stressing the scale and urgency of the need to respond to climate change, Carbon Literacy learning focuses on what can be achieved by the individual and the group (both the learner group, within which the learning is taking place and the community or organisational groups to which the participant belongs). Training that is positively framed is more effective in changing behaviour than training that is not.

Independence (or autonomy), expertise and purpose, are three elements of learning which increase learner's motivation to do more. This is inspired by the ‘Drive’ theory of workplace motivation, which is explained in a slide show [here](#), and is an approach directly applicable to the effective delivery of CL.

Core Element 2: Knowledge

- The Knowledge and Learning Outcomes described here are **core elements** but **need not be delivered in the order stated**.
- Linked delivery of the Knowledge section with the other outcomes is encouraged from the start.
- Points 1 – 4 cover a very broad subject area. As CL training has continued and expanded, The Carbon Literacy Project has developed and provided a range of online resources recommended by coordinators and participants, to assist with the delivery of these sections. Please contact The Project if you have learning resources that you would like to share.

Carbon Literacy learners will demonstrate their knowledge and learning of:

1. What Greenhouse Gases are, and their relationship to weather and climate;
2. How climate here and elsewhere is likely to change, and how we know this;
3. How changes in the climate are likely to affect us locally, regionally, in our country, and in other parts of the world;
4. How our actions impact on the amount of greenhouse gases produced and the impact that they have;
5. What we can do to reduce our impact and the benefits and disadvantages of taking action;
6. What we are already doing locally, nationally, and internationally;
7. Where we can go to get help. What help is available to us “locally”;
8. How we can motivate others to take action, including gaining the confidence to express our Carbon Literacy to others.

Supporting Information:

1. The role of carbon dioxide (CO₂) as the main anthropogenic greenhouse gas will be covered, and reference to methane, water vapour, N₂O, and other minor greenhouse gases (GHGs) must also be made.

Emphasise of the age and substance of this basic science – going back to Tyndall’s experiment (see Wikipedia here) should be made. The question ‘what is climate’ is answered well by the UK Met Office (link here).

2. Introduce the ‘hockey stick’ graph. The now discredited ‘controversy’ over it should also be referenced – if briefly – depending on the learner group.

New Scientist explanation here (link).

Very good short explanation from the BBC here (link).

3. In terms of global impacts, this Guardian Article here (link) describes the impacts of climate change with every ^{oC} increase in average global temperature. Information on how climate change will affect us locally is imperative to the inclusion of relevance in the training. 'Locally' can mean within the same geographical location (city, town, village), and/or sectoral location (business sector, profession, human activity), but will ideally include aspects of both.

4. As well as energy conservation, define and/or explain direct and indirect/embedded carbon consumption. Emphasise that our direct energy consumption is only part of the picture and that the embedded carbon in most of our purchases (their 'total carbon footprint') should be considered in any solution to climate change. You can read a good guide to carbon foot-printing here (link). The Carbon Label initiative also has useful explanations of the concept (link). The myth-busting section is also useful.

5. What we can do: Carbon Literacy must be portrayed as the **start** of a journey that impacts on many areas of the learners' life. The small actions that can be created by this training **must** be expanded upon if there is to be a significant impact on climate change - As Prof Sir David MacKay, former Chief Scientific Advisor to the Department of Energy and Climate change writes:

"Don't be distracted by the myth that 'every little helps'. If everyone does a little, we'll achieve only a little" (MacKay, 2008).

Include an introduction to the concept of 'embedded emissions' - (that goods and services that we purchase/use all have a carbon impact), the fact that some actions have a relatively minuscule carbon impact (e.g. plastic carrier bags and mobile phone chargers), and review the business, organisational and personal benefits of taking action.

6. If in a city or community this includes an awareness of the local climate change action plan – e.g.; for Manchester: Manchester: A Certain Future (www.manchesterclimate.com) and the Greater Manchester Climate Change Strategy. Please also use projects relevant to where your learners are – for example: in the class room (Eco-Schools) and (MEEN), the workplace (Carbon Trust and their Empower on-line tool), or the household.

7. What help is available to us: this can include the usual sources of information and advice in the workplace (Carbon Trust), community (Energy Saving Trust) or place of education (e.g. Schools) but should also encompass resources, especially in a community context, that address collaboration. "Answers on a plate" should be avoided, learners should be asked to explore and research their own answers, and adapt what they find to where they are.

8. 'Motivating others' is an opportunity to embed 'core skills' into the learning, especially in the area of communication skills, positivity and self-esteem. This heading also allows learners to reflect on how what they have learnt affects them emotionally – are they motivated enough to motivate others? Using periods of self-reflection and feedback in the learning process assists this growth in awareness and self-confidence.

The Climate Change Communications Advisory Group paper (2010) says: 'Overall, there is a need for emotionally balanced representations of the issues at hand. This will involve acknowledging the 'affective reality' of the situation, e.g. "*We know this is scary and overwhelming, but many of us feel this way and we are doing something about it*".

The Carbon Literacy Project believes that encouraging the notion of '**resilience**' is important - especially in reference to working together to create solutions. Strike a balance between stressing the scale and urgency of the action required with the ability of us all to work together to achieve this.

It is intended that opportunities to progress to higher levels of Carbon Literacy learning will be made available in due course, and there are already other excellent courses that could provide progression for learners such as the BTEC Sustainability Skills suite and more.

Core Element 3: Values:

- These are the **fundamental values that underpin excellent climate change strategies and training, and thus Carbon Literacy**. Trainers and training organisations should be able to explain how these values are embedded in the training they undertake both through the way they carry out that training, its context and its content.

Carbon Literacy *Values* express that:

1. The action of individuals **can** and **does** make a difference.
2. We need to work with others to create change.
3. Overall, the outcome of the changes we need to see can lead to a better world and a better way of life.
4. Equity and fairness, now and in the future, underlies the changes that we want to see in the UK and globally.
5. The training should acknowledge that for some people, addressing climate change carries with it enormous emotional content, both positive and negative. This shouldn't be ignored, but acknowledged and used to drive action.

Notes:

- Carbon Literacy learning must be empowering and enjoyable to the learner and to the group.
- This will be most effective when it is embedded in the way that the learning is delivered.
- It can also be realised by planning discussion/reflection of these values as part of the learning process.
- CL deliverers should also enable the participants to realise that acting in a Carbon Literate way adds 'purpose' to actions which in themselves do not seem significant. "You're not just saving money by turning down your thermostat or buying low carbon services – you're doing something good for us all."

Supporting Information:

Common Cause is a project that examines how working with values improves communications and campaigns on global issues, and makes the case that it is essential ([link](#)), working to activate and strengthen a set of helpful 'intrinsic' values, and diminish the importance of unhelpful 'extrinsic' values.

The UN Talking Climate Change site from COP 2015 is a useful website for climate change communication – though more at “trainer” level than may be relevant for many learners.

Core Element 4: Action:

- The focus of Carbon Literacy is about **empowering people to take action**.

By the end of their learning Carbon Literacy learners will:

1. Create at least one significant action, within their area of control, to personally reduce their own or someone else's carbon footprint and this should be **within the context that the learning takes place**.
2. Create at least one significant action involving other people, within their area of control, to reduce the collective footprint of their workplace, community or place of education within the context that the learning takes place.
3. In judging significance for certification purposes, The Project looks for **material action, as judged against the scope for action that each individual possesses within their individual circumstances. A qualifying action will be "meaningful"; it will not be "token"**.

Notes:

Personal and Group actions need to be "significant" or "material", but what "significant" means varies from individual to individual. In terms of making a difference to carbon use where they work, learn or live, it is partly for the individual, group or trainer to decide, and reflection on what a 'significant' action is for each individual should be part of the learning. For example what is "significant" for a primary school pupil or an unemployed single parent will be very different to "significant" for the manager of a business or the CEO of a public service.

The Project expects to see the action taken **within the context that the learning takes place**. For example, in education this would mean within the pupil's life or the scope of their course, institution or specialism. In community this would mean at home or within the boundaries of that community. In the workplace it means within the bounds of that workplace or its customers, suppliers, market place or sector.

A substantial action at home, planned as part of a workplace course, will not necessarily fail a participant, but will invite much more scrutiny. A workplace group where the bulk of participant's actions all revolve around "recycling more at home" will tend to imply that the relevance of Carbon Literacy to the workplace has not been successfully communicated / understood successfully, and that the participants are not fully Carbon Literate. It is also of benefit to the workplace that personal actions are implemented within the organisation.

As part of Carbon Literacy, and as a minimum, planning for the delivery and measurement of the impacts of the actions 'created' during learning must be capable of being evidenced.

Plans should be practical, relevant to the participants' circumstances, and participants should have the ability to and actually assess the potential impact of their actions.

Whilst ensuring that learners are devising their own solutions, deliverers should ensure that participants are aware of the full range of options for action to reduce their carbon footprints and the carbon footprints of others. These might vary from basic energy and resource saving, to more informed purchasing and consumption decisions, to energy generation, to more informed lifestyle choices, to the 'political' (e.g. being

vocal in support of low carbon initiatives at a community, local and national level) actions.

However, learners should not be presented with a menu of options unless they themselves have generated that menu – asking learners to simply choose from a list is unlikely to result in successful certification.

Where Carbon Literacy learning takes place as a part of longer learning units (e.g. the BTEC in Sustainability Skills mandatory unit), participants may also have time for the delivery of their chosen actions in the learner's environment, and this can include working with others to plan an activity.

Supporting Information:

For organisations participating in Carbon Literacy an online resource library is available at www.carbonliteracy.com which has links to specific resources mentioned and a host of further information. These resources are regularly enhanced using suggestions from other participants, examples from other Carbon Literacy schemes, and shared comments and ideas as a source of advice and inspiration. Whilst The Project and its library of resources and tools continue to grow, it will never be exhaustive. Participants should be encouraged to search out their own resources and, most of all, devise their own solutions. Please contact us if you have resources that you wish to share.

Core Element 5: Process:

- In order to efficiently administer Carbon Literacy, The Project operates some basic principles:

Process:

1. For training to be classed as Carbon Literacy, unless it involves some aspect of prior accredited learning, the training intervention needs to be Criteria Checked before delivery.
2. In submitting evidence and feedback, it must be made clear to each learner that the quality of the submitted evidence must match the ability of the learner in question, and is the primary evidence used to judge whether or not they are Carbon Literate.
3. Evidence from or for participants should be submitted to The Project within 14 days of the completion of training, by either the participant or the relevant trainer/facilitator.
4. Where the evidence submitted is judged insufficient to certify a participant, The Project will in most cases offer the participant, via the submitting trainer, the option of the submission of a follow-up “structured answer paper” to act as additional evidence.
5. Where evidence is submitted more than 2 months after completion of training, The Project will require supplementary written evidence for each participant, which must be completed by them to demonstrate their Carbon Literacy.
6. The decision to accredit any individual, or to issue or withhold any certificate is completely at the discretion of The Carbon Literacy Trust.

Notes:

Whilst it is possible that a training intervention could be retrospectively Criteria Checked and participants certified successfully, the Criteria Check has very specific requirements for both design and evidence. Participants in a training initiative not Criteria Checked in advance should expect to be disappointed.

If completion of evidence or feedback, or its explanation, is left to the very end of a piece of training, inevitably it is likely to be rushed and of poor quality. Likewise, if participants believe that merely by proving they attended the training, they will be certified, they are very likely to be disappointed. The collection of evidence should be programmed throughout the delivery of learning, and it is only fair to participant and trainer to make it clear that The Project can only judge the Carbon Literacy of individuals on the strength of the evidence supplied. Where possible, learners will be judged on the “distance they have travelled” rather than the level of knowledge they have at the end, as a key measure of progress. However, it is the responsibility of the learner and trainer in question to deliver the relevant evidence to The Project so that learners can be judged fairly in this respect.

Evidence should be submitted promptly (i.e. within 14 days of training completion) even if this means submission in small batches, both so that participants can have their certificates issued promptly after their completion of training, and so that if they are required to complete follow-up work, this can be done whilst the training is still fresh in the participant's mind.

Sometimes evidence is received that whilst not wrong, is simply too insubstantial to allow assessment as to whether a participant is Carbon Literate or not. Rather than fail a participant for lack of evidence, The Project feels it is only fair to give each participant every chance to be accredited, so they will be given a chance to complete a supplementary "structured answer paper" (available in advance) to act as additional evidence, and they will be reassessed on the combination of this and their original evidence.

With the benefit of many years of submissions, we have found that the quality of evidence tends to be directly proportional to the speed with which it is submitted. The requirement for all participants whose training was completed more than two months before submission to also complete a supplementary answer paper, is intended to both maintain the quality of certification, and act as a positive disincentive to organisations being tardy with learners' paperwork: If there is a problem with quality of evidence, the sooner we find out, the better for all concerned. The "structured answer paper", alongside all evidence submitted must match the ability of the participant.

Section 2: Carbon Literacy Certification

One of the key aspects of The Carbon Literacy Project is that **successful completion of approved Carbon Literacy training** and submission of **evidence** encompassing learner **participation and action** enables any participant to receive a certificate to confirm their Carbon Literacy.

This process is currently overseen by Cooler Projects CIC, the organisation co-ordinating Carbon Literacy, on behalf of The Carbon Literacy Trust. The certification and its process is underpinned in its creation by the 30-organisation Carbon Literacy Working Group (including representation from Manchester Metropolitan University and The University of Manchester) and the effectiveness of the process and approach has separately been validated by academic research undertaken by The University of Manchester, and Kings College London.

One of the beneficial features of Carbon Literacy certification, is that it can both be awarded within and carried across, **all three audiences**, so that **a certificate received in, say, an educational setting, has equal standing in a workplace or community setting, and vice versa.**

It should be noted that much Carbon Literacy training is delivered by non-professional trainers – peers of the participants, effective communicators and trainers, but not individuals who train professionally. This is exactly as intended, as it maximises peer-group identification and relevance of content and delivery, but as a result it requires a very structured quality-control process to ensure that the quality of delivery and of the training of Carbon Literacy to the Standard is maintained.

Criteria Checking:

When a trainer or training organisation creates a Carbon Literacy course, The Project needs to ensure the course and teaching materials comply with the Carbon Literacy Standard, in order to maximise the likelihood that any piece of training will result in Carbon Literate participants. The process by which The Project maps a Carbon Literacy course against the Carbon Literacy Standard is known as Criteria Checking. This is done using a publicly available Criteria Checker tool.

The Criteria Checker is a matrix which the trainer or training organisation completes to evidence how their planned training will meet the requirements of the Standard. The matrix is freely available as a Word document for electronic completion, or can be printed for written completion, and the input of Project staff can be (and normally is) sought during the drafting process.

The completed Criteria Checker and training materials are submitted electronically, together with the appropriate fee, to The Project for approval. Once formally approved, training can be commenced, knowing that delivery of that training, as described in the approved Criteria Checker, is more than likely to result in Carbon Literate participants.

Submitting Evidence:

Upon completion of an approved piece of training, the training co-ordinator or trainer submits evidence of learner participation, understanding and action (as laid out in the Criteria Checker approved for that particular piece of training), on behalf of each participant, together with the appropriate certification fee.

Pre-formatted 'Evidence Forms' to assist with the recording and collation of evidence for each participant are available and downloadable from www.carbonliteracy.com.

The Project examines the evidence for each participant and if its substance, detail and quality matches that which is expected from the Criteria Checker, a Carbon Literacy Certificate is issued for that individual.

Carbon Literacy Certification and Accreditation:

Carbon Literacy (CL)

Successful Carbon Literacy training course participation, completion and action results in the awarding of a Carbon Literacy certificate.

Each certificate is uniquely numbered and participant details held in a secure database by the co-ordinating organisation, to allow later verification by employers or other external bodies.

Carbon Literacy certificates belong to the individual certified, and travel with them as evidence of their Carbon Literacy.

The Carbon Literacy Trainer Standard:

Carbon Literacy Facilitator, Trainer, and Consultant (CLF, CLT, CLC)

The Project recognised early on that there is a need to identify and distinguish the most experienced and capable trainers, and to enable them to evidence their experience and ability. As a result, the Carbon Literacy Trainer certification scheme has been developed, introducing three distinct tiers of CL Training support certification, each reflecting increasing levels of CL expertise:

- Carbon Literacy Facilitator (CLF) (Level 1)
- Carbon Literacy Trainer (CLT) (Level 2)
- Carbon Literacy Consultant (CLC) (Level 3)

The CL Trainer Certification Scheme showcases an administrator or facilitator, trainer or consultant as 1) Carbon Literate; 2) very familiar with the Carbon Literacy Standard; and 3) experienced at a specific level of CL course design and delivery.

The Carbon Literacy Trainer Standard, outlines the criteria and application procedures for these accreditations, and is available to download at www.carbonliteracy.com.

The Carbon Literate Organisation Standard:

Carbon Literate Organisation (CLO)

The Carbon Literate Organisation accreditation is the visible 'badge' that means that an organisation is committed to Carbon Literacy, that a substantial number of members are CL certified and that the organisation has a commitment to maintain this capacity.

The organisation can also use this status to better interact with its communities, whether they are customers, neighbours, learners or suppliers. There are four tiers of CLO accreditation. Bronze, Silver, Gold and Platinum awards reflecting increasing levels of Carbon Literacy within the organisation.

The Carbon Literate Organisation Standard outlines the criteria and application procedures, and is available to download at www.carbonliteracy.com.

The Carbon Literate Training Organisation Standard:

Carbon Literacy Training Organisation (CLTO)

The Carbon Literacy Training Organisation Standard has been developed to allow an organisation that delivers training to external individuals and organisations to evidence its depth of capacity, experience and expertise in supporting and training others in Carbon Literacy. The standard is based on the number, quality and level of qualification of trainers deployed by the organisation, its track record of training design and delivery, its advocacy for Carbon Literacy and the quality of evidence submitted on behalf of, and feedback received from, learners.

The organisation can use this status to evidence its achievement of its objectives or purpose and to better promote its experience and expertise with its audience, communities or customers, on a for-profit or not-for-profit basis.

The Carbon Literate Organisation Standard outlines the criteria and application procedures, and is available to download at www.carbonliteracy.com.

Section 3: Measurement and Assessment

If a certification is to have any value or consistency, a scheme of measurement and assessment is required.

Carbon Literacy is an ability or skill rather than an action with a directly attributable 'hard numbers' outcome.

It is however essential to be able to assess the learning of participants in order to assess whether or not they reach a sufficient standard of understanding to be classed as Carbon Literate.

Participants belong to any of three audiences and vary enormously in ability and the context in which they will apply their knowledge, thus the approach to measuring Carbon Literacy needs to be rigorous enough to allow a determination to be made, but adaptable enough to be applied to any participant.

The approach therefore consists of the trainer and participant jointly supplying sufficient evidence to support the awarding of a certificate of Carbon Literacy, and this approach is laid out in the matrix below:

Carbon Literacy: Assessment and Measurement

	Training Structure	Evidence	Action and Participation	Best Practice
Requirement	The trainer or training organisation will supply evidence of how their training intervention will meet the Standard and how knowledge is tested via the Criteria Checking process.	The participant, trainer or the training organisation will supply evidence of the participant's knowledge.	The participant, trainer or the training organisation will supply evidence of individual participation, completion and the participant's action.	The participant, trainer or the training organisation will supply evidence of an action, or activity, or result that is innovative, particularly effective and could be acted upon or adapted by others.
Examples	Knowledge may be tested via a “pre and post” questionnaire, clear learning objectives and testing of knowledge against these within the lesson plan, a quiz, an exam, a report back talk, a presentation, a report or other mechanism.	This may be a “pre and post” questionnaire, clear learning objectives and testing of knowledge against these, a quiz, an exam, a report back talk, a presentation, a report or other mechanism, but needs to be identifiable with the participant.	This may be: 1: Evidence of action taken during or as a consequence of training – reduced energy consumption, changed behaviour, or an activity planned or begun or reduced, and/or: 2: Evidence of participation in an activity planned or begun, a group, or campaign supporting climate action.	A particularly effective method of engaging a community audience, a particularly good game or exercise to explain a key concept, or a particularly inspiring outcome that might inspire others.
Standard Required	The testing mechanism needs to be sufficient to demonstrate knowledge of each of the core Knowledge Components.	Material Evidence of the above.	Material Evidence of the above.	Material Evidence that can be shared with others

Section 4: Frequently Asked Questions

“What is Carbon Literacy?”

“An awareness of the carbon dioxide costs and impacts of everyday activities and the ability and motivation to reduce emissions on an individual, community and organisational basis.” After participants complete a day's worth of Carbon Literacy learning, The Carbon Literacy Project examines the evidence and certifies individuals as Carbon Literate.

“Who is organising all this? Who owns it?”

The Carbon Literacy Project is organised and delivered by its founders, Cooler Projects Community Interest Company, a Manchester based social enterprise, on behalf of The Carbon Literacy Trust, the registered charity that now owns it for the public benefit.

“How is Carbon Literacy being paid for?”

The development, launch and initial co-ordination of Carbon Literacy in 2011 was underwritten by Manchester City Council and founding private sector sponsor; Westford Mill.

The delivery of Carbon Literacy is paid for from a wide range of sources within organisations and communities themselves, but mainly from existing training and education budgets, as the delivery of Carbon Literacy is down to people and organisations themselves. This delivery and the further co-ordination of The Project are funded from certification, and public, charitable and private sector donation and sponsorship.

“How long is The Carbon Literacy Project going to run for? Is there a specific target?”

The initial Project had an aim of offering Carbon Literacy to everyone who “lives, works or studies” for a three year period. However Carbon Literacy spread rapidly, and is an activity in support of changing our culture into a “low-carbon culture”. It is therefore intended to become part of the fabric of “what we do”, and will therefore now run indefinitely.

“How long does a Carbon Literacy certificate last?”

Certificates awarded to individuals are not intended to expire, but it is likely that the core elements of the content will evolve over time, and standards and expectations will rise. When subsequent “upgraded” versions of the certificate become available, individuals may choose to refresh their skills to ensure they retain the latest version. This is particularly likely to be the case if these certificates are used to support the organisational CLO certificate which will have an expiry date, but any Carbon Literacy certificate is likely to last for at least three years.

“What do you mean by “Appropriately for the world's first industrial city?”

In 1782 in Manchester, Richard Arkwright built his first factory for cotton manufacturing by connecting the newly invented “steam-engine” to a loom, on a site only a few hundred metres from the city centre. In doing so, he turned Manchester into the powerhouse behind the cotton industry and industrial manufacture. It was the mechanisation of machinery for production and transport that resulted in our present day consumption of the fossil fuels which are driving climate change. It is therefore particularly appropriate for the city which was the foundation of the Industrial Revolution to be the source of The Carbon Literacy Project in the cause of carbon reduction.

Section 5: Glossary

A

Anthropogenic

An effect or object resulting from human activity, particularly human impacts on the environment. Most commonly used in connection with global warming and climate change to differentiate between the natural warming of the biosphere, and the additional warming being generated as a consequence of the use of fossil fuels and other human activities.

B

Behaviour Change:

In environmental terms, behaviour change refers to the individual actions one needs to undertake and the lifestyle changes one needs to make in order to lead a more sustainable lifestyle. It also refers to the change in our way of thinking.

C

Carbon:

A fundamental element upon which all known life is based. Used most commonly in climate change terms as shorthand for carbon dioxide (see below).

Carbon dioxide / CO₂:

Carbon dioxide is a colourless, odourless, incombustible gas present in the atmosphere and formed during respiration, the decomposition and combustion of organic compounds, and in the reaction of acids with carbonates: used in carbonated drinks, fire extinguishers, and as dry ice for refrigeration. Formula: CO₂.

Carbon Footprint

A measure of the impact that human activities have on the environment in terms of the quantity of greenhouse gases produced as a consequence, measured in equivalent units of carbon dioxide.

Carbon Literacy:

See page 4.

Climate:

Weather is the temperature, precipitation (rain, hail, sleet and snow) and wind, which change hour by hour and day by day. Climate is the average weather expected over a long period of time. While weather brings different temperatures all over the world on a day to day basis, over a year global climate would be expected to deliver an average planetary temperature of about 14°C.

Climate Change:

Climate Change refers to a change in the average state of the climate and/or the variability of its properties.

CLWG

Abbreviation: Carbon Literacy Working Group.

CPD

Abbreviation: Continuing Professional Development.

D

Direct Emissions The quantity of carbon dioxide emitted as a direct consequence of the use of energy/a fuel at the point of consumption.

E

Embedded (Carbon) Emissions

The sum of the carbon footprints of all of the resources and processes required to bring a product or service to the point of its consumption. One way of attributing greenhouse gas (GHG) emissions is to measure the embedded emissions of goods that are being consumed (also referred to as "embodied emissions").

Emissions (Carbon)

This is the term used to describe the emitting of carbon dioxide into the atmosphere, usually in connection with human activity, mainly from the burning of fossil fuels.

Energy conservation

Energy conservation refers to efforts made to reduce energy consumption. Energy conservation can be achieved through more efficient energy use, and/or decreased energy consumption.

Energy efficiency:

Energy is the capacity to perform work, thus energy efficiency is the measurement of how much work is derived from a given amount of energy or, the amount of energy required to gain a given amount of work. The less energy that is required in a system for a given amount of work, the more energy-efficient a system is. The more work that is gained in a system from a given amount of energy, the more energy-efficient a system is. In an environmental context, it is often used as shorthand for measures or behaviour taken either to increase the efficiency with which energy is used within a system, or to reduce the amount of energy consumed.

F

Fossil Fuels

Most commonly coal, oil, and gas, Fossil Fuels are hydrocarbons formed over millions of years from the underground decomposition of the carbon based organic compounds making up the tissues of formerly living plants and animals. The combustion of these compounds releasing their stored energy also releases carbon dioxide as a by-product.

G

Global Warming

The rise in average planetary atmospheric and oceanic temperature and its projected continuation, primarily applied to the unnatural additional warming above the norm as a consequence of the use of fossil fuels and other human activities.

Greenhouse Gases (GHGs)

Greenhouse Gases are gases in the planet's atmosphere that have the effect of warming the planet's surface. They do this by absorbing more thermal infrared radiation than they emit. In the earth's atmosphere, the main greenhouse gases are: Water vapour, Carbon dioxide, Methane, Nitrous Oxide, and Ozone, although each gas differs in how much thermal energy it absorbs and thus how much of an effect it has on atmospheric warming.

K

Kite-marking

Shorthand for the assessed mark of a Quality standard, referring to the UK product and service quality certification mark which is owned and operated by The British Standards Institution (**BSI Group**).

L

Local growing

Referring to growing local food. Local food or the local food movement is a "collaborative effort to build more locally based, self-reliant food economies - one in which sustainable food production, processing, distribution, and consumption is integrated to enhance the economic, environmental and social health of a particular place" (Feenstra, G. (2002)

Low carbon culture

A culture whose fundamental values aid sustainability and behaviour change and help support and create a low carbon economy (see below).

Low carbon economy (LCE)

A low carbon economy is an efficient and sustainable economy that delivers high quality of life for its participants whilst minimising the output greenhouse gases into the biosphere and using energy and natural resources in a sustainable manner.

Low Carbon Economic Area (LCEA)

In December 2009 Greater Manchester was designated the UK's first Low Carbon Economic Area for the Built Environment. This resulted in a 5 year project to address carbon abatement through existing and new technologies and increase employment and investment in low carbon skills and supply chains.

M

MACF

Abbreviation: The city of Manchester's climate change action plan, "Manchester: A Certain Future".

Methane

A Hydrocarbon chemical compound with the chemical formula CH₄. It is produced by living organisms, primarily as a consequence of decomposition and as a fossil fuel is the principal component of natural gas.

R

Resource Efficiency

Refers to the act of using natural resources (air, water, plants, minerals) in the most efficient and effective way, maximising their reuse, minimising their consumption, whilst all the time minimising the impact of that use on the wider environment.

S

Sustainability

Sustainability is the capacity to continue. Applied to ecosystems and economies it means the ability to continue indefinitely without declining or breaking down. Applied to humans, the concept involves the concept of stewardship, the responsible use and management of energy and resources, and the long-term maintenance of responsibility, which has environmental, economic, and social dimensions.

Sustainable Change

A change in human behaviour and activity which meets or moves towards the fundamental requirements of sustainability.

W

Waste reduction

Waste Reduction is the process and the policy of reducing the amount of unutilised physical resource produced by a process, an individual, an organisation or society.

The Authors

The Carbon Literacy Trust and Cooler Projects CIC

The Carbon Literacy Project (CLP) was created and founded by Cooler Projects CIC (Cooler) in 2011 and was launched publicly in November 2012. Cooler is a Manchester UK based Community Interest Company, that delivers projects and advocacy to create low carbon futures. Its founders and associates have wide and substantial experience in community engagement, coaching, project delivery and advocacy. In 2013, The Carbon Literacy Trust (registered charity number: 1156722) was established and took on all The Project's assets, so that the charity's trustees could oversee the dissemination of Carbon Literacy across the UK and beyond, for the public good. At the Trustees' behest, Cooler continues to act as The Project's co-ordinating organisation.

Dave Coleman: Managing Director

Co-author and Cooler co-founder, began his career with Deloitte, continued as a director of an award winning IT company, and then founded and spent ten years as a management trainer and coach in his own practice in the commercial sector. Having spent six years on the boards of Friends of the Earth and chairing its Engagement, Fundraising and Communications committee, he chaired the "Energy" writing group of "Manchester: A Certain Future". He now sits on the advisory boards of a number of EU funded projects, and is a director of Manchester's Climate Change Agency, and The Manchester Climate Change Board.

Phil Korbel: Director

Co-author and Cooler co-founder, is an experienced social entrepreneur, founder/director of the award-winning community development charity Radio Regen, and occasional advisor to DCLG and DCMS. He chaired the "Buildings" writing group of "Manchester: A Certain Future", and helped found the 100 Months Club.

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