Centre for Alternative Technology
Canolfan y Dechnoleg Amgen

Paris climate talks

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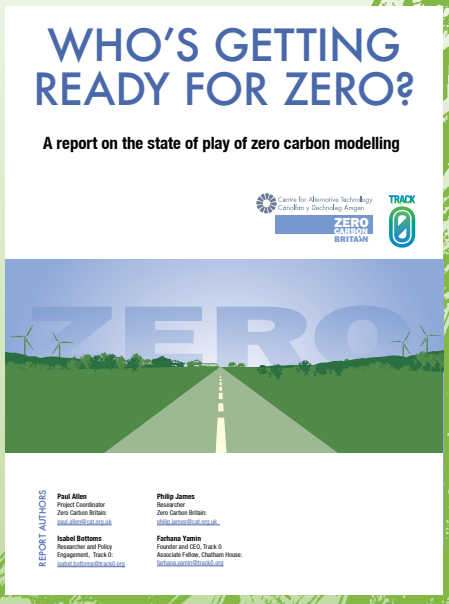

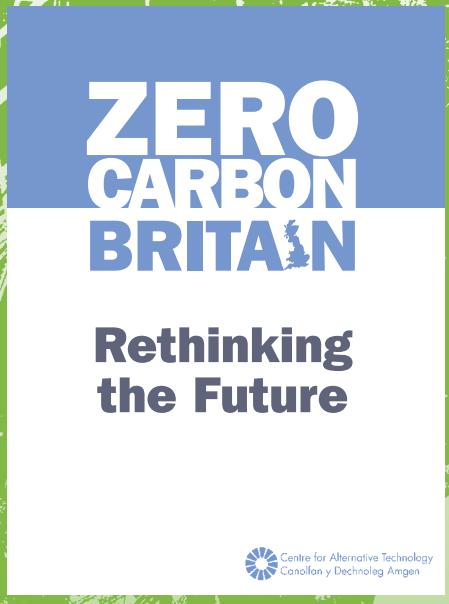

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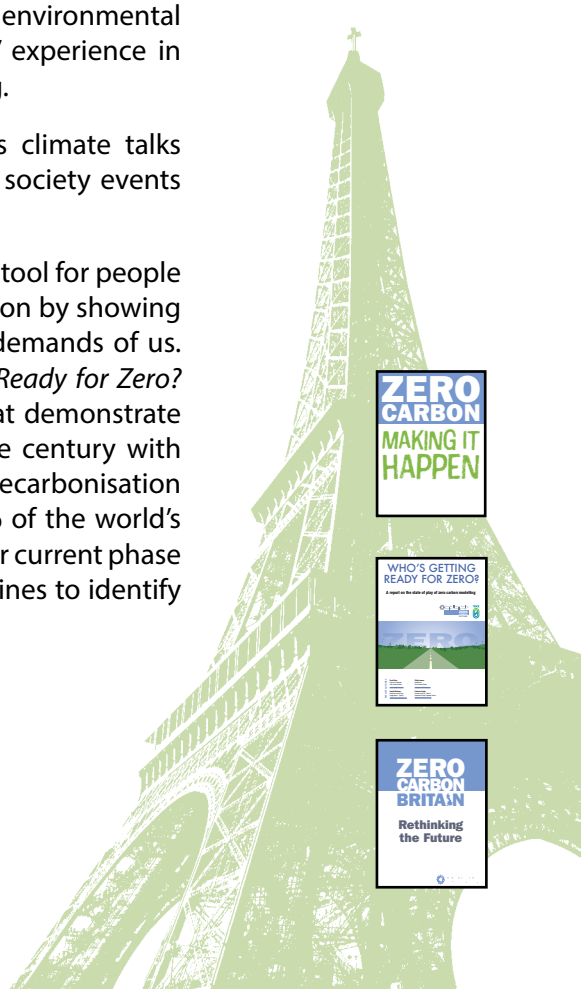
CAT and the Paris climate talks

The Centre for Alternative Technology (CAT) is one of the world's leading environmental education charities. Based in Mid-Wales, the Centre has over 40 years' experience in informing, inspiring and enabling practical solutions for sustainable living.

The Centre for Alternative Technology is attending the UNFCCC Paris climate talks (COP21), hosting side events within the climate conference and at civil society events being held across the city of Paris.

CAT will be offering its ground breaking zero carbon research project as a tool for people active both inside and outside the official negotiating hall to raise ambition by showing we have all the technologies we need to do what the climate science demands of us. The work we will present includes the recently released *Who's Getting Ready for Zero?* The latest report from CAT draws on results from over 100 scenarios that demonstrate how we can reach low or zero emissions before the second half of the century with existing technology, without harming social or economic development. Decarbonisation scenarios include 16 of the world's largest emitters, responsible for 75% of the world's carbon emissions. CAT will also be presenting some initial findings from our current phase of research *Zero Carbon: Making it Happen*, which looks across the disciplines to identify the key barriers and how we can overcome them. ◆



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Media services

CAT officers will be present at the climate talks and are able to provide a range of media services, including:

- Spokespersons for CAT and the Zero Carbon Britain project include Adrian Ramsay, CEO of CAT and Paul Allen, Zero Carbon Britain Project Coordinator (see page 6 for spokesperson biographies).
- Expert information and commentary on all aspects of sustainable technologies, including the policy environment. Areas of expertise include renewable energy, sustainable architecture, land use and transport.
- Case studies of and contacts for pioneering projects that aim to reduce greenhouse gas emissions, tackle fuel poverty and provide clean green energy.
- High quality images of sustainable technologies in action.
- Our Twitter and Facebook feeds will be closely following events both inside and outside the climate talks. We will be using the opportunity of the climate talks to showcase decarbonisation scenarios from across the globe on our social media channels.
- We can provide Welsh language interviews. ◆

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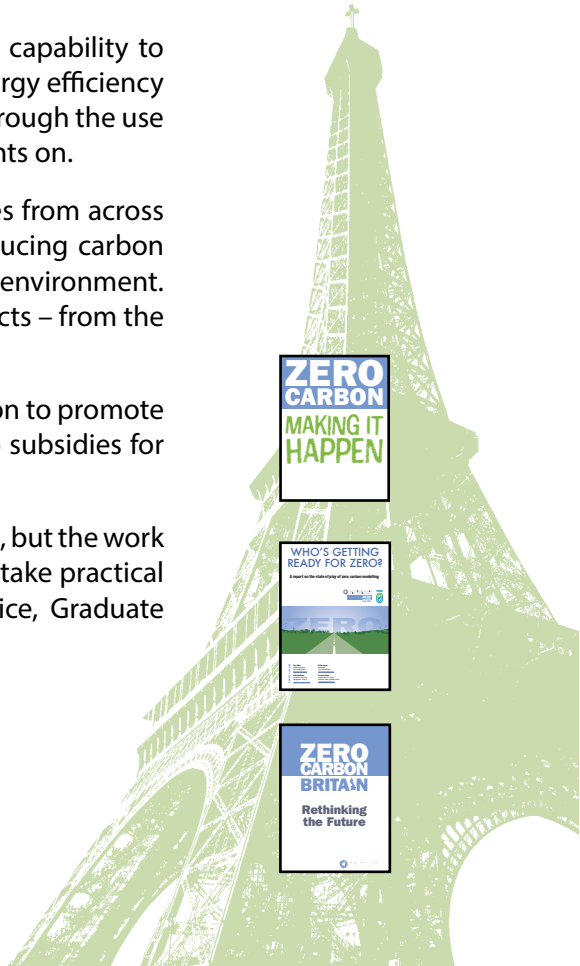
CAT's key messages

- Climate targets so far submitted by governments to the UN collectively lead to global emissions far above the levels needed to hold warming to below 2°C. INDCs (Intended Nationally Determined Contributions) need to be considerably strengthened if the Paris talks are going to achieve the necessary commitments on climate change.
- Climate science shows that the human influence on the climate system is clear and growing, with impacts observed on all continents. Climate change will increase the likelihood of severe, pervasive and irreversible impacts for people and ecosystems. The rapid reduction of carbon emissions to zero can ensure that the impacts of climate change remain within a manageable range, creating a brighter and more sustainable future.
- We have the technological capacity to get to net zero greenhouse gas emissions. CAT and Track 0's *Who's Getting Ready for Zero?* report brings together decarbonisation scenarios from across the globe, including 16 of the world's largest emitters. The report shows that we can reach low or zero emissions before the second half of the century with existing technology, without harming social or economic development.
- CAT and Track 0 are building a new network to support zero modelling practitioners to enable the development of long-term scenarios and decarbonisation strategies. The climate talks in Paris offer a fantastic opportunity to link up with other organisations and individuals who are working towards the creation of a zero carbon, climate resilient world.
- Our *Zero Carbon Britain* report shows that we have the technological capability to get to zero emissions by reducing energy demand by 60% through energy efficiency measures and powering up our energy through a mix of renewables. Through the use of synthetic gas and liquid, power can be stored so we can keep the lights on.
- CAT is a solutions-based organisation. There are thousands of examples from across the globe where people are taking matters into their own hands, reducing carbon emissions, generating power and building a healthier, more sustainable environment. CAT can provide case studies and contacts for a range of different projects – from the local to city-wide.
- CAT supports the development of renewable energy as part of its mission to promote a zero carbon society and as such is critical of recent proposed cuts to subsidies for renewable energy development by the UK Government.
- The Paris climate talks are an important stepping stone to getting to zero, but the work will carry on long after the climate talks finish. CAT supports people to take practical action for sustainability through our visitor centre, information service, Graduate School of the Environment and short courses. ◆



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CAT presence at climate events

Climate Demonstration London, 29 November

CAT and supporters will be present at the climate march in London on 29 November behind the banner of *Zero Carbon: Making it Happen*.

UN Climate Conference, 30 November to 11 December

Exhibition alongside AIWC, INFORSE and the Nordic Folkecentre for Renewable Energy.

UNFCCC COP21 Side Event, 3 December
Observer Room 4, Time: 16:45 -18:15

Fair Low/Zero Carbon & 100% RE Strategies.
Showcasing low and zero emission strategies and scenarios with 100% renewables, women's initiatives and eco-village development solutions for poverty reduction in Europe, Africa and South Asia, as ways for operationalising the Paris Agreement and the pathways leading from it.

Climate Generations Areas, 10 December
Room: Salle 2, Time: 11:15-12:45

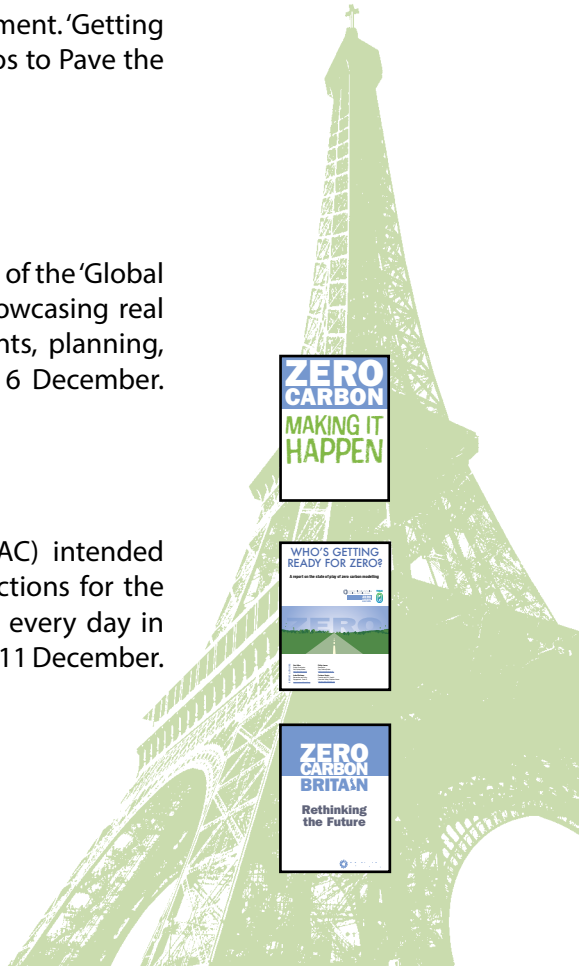
Side Event at the Climate Generations area organised by the French Government. 'Getting Ready for Zero Emissions and 100% Renewable Energy: Plans and Scenarios to Pave the Way'. More information at cop21.gouv.fr/en

People's Climate Summit, 5-6 December
Eastern suburb of Montreuil

The People's Climate Summit is the main alternative summit and will consist of the 'Global Village of Alternatives' (an expo-style event, organised by Alternatiba, showcasing real solutions) and the 'Climate Forum' (a space for workshops, debates, events, planning, etc), as well as a peasants' market. CAT will be running a workshop on 6 December. coalitionclimat21.org/en/peoples-climate-summit

Climate Action Zone, 7-11 December, Le Centquatre

There will be daily general assemblies in the 'Climate Action Zone' (ZAC) intended to reflect and analyse the day's news from inside the COP, and discuss actions for the following day. There will also be legal briefings and trainings happening every day in this convergence space. CAT will be running workshops at 2pm on 8 and 11 December. coalitionclimat21.org/en/climate-action-zone ◆



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CAT spokespersons' biographies

Adrian Ramsay

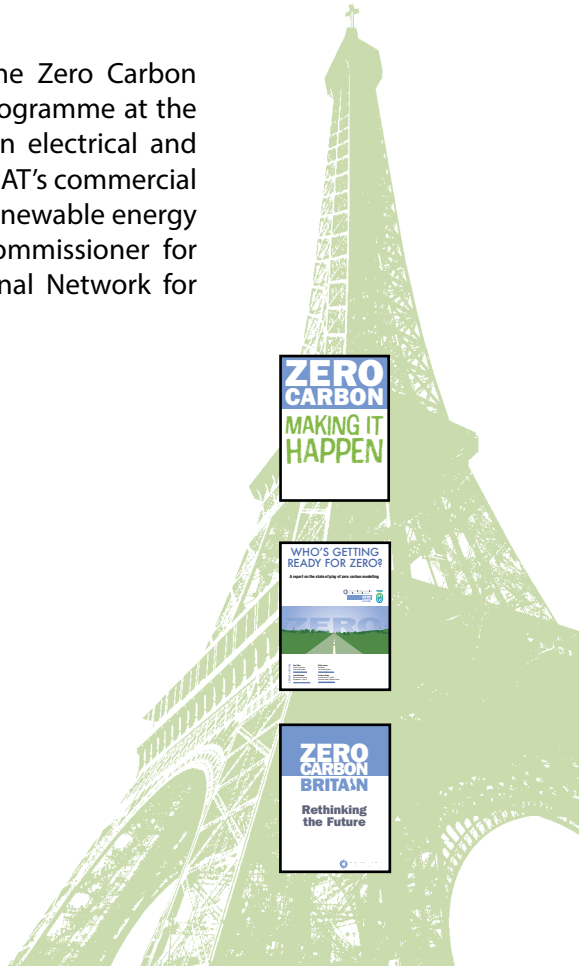
Adrian Ramsay is the Centre for Alternative Technology's Chief Executive. He studied at the University of East Anglia, where he gained a First Class degree in Politics and Sociology and then a Masters degree in Politics.

Mr Ramsay served as a Green Party City Councillor in Norwich from 2003 to 2011 playing a leading role in building up Norwich Green Party to become one of the most successful local Green Party groups in the country. Mr Ramsay was also Deputy Leader of the Green Party of England and Wales from 2008 to 2012, working alongside Caroline Lucas as the Green Party's first formal leadership team.

Mr Ramsay has also worked as a consultant for the Local Government Association and more recently as a lecturer in CAT's Graduate School of the Environment.

Paul Allen

Paul Allen is Project Coordinator for the Zero Carbon Britain research and communications programme at the Centre for Alternative Technology. As an electrical and electronic engineer, he helped develop CAT's commercial offshoot, Dulas Ltd, a world-renowned renewable energy company. Paul is a Climate Change Commissioner for Wales and a member of the International Network for Sustainable Energy. ◆



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Press release 1:
Who's Getting Ready for Zero?

Release date: 1 September 2015

Leading environmental organisations Track 0 and the Centre for Alternative Technology launch ground-breaking new report.

Download the report here: http://www.zerocarbonbritain.org/ready-for-zero

As international negotiations around the UN Framework Convention on Climate Change (UNFCCC) ramp up, and a new agreement is expected Paris in December 2015, this timely new report *Who's Getting Ready for Zero?* maps out how different actors at national, regional and city levels have already shown how to eliminate greenhouse gas emissions (GHGs) on science-based time-frames.

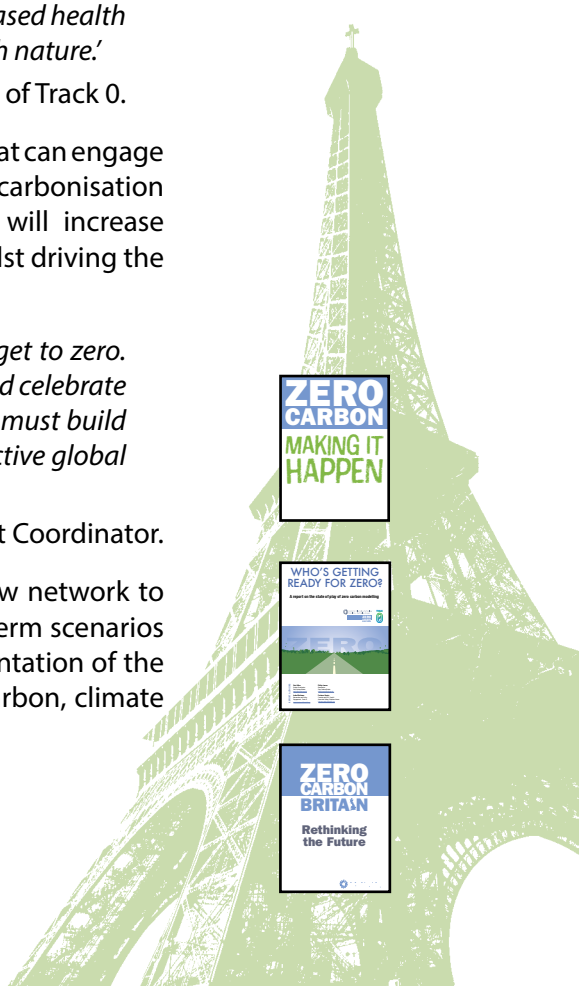
The report draws on results from over 100 scenarios that demonstrate how we can reach low or zero emissions before the second half of the century with existing technology, without harming social or economic development. Decarbonisation scenarios include 16 of the world's largest emitters, responsible for 75% of the world's carbon emissions.

> *'Achieving zero is about more than emissions; the report also highlights a range of co-benefits such as a better, more stable economic system, greater equity, increased health and well-being, strengthened communities and improved relationships with nature.'*
>
> Farhana Yamin, report co-author and CEO of Track 0.

Conclusions from the report show that scenario building is a powerful tool that can engage stakeholders and citizens. More work is needed to develop long-term decarbonisation strategies and to share results within and across countries. Doing so will increase confidence in a country's nationally determined climate commitments, whilst driving the powerful actions, targets, incentives and legislation that are needed today.

> *'This report is very much a first cut at mapping out who is doing what to get to zero. Whilst further work needs to be done to fill in gaps, we must join together and celebrate the exciting progress already being made in mapping the path to zero. We must build the practitioners' community at a global, national and city scale for a collective global push for a zero emissions world by mid-century.'*
>
> Paul Allen, report co-author and CAT's Zero Carbon Britain Project Coordinator.

The concluding recommendation of the report is for the creation of a new network to support zero modelling practitioners to enable the development of long-term scenarios and decarbonisation strategies. This network could underpin the implementation of the Paris agreement by engaging citizens and stakeholders to create a zero carbon, climate resilient world. ◆



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Press release 2:

Emission reduction targets don't add up to a safe climate, warns Centre for Alternative Technology

Release date: 1 October 2015

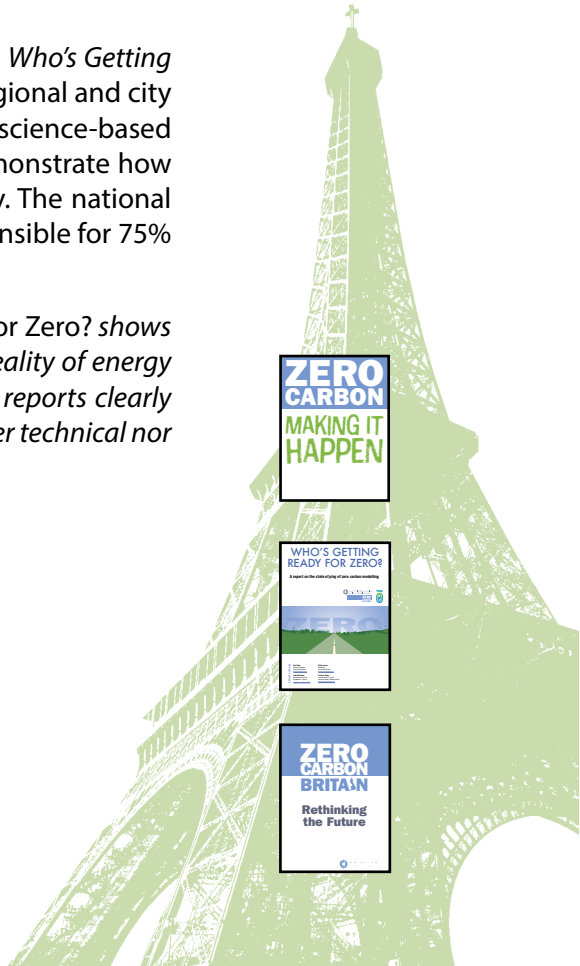
Energy modellers at leading environmental charity, the Centre for Alternative Technology (CAT) say governments must pledge to reduce emissions further, and draw on their report *Who's Getting Ready for Zero?* to demonstrate that zero is possible.

1 October 2015 marks the deadline for countries to submit their emissions reduction targets for 2025 and 2030, known as INDCs (Intended Nationally Determined Contributions), ahead of the Paris climate talks, being held in December 2015.

Paul Allen, Zero Carbon Project Coordinator at CAT said: *'The climate targets so far submitted to the UN by governments collectively lead to global emissions far above the levels needed to hold warming to 1.5 degrees. The science demands global emissions must head to zero as quickly as possible. Big emitters like the EU, US, China, Japan and Australia need to make much deeper cuts to their greenhouse gas emissions.'*

The Centre for Alternative Technology alongside Track 0 recently released *Who's Getting Ready for Zero?* – a report mapping out how different actors at national, regional and city levels are already working out how to develop and decarbonise using science-based timeframes. The report draws on results from over 100 scenarios that demonstrate how we can reach low or zero emissions before the second half of the century. The national decarbonisation scenarios include 16 of the world's largest emitters, responsible for 75% of the world's carbon emissions.

Dr Philip James, energy modeller at CAT said: *'What* Who's Getting Ready for Zero? *shows is that there is a growing body of robust, peer-reviewed work, rooted in the reality of energy systems, which shows that INDCs can be much more ambitious. What these reports clearly demonstrate is that the greatest barriers to the conversion described are neither technical nor economic, they are social and political.'* ➔



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The following countries all have decarbonisation scenarios that show how they can reduce greenhouse gas emissions (GHGs) and power up using renewable energy. Their INDC targets fall significantly short of where they need to be in order to keep global temperatures from rising above 1.5 degrees Celsius. However there are also some positive examples, as illustrated by Costa Rica.

Japan: INDC target – GHG reduction of 26% below 2013 levels by 2030

Following the Fukushima disaster in 2011, the report *A sustainable energy outlook for Japan* was produced for Greenpeace by a team comprising the Institute for Sustainable Energy Policies, Tokyo, Japan; the Institute of Technical Thermodynamics, Stuttgart, Germany; and the Institute for Sustainable Futures, Sydney, Australia. It demonstrated that:

- Japan could still meet its pledge of reducing GHG emissions by 25% below 1990 levels by 2020, and go on to reduce CO_2 emissions by around 75% from 2007 levels by 2050
- By 2050 energy demand would be reduced by around 50% and the majority of energy would come from renewable energy sources such as geothermal, solar, biomass, wind and hydro
- It is also estimated that the scenario would create hundreds of thousands of jobs in Japan

Australia: INDC target – GHG reduction of 26-28% from 2005 levels by 2030

Decarbonisation scenario produced by Beyond Zero Australia coalition shows that:

- The key technologies for Australia are concentrating solar power and wind power
- Moving to a 100% renewable stationary energy system is possible over a ten-year period
- The investment required for the stationary energy plan represents 3% of Gross Domestic Product over the ten years

USA: INDC target – GHG reduction of 26-28% below 2005 levels by 2025

The Solutions Project presents science-based roadmaps for each of the 50 United States to reduce energy demand and switch to 100% renewable energy systems. The project shows that:

- All new energy sources can be renewable by 2020, with 80-85% replacement of fossil fuels by 2030, and a 100% renewable energy system by 2050
- Around 4.5 million 40-year construction jobs and around 2.2 million 40-year operation jobs could be created for the energy facilities alone, exceeding job loss of 3.9 million
- The greatest barriers to the conversion described are neither technical nor economic, they are social and political

EU: INDC target – GHG reduction of 40% below 1990 levels by 2030

Scenarios such as the UK's Zero Carbon Britain, Denmark's Vedvarende Energi and the German Kombikraftwerk project show that EU nations can make a rapid transition to 100% renewable energy systems. Along with other studies, they show that:

- The EU can be powered by 100% renewable energy systems, using its resources of wind, sun, hydro and biomass
- Energy storage and demand management, along with back-up power stations using biomass and biogas can ensure that a renewable energy powered EU has stable electricity grids and can meet its demand at all times
- Large potential exists to improve the EU's energy efficiency, for example in buildings and transport, and much heating and transport can be switched to highly efficient systems powered by clean electricity

China: INDC target – lower the carbon intensity of GDP by 60-65% below 2005 levels by 2030

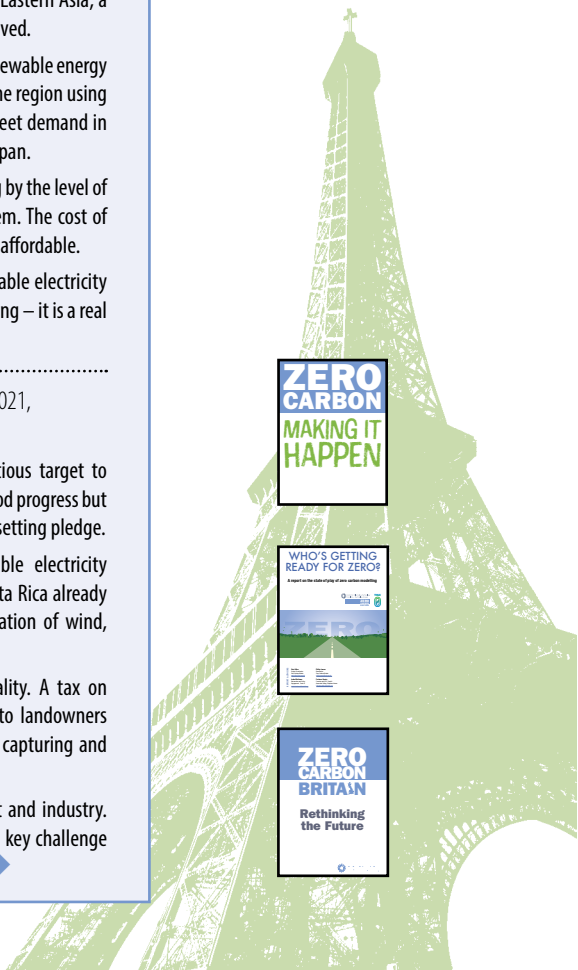
A study by universities in Korea, Mongolia and Finland has shown that even in the highly industrial region of North Eastern Asia, a 100% renewable electricity system could be achieved.

- It shows that North-East Asia has excellent renewable energy potential which could, if distributed around the region using a high voltage direct current transmission, meet demand in highly populated areas of China, Korea and Japan.
- Three different scenarios are explored, varying by the level of centralisation or decentralisation of the system. The cost of electricity in all these scenarios is found to be affordable.
- The researchers conclude that a 100% renewable electricity system in North-East Asia is not wishful thinking – it is a real policy option.

Costa Rica: INDC target – carbon-neutral by 2021, conditional on getting external financial support

The Costa Rican government has set the ambitious target to achieve carbon neutrality by 2021. It is making good progress but will need additional policies to achieve this pace-setting pledge.

- It has a target to achieve 100% renewable electricity generation and is making good progress. Costa Rica already gets over 90% of electricity from a combination of wind, hydro, and geothermal.
- Land use is key to achieving carbon neutrality. A tax on petrol in the country is used for payments to landowners for growing trees and protecting the carbon capturing and highly biodiverse rainforests.
- Fossil fuels are still relied upon for transport and industry. Decarbonising the transport sector remains a key challenge for Costa Rica to achieve carbon neutrality.



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Low carbon case studies

CAT can provide case studies of, and contacts for, pioneering projects that aim to reduce greenhouse gas emissions, tackle fuel poverty and provide clean green energy.

A range of examples are outlined below.

Zero Carbon Sønderborg

In 2007, the small Danish town of Sønderburg launched Project Zero. Their aim is to be emission-free by 2029. In practice, this means a shift to renewable energy and energy efficiency measures through initiatives that include the establishment of new on- and off-shore wind turbines and the introduction of biogas in transport and manufacturing processes to replace oil and natural gas.

Copenhagen – the first carbon-neutral capital by 2025

This scheme will integrate energy and power resources to an even greater level and will enable Copenhagen to become the world's first carbon-neutral capital by 2025. The city intends replacing coal with biomass, to add 100 wind turbines and solar electricity to the grid, and to upgrade high energy use buildings. Local residents will be encouraged to use bikes and public transport to an even greater degree.

Passivhaus

Passivhaus refers to a rigorous, voluntary standard for energy efficiency in a building, reducing its ecological footprint. It results in ultra-low energy buildings that require little energy for space heating or cooling. CAT student, Janet Cotterell has opened the Passivhaus Store to offer technical support and access to energy efficient materials and products. She has developed the Passivhaus timber frame system, the PH15 Kit – a Passivhaus suitable construction system that would enable builders to achieve leak free and thermal bridge free houses as simply as possible, supported with appropriate training modules. The story would include diagrams and case studies from projects using the PH15 kit.

LILAC - Low Impact Living Affordable Community

Lilac is a co-housing project built in response to three keys issues: the financial crisis, the threat of global warming and the breakdown of local community. The homes are designed by the architects White Design and are the first residential buildings to use Modcell – prefabricated 'cells' built of timber, straw bales and lime.

Lammas Eco Village

Lammas is a land-based community in Pembrokeshire set up in 2009. It consists of nine smallholdings positioned around a community hub building, and it is supported by a range of peripheral projects and networks. Local materials were used for the buildings, which feature straw bale walls and roof, hydropower providing underfloor heating, passive solar and biomass. The building power is entirely off-grid and runs on renewables.

Remote controlled microgrids for rural areas

Lake Victoria's fishing villages and other rural communities in Kenya are benefiting from clean light and power for the first time, thanks to renewable energy micro-grids. Using the natural energy of the sun, they work like mini power stations for each village, supplying enough energy to run small businesses, as well as power TVs, radios and bright lights in the home.

Bro Dyfi Wind Turbine

Situated near Machynlleth, Bro Dyfi installed two wind turbines using money raised from community share offers. Their first community owned wind turbine, installed in 2003, is a Vestas V17 75kW second-hand generator from Denmark, and the second a NORDTANK 500kW machine. Investment was raised from a share offer and with grant funding support from Scottish Power Green Energy Trust, the Energy Saving Trust and Ecodyfi. To date the turbines have generated over 4,1010,900 kWh of power and saved 4,100,000 of CO2 emissions. The turbines provide an estimated annual income of £31,000 for community members and groups.

The Dingwall Wind Co-op

The Dingwall Wind Co-op operates a 250kW wind turbine just above Dingwall in Ross-shire. The turbine is the first 100% co-operatively owned wind development in Scotland. The co-op was launched in September 2013 and the turbine was commissioned in June 2014. There are 179 members of the co-op, 90% of whom are from the local area. The co-op will contribute to a community fund estimated at between £2000 and £8000/year. Members of the co-op receive a good return on their investment and EIS tax relief. The landowners, who originated the project, receive a rental payment for use of their land.

The Abergwaun Community Turbine

Abergwaun is the first community wind turbine project in Wales supported by the Welsh Government's Community Renewables Programme Ynni'r Fro, to reach installation stage. The Endurance X-29 225kW turbine will output approximately 530,000 KWh per year – the equivalent of powering approximately 130 homes. Annual carbon savings will add up to around 290 tonnes of CO2 as compared to the equivalent generation from fossil fuels. Income generated for local community projects will be in the region of £40k per annum.

Bristol City Council's wind turbines

Bristol City Council is the first local authority in the UK to develop and own wind turbines. The two 2.5MW N100 turbines are predicted to generate 14.4 gigawatthours (GWh) annually. The council wants to meet national and local carbon reduction targets. The income stream can be used to finance other energy or environment projects, support core services or keep council tax low ◆