

Residency resources 2021

Decarbonising heat

Decarbonising heating - techniques

A quick guide to low carbon heat:

<https://energysavingtrust.org.uk/1a-quick-guide-to-low-carbon-heating/>

Regen Decarbonisation of Heat paper

<https://www.regen.co.uk/wp-content/uploads/Regen-Heat-Paper-WEB2-Single-Page.pdf>

Carbon Co-Op: The energy system

<https://oldhamenergyfutures.carbon.coop/learning-best-practice/>

Hydrogen

LETI paper on hydrogen for heating

https://b80d7a04-1c28-45e2-b904-e0715cface93.filesusr.com/ugd/252d09_54035c0c27684afca52c7634709b86ec.pdf

The independent - Chair of UK hydrogen body quits over support for fossil-fuel dependent 'blue hydrogen' championed by Tories

<https://www.independent.co.uk/climate-change/news/blue-hydrogen-association-chair-quits-b1905437.html>

The Guardian: Is hydrogen the solution to net-zero home heating?

<https://www.theguardian.com/science/2020/mar/21/is-hydrogen-the-solution-to-net-zero-home-heating>

Switching to low carbon heating requires urgent action and leadership – discussion on whether hydrogen is a delay tactic

<https://greenallianceblog.org.uk/2021/05/12/switching-to-low-carbon-heating-requires-urgent-action-and-leadership/amp/>

ENA (network organisation made up of the electricity and gas networks) – gas goes green

<https://www.energynetworks.org/creating-tomorrows-networks/gas-goes-green>

Carbon Capture

Understanding carbon capture and storage

<https://www.bgs.ac.uk/discovering-geology/climate-change/carbon-capture-and-storage/>

How carbon capture works

<https://science.howstuffworks.com/environmental/green-science/carbon-capture.htm#pt1>

Bio Methane

Outlook for Biogas and Biomethane

<https://www.iea.org/reports/outlook-for-biogas-and-biomethane-prospects-for-organic-growth/an-introduction-to-biogas-and-biomethane>

What is Biomethane?

<https://www.biomethane.org.uk/>

Heat Pumps

The future of heating in the UK: heat pumps or hydrogen?

<https://energysavingtrust.org.uk/the-future-of-heating-in-the-uk-heat-pumps-or-hydrogen/>

George Clarke introduces the Mitsubishi Electric Ecodan *Air Source* Heat Pumps (ASHPs)

- really a brand ad, but still does well to explain ASHPs

<https://www.youtube.com/watch?v=chbdKPODwoo>

Kensa (Cornish company that make ground source heat pumps and we've done a paper for) - How A *Ground Source* Heat Pump Works

- quite a technical description, but good to note that this is the kind of media that is out there... I think George Clarke does a better job of explaining the technology as 'reverse fridge'.

<https://www.youtube.com/watch?v=KE3SvNRmwcQ>

Rethinking Heat

<https://www.regen.co.uk/publications/rethinking-heat/>

BHESCo, What is an air source heat pump?

<https://bhesco.co.uk/blog/air-source-heat-pump-sussex>

Octopus on installing heat pumps

<https://www.bloomberg.com/news/articles/2021-10-16/plumber-army-training-to-cut-emissions-from-u-k-home-heating>

Solar Thermal Heating

Energy Saving Trust: Solar water heating

<https://energysavingtrust.org.uk/advice/solar-water-heating/>

ISO: Solar thermal

<https://www.isoenergy.co.uk/solar-thermal>

District heating

<https://energysavingtrust.org.uk/what-district-heating/>

<https://www.heattrust.org/resources/2-general/112-what-is-a-heat-network>

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/696273/HNIP_What_is_a_heat_network.pdf

What is going wrong with heat networks?

<https://www.insidehousing.co.uk/insight/insight/what-is-going-wrong-with-heat-networks-71403>

Helsinki bets on electrification to decarbonise heating

<https://www.euractiv.com/section/energy/news/helsinki-bets-on-electrification-to-decarbonise-heating/>

Why can't we get district heating right in the UK?

<https://www.bioregional.com/news-and-opinion/why-cant-we-get-district-heating-right-in-the-uk>

Bristol heat network -

<https://www.energyservicebristol.co.uk/business/heat-networks/>

Cranbrook heat network & issues -

<https://www.devonlive.com/news/devon-news/cranbrook-heating-woes-could-sorted-5140684>

Retrofit

Affordable Eco Housing; is this what we should be building? | 100% Independent, 100% Electric - good look at what affordable *smart* home new builds look like and why smart is important. Also, an introduction on ground source heat pumps (only recommend watching the first 10mins)

<https://www.youtube.com/watch?v=ul7wxNtrorQ>

What is deep retrofit and why is it so important?

- brief overview of deep retrofit from one of Regen's members who do it, Energiesprong

https://www.youtube.com/watch?v=p5w1Uggn8_w

Reinventing Retrofit – Energiesprong

<https://www.regen.co.uk/project/zero-energy-buildings-catalyst/>

Greenleaf Road Retrofit Case Study

https://www.youtube.com/watch?v=Uzo_SKsl9l4

Fabric-first demonstration in Glasgow

<https://www.passivhaustrust.org.uk/news/detail/?nId=997>

Insulation

Reducing home heatloss

<https://energysavingtrust.org.uk/energy-at-home/reducing-home-heat-loss/>

Smart Homes/Energy Digitisation

Energy Digitalisation Strategy

<https://www.regen.co.uk/energy-digitalisation-strategy/>

Digitalising our energy system for net zero Strategy and Action Plan 2021

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004011/energy-digitalisation-strategy.pdf

Decarbonising Heat & People

Why heat decarbonisation is about people

<https://www.regen.co.uk/why-heat-decarbonisation-is-about-people/>

Cold homes, sore throats, and hospital beds: A case for public spending on home retrofit

<https://www.regen.co.uk/a-case-for-public-spending-on-home-retrofit/>

Excess Winter Mortality

<https://academic.oup.com/jpubhealth/article/38/4/806/2966950>

Can YOU Fix Climate Change?

- good overview of the challenge of decarbonising the energy system, personal responsibility

https://www.youtube.com/watch?v=yiw6_JakZFc

How art is making sustainability 'cool'

<http://www.carbonarts.org/articles/how-art-is-making-sustainability-cool/>

Cold homes, fuel poverty and energy efficiency improvements: A longitudinal focus group approach

<https://journals.sagepub.com/doi/full/10.1177/1420326X17703450>

Housing improvements, fuel payment difficulties and mental health in deprived communities

<https://www.tandfonline.com/doi/full/10.1080/14616718.2016.1248526>

How do we end fuel poverty? - BBC radio

<https://www.bbc.co.uk/sounds/play/m000yyq3>

District Heating in Cranbrook

<https://visionforsidmouth.org/cranbrook-residents-locked-into-district-heating-system/>

Guardian Articles

UK's home gas boilers emit twice as much CO₂ as all power stations – study

<https://www.theguardian.com/environment/2021/sep/29/uks-home-gas-boilers-emit-twice-as-much-co2-as-all-power-stations-study>

'Low-hanging fruit': Insulate Britain's message makes sense, say experts

<https://www.theguardian.com/environment/2021/sep/24/low-hanging-fruit-insulate-britains-message-makes-sense-say-experts>

'More than tricky winter' ahead, warns Hague as energy bills soar

<https://www.theguardian.com/politics/2021/sep/21/kwarteng-difficult-winter-energy-bills-universal-credit>

'Britain's leaky homes make the energy crisis worse. Why have governments not fixed them?'

<https://www.theguardian.com/commentisfree/2021/sep/28/britain-homes-energy-crisis-governments-insulation-low-carbon-heating>

Ban on gas boilers – what the tabloids think

The Daily Mail - Banning ALL gas boilers by 2035 is 'simply not going to happen': Experts condemn ministers for 'scaring the public to death' with threat to force homeowners to switch to green alternatives costing up to £19,000

<https://www.dailymail.co.uk/news/article-9615957/Banning-gas-boilers-2035-simply-not-going-happen.html>

Daily Mail – high-minded eco projects will cost consumers £28k each

<https://www.dailymail.co.uk/news/article-9791999/Households-face-28-000-bill-pay-green-projects-decade.html>

The Sun - SWITCH OFF Households with gas boilers face higher bills and extra charges

<https://www.thesun.co.uk/money/15939508/households-gas-boilers-higher-bills-extra-charges/>

Bloomberg - U.K. to Tell Homeowners to Ditch Gas Boilers in Green Plan

<https://www.bloomberg.com/news/articles/2021-05-21/u-k-homeowners-could-be-forced-to-ditch-gas-boilers-in-new-plan>

Daily Mail – Fortune wasted on eco homes scheme

<https://www.dailymail.co.uk/news/article-9285105/Fortune-set-frittered-away-amid-shambolic-rollout-eco-home-improvements-scheme.html>

Art, science and climate justice collaborations

Artists and Climate Change

<https://artistsandclimatechange.com/>

Climate Cultures – Creative conversations for the Anthropocene

<https://climatecultures.net/>

CREATIVE RESPONSES TO CLIMATE CHANGE – Can art save the world? Past event by agile rabbit

<https://www.agile-rabbit.com/event/creative-responses-to-climate-change/>

Verbatim play review on climate change – highlights risk of going too technical “There’s no conflict so there’s no drama”

<https://theartsdesk.com/theatre/2071-royal-court-theatre>

Guardian article about verbatim

<https://www.theguardian.com/stage/theatreblog/2010/jul/15/verbatim-theatre-aftermath>

Eco-art awards/Competitions

Sustainable Future Programme, by Sustainability First

<https://www.sustainabilityfirst.org.uk/sustainable-futures-programme>

Creative Conscience Awards

<https://www.creative-conscience.org.uk/winners/>

‘Artsci’

Art and Energy (run by ex-Regen employee)

<https://artandenergy.org/>

ArtScience: Integrative Collaboration to Create a Sustainable Future - manifesto

https://www.researchgate.net/publication/241891005_ArtScience_Integrative_Collaboration_to_Create_a_Sustainable_Future

Understanding Third Space: Evaluating Art-Science Collaboration

http://clock.uclan.ac.uk/12024/1/12024_froggett_ISEA2015_submission_332.pdf

ArtScience Museum Singapore

<https://www.marinabaysands.com/museum/whats-on.html>

Solar sustainability – inflatable art piece

<https://www.marinabaysands.com/museum/floating-utopias/solar-sustainability.html>

Art Science Nexus

<https://artsci-nexus.com/>

Concept for a body heat powered generator

<https://makeprojects.com/project/designing-a-body-heat-powered-electric-generator>

ON THE ANTHROPOCENE AND “OTHER WORLDS POSSIBLE”

<https://onca.org.uk/2018/07/11/other-possible-worlds/>

Recipes for material activism

https://issuu.com/miriamribul/docs/miriam_ribul_recipes_for_material_a?epik=dj0yJnU9RWxVTGZiUnhTOGUxSk5KbXN0ZjIxeTNOY2RSVFpHejUmcD0wJm49OG5ubkxzbHZYSTJkSE5LNE5xTmhKUSZ0PUFBQUFBROZsam1V

Carbon as an art material

Textiles from captured carbon

<https://expeditionair.today/pages/air-art>

<https://www.capturedcarbon.studio/textiles.html>

Carbon Upcycling

<https://carbonupcycling.com/>

<https://expeditionair.today/collections/made-from-air>

Carbon worry stone

<https://expeditionair.today/collections/made-from-air/products/worry-stone>

‘Air Ink’

https://en.wikipedia.org/wiki/Air_Ink

<https://www.theguardian.com/artanddesign/2017/apr/06/carbon-air-ink-pollution-vehicle-emissions-anirudh-sharma-graviky-labs-london-black-cabs>

<https://news.mit.edu/2017/recycling-air-pollution-make-art-1127>

Carbon Arts

<http://www.carbonarts.org/>

Artist turns smog into bricks

<https://www.theguardian.com/world/2015/dec/01/chinese-vacuum-cleaner-artist-turning-beijings-smog-into-bricks>

Tiles made from air pollution

<https://www.oneearth.org/making-good-stuff-from-bad-air-an-indian-team-makes-the-worlds-first-tiles-from-air-pollution-particles/>

Carbon capture paint

<https://www.dezeen.com/2021/08/06/carbon-capturing-celour-paint-allows-anyone-to-participate-in-co2-removal-in-their-daily-lives/>

Sniffing machine that visualises the pollution it senses

<https://www.wired.com/2014/07/a-clever-device-that-turns-polluted-air-into-art/>

Data Art

Data, art & sustainability + manifesto

<http://www.carbonarts.org/articles/data-art-and-sustainability/>

The Digital Age of Data Art

<https://techcrunch.com/2016/05/08/the-digital-age-of-data-art/>

Data as Culture

<https://culture.theodi.org/>

Ryoji Ikeda

<https://www.ryojiikeda.com/>

Data visualisation

<https://flowingdata.com/>

- Global warming data as pattern
<https://flowingdata.com/2020/05/13/global-warming-color-stripes-as-decorative-conversation-starter/>
- Sleep pattern as blanket
<https://flowingdata.com/2019/07/25/blanket-pattern-visualizes-babys-sleep-data/>
- Temperature data as quilt
<https://flowingdata.com/2021/09/10/data-recorded-in-fabric-quilt/>

LoVR - personal data visualisation

<https://vimeo.com/133294743>

Stranded Colourwork Sourcebook - data in textiles

<https://culture.theodi.org/knitsonik-stranded-colourwork-sourcebook/>

BP – Our Fuel Story

<https://www.youtube.com/watch?v=sF4gDeRY0wU>

Future Cup – temperature data in 3d form

<http://teemingvoid.blogspot.com/2010/06/measuring-cup.html>

AI data visualisation, morphing forms

<https://www.wired.com/video/watch/obsessed-how-this-guy-uses-machine-learning-to-create-installations>

Raven Kwok - Processing for visualisation

<http://ravenkwok.com/rule-110/>

Games for activism

SIM4NEXUS serious game

- loosely relevant content - mainly like this for the illustrations. Don't worry if it's confusing!

<https://www.sim4nexus.eu/page.php?wert=SeriousGame>

Climate Engineers – educates about some of the challenges related to wind turbines

<https://evil-space-wizard.itch.io/climate-engineers-2>

Reef Architect - simulates damage to coral reefs & educates on the importance of biodiversity
<https://evil-space-wizard.itch.io/reef-architect>

Game: Rise Up

<https://store.tesacollective.com/products/rise-up#:~:text=Rise%20Up%20is%20a%20board,trying%20to%20crush%20your%20efforts.>

Alternative Ecologies game jam

<https://itch.io/jam/alternative-ecologies-jam/entries>

Applied Hope: Solarpunk & Utopias game jam

<https://itch.io/jam/applied-hope/entries>

Regenerate! Board game about sustainable communities and land regeneration

<https://regenerate.games/>

Community projects

Solar stars – Art and Energy

<https://artandenergy.org/solar-stars/>

'Look out to Sea' - marine diversity and conservation w/ children

<https://onca.org.uk/c2021/09/24/the-mcz-undercliff-path-project/>

Re-imagining energy Castlemaine

<https://landartgenerator.org/castlemaine/>

Knitting Circle – Art on the Underground

<https://art.tfl.gov.uk/projects/knitting-circle/>

Collaborative Crafting: Large-Scale Knitting Projects that are Changing the World

<https://www.interweave.com/article/knitting/collaborative-crafting-large-scale-knitting-projects-changing-the-world/>

'Letters to the Future' - Letters to great-great-great-grandchildren written on recycled plastic

<https://www.itsnicethat.com/articles/ki-saigon-letters-to-the-future-graphic-design-270921>