

# Clean Slate

A photograph of several wind turbines in a field at sunset. The sky is a mix of orange, yellow, and grey clouds. The turbines are dark silhouettes against the bright sky. The foreground is a dirt road with tire tracks.

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CAT at COP26

When net zero  
is *not* zero

Sustainable  
transport -  
beyond electric cars

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Cover image: Radu Razvan/Shutterstock

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# EDITORIAL

Peter Tyldesley

## Working together to build a better world – today

As the dust settles on the COP26 climate talks, it's time to look at what happens next.

In Glasgow, the world picked up pace – pledges were made, pacts signed, deals done. However, national pledges don't yet keep us within 1.5°C, the deal failed to adequately address crucial issues such as support for countries facing devastating climate impacts, and we all know what's desperately needed is *action now*.

So how can we continue building the better world we know is possible?

Of course we must keep pushing elected leaders to increase ambition and accelerate action. Using our voices to advocate for change is one of the most important things that all of us can do.

We can also get on with building the world we want to see. In our communities and workplaces we can come together to create change, inspiring others to follow suit. Hope lies in showing what's possible. Not only can we imagine a better future, but we can start to build it in the here and now.

CAT provides inspiration, knowledge, skills and networks to help people make a real difference, creating changemakers who are having an impact across a wide range of sectors.

It's a truly inspirational organisation, one that I've been privileged to lead. CAT's Trustees, staff, volunteers, visitors, students, graduates, and our amazing network of members and supporters – it has been a real joy to work with people so utterly determined to create a better future for all humanity as part of a thriving natural world.

Sadly, however, this is my last message as Chief Executive. When I took up the role just before COVID struck I had planned to move closer to CAT, but – as with so many of us – the pandemic has made me reluctant to move away from family, particularly with grandchildren on the horizon. Neither does working remotely or out of a suitcase hold much appeal, so I have made the difficult decision to step down.

I will, of course, keep in touch with CAT, not least as a life member. I've said it many times – our network of members and supporters is the lifeblood of the organisation. CAT simply would not exist without you. So a final heartfelt thank you, and I look forward to continuing to be a part of this incredible movement for many years to come as we work together to build a better world.



**xx Keep in touch** Write to us: Centre for Alternative Technology, Machynlleth, SY20 9AZ



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## CAT at COP – Sharing skills and solutions in Glasgow



Some of the CAT COP26 team with Tibetan delegates.

A team from CAT were on the ground in Glasgow for the COP26 climate negotiations in November.

While there they shared knowledge and research from our work and listened to and learned from participants from around the world. Connecting with people and organisations from across the environmental and climate justice sectors gave the team the opportunity to forge new connections and partnerships, helping spread our voice further.

Only a handful of organisations from Wales were given Observer Status by the United Nations Framework Convention on Climate Change (UNFCCC), and CAT was

selected as one of these. This gave our team access to the Blue Zone, where the official talks, presentations and negotiations took place.

The team also attended talks, workshops and exhibitions in the Green Zone, where charities, civil society, individuals and businesses could share their actions and messages on the climate crisis.

Outside of the official venues there were further events led by civil society, in particular the Global Day of Action and People's Summit, which focused on climate justice, organised by the COP26 Coalition, of which CAT is a member.

Members of the CAT team spoke at several events as part of the COP26 programme.

Our Innovation Lab Manager, Dr Anna Bullen, took part in a Welsh Government panel discussion in the UK Pavilion in the Blue Zone, alongside First Minister Mark Drakeford, Lord Deben, Chair of the Climate Change Committee, and Poppy Stowell-Evans, Chair of Youth Climate Ambassadors for Wales. In a discussion chaired by Clare Pillman, CEO of Natural Resources Wales, the panel explored the importance of distributed leadership in climate action.

Paul Allen, Zero Carbon Britain's Knowledge and Outreach Coordinator delivered a presentation as part of an official Blue Zone side event with the International Network for Sustainable Energy. Speakers from Uganda, Kenya, South Asia, Denmark and Bangladesh spoke on climate solutions from their areas. Paul outlined the benefits of national zero carbon scenarios that work across sectors to bring to life a vision of a positive future.

Paul also spoke on a panel as part of the People's Summit. They discussed ways of accelerating the implementation of new technologies, including local community initiatives, to achieve low-carbon lifestyles.

On returning from Glasgow CAT's Head of Development, Eileen Kinsman said:

"CAT provides the skills and knowledge to ensure everyone can play their part in getting to zero carbon. Linking in with networks of organisations working towards the same goal is



CAT Innovation Lab Manager Dr Anna Bullen (second from left) speaking on a Welsh Government panel at COP26, alongside First Minister Mark Drakeford.

essential to delivering climate solutions at the scale and speed demanded by the climate crisis.

"Being at COP26, both inside the talks and at fringe events throughout Glasgow has given us the chance to share our work with organisations and individuals that we may not otherwise have the opportunity to meet, and to learn from others working on solutions across the globe."

Many of the events are available to watch online – visit the CAT blog for details: [cat.org.uk/news](https://cat.org.uk/news)





### COP26 Coalition events

The Global Day of Action on Saturday 6 November mobilised people around the world to increase momentum for systemic change.

An estimated 100,000 people took part in the march in Glasgow, including the CAT COP26 team, all calling for stronger, faster action on the climate crisis from world leaders. There were events across the UK and online, and many CAT supporters joined in to make their voices heard.

Following this, there was the four-day People's Summit, organised by the COP26 Coalition. The events brought the climate justice movement together to discuss, learn and strategise. Many of these were also available to watch digitally, and CAT shared some of our highlights on our social media channels.

### Keeping you up to date

The team made sure to keep our supporters and CAT students in the loop with webinars sharing insights into the proceedings.

The webinars were well-attended, and participants asked some perceptive questions about the process and potential outcomes.

You can watch recordings of these and other CAT webinars on our website at [cat.org.uk/past-webinars](https://cat.org.uk/past-webinars)



Fringe exhibitions included the 'COP26 House', a passivhaus created by Roderick James Architects on the banks of the River Clyde. Rod was CAT's first director. Pictured: Paul Allen.

## COP26 in Wales

Throughout COP26, a series of 'COP Cymru' events took place across Wales, with four regional roadshows each centred on one of the COP26 Presidency Programme themes.

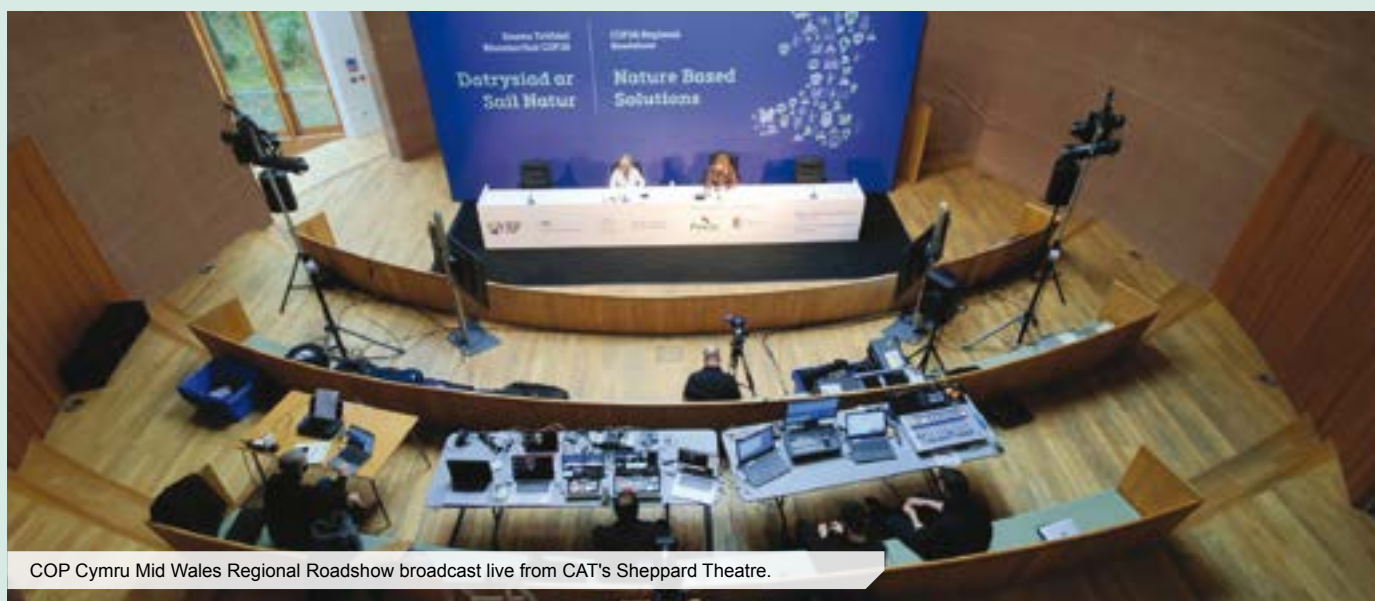
The roadshow panels highlighted best practice and explored how each topic relates to Wales. The Mid Wales roadshow was hosted at CAT, with the theme of nature. Panellists spoke on nature restoration, resource efficiency and nature, and people, place and nature.

Meanwhile, in Glasgow, to help bring the voices of Wales to

COP26, CAT and many organisations across Wales joined with our partners Climate Cymru in the delivery of a sound wall, displayed in the Green Zone, featuring the concerns and issues that matter most to communities across the country.

### COP26 – responses and reflections

Turn to pages 15-18 to read some of the CAT team's reflections on COP26, and visit our blog for more insights and updates: [cat.org.uk/news](https://cat.org.uk/news)



COP Cymru Mid Wales Regional Roadshow broadcast live from CAT's Sheppard Theatre.

## First Minister Mark Drakeford visits CAT ahead of COP26



We were delighted to welcome First Minister Mark Drakeford in late October to discuss CAT's work on solutions to the climate crisis.

We were able to share our work and future plans with the First Minister, focusing on the importance of training and education, which enables everyone to play their part in creating a more sustainable future.

The need for rapid change across all sectors to reduce emissions also featured heavily in conversations, particularly the benefits this transition would bring about, such as job creation, improved health and wellbeing, and reduced fuel poverty.

After his visit, Mark Drakeford said:

"It's been great to have been at the Centre for Alternative Technology... and to hear of all the work they do to help us all to prepare for a more sustainable future.... The way we live at home, the way we live at work, the way we travel around, those things make a difference when we add them all up. That would be a really powerful message from Wales in Glasgow."



### Sustainability skills get a boost with new Mid Wales partnership

The UK Community Renewal Fund has awarded CAT and Severn Wye Energy Agency funding for a new partnership project. The joint project is aimed at providing sustainable skills training, supporting green jobs, and increasing understanding and knowledge of environmental solutions. Not only will the project help address the climate emergency, but it will also contribute to the economic recovery of Mid Wales for many years to come.

A new pilot scheme based at CAT will offer training in sustainable and energy-efficient construction and retrofit, including a Retrofit Bootcamp, which will deliver practical skills and a better understanding of these issues within the sector.

A Retrofit and Sustainable Energy Hub will be created at Severn Wye's community sustainability centre in

Llandrindod. The Hub will provide advice and support for energy improvement measures, with a particular focus on low-income households in Powys.

The exploratory stages of a series of planned developments at CAT will also be included in the project. This will include an updated visitor experience and a new sustainable skills hub, giving more people the opportunity to access the skills, knowledge and understanding to contribute to the transition to zero carbon.

A feasibility study will investigate options for the project, looking at the benefits to the people, environment and economy of Mid Wales. CAT members will get the chance to feed back on ideas and have their say on the developments, with consultation planned for the spring.





## Meeting with policymakers at CAT and at COP

As well as the First Minister, we hosted a number of other Welsh and UK policymakers in the run up to COP26.

Guy Opperman, the UK Minister for Pensions, and Craig Williams, MP for Montgomeryshire visited CAT in the autumn to hear about our research into solutions to the climate and biodiversity crisis.

They were interested to hear about CAT's innovative changemakers – the CAT graduates who have gone on to set up businesses that are making a real difference in climate solutions. Both praised CAT's "vital work", and welcomed the opportunity to discuss the policies needed to build a zero carbon economy, including the need to move pensions and investments into climate solutions.

Jane Dodds, MS for Mid and West Wales, visited later in the season, highlighting the need for further action across "local, Welsh, UK and international levels" to combat the climate emergency. She also heard about CAT's provision of skills to help with the transition to zero carbon and our plans to expand our work in the coming years.

Finally, Eileen Kinsman, our Head of Development, and Amanda

Smith, our Zero Carbon Britain Training Manager, met with Simon Hart, Secretary of State for Wales, at COP26 in Glasgow, where they discussed CAT's work and the need for urgent solutions to the climate and biodiversity emergencies.

Meeting with politicians is essential to our work, enabling us to showcase skills and solutions that could help accelerate action to build a zero carbon Wales and UK.



Jane Dodds MS, leader of the Welsh Liberal Democrats, on a tour of CAT.



Local MP Craig Williams (left) and Pensions Minister Guy Opperman (right) meet with the CAT team.



Eileen Kinsman (left) and Amanda Smith (right) met with Simon Hart, Secretary of State for Wales at COP26.

## CAT graduates run Transformation Prize 2021

The Transformation Prize is an award for students and graduates of CAT's Graduate School of the Environment, conceived by graduates Gerard Baker and Hannah Gardiner. This year they received a wonderful array of entries, from arts and storytelling-based work to projects harnessing nature connection and community togetherness.

Their virtual award ceremony was held in late September. They were joined by guest speakers including: Chris Blythe, Director of Social Farms and Gardens, who spoke about the value of nature-based activity in health and wellbeing; Tishauna Mullings who spoke about her work at the Ubele Initiative which uses community activism to transform society; and

Betsy Dillner, Principal Director of the Social Change Agency, who spoke about how movements can achieve impact at scale.

The 'Bwyd Bendigedig Port / Incredible Edible Porthmadog' project was awarded £750 funding, courtesy of the Liebreich Foundation. Project creator Lizzie Wynn showed how the group mobilised people to create an 'edible corridor' of community gardens in Porthmadog, encouraging the community to connect with and care for the natural world.

Thomas Danning's 'Council Connectors' project was chosen for the people's choice award, winning £250. Thomas' project is designed to foster community cohesion and pro-environmental behaviour.

There were many more amazing projects shortlisted, and Gerard and

Hannah encourage you to visit their website [www.transformationprize.com](http://www.transformationprize.com) to read more. If you're interested in finding out about studying at CAT then get in touch with Alis Rees at [gsmo@cat.org.uk](mailto:gsmo@cat.org.uk)

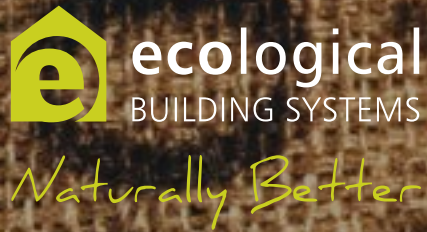
## An enduring legacy

Earlier this year, CAT was honoured to receive a special legacy, left by Ms Elaine Overnell, who shared CAT's vision for a sustainable future for all humanity, through practical skills and education.

Elaine's memory will live on under the apple trees in front of our WISE building, where her ashes were thoughtfully scattered this autumn by family and friends.

We offer an immense thanks also to executors Mike and Catherine Burt, as well as good friend Mairi Johnson.





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## Our thanks to CEO Peter Tyldesley

As you may have read in his final *Clean Slate* editorial (see page 3), CAT CEO Peter Tyldesley has decided to step down from the role.

During Peter's time as CEO he has led the team in the development of CAT's new five year strategy and has overseen our response to the COVID-19 pandemic.

This period also saw us launching our new Zero Carbon Britain Hub and Innovation Lab and developing plans for a new visitor experience and sustainable skills hub.

CAT Chair of Trustees Mick Taylor said:

"On behalf of the Board of Trustees and everyone at CAT, I would like to thank Peter for leading the team through the challenges of COVID-19, and for helping build the foundations for the next exciting phase of CAT's work."

"Peter leaves CAT in a strong position from which to expand its activities and impact, with a robust strategy in place and an experienced team at the helm."

CAT's Senior Management Team will lead the organisation whilst the Board plans the transition to a new CEO, and further updates will be published on the CAT website: [cat.org.uk](http://cat.org.uk)



## World-building project hosted at CAT

Collective Cymru, a partnership of organisations and creatives led by National Theatre Wales, hosted a world-building session at CAT this October, inspired by Wales' Wellbeing of Future Generations Act.

World-building is the process where fictional but plausible worlds are imagined, developing potential solutions to climatic, technological and social issues. At CAT, participants from Citizens Cymru explored the Wales of 2052. The process was led by Alex McDowell, production designer of *Minority Report*.

The world created at CAT will be used as part of a cultural event, GALWAD, launching in September 2022. The story of GALWAD will be broadcast across multiple platforms, including TV, radio, digital, and live events, which will all be free to attend.

One of the participants, who travelled from Cardiff to the session at CAT, said:

"Being involved has really made me feel like my opinion matters and that I'm part of something bigger. As young people, we are the future. This is the future we get to create."

Find out more at [galwad.cymru](http://galwad.cymru) and keep an eye on CAT social media for updates.



Young people came together at CAT to create a storyworld set in 2052 inspired by the Wellbeing of Future Generations Act, which has environmental sustainability at its core.

## Net Zero Local conference success with Ashden, Climate Emergency UK and Aberdeen Climate Action

On 30 September, CAT's Zero Carbon Britain team, alongside Ashden, Climate Emergency UK and Aberdeen Climate Action, co-hosted an online conference for 800 people. The conference showcased some of the best actions on the climate and nature emergencies by local authorities from around the UK and Europe.

Keynote speakers offered inspirational messages about actions at different levels of government, they included Mairi McAllan, Scottish Minister for Environment and Land Reform, Rebecca Evans, Welsh Minister for Finance and Local Government, and Jamie Driscoll, North of Tyne Mayor.

Interactive sessions brought attendees and speakers from multiple sectors together. Speakers shared their practical experience of designing and implementing solutions across a range of important areas: transport, housing, circular economy, land use, energy and climate action planning.

CAT's Anthony Hurford chaired sessions about local-level work aligned with Wales' Well-being of Future Generations Act, Barcelona's land-use changes to increase integration with nature, and MySociety's work increasing public information about local authority climate action plans.



Anthony said of the conference:

"It was great to collaborate on this conference and build on the success of our 'Tried and tested solutions for a green recovery' webinar series, in partnership with Ashden. It addressed the ongoing need to inspire greater action and help key people understand how things can be done."

Check out recordings of each speaker on the Centre for Alternative Technology YouTube channel. <https://www.youtube.com/user/centrealtech>

## CAT hosts training with Algerian postgraduate students

In September, CAT hosted a sustainability and leadership training weekend for Algerian postgraduate students, organised by Coventry and Jijel Universities as part of their Youth Futures Algeria programme.

The core question of the training was, 'What kind of sustainable future do young people imagine for Algeria and beyond, and what steps are needed to achieve such a future?'

Attendees used CAT's work on renewable energy, ecosystems and climate change resilience to explore how they could improve their environments, protect nature, and ensure fairness and equality across all levels in society. The sessions also explored the root causes of the biodiversity and climate crisis, with follow-up classes focused on the positive solutions and inspiring initiatives emerging across Algeria.

The postgraduate students came from a range of disciplines, including language, culture, engineering, social sciences and literature. The weekend offered great knowledge sharing opportunities for the students and CAT staff, including Graduate School of the Environment lecturers.

Paul Allen, CAT's Zero Carbon Britain Knowledge and Outreach Officer, who delivered a Zero Carbon Britain workshop looking at 'wicked' problems and solutions to the environmental crisis with the students, said:

"This was one of the most inspiring workshops I have run at CAT. As my presentation was live-streamed to groups in Algeria working to make change happen, the questions were very relevant and pragmatic."

Ikram Berkani, a PhD student in the humanities whose thesis focuses on trauma, disability, culture and the arts, said:

"The training has broadened my perspectives and encouraged me to consider potential careers which intersect with my current expertise. The experience has made me feel more connected to nature, or rather a part of nature."

Following the visit to CAT, the programme continued for four months with online sessions to help participants develop specific projects for local-level action. We wish attendees the best of luck

with their projects and look forward to hearing more.

The Youth Futures Algeria programme is one of many groups hosted at CAT. If you'd like to organise a bespoke visit for your school, university, community group or team away-day, contact [education@cat.org.uk](mailto:education@cat.org.uk)



Delegates from the Youth Futures Algeria programme discuss their vision for a sustainable future.





## **Zero Carbon Britain bursary winner mobilising the music industry**

James Dove, a bursary place winner on our September 2020 'Zero Carbon Britain: Live online' course, has set up a new company to mobilise the music industry to lower its carbon emissions.

James was seeking a career transition from marketing and communications in a music company when CAT was recommended to him. He says applying and gaining a free place on the course has proven life-changing.

Inspired by the course, James set up ClimateEQ, a company specialising in Carbon Literacy training for the music industry. James said of the Zero Carbon Britain course:

"The structure was extremely well thought out and the content was delivered in an interesting and thought-provoking manner. I came away feeling extremely motivated and would like to take this opportunity to sincerely thank CAT for inspiring me to take action."

To find out more about Climate EQ visit [www.climate-eq.co.uk](http://www.climate-eq.co.uk)

We love hearing about how CAT has inspired you. Please email [members@cat.org.uk](mailto:members@cat.org.uk) with your stories.

## **Largest ever climate action training day**

On 1 November, as the COP26 talks began, CAT's Zero Carbon Britain: Carbon Literacy for Local Authorities short course was part of a worldwide climate action training day, organised by the Carbon Literacy Project.

Our course was fully booked, with 25 delegates attending from local authorities up and down the UK. At 5pm on the day of the course, attendees joined an online call connecting thousands of others also completing their Carbon Literacy training. During the call, attendees shared and learned from some of the most innovative action plans created in the different groups around the world.

As well as exploring low carbon solutions and creating action plans, the 25 delegates gained Carbon

Literate certification, enabling them to go on and deliver training to the rest of their local authority or network.

An attendee on our Zero Carbon Britain: Carbon Literacy for Local Authorities course said:

"I will look to develop a way we can cascade training to the rest of the organisation. I will also make sure that the pledges I make are realistic and can be followed through, and encourage more people to make changes."

We've partnered with the Carbon Literacy Project to offer this 'train the trainer' model of our Zero Carbon Britain climate solutions courses. We have dates in the diary for further courses in December and February – keep an eye on the website and enews for new course announcements: [cat.org.uk/whats-on](http://cat.org.uk/whats-on)

## **New manifesto on Education for Environmental Sustainability launched**

A new 'Manifesto for Education for Environmental Sustainability', released on 1 November, explores the question: 'What should secondary education for sustainability look like?'

Nine workshops across England, Wales, Scotland and Northern Ireland helped shape the manifesto, with contributions from over 200 16-18 year-olds, secondary teachers and researchers.

As a principal partner in the project CAT ran workshops for young people and teachers from across the UK examining the barriers and solutions to education for sustainability, and coordinated the response from Wales.

The research was commissioned by the British Educational Research Association (BERA) and written up by researchers from the University of York and King's College, London.

CAT has long championed the role of education in creating long-term responses to the challenge posed by the climate crisis. Working on the new manifesto ensures the needs of students and their teachers are included in these responses. The findings will now go on to inform action in policymaking and practice.

You can read the full manifesto on the BERA website: [www.bera.ac.uk](http://www.bera.ac.uk)

## **Climate solutions training for Local Government Association**

CAT is working with the Local Government Association to provide training as part of their 'Climate Emergency: Leadership Essentials' programme. Following the successful delivery of a two-day programme in September, another course has been booked for January 2022

The programme is designed for councillors from Metropolitan, District, City and County Councils. It weaves together content from CAT's Zero Carbon Britain project and Carbon Literacy materials, so councillors can gain accreditation and go on to train others within their organisation.

The bespoke training explores themes of energy, biodiversity, council action, community heating and retrofit, with guest speakers to enrich the training and share stories of best practice.

This is one of many bespoke climate solutions training courses designed and delivered by our Zero Carbon Britain team. If you'd like to discuss bespoke training for your organisation, please contact Amanda Smith, Zero Carbon Britain Training Manager at [amanda.smith@cat.org.uk](mailto:amanda.smith@cat.org.uk)

## **CAT moves to winter hours**

Our eco centre has now moved to winter visiting hours. As a CAT member you get free entry year-round, but we are also offering half price entry for non-members until the spring.

To make the most of the shorter days, we will be offering daily tours at 11:30am, allowing visitors to take in the winter wildlife and seasonal views offered by the site. Visit our website at [cat.org.uk](http://cat.org.uk) to book your day at CAT.

We will be closing over the Christmas period as usual, with the centre shut from 22 December until late January.

We look forward to welcoming you this winter if you can make it, and if not, we hope to see you as everything bursts to life next spring.

## New Graduate School students start their postgraduate courses

In early September we welcomed another record intake of new students to CAT's Graduate School of the Environment, ready to start their postgraduate journeys in sustainability. Our courses have once again proved popular, with over 250 passionate students all looking to develop the skills and knowledge to respond to the climate and biodiversity crisis.

Our masters students started their studies both via distance learning and in small groups on-site.

Dafydd Haine, a new student on our MSc Sustainability and Behaviour Change course, said:

"It was a busy first week settling into studying at CAT online and in-person, but wonderful to start orientating myself with the first module and meeting other students on the course. I enjoyed scoping out the broad range of topics covered across the module, and in particular, learning more about systems theory and nature connection."

Other teaching highlights included: a motivating introductory lecture from Professor Kevin Anderson of the Tyndall Centre, giving an overview of climate science and looking at what needs to happen to address the scale of the climate crisis; an insight into the best contemporary architecture in Wales with a lecture on 'State of the Architectural Nation: Wales' from Patrick Hannay, Editor of Touchstone, the Journal for Architecture in Wales; and Dr Haseeb Irfanullah live-streaming from Dhaka to discuss nature based solutions for adaptation.

If you're inspired to find out more about studying at CAT, applications are now open for our September 2022 entry. Get in touch with Graduate School Marketing Officer Alis Rees [gsmo@cat.org.uk](mailto:gsmo@cat.org.uk) or sign up for our next virtual open day for more details: [cat.org.uk/gse](http://cat.org.uk/gse)



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## The Moondance Foundation visits CAT

We were delighted to host a visit from the Moondance Foundation, who in 2019 awarded CAT its annual Big Donation to establish the Zero Carbon Britain Hub and Innovation Lab to help local authorities, communities and businesses take action on the climate emergency. The COVID-19 pandemic delayed their visiting CAT to hear about the fantastic progress the project has made, but we were delighted to welcome them to the site on 14th October 2021.

Our thanks to Rebecca Watkins and Louisa Scadden, who enjoyed a few hours hearing about the key components of the project, touring the site to see more of what CAT offers, and learning about both our history and future plans. They left very inspired to make changes in their own lives and we hope to be able to welcome them again before too long.



## October half term at CAT

We enjoyed a jam-packed half term of nature-themed activities at CAT this October. Adults and children of all ages joined us as the visitor centre and woodlands were in full autumnal colour, to take part in seasonal crafts and learn about wildlife.

Outside the café, visitors turned their hand to apple pressing using apples harvested from CAT's organic gardens. Guided by our woodlands team, families crafted besom brooms using foraged materials from our sustainably managed woodlands.

Visitors also explored the sleepy world of winter hibernation, learning tips and tricks for supporting wildlife at home through the colder months.

Members can enjoy free entry to our visitor centre all year round. To book your trip visit <https://cat.org.uk/come-to-cat/>

## Greenlink Organics partnership

Thank you to Greenlink Organics, a wholefoods company in Malvern, who have chosen to support us through their sales. Greenlink Organics are donating £1 to CAT for every ten stamps on a customer's loyalty card.

Greenlink Organics was set up in 1987 by long term CAT supporter Mike Gatiss, with the ethos of promoting organic growing, farming, food and lifestyles. Greenlink now run two shops and a café, selling organic fruit, vegetables, body care and household products, as well as a smallholding growing produce for their fruit and veg box scheme.

So far, Greenlink has raised over £800 for CAT through their loyalty card scheme. They said of the partnership:

"Mike 'discovered' you in 1978 when he first visited CAT. He was so inspired by the interactive displays and the forward-thinking educational emphasis, and we continue to be inspired by CAT's important Zero Carbon Britain project.

"So many of our customers are very aware of the great work CAT does and are super happy with this scheme." Greenlink Organics is one of a number of companies that supports CAT through a corporate partnership. If you know a company that would like to support us, please contact [fundraising@cat.org.uk](mailto:fundraising@cat.org.uk).

## A strong voice from Wales for Great Big Green Week

Organised by the Climate Coalition, of which CAT is a member, Great Big Green Week took place from 18 to 26 September, and saw CAT running events and activities online and in-person.

Across the week we took part in local community events, hosted a webinar on climate science and solutions with leading climate scientist Professor Kevin Anderson and our Zero Carbon Britain team, offered Great Big Green Week family activities in our visitor centre, and shared solutions online with many thousands more people.

As a member of Climate Cymru, we were also delighted to be a stop-off point on their Green Tour of Wales.

On 19 September, we hosted Climate Cymru's electric vehicle tour, sharing stories of positive action to help build a collective voice from Wales.

Climate Cymru's *Voices from Wales* campaign saw them deliver a message to leaders on the urgent action required at COP26 and beyond, co-created using 10,000 voices and stories from the people of Wales. You can read more about the campaign at <https://climate.cymru/>

## A kind gift from an inspirational friend

A donation of 10,000 euros has been gratefully received in memory of CAT supporter Claudio Stahl.

Claudio's friend Jessica said:

"Claudio passed into the ether on 1 February this year. He was passionate about the natural world. He loved nature, he loved travel and he loved working with people on projects that captured the imagination. He was a mycologist, a philosopher, a scholar, an activist and an occasional technology geek, so CAT had a lot to offer him.

"Claudio was inspired by his visits to CAT and would have wanted other people to benefit from the same experience. We hope the money donated will support exciting and innovative projects that Claudio himself would have enjoyed."

Our heartfelt thanks to Claudio's family and friends for this kind gift in his name – we can promise that it will help to light the spark of inspiration in many more visitors to CAT.



Centre for Alternative Technology  
Canolfan y Dechnoleg Amgen

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# What happened at COP26 – and what next for climate solutions?

There were almost too many deals and pacts to keep track of over the two weeks of COP26. **Claire Thorpe** gives an overview of some of the most impactful deals, as well as what was and wasn't included in the Glasgow Climate Pact, and some of the CAT team who were at COP26 give their reflections.

## **The Glasgow Climate Pact and 1.5°C**

The Glasgow Climate Pact – also known as the cover decision for COP26 – was adopted by all nations that are signatories to the 2015 Paris Agreement.

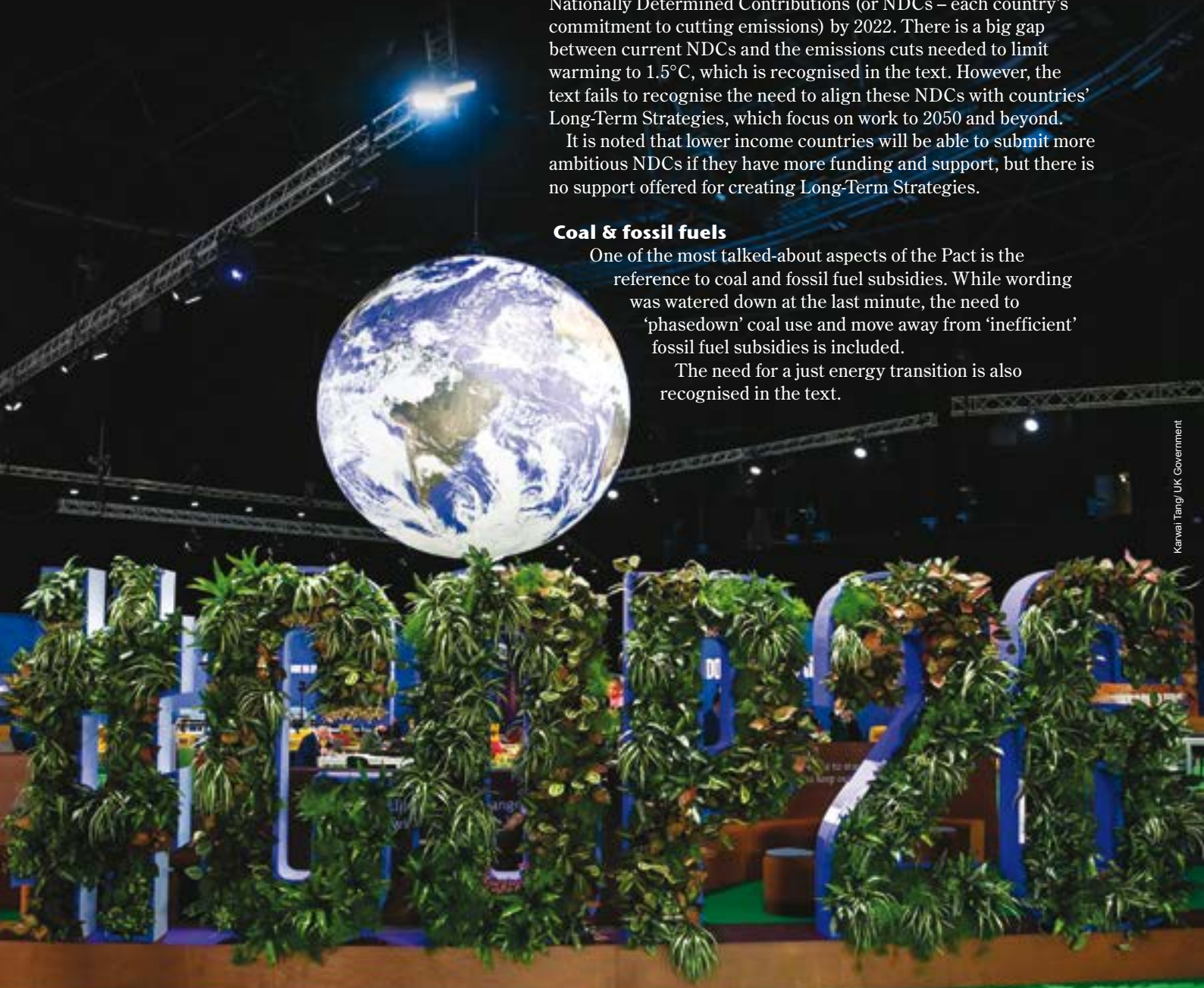
The agreement requests that parties revisit and strengthen their Nationally Determined Contributions (or NDCs – each country's commitment to cutting emissions) by 2022. There is a big gap between current NDCs and the emissions cuts needed to limit warming to 1.5°C, which is recognised in the text. However, the text fails to recognise the need to align these NDCs with countries' Long-Term Strategies, which focus on work to 2050 and beyond.

It is noted that lower income countries will be able to submit more ambitious NDCs if they have more funding and support, but there is no support offered for creating Long-Term Strategies.

## **Coal & fossil fuels**

One of the most talked-about aspects of the Pact is the reference to coal and fossil fuel subsidies. While wording was watered down at the last minute, the need to 'phasedown' coal use and move away from 'inefficient' fossil fuel subsidies is included.

The need for a just energy transition is also recognised in the text.



## Eileen Kinsman – Head of Development

*Eileen spent time in the Blue Zone and Green Zone attending events, sharing solutions and making links with organisations and policymakers.*

COP26 took place at the beginning of the crucial decade for climate action. In 'Earth to COP', a short film shown at the opening plenary sessions, world leaders witnessed the increasingly severe impacts of climate change around the globe.

As the Prime Minister of Barbados, Mia Mottley, so poetically put it:

"Code Red  
Code Red to the G7 Countries  
Code Red  
Code Red to the G20  
Earth to COP Earth to COP  
For those who have eyes to see  
For those who have ears to listen  
And for those who have a heart to feel  
1.5 is what we need to survive  
The difference between 1.5 and 2 degrees  
will be paid in lives and livelihoods"

The human cost was brought home to us a few days later. We got lost whilst

running from the Blue Zone to the Green Zone to attend the Ashden Awards. We started chatting to someone else who was also lost, and I asked her why she was at COP. She said that her daughter, Ella, died in 2013 from air pollution. How do you respond to that? The woman was Rosamund Adoo-Kissi-Debrah, tireless environmental campaigner.

As Sir David Attenborough so movingly narrated at the opening of COP26, the story of climate change is a story of inequality. Those who have contributed least to the problem are the most impacted. But, as he said, we can rewrite the story. We know how to solve the problem. As CAT's Zero Carbon Britain research has shown, we have the solutions.

At COP we had the opportunity to share our zero carbon solutions: in a private meeting with UK Government; in a wider platform in the Welsh Government's only slot in the UK Presidency Pavilion; in side events in the Blue Zone; and in conversations with governments, NGOs, businesses and representatives from communities around the globe in the Blue and Green Zones and the streets of Glasgow.

As David Attenborough said - our motivation should not be fear, but hope.

## Finance, adaptation, loss and damage

A particularly controversial aspect of the Pact is finance. The fact that the previous pledge of \$100 billion per year for climate finance was missed is noted and countries are urged to fully deliver this through to 2025.

The text commits to double (from 2019 levels) funding for adaptation to climate change by 2025 and the creation of a work-plan to support this.

However, there is no process to engage with adaptation at political levels, or recognition that this funding must be in the form of grants, not loans which push countries into debt.

Most importantly, there is no finance or mechanism for financing loss and damage incurred by climate change. These losses and damages are being felt by those who have contributed the least to the climate crisis, and so this was widely seen as a failure.



*"The difference  
between 1.5 and 2  
degrees will be paid in  
lives and livelihoods"*

- Mia Mottley, Prime  
Minister of Barbados  
addresses COP26.

**#TogetherForOurPlanet**





Oliver Kornblitt @olivemilja

### Paul Allen – Knowledge and Outreach Coordinator, Zero Carbon Britain Hub & Innovation Lab

*Paul was speaking at events, sharing CAT's research and linking up with other organisations working on zero carbon scenarios and solutions.*

The Glasgow Climate Pact is the first UNFCCC agreement that openly sets out to reduce coal. But a key role of COP26 was for each country to increase their pledges or Nationally Determined Contributions (NDCs) in line with limiting temperature rise to 1.5°C – this was not achieved.

In the run-up to COP26, the science made it clear that the impacts will be much greater at 2°C warming than 1.5°C. To limit global heating to 1.5°C, the world needs to half its projected emissions by 2030, from 52.4Gt to 26.6 Gt. Even if successfully delivered, the COP26 NDC pledges would only achieve a reduction to around 41.9 Gt by 2030.

In light of the evidence of the climate science, all governments need to urgently reconsider their NDCs and embed them in immediate-term plans, policies and actions. Countries need to move from tweaking business as usual to emergency mode, and they must come back in 2022 with radically increased commitments.

Making this transition in a just and fair way is vital. As nations across the globe close coal, they must be supported to leapfrog directly to clean renewables and avoid a move to slightly less polluting fossil fuels, like gas. Wealthy developed countries must significantly increase the finance available to support this majority world transition. Until we achieve a just transition away from fossil fuels, there is no cause for celebration.

Whilst I was deeply disappointed by the NDC outcomes, I was also encouraged by the amazing people that travelled long and hard to get to Glasgow to push for action and justice. Groups showed their brilliant dedication within the official COP negotiations, the Green Zone, the People's Summit events, and the incredible march of around 100,000 people in the rain on 6 November. Many walked and cycled to Glasgow, many came to represent indigenous cultures, and many struggled to get their voices heard in the negotiations. We must keep up the momentum and focus on bringing the necessary solutions to life.

### Finalising the Paris rulebook

The rulebook on the Paris Agreement was finalised, having been delayed over the past five years. This mainly concerned transparency and carbon markets. While some loopholes were closed, many remain and aspects of this text are seen as weak.

### Deals and deforestation

Climate Action Tracker showed that the deals at Glasgow, if fully implemented, would close the emissions gap by 9%. At the moment, these deals do not have policies behind them to implement them; these must be urgently created, and governments held to account to keep to their word.

Countries agreed to halt and reverse deforestation and land degradation by 2030. Over \$19 billion in funding was allocated to protect forests, a partnership of 28 countries agreed to boost trade in sustainable goods, and 30 financial institutions agreed to stop investments in deforestation by 2025. There is no legally binding regulation to end support for deforestation across all sectors and all commitments were voluntary.

### Methane and coal

The Global Methane Pledge, signed by 107 countries, aims for 30% reductions in methane emissions by 2030. Signatories make up close to 70% of the global economy and six of the world's biggest methane emitters. There was a pledge of



Paul Allen presents CAT's Zero Carbon Britain work at a COP26 Blue Zone side event.

## Meg Stuart – Short Courses Marketing Officer

*Meg volunteered with the COP26 Coalition, a UK-based civil society coalition of groups and individuals mobilising around climate justice during COP26.*

Outside of the Blue and Green Zones, civil society events across Glasgow and online created a crucial opportunity for collective action on climate justice. COP26 Coalition's People's Summit offered talks, workshops and spaces for voices and topics not often heard in mainstream climate discourse.

We heard global climate justice leaders who are already seeing devastating effects on their communities speak about how they are fighting, lobbying and organising for change. Sheila Babuata, from the Micronesia Climate Change Alliance (MCCA), spoke passionately on loss and damage in the Mariana islands and the community and youth actions that inspire the MCCA. Farzana Faruk Jhuma and Mitzi Jonelle Tan of Fridays for Future MAPA (Most Affected People and Areas) spoke of the need for reparations and finance to make just transitions possible.

These leaders and many others detailed


how horrific and entwined the multiple issues are, and there was a general feeling that many of the solutions offered during the main negotiations were greenwashing, business as usual and fantasy. A sense of incredible understanding and solidarity united those present and those who had been excluded from official proceedings. The civil society spaces created and nurtured this atmosphere and energy for collective action, which, along with systemic change at the government and policy level, will be crucial for enabling and enacting change in the coming decade.

\$330 million to assist efforts to reduce this powerful greenhouse gas. Big methane emitters, including Iran and Russia, failed to sign. Agricultural emissions are also largely missed from the Pledge, although they make up 40% of methane emissions from human activity.

This was heralded as the COP in which coal, the dirtiest fossil fuel, would be consigned to history. Over 190 countries, financial institutions and companies will phase out coal power, with 28 new members joining the Powering Past Coal Alliance. The countries of the G20 will end overseas finance for coal. A deal with South Africa will provide \$8.5 billion for the country to move from coal to clean power. Vietnam will not build any new coal power stations – they were previously the country with the third largest coal pipeline. Following India's net-zero targets, all 10 of the biggest coal power countries are committed to net zero. Together, this means that new coal power is uneconomic and the retirement of existing plants is likely to increase in pace to meet net zero targets.

## Beyond Oil and Gas Alliance

For other fossil fuels, 20 countries pledged to end the funding of fossil fuel projects overseas by 2022. Ten countries, including Wales, formed the Beyond Oil and Gas Alliance, moving to stop fossil fuel production.

However, many countries claiming to be leaders on the climate refused to sign, and their reluctance will mean an increased reliance on unproven technologies to reduce emissions. 

## About the author

*Claire joined CAT this winter as our Communications Manager. Following an initial degree in biology she completed a MSc in wildlife conservation. For the past six years, Claire has worked in communications and outreach at various wildlife and nature charities and is really looking forward to working at CAT.*



Final negotiations on the closing day.

UNFCCC/Klara Worth

## Dr Scott Leatham – Senior Lecturer, Graduate School of the Environment

*Scott was conducting research on climate justice narratives at COP26.*

We are being asked to accept the small, stumbling steps made at COP26 as a “success” when giant leaps were needed. We must resist these narratives. At the same time, we have to resist simply blaming India for watering down commitments to end coal. Let’s be clear: 25 COPs have come and gone and fossil fuels have not been mentioned in any of these agreements. At the same time, COP26 failed to institute a mechanism for “loss and damage” – that is, a process by which impacted communities can seek money from the countries most responsible for the losses and damages inflicted on them (the most

vulnerable and least responsible).

The Glasgow Climate Pact failed to integrate justice principles or processes or to recognise the land rights that are desperately needed to avoid some of the harmful impacts of offsetting. This is the context in which we must see these very minor steps forward.

A world with warming limited to 1.5°C is still possible, but the window to 1.5°C is rapidly closing, and we must be sprinting directly at it, not stumbling vaguely.

For these reasons, I take the most hope and inspiration from the organisation, events and moments of the “fringe”, the People’s Summit, the marches, and the solidarity.

Building grassroots movements and recognising global solidarity is more important than ever.



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# When net zero is *not* zero

Many net zero pledges rely on unproven future tech or large amounts of carbon offsetting to make the numbers add up. **Anthony Hurford** explores the issues with this approach and argues for action now rather than the promise of future action that may not actually work.

CAT's Zero Carbon Britain project was started in 2007, the 30th anniversary of An Alternative Energy Strategy for the UK, published by the Centre for Alternative Technology in 1977.

Zero Carbon Britain set out to find out if and how our society could balance its needs for energy without contributing to climate change. A few additional criteria were set, to make sure it didn't become too narrow a goal of greenhouse gas accounting.

Fundamentally we wanted to ensure sufficient energy was available at all times, and we wanted to do this while minimising risks and uncertainties by using only existing technologies. We felt it was important to keep an eye on health, and primarily that everyone had enough to eat and eat well. More broadly we wanted to maintain a decent standard of living, with key benefits of modern life. Recognising the accompanying crisis of biodiversity loss, we made making space for nature one of our criteria too. We also wanted to build greater resilience into all our systems to help respond to any unavoidable effects of climate change and other emergencies.

An expert team came together in this investigation, with rigorous debate around what the most plausible, feasible and desirable changes were. Computer models helped test the effects of different ideas on each part of the complex inter-related systems being considered in this holistic view of the UK economy. The result was not the only way our society could balance its various needs, but it represents an example of what's possible to stimulate conversation. It has proved inspirational to thousands of people across the country and the world over the last 14 years and finally people are starting to have some of the conversations we always hoped for.

The Zero Carbon Britain research envisioned a society in which greenhouse gas emissions from various energy-hungry sectors (building heating, lighting, hot water and appliances, transport and industry) were reduced

to zero (decarbonised). This was to be achieved in large part by reducing our demand for energy from the historically extraordinary levels we've become used to, then meeting these more reasonable needs using a diverse range of existing renewable technologies.

Some residual emissions, caused by hard to decarbonise industrial processes, reduced but not eradicated farming emissions and burning sustainable aircraft fuels at altitude (where they have a greater negative impact) were balanced by enhancing natural processes which absorb greenhouse gases. These processes are things like forest and grassland growth and peatland restoration and formation.

This balancing means this work provides a positive, practical vision of life at 'net zero'. 'Net' refers to the balancing itself, through which zero emissions are finally achieved – increasing absorption to counter only the residual emissions.

The key here is that this balancing occurs after extensive reduction in emissions, rather than to try and balance massive, existing, business-as-usual emissions, which is not possible. An alternative term, 'absolute zero', would mean that human activities needed to emit no greenhouse gases at all.

At the time when the Zero Carbon Britain research began, the UK had not yet established its Climate Change Act of 2008, requiring five yearly reviews of our progress in greenhouse gas emissions reduction. Net zero was a little used term, there were lower volumes of greenhouse gases already in the atmosphere – the ultimate cause of climate change – and more time to turn the trends around before catastrophic change became imminent.

It is the volume of gases which traps heat in the atmosphere, not the flow of gases into the atmosphere from human, biological and chemical processes. Net zero is all about the flow of gases into the atmosphere, whereas it is the quantity (or concentration) of these gases in the atmosphere which is crucial to how much the planet warms. Think of it like the level

of the water in a bath dictating whether it overflows, flooding the house, rather than the rate of flow into it (which can affect *when* it overflows).

The world has moved on and the UK government has committed to reaching net zero greenhouse gas emissions by 2050, with the Climate Change Committee established to advise the government on progress towards this goal and ways of achieving it.


One problem with this goal is that it doesn't address the key issue of concentrations of gas in the atmosphere, only flows into it. If we leave the taps on our metaphorical bath flowing at the same rate as today, then turn them off suddenly in 2050, we all understand that the bath will long since have overflowed. What is critical is understanding how much of the bath we still have left above the water line and how long the current flow (minus any removal by the overflow pipe – analogous to natural absorption processes) will take to fill the bath to the brim. This represents the concept of 'carbon budgets'.

If we imagine the taps on our bath are rusted and old and take a lot of effort and time to close, much like making changes to our established systems and ways of life, then we can understand that it's best to start closing them before the point when we need them to have stopped, i.e. the brim of the bath is reached by the water level.

We have to start reducing our greenhouse gas emissions immediately, otherwise the longer we wait, the more gases will accumulate in the atmosphere, increasing the warming and risking the reaching of tipping points. Tipping points include for example, the melting of permafrost, releasing large quantities of methane (a powerful greenhouse gas) into the atmosphere, or excessive melting of polar ice sheets which have so far reflected many of the sun's rays back out into space. Melting will allow those rays to further warm the planet instead.

Another problem with the government's net zero goal is it aims for 2050, when few of today's politicians will be around to face





***If we leave the taps on our metaphorical bath flowing at the same rate as today, then turn them off suddenly in 2050, we all understand that the bath will long since have overflowed.***

judgement on the success of their current policies to deal with the crisis and even if they were, the personal impacts of failure would be minimal.

Similar claims can be made about the voluntary net zero pledges of numerous companies, and especially those in polluting industries such as oil, coal and gas. Claims from fossil fuel producing companies, that their operations will be 'net zero' by any date in the future are farcical, in the face of the impacts of their products. It's as if gun makers were aiming for nobody to be killed in the making of their weapons. This isn't net zero, it's not zero.

Some propose carbon offsetting to achieve international goals, expecting the process of growing living things to naturally capture greenhouse gases to compensate for burning of the distilled and concentrated emissions from living organisms fossilised over millions of years. The processes involved simply don't match up in terms of the quantity of hazardous gases needing removal or the timescales for this occurring. Natural

processes can be enhanced and promoted to balance a certain quantity of emissions as we did in our Zero Carbon Britain analysis, but it's no fix-all solution. It isn't net zero, it's not zero.

Aiming for far off dates which are hard to imagine also allows the imagination freedom to conjure magical solutions with high levels of risk and uncertainty – the opposite approach to that used in the Zero Carbon Britain research. Betting all our futures on the promise of potential technological saviours seems all the more ridiculous when we have shown that the technologies already available could get us where we need to be, starting right now.

It is not 'high ambition' to aim for net zero emissions by 2030 or 2040 and meeting our carbon budgets, it is low risk. For all the high-tech super computing power humanity has poured into modelling the Earth's climate, there is still a large margin of error in these calculations owing to things we just don't fully understand about the mindbogglingly complex world we live

in. To extend the metaphor, we can't see the whole rim of the bath we're filling. Given what we have to lose from any spills, it would be wise to leave ourselves some 'headroom' for comfort – a common approach in many fields of engineering to account for unknowns and ensure safety.

In this context, the only time that matters is now. Not 2030, not 2040, not 2050. We need the mighty hands of governments all around the world, on the taps, squeaking them closed, and loudly calling others to the task. Now. [📢](#)

#### **About the Author**

*Anthony is CAT's Zero Carbon Britain Hub Project Manager. He has 20 years' experience of managing research and consultancy projects. His PhD and post-doctoral research developed stakeholder-led, design-thinking approaches to managing complex resource systems under climate change. He leads development of CAT's Resource Hub – freely available online inspiration, tools, guidance, training and more supporting action on the climate emergency.*



Airseal  
Boulder Boot  
Patent (Black)

Zoey Mega  
Boot (Black)



Caribou  
2 Boot  
(Brown)



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Boot (Black)



Snugge Boot  
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# The transport challenge

## – beyond electric cars

With the sale of new petrol and diesel cars set to be banned in the UK by 2030 the electric car market is ready to skyrocket, but does replacing like-with-like go far enough? **Joel Rawson** looks at the benefits and impacts of electric vehicles and explores ways of reducing overall car use.



Shutterstock/Simon Collins

**T**he electric vehicle (EV) industry is moving quickly. At some point this decade the cost of an EV is expected to drop below other cars, while lower running costs can already make an EV a better long term investment. Battery improvements mean drivers can now make a bigger carbon saving by going straight to a fully electric vehicle, without the stepping stone of a hybrid car.

However, just switching to EVs won't solve our transport problems. There are still manufacturing impacts (particularly for batteries), particulate emissions from tyre and road wear, and traffic congestion and road safety issues. Plus the cost of a new car is out of reach for many. This article covers some of the potential benefits and impacts, and how car sharing and e-bikes can enable efficient electric travel for more of us.

### **What are the carbon savings?**

There are many studies comparing the impacts of electric vehicles with petrol and diesel cars. The main finding is that fuel emissions dominate the lifetime carbon emissions for a conventional car. That's not only exhaust emissions, but also those during oil production, refining and delivery.

Carbon Brief has a useful factcheck drawing on various studies, comparing

emissions over a car life of 150,000km. An average petrol car led to about 260 grams of carbon dioxide per km (gCO<sub>2</sub>/km), with over 80% of that from fuel use. For a petrol hybrid, emissions were about 170gCO<sub>2</sub>/km. For an electric car they dropped to 95gCO<sub>2</sub>/km, with 30% of that due to charging up from the UK grid mix.

When comparing other studies, carbon emissions vary slightly depending on where the battery is manufactured, but remain much lower than for conventional vehicles. And they will reduce further with continued decarbonisation of the UK grid and of the energy used in manufacturing elsewhere.

### What about other pollution?

EVs don't have nitrogen oxide exhaust emissions, but they still cause particulate emissions from tyre wear, road abrasion and the churning up of particles in the car's wake. This all contributes to air pollution and to microplastics getting into soils and oceans.

A recent European Environment Agency report found that some researchers estimated similar particulate emissions for EVs and other cars, with most from non-exhaust sources. Whereas other researchers calculated much higher particulate emissions from petrol or diesel cars when using real-world exhaust emission data.

The picture also changes in urban areas, where stop-start driving means that brake dust can be about half of the particulate emissions. EVs cut the use of friction brakes greatly by using regenerative braking systems. This means much less wear of brake pads and so much less local urban pollution. Basically, regenerative braking uses the motor as a generator, slowing down the car by drawing energy from the turning wheels back into the battery.

Research will continue to help us evaluate these impacts, and to develop solutions such as better tyre materials. In the short term, pollution from an EV can be reduced by choosing the most durable tyres, and also the smallest and lightest vehicle for your needs.

### What about the batteries?

There are environmental and social impacts from the extraction of raw materials like copper, nickel, cobalt and lithium to make batteries. Last year the European Commission proposed a new regulation covering areas including the supply of raw materials,

manufacturing processes, and the collection and recycling of end-of-life batteries. Given the international nature of the car industry we'll need worldwide agreements like this to ensure that the carbon benefits of EVs don't come at the expense of workers or natural habitats.

In the last few weeks, the campaign groups Transport & Environment and Amnesty International published a joint paper calling for improvements to the EC regulation, in particular to the standards for mineral extraction, saying it must do *"more to ensure that human rights and the environmental concerns are not ignored in the energy transition."* The Deep Sea Conservation Coalition is calling for a moratorium on proposed deep-sea mining for the sort of minerals needed for batteries, before potentially irreversible damage is done.

### Alternatives to electric cars

Therefore, while EVs enable big reductions in carbon emissions and can also reduce other types of pollution, there remain issues to address. For a faster route to a zero carbon future it's important that we reduce car use whenever possible. CAT's Zero Carbon Britain scenario includes better provision for walking, cycling, and public transport – to reduce pollution, improve urban areas and make us all healthier.

Using EVs in car share schemes makes more efficient use of the cars and reduces the number needed. Electric bikes (loaned or owned) use a battery that's only a tiny fraction of the size needed for a car, but the power boost and extended range should enable many people to get out of a car and onto a much more efficient option for day-to-day travel. A lot of people will still find it very difficult to do without their own vehicle, but these options could allow many households to avoid buying a second car.

### Promoting e-bike use

Machynlleth-based Ecodyfi, just down the road from CAT, have set up a community e-bike scheme. The bikes are lent out to local people for everyday use, perhaps for a few days at a time, to help them drive less.

Project officer Freya Pryce explains more: *"We chose the conversion kits (motor and battery) according to advice from Drosi Bikes, and have been really pleased with those. We're finding that the conversion option gives us better value for money than buying a brand new ebike, as we could get the original bikes free or for little cost, and then buy a motor and*

*battery more powerful than those inside a new ebike for a similar cost. We also believe that the conversion option is more ecologically sound than a brand new ebike, as it is using more of what has already been made (a normal bike) and is more easily repairable."*

As well as Drosi Bikes and Cycle Dyfi for the conversions, Freya found the local Sustrans officers were very helpful on all the administrative aspects of setting up a bike share scheme.

### Car clubs


The 'Open Newtown' project is working to get EVs into local car clubs in Mid Wales, which adds big carbon savings on top of the boost to local mobility and efficient resource use that car clubs already give. You could look for nearby community-based car clubs, to see if they're interested in expanding to your town if you get enough local people signed up.

Or if you're starting a car club from scratch, the example of Llani Car Club in Llanidloes may be helpful. Founder Andrew Capel says: *"If you start with three or four people who want to share, the project can be financially sustainable from the start and you have breathing space while you wait for other people to catch on ... In a rural area it takes time because most people already have access to a car."*

Once the booking system is in place and more people start to join in, you should begin to see benefits from reduced car use.

Andrew adds: *"In my experience being a member of a car club teaches you how to use the car less, because you know how much each journey is going to cost, before you do it. That's why car clubs are a key part in tackling climate change and resource depletion."*

### Further information

I'll be adding more advice and links about sustainable transport to CAT's information service webpages ([cat.org.uk/info](http://cat.org.uk/info)), and I'd like to hear from you about any other useful links or resources you have found helpful when buying an e-bike or EV or developing a community transport project. 

### About the author

Joel Rawson is CAT's Information Officer, providing free and impartial advice on a wide range of topics related to sustainability. He first came to CAT to volunteer in 2001, and graduated with a CAT Postgraduate Diploma in 2013. You can email Joel at [info@cat.org.uk](mailto:info@cat.org.uk)



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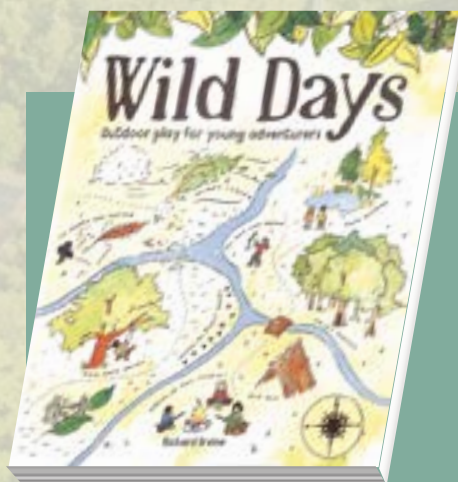


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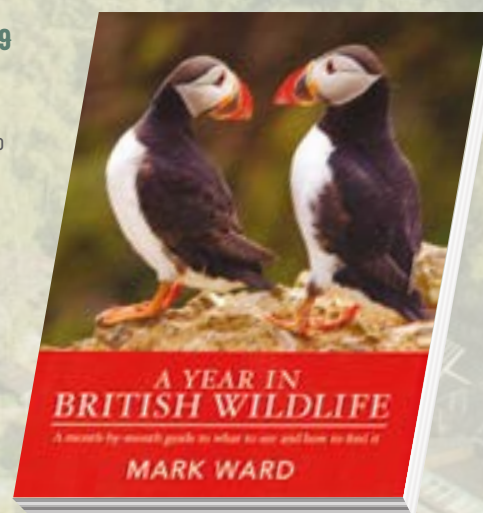
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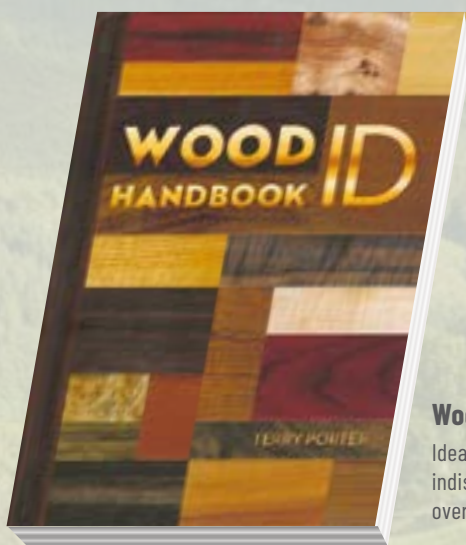
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# CAT conversations: Owen Morgan – award-winning renewable energy entrepreneur

As a founder of a multi-award-winning renewable energy business, Owen Morgan has spent over a decade working on climate solutions. **Alis Rees** caught up with him earlier this year to learn more about his work and to hear his 'CAT story'.

**Owen Morgan** is a graduate from one of CAT's early postgraduate courses in renewable energy and co-founder and Managing Director of Cambridge Solar. An award-winning company, Cambridge Solar has over 15 years of experience in installing and operating renewable energy systems, mainly solar PV.

In 2018 Cambridge Solar was awarded British Renewable Energy Installer of the Year at the Renewable Energy Awards, and British Renewable Energy Installer of the Year at the East of England Energy Efficiency Awards. Cambridge Solar was set up in 2009 with a vision "to be the UK's most customer-centric renewable energy company providing high quality, low carbon solutions that exceed customers' expectations while helping to reduce global carbon emissions."

Owen has strong historical ties with CAT having grown up locally in Machynlleth, along with current links through his sister Eleanor who is a long term volunteer in CAT's membership team. Earlier this year, he made time in his busy schedule to tell us more about his work and future plans and to share his 'CAT story'.



Cambridge Solar



**Alis Rees: What is your background and connection to CAT?**

**Owen Morgan:** Growing up in Machynlleth, from a young age I remember going up to CAT with friends and family to visit the site and some of the families that used to live there. Through seeing the people working on-site and knowing people locally, I knew about the different concepts and technologies that CAT was exploring.

I really became involved with CAT when I was a teenager working at the old Quarry Café and Shop in Machynlleth town. As an employee during my teenage years and university holidays I was able to take some of the CAT short or weekend courses in renewables like solar PV, hydro and wind.

I've always been interested in renewables so having CAT on the doorstep was great.

When I was 16, I received a science bursary to work with Dulas (a company originally founded at CAT in the 1980s) on the Dyfi Eco Park, who were working on their solar-powered vaccine fridge solutions. There I met a lot of the people who inspired me to work in the industry, including one who is now my fellow director and another an employee of Cambridge Solar.

After the experience of working at Dulas and exploring renewable technologies on CAT short courses, I went on to study an Engineering and Business Management (BEng) degree at the University of Warwick and during the summer holidays I used to come back and work at CAT, Dulas and Aber Instruments to get as much experience as I could in different elements of engineering and renewables.

**AR: And this led you to study a postgraduate course at CAT?**

**OM:** After finishing my undergraduate course, I went back to work in the CAT shop and met an ex-director of Dulas, Ian Tansley, who was setting up a solar company in Tywyn called Bright Light Solar. I went to work with them and at the same time began to study for my Masters at CAT.

The MSc was in 'Architecture: Advanced Environmental and Energy Studies' and was very flexible, as I could study at CAT for one week per month and continue working for Bright Light Solar gaining 'on the job' skills. The course was two years long, I graduated in 2009 and pretty much throughout the whole time I had been working full-time in the solar industry.

**AR: Were there any particular aspects of the course that have directly influenced what you're now doing?**

**OM:** One of the main things that I enjoyed from the course was meeting lots of people from all sorts of interesting backgrounds, of all ages and walks of life – and I made connections that are still with me.

It was really inspiring to be in the CAT environment for an intensive week of study with all these different kinds of people who shared similar views.

Most people on the course tailored their assignments to their interests, so there was a mix of students looking at things from Passivhaus, buildings and sustainable materials to the circular economy.

As we were able to really focus on our interests, I used my assignments to look at renewables and then explored and researched the solar PV market for my thesis, research that essentially prepared me for setting up my own company the following year.

**AR: So your thesis directly impacted the creation of your company?**

**OM:** Yes, as I was approaching my thesis I began to think about what I would do after graduating. One idea that I had was setting up my own solar PV company with a friend from university, but we needed funding to get the business off the ground. I found a small business competition run by the University of East London, who validate some of the postgraduate courses at CAT. We pitched our idea via Skype just before the deadline and were surprised to get through to the next stage of the competition.

For the next stage we needed a business plan, so I used my thesis as an opportunity to discuss and research the microgeneration industry in the UK. I looked at the solar PV market and small-scale renewable energy companies to see what was currently being offered, what was needed and what opportunities were available.

This allowed us to create a well-researched business plan, showing how we would position ourselves and understand our customers and what they were looking for.

Having spent months on my thesis, exploring the industry and our customers, I had real confidence in the business idea and we ended up winning the competition. We received £10,000 in funding, which is the only external funding we've ever had as a company.

**AR: And then Cambridge Solar began?**

**OM:** Even before I graduated, I was getting enquiries. I incorporated the business in 2009 but we started to get off the ground in 2010. I was really inspired by the businesses that had grown from CAT, like Dulas where the people involved played a big part in inspiring me to work in the industry and set up my own company.

After I graduated I moved to Cambridge. We began installing and immediately had a boom of interest because of the feed-in tariffs. We grew to around 10 staff in the first year, but since then the industry has fluctuated so the business has at times grown and shrunk in size in line with the market.

During one of the times when the number of sales had shrunk, I decided to move to Oxford to live with my partner. I set up another brand, Exeo Energy, to attract a customer base there, as people often want to choose a local solar company and I was not sure if the 'Cambridge Solar' brand would work as well in Oxford!

**AR: How has the cost of solar PV dropping impacted your business?**

**OM:** We managed to grow from just installing in Cambridge and Oxford to working on projects across the UK, and especially in Machynlleth. Mid Wales being a region for sustainability and growing up in Machynlleth meant I was always back visiting or working on projects, so setting up an office there seemed like a great idea. Ben Robinson, an ex Dulas director, joined me as a director in 2018, which is when we set up the Machynlleth office.

With the growth in enquiries and interest in solar PV because of the climate and biodiversity emergency we have managed to grow the team further, moving into the Hen Ysgol (Old School) in Machynlleth. Since the start of 2021, we have added ten new members of staff to the team and continue to work on projects across Oxford, Cambridge and Wales. We now employ 21 full-time members of staff and are looking to expand further.

**AR: You mentioned that you've seen a huge growth in enquiries since 2019. What are the main drivers currently for people having solar PV installed?**

**OM:** Since the feed-in tariffs finished in 2019 we have seen more organic growth in our enquiries and sales from people wanting to install solar PV for more reasons than just their financial benefit.



Other reasons include grid security and the more recent rising costs in electricity, but the most common driver we see now is climate change and the desire for people to reduce their own carbon footprint.

We're seeing people not only installing solar panels but also battery storage and EV charging at the same time, ensuring the technologies interact seamlessly with each other. The increasing media coverage and the urgency now required has really inspired people to take action.

**AR: What kind of projects are you currently working on?**


**OM:** We have carried out over 1000 installations since we started in 2009. We are most renowned for our domestic installations, but we've worked on projects across the UK and Mid Wales including village schools, the Cletwr community café in Tre'r Ddôl near CAT, commercial, farming and industrial projects, Royal Latin School, Diamond Light Source, office blocks in central London, and the one I'm most proud of is the Grade 1 listed building Great St Mary's Church in central Cambridge which is located next to Kings College.

By growing the company recently, we have an exciting opportunity to work on a larger number of projects and carry

out more commercial installations. We are also exploring what we can do to grow Welsh language within the business. We'd like to create a bilingual website and offer staff opportunities to use more Welsh so that we can offer services through Welsh, especially as our Machynlleth office grows and becomes more important to the local economy.

**AR: So you have plans on upskilling your staff as you grow?**

**OM:** We usually train our employees on the job as many of them don't necessarily have backgrounds as solar panel installers but have worked as roofers or in other renewable technologies. I've taken what I learnt at CAT on the short courses and in my masters and undergraduate degree to be able to upskill others. We have six full-time installers who have all learnt their installing skills working for us, and we hope to continue this as we grow the business.

To be able to achieve a net-zero future in Wales and the UK, we need to upskill and train more people to be able to install renewables or retrofit homes. Hopefully the employees of Cambridge Solar are helping with this, and the essential work CAT is doing to teach the skills and knowledge needed will aid in the rapid transition. 

## Cambridge Solar Timeline

**2009:** Owen starts Cambridge Solar

**2010:** Graduate Owen finishes CAT postgraduate course – Masters in Architecture: Advanced Environmental and Energy Studies

Cambridge Solar receive their first award from the E-Factor Business Competition run by the University of East London's Knowledge Dock and are awarded £10,000 to get the business off the ground.

**2016:** Owen sets up second business in Oxford called Exeo Energy

**2011-18:** Cambridge Solar and Exeo Energy continue to install Solar PV across Oxford and Cambridge and also work on projects in Mid Wales.

**2018:** Cambridge Solar is awarded British Renewable Energy Installer of the Year at the REA awards and British Renewable Energy Installer of the Year at the East of England Energy Efficiency Awards.

Winners of the East of England Solar PV Installer of the Year

**2019:** Winners of the East of England Solar PV Installer of the Year (again)  
Third office set up in Machynlleth in the Old Primary School

**2021:** The team has grown to 21 full-time members of staff with 8 people now based in the Machynlleth office.

### Find out more

For more information on Cambridge Solar and Exeo Energy visit their websites <https://www.cambridge-solar.co.uk/> and <https://www.exeoenergy.co.uk>.

You can also find more information about Solar PV on our website <https://cat.org.uk/info-resources/free-information-service/energy/solar-photovoltaic/>

If you have a CAT story to tell us then please contact us at [members@cat.org.uk](mailto:members@cat.org.uk). We love hearing about the work you're doing and how CAT's work has inspired you.

### About the author

*Alis is CAT's Graduate School of the Environment Marketing and Communications Officer.*



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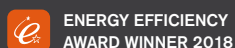
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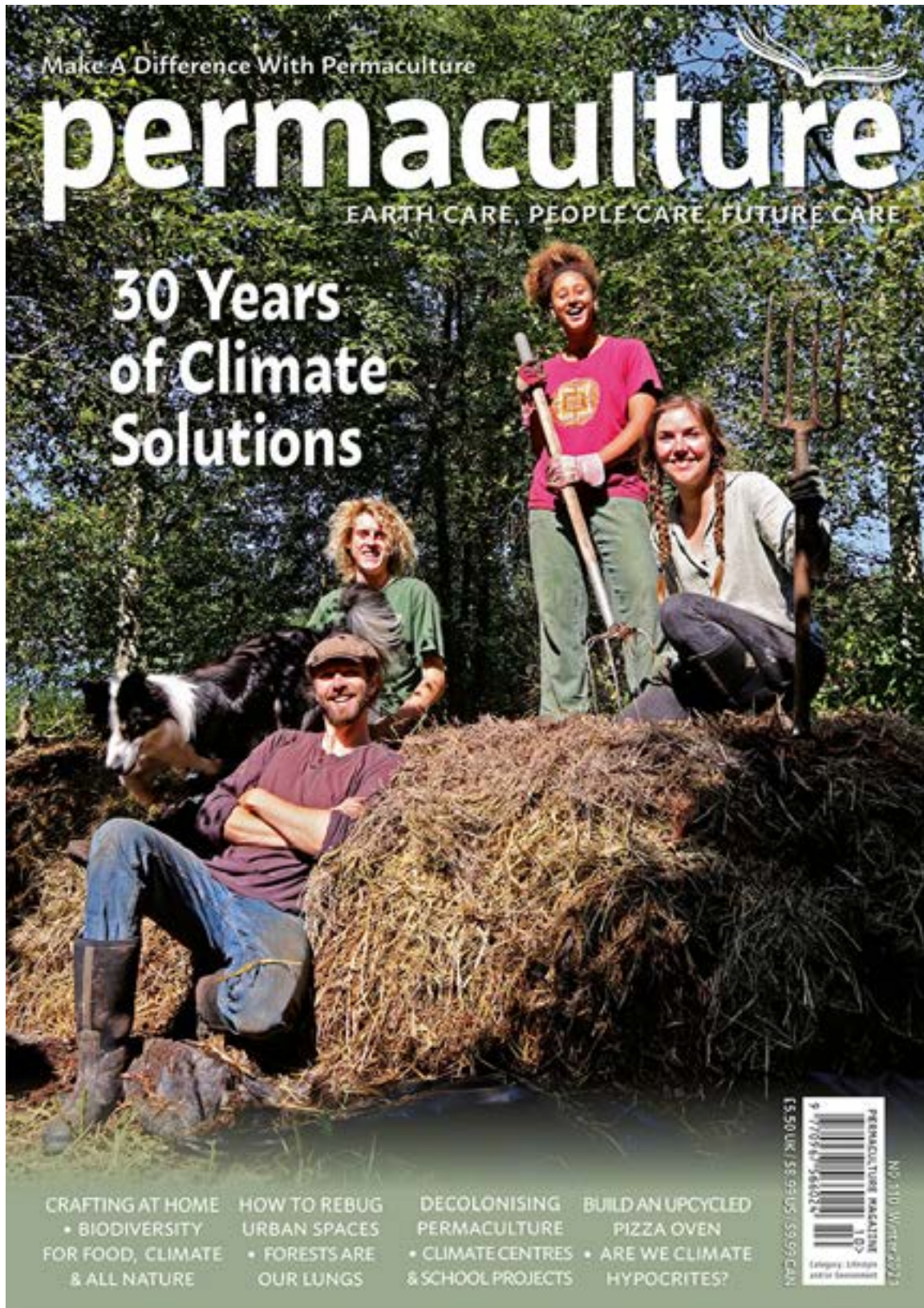


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# CAT STORIES

The ever-inspiring CAT community of members, supporters, students, graduates and volunteers are making a real difference across a wide variety of sectors, helping to tackle the climate and biodiversity emergency. Meet some of your fellow changemakers – and get in touch to tell us your CAT story!



**Patrick Osborne**

*“The practical, enthusiastic and instructive teaching given at the Centre for Alternative Technology has given me the best start to be part of the low carbon construction industry. The network of CAT graduates has also been a great asset. There has been an increase in interest in sustainability in the last few years, and many I am now working with have completed a course at CAT at some point! It has changed my way of thinking as well, to focus on how impactful decisions can be when designing or specifying for buildings.”*

Patrick's journey studying at CAT began in 2006 when he joined one of our first postgraduate degrees, before going on to study for CAT's Professional Diploma in Architecture.

For Patrick there were no comparable courses that specialised in sustainable construction and design, and the practical nature of our courses combined with academic teaching was also important to him.

Before studying at CAT he was a Part 1 Architecture student, having studied at Canterbury School of Architecture, and was working at a medium-sized practice on education and conservation projects.

He is now a chartered architect working on retrofit and decarbonisation projects for schools in London for community interest company, Retrofit Action For Tomorrow. He is also an assessor for the Retrofit Academy, assisting in training new Retrofit Coordinators. Other roles have included sustainability associate at an AJ100 architecture practice\*, and knowledge transfer partnership associate at Kingston University, working with a contractor to deliver zero carbon homes.

\*AJ100 is the Architects' Journal list of the 100 largest architectural practices in the UK.

Long-time CAT member Ro Randall is a psychotherapist who has been active in the climate movement since 2005. She is co-founder of the Carbon Conversations project and a founding member of the Climate Psychology Alliance. Ro has delivered a webinar and written a guest blog for CAT on coping with the climate crisis.

Ro says of her relationship with CAT: “I first came to CAT in 1984 to help deliver a course on co-operative ways of working. The director at the time walked me through the tunnel into the old quarry. It was nothing but grey, bare slate and it was eerily silent: no birds, no rustling wind amongst leaves, no crack of twigs underfoot. Our voices echoed off the rock. He pointed out the first, tentative signs of growth, and said 'Come back in thirty years and all this will be green.' I found it hard to believe but recently, exploring the now established Quarry Trail, I looked down through the abundance of leaves and trees, watched the kites soaring overhead and thought about his confidence that desolation could be recovered from.”

“In the aftermath of COP26, with all the anger and disappointment that is flowing through the environmental movement, I'm reminded of the CAT director's confidence, his faith in change, renewal and growth and how important this is. CAT is one of the places that for me embodies that confidence in change. It is one of the big strong trees in the eco-system of the environmental movement and I remain grateful for its shelter, its connections, its persistence and its inspiration.”

Ro is now working with Cambridge Climate Therapists supporting the local community in difficult times by listening to the fear and despair, finding the points of growth and nurturing collective action.



**Ro Randall, CAT member**

*We love hearing about the work you are doing, the groups you are forming and how CAT's practical work is guiding and inspiring you. Please get in touch to tell us what you are doing – we'd love to hear from you. Contact [members@cat.org.uk](mailto:members@cat.org.uk) with your CAT story.*

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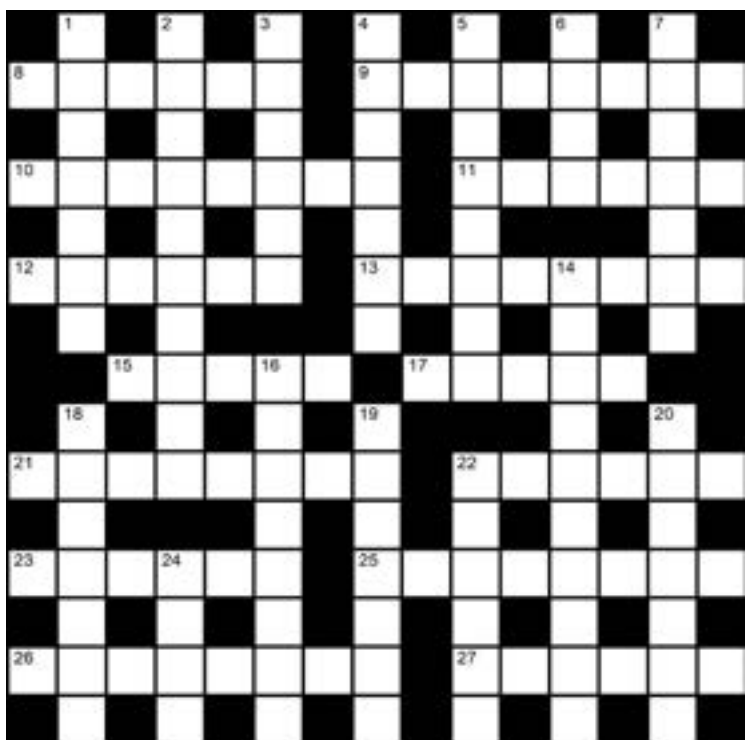
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Solution will be published in the next issue of *Clean Slate*.

121 winner: name and address supplied. The winner of 120 was **Roger Inverarity**, not Richard. Our apologies for this error.

## Across

- 8 Cake ingredient largely responsible for making vicar rotund (6)
- 9 Unwell and overweight, journalist could be doomed (3-5)
- 10/24 One who likes to go out and mingle, but not a woman (3-5-4)
- 11 You and I can't supply clothing for Italian (6)
- 12 Spanish leader not the first man in Spain to arrive at grave (6)
- 13 What curate glories in? Wipes out Sunday! (8)
- 15/17 Untimely advance made by dashing fellow (5,5)
- 21 Dance foxtrot as well as tango, taking the lead (8)
- 22 Groups first hit, 'Hush' back in charts (6)
- 23/19 Ultimately idle English twit, sober or drunk! (6,7)
- 25 Took remedy for indigestion orally before entering holy places? (8)
- 26 Tube dropping seed in below ground (8)
- 27 What one might struggle to move earth with? (6)
- 3 Light railways sought innovator to curb sore bottoms (6)
- 4 Conservative behind this endless memoir (7)
- 5 Such a small serving could make one's blood curdle (8)
- 6 Film containing many shots from an intense angle? (4)
- 7 Bar in Spanish city that's next to the mediterranean (7)
- 14 Great gran and grandpa extremely upset aunt moved nextdoor (10)
- 16 13 retains dances first seen in Africa (8)
- 18 Look! 25% off fashion magazine – such an elegant jumper? (7)
- 19 See 23 Across
- 20 It's Sooty and Sweep's problem (7)
- 22 Indian given to fast bowling and hitting pads (6)
- 24 See 10 Across

## Down

- 1 One might take umbrage with this soldier, upsetting the Spanish (7)
- 2 Cutting edge technology allegedly reproduced by committee (5,5)

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When I was eight years old, I remember dashing around winding paths of fresh wet leaves, straying from my mum into wild spaces and mole holes. I was a nature detective, bug and an explorer. From physical senses to my curiosity, something was sparked alive by my first CAT experience.


Fast-forward to 20 years old, I had left my second visit to the quarry site with a renewed sense of direction and purpose. My mind felt sharpened to the possibilities of where new skills and a passion for climate justice would take me. I wanted to know more, learn more and do more.

Nearly 10 years later again and I'm sitting here in the top flat of a stranger's home in Glasgow. It's the second week of the UN's 26th climate conference and there is a drizzly, somewhat mournful sky overhead. Yesterday, I listened to some first-hand, heart-breaking stories of a community affected by oil drilling in the wildlife-rich, protected wetlands of the Okavango Delta. Reflecting on this, I realise my own story is intrinsically connected to this, as abstract as the climate and ecological crisis can seem from comfortable homes in the UK.

We all have the stories we tell ourselves. We want to do something but we don't always have the capacity, the time, the funds or the optimism. This is why I want to talk about legacy giving. It's a special kind of giving because it offers hope and a vision for the future.

It takes stock of the road ahead and offers a better way to be part of the narrative. It concedes that one generation inevitably impacts the next but that we can make this impact the right way. We must secure some kind of future for our children and their children to come.

CAT has been part of this story for half a century, and is at COP26 to proudly represent the diverse community of volunteers, staff, campaigners and key supporters like yourself who want to see real action and positive, tangible change. We all agree that a shift to zero carbon is the cornerstone of any solution to climate breakdown.

How do we link this distant goal to what needs to happen now? Through education and practical solutions, leading to measurable action and change. A gift in your will to CAT will do just this. It is as easy as leaving 1%, once your own family and loved-ones are catered for. You can play a critical role in saving our planet, without compromising on your current needs or the future needs of your loved ones. Please contact me at [freya.randall@cat.org.uk](mailto:freya.randall@cat.org.uk) to find out more and join CAT's story. 

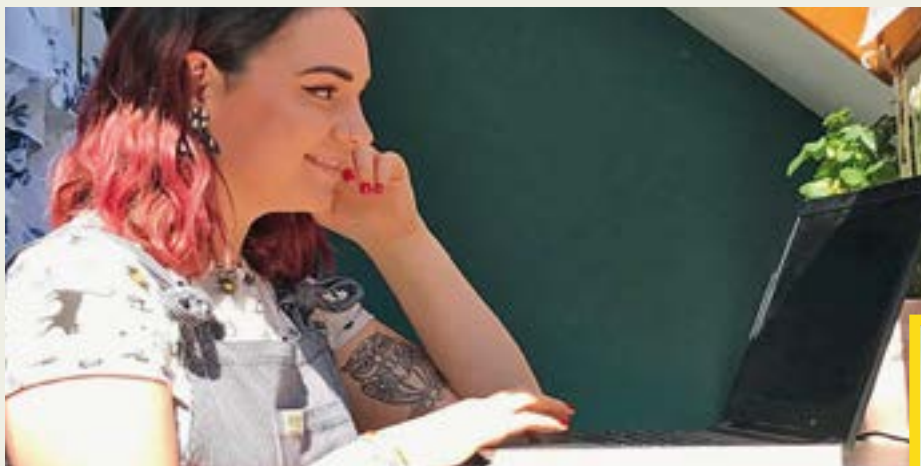


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