

00:26:58 Elena Daniilidou: Hello
00:26:58 Mark Hepner: Hello, Mark from Harlow
00:27:29 Terry: Hello, Terry from Burton on Trent where it is currently sun and blue skies!
00:27:31 Janet Russell: Hi Janet from Keighley&Ilkley (West Yorkshire)
00:27:42 Amy Wilson: Hello from Bristol!
00:27:44 Ken Petersen: Hi! Ken Petersen from Gt Yarmouth.
00:27:48 John Jackson: Hello to everyone
00:27:48 Ben Williamson: Ben here, from Mansfield - Nottinghamshire! :D
00:27:49 Nicola Hunt: hello Niccy from North Devon
00:27:51 mark jackson: Hi Jaz fm Liverpool
00:27:55 Brian Utton: Hi! Brian from Devizes, Wiltshire
00:27:55 Reiner Tegtmeier: Hi all, Greetings from Hackney. Reiner
00:27:55 Russell Tuahene: Hello everyone, Russell from Surrey
00:27:55 CARL DODD: Hello from Cambridge!
00:27:59 Tim: hi from Bath
00:28:07 Lee Booker: hello, from Walsall.
00:28:08 Gabriele Zagel-Millmore: Hello From Bradford W Yorkshire
00:28:08 Mik Norman: Hi! Mik from Llanbrynmair
00:28:11 Dede Liss: hi from Dede forest of dean
00:28:17 Stephen Hesketh: Hi everyone, Stephen from Sefton Greens (Liverpool City Region)
00:28:19 Sue James: Hi Sue from Ceredigion
00:28:20 Green Party Events: Welcome everyone! Please put any questions you might have this evening in the Q&A for upvoting. We've got about 30 minutes during the latter half of the event for Q&A xx
00:28:24 Jeremy Holmes: Hello from east hertford
00:28:25 Linda Walker: Hi from High Peak
00:28:37 Jenny Kirtley: Hello Jenny from Together Against Sizewell C
00:28:41 Anthony Mills: Good afternoon from the leafy glades of Purley
00:29:02 Paula Chatfield: Hello from Chichester, West Sussex.
00:29:05 Dave/Andi Holladay: Hi Mark - I think the idea of extending Central Line is daft - the 4-track to Broxborne should be restored & Overground extended from Cheshunt!
00:29:05 Alban Thurston: Good evening from Wimbledon, in London's fabled - though not fabulous - Borough of Merton.
00:29:07 Lorraine Estelle: Hi, Lorraine from Winchester
00:29:12 Chris Osborn: Hi from Old Coulsdon
00:29:13 Paul Kamill: And hi from Upper Wharfedale!
00:29:24 David Wittrick: Hi from Conwy Valley North Walse
00:29:24 Dorothy Wilson: Hi from Dorothy, Aberystwyth
00:29:29 Dave/Andi Holladay: Dave H from Glasgow
00:29:30 Maryla Hart: Hello from North Hertfordshire
00:29:51 Green Party Events: If you'd like to watch our first episode in this series, no policy is an island, you can bookmark the link, here: <https://livingroom.greenparty.org.uk/2021/07/06/systems-change-no-policy-is-an-island/>
00:29:57 Thalia Carr: Hi from Oxford
00:30:00 Jill Merchant: Hi from Ely, Cambridgeshire

00:30:02 Finn Jensen: Finn from Calderdale.
00:30:02 Tony Goodchild: Hi Tony G from Reading
00:30:15 Janice Baker: Hi from Janice from Mole Valley and Epsom & Ewell GP
00:30:16 William Beasley: Hello from Swansea
00:30:24 Peter Leaver: Hi from North Devon
00:30:31 Frances Hinton: Hi from Newcastle upon Tyne, Frances here
00:30:38 Barry Wheatley: Good afternoon from West Oxfordshire
00:30:41 Anthea West: Hello from Reading
00:30:43 Ken Barker: Hi from Cardiff Wales
00:30:44 Ginny Smith: Hi from Ginny from near Newhaven in East Sussex
00:31:09 Jan Davis: Hi, Jan from Broadland, Norfolk
00:31:11 Anthony Lamb: om Wells Somerset
00:31:26 Anthony Lamb: Hi From Wells in Somerset
00:31:35 Mike Croker: HI from Bramber, Sussex
00:31:39 christopher strevens: hello from Helsby cheshire
00:31:45 John Fox: Hi everybody I'm John Fox from North Oxford
00:31:48 Jess Whitaker: Hello, Jess from Newcastle upon Tyne
00:31:51 Siriol Hugh-Jones: Hi from Brighton & Hove
00:32:23 judy seymour: Hello, Judy from North Tyneside
00:32:26 Elaine Brindley: Hi from Surrey
00:32:57 Jane VeganforAnimals alexander: Hi from Jane in Oxford
00:32:57 Anna Abdelnoor: Me too from B&H! Hi Siriol 🙌
00:33:03 Mike Seaborne: Hello from Bishop's Stortford
00:33:48 Jennifer Howells: Hi from Horam, East Sussex
00:33:52 Mike Airey: Hello from Mike at Mid Sussex, Crawley and Horsham Green Party.
00:36:40 jennifer edwards: Hi - jenny Edwards - also from Mid Sussex.
00:36:53 Carla Smith: The harm to environment is indeed caused by our pollution - what I am most upset about is how our government is failing us even now through the green grant which is setting us up to fail in decarbonising.
00:37:33 Ben Williamson: Breakdown in communities I think has weakened our ability to hold local and regional/national governments to account on big impact issues! #
00:38:10 Stephen Hesketh: Great thoughts/comments/insights David
00:38:56 Carla Smith: We have the science to do this - but it's not happening in our homes at least. You cannot get a heat pump through the green grant. There are issues with EPCs and the green grant.
00:39:47 Rachel Smith-Lyte: we've got to accept we need to move around/travel alot less overall
00:41:01 COLIN SZWED: EPC's are cuurently not fit for purpose for determing the efficiency of ASHP's.
00:41:03 Lee Booker: retrofitting could be, and should be, a mass apprenticeship and job scheme provided by government and local authorities to give the unemployed jobs as well as training, in fitting.
00:41:23 Anthony Lamb: We use a heat recovery system which is very lower power and about 90% effective
00:42:40 Jan Davis: Re: A lot of talk about Hydrogen - this is

a very useful recent paper explaining the production of hydrogen and how it is perhaps not so green, "How green is blue hydrogen?"

<https://onlinelibrary.wiley.com/doi/epdf/10.1002/ese3.956>

00:43:00 Lee Booker: behaviours are often driven by the society we live in, the economy. Without a change in economic relations, i doubt behaviours can change dramatically.

00:43:04 Andrew Cooper: Some leading work being done by York Green Cllrs on rerofit where they share power with Lib Dems in York.

00:43:08 Katherine Barbour: Alan Whitehead, MP in Southampton (L) has been pushing for home retrofitting for a long time

00:43:42 Jane VeganforAnimals alexander: No nuclear ever! Please!

00:43:56 Anne Thomas: It looks like heat pumps are eligible for 2/3 costs up to £5000.

<https://www.gov.uk/government/news/green-homes-grant-extended-for-extra-year>.

00:44:00 Anthony Mills: Interesting paper, thanks Jan Davis

00:44:13 Sarah Alewijnse: I find that the current GP policy on nuclear puts people off joining us (anecdotally)

00:44:27 Rachel Smith-Lyte: we're currently fighting Sizewell C here. Hinkley is a dogs dinner. so much wildlife trashed

00:44:45 Jane VeganforAnimals alexander: We have just commemorated the loss of lives in Hiroshima and Nagasaki - no nuclear!

00:45:08 Green Party Events: JOIN A POLICY WORKING GROUP you must be a Green Party member to join any of the groups, and sign in as a member to access this URL: <https://members.greenparty.org.uk/policy-working-groups>

00:45:11 Sarah Alewijnse: Nuclear weaponry is not the same as nuclear power. Making such broad statements as this is part of what puts us off

00:45:13 Dan Howells: They were bombs not power

00:45:21 Sarah Alewijnse: *people off

00:45:55 Janet Russell: Nuclear waste is the thing I think is totally inexcusable. What a legacy to leave to many, many generations.

00:46:05 Richard Burnard: We need enough power left over for de-carbonising the atmosphere - Nuclear on balance (inc SMR) is probably the best option)

00:46:05 Sue James: We don't have the skills to install heat pumps. We don't have the building fabric to make heat pumps work and it is quite hard to install heat pumps for existing dwellings...it is being sold as a quick and easy win...but it needs much more thinking through!!!!!!!!!!!!

00:46:10 COLIN SZWED: We need innovative government funding to help homeowners to finance the cost of Solar, Battery and ASHP. One solution would be to issue Zero interest bearing Gilts to fund loans to homeowners on an interest free loan to homeowners putting a charge on the property to be repaid they move, pass away or move into care.

00:46:25 Siriol Hugh-Jones: In Brighton, we are also doing quite a lot of work on retrofitting, both of our own council stock and of the private rental/owner-occupied

00:46:46 Jason Light: For any dog lovers out there, here's a climate petition from the perspective of our four legged friends..

This is designed to bring in people from a different perspective.
<https://www.pact-dogs.com/climatecrisis>

00:47:25 Sue James: given the outrageous value of property...there must be many people who could afford retrofitting when doing other work. When people put in new kitchens and bathrooms, why are they not advised to insulate their walls, for example?

00:47:31 Jacob Dawson: What generations will be left to deal with spent nuclear fuel if we don't tackle climate change now?

00:47:33 Linda Walker: I am shocked that the Green Party is not unequivocally opposed to nuclear power. Nuclear Weapons and power are inextricably linked in many ways, And nuclear power is very vulnerable to climate change. We need to be making the argument not worrying about public opinion which is influenced by media bias.

00:47:37 Jane VeganforAnimals alexander: help need with retrofitting to reduce need for heating etc - some pple have been screwed by bogus companies and not one is interested to help

00:48:00 Jane VeganforAnimals alexander: Agreed Linda walker

00:48:04 Peter Tutt: That study on blue hydrogen did not take into account the new blue hydrogen (see 8Rivers) which captures 100% of the CO2 and does not take into account the large reduction in methane emissions which are possible according to the IEA in gas and oil production

00:48:17 Linda Walker: would be great to combine retrofitting with making homes more accessible for older or disabled people.

00:48:33 Jane VeganforAnimals alexander: great idea Sue James

00:49:11 Jane VeganforAnimals alexander: I have been trying to get solid walls insulated for years - no one wants to know

00:49:20 Anthony Mills: A technology which allow insulation to be applied quickly and cheaply to exteriors without the massive disruption that internal works require would be really useful [excluding the likes of ACM's of course..]

00:50:17 Jason Light: Love this, but it is a slightly confusing "DUKES" diagram as the Blue area doesn't match the input.

00:50:23 Carla Smith: We indeed have the science to decarbonize, but that isn't happening through the green grant for pre war properties that need retrofitting. If I fully insulate my home as is the good fabric first retrofit approach, my EPC will become a rating of C. Then I won't be eligible for a heat pump - getting a heat pump on the Green Homes Grant isn't currently possible.

00:50:24 Sue James: But be careful with external insulation...as with all these things, there needs to be expertise to advise and this is not easy to get.

00:50:37 Cedric Knight: Donna meant electrolysis meant, i think

00:50:58 Kate Silvester: fab diagram. thanks. great to see the numbers.

00:50:59 Jan Davis: Peter Tutt: do we have a way of capturing & storing 100% CO2?

00:51:10 Dan Howells: Less hand grenades please, Carla. They're not welcome anywhere!

00:51:15 Zana Dean: <https://www.insulatebritain.com> is campaigning for fully funded home insulation, starting with social housing

00:51:27 Bernard Hurley: Hi there from Hemel Hempstead

00:52:09 Stephen Hesketh: Nuclear only as a very last option. If we start with it we'll never invest fully in reduction and renewables.

00:52:34 Jane VeganforAnimals alexander: But everyone needs to realise that without reducing methane (animal Ag) which wld give us the time to deal with fossil fuels. Methane gone in just 8 years - carbon oxide 120 years

00:52:51 Anthony Mills: On a recent visit to meet our grandchildren in Iceland, I noticed many older buildings had aluminium cladding over rockwool insulation on top of the original wooden building. Simple...

00:52:54 Cedric Knight: IPCC WG1 mentions two meta-analyses that CCS not ready by 2050. as just said it's sometimes used as smokescreen by fuel fuels - think of it as 'concentration reductions' rather than 'emissions reductions'.

00:53:18 Anthony Mills: and, is that the Sue James from TDAG?

00:53:42 Sue James: Anthony Mills - yes

00:54:14 Paula Chatfield: Great to "meet" tree people here as well as on Wednesday evenings!

00:54:26 Rachel Smith-Lyte: Nice one Anthony 👍

00:54:27 Anthony Mills: Sue - great to see such expertise here, thanks

00:54:45 Amy Wilson: CCS is part of the entire kitchen sink we need to throw at this!

00:54:55 Jacqueline Walkden: Before the 2008 Climate Change Act was introduced my MP of the time suggested CCS was going to be the way forward. At the time the level of CO2 was 383.16/ppm. Today the level is close to 420 /ppm. To me it is a false hope.

00:54:58 Sarah Alewijnse: Agreed Amy. We need to pull on all the strings we have!

00:55:15 Peter Dunsby: Biochar made using pyrolysis can be used as a soil improver and sequesters CO2 more or less permanently. It has significant potential especially in conjunction with a move away from meat to plant based diets.

00:55:57 Linda Walker: Restoring peat is the best way to capture and store carbon.

00:55:58 Jo Salter: Agreed, changing the economic model is key - measuring true costs (eg. carbon tax) will change perception

00:56:04 Lee Booker: Youd need a vast policing network to make sure companies are not lying about the carbon being generated to get around taxes

00:56:42 Cedric Knight: BTW local council schemes where available may pay for external wall insulation. needs massive scaling up.

00:57:23 Peter Ryland: It seems to me as an energy professional that the largest input of CO2 to the atmosphere at present is wildfires and burning of forests . We do not have time for many high tech solutions so the two quickest seem to be to stop all burning of fields and forests for the next ten.years. The second is to prevent any CH4 from whatever source escaping into the atmosphere.

00:57:23 Jane VeganforAnimals alexander: Thanks Peter Dunsbury - to gain the time we need we MUST get away from breeding animals for human use

00:57:32 Peter Dunsby: Removing CO2 from the air when CO2 is at 420 parts per million is going to be very hard and very expensive both in £ terms but also in energy terms and energy is not going to

be net zero for some time. It is literally like looking for needles in haystacks to try to find those 420 molecules per million unfortunately. There are going to be easier ways!

00:58:31 Craig Simmons: Do we have a policy on electrofuels? – a fast emerging zero carbon liquid fuel (made from renewable hydrogen and CO2 from the atmosphere). These are meant to come to market at scale within 5 years.

00:58:44 Sue James: Carla...but installing a heat pump isn't worth it unless you have improved the fabric???

00:59:09 Green Party Events: For anyone who is interested in learning more about carbon tax (David mentioned) one of our previous events was dedicated to this: <https://livingroom.greenparty.org.uk/2021/08/03/what-is-carbon-tax-funding-a-just-transition/>

00:59:09 Carla Smith: Warmer homes programme funding is currently being wasted on surveys that amount to nothing decarbonization in homes. Members of the Carbon Coop forum of householders trying to decarbonize are currently experiencing the failure of the Green Grant Scheme to provide heat pumps.

00:59:10 Jane VeganforAnimals alexander: Methane is 28 to 30 times stronger/ more damaging than carbon dioxide – we must put this issue first and each of us lead by example

00:59:44 Sue James: has everyone seen the work of LETI? I recommend it – <https://www.leti.london/>

01:00:05 Jane VeganforAnimals alexander: How can I keep these chats after the zoon finishes pls? so many recommendations and links

01:00:07 Rachel Smith-Lyte: yes Peter – and stop trashing our moorland, peat bogs as well as mature trees and woods etc. all of which lock in vast amounts of CO2. tenancy to overcomplicate and look for tech fixes which are mostly unproven. precaution first!

01:00:15 Peter Dunsby: Having run my own businesses retrofitting buildings I can confirm that external wall insulation is hard work! We lack the skills in this country to do the external rendering. The work is weate

01:00:31 Muhammad Arif: policy on plastic use ?

01:00:52 Peter Dunsby: ...weather sensitive so somewhat seasonal....strategy imo should be a combination of heat punp

01:01:00 Peter Tutt: See <https://netpower.com/> for carbon capture which is 100% and cheaper than normal gas turbines. These are being built at Teesside and elsewhere in UK

01:01:11 Stephen Hesketh: I have asked the same question Jane VeganforAnimals

01:01:21 Peter Dunsby: and insulation rollout nationally. sorry for multiple comments! Fat fingers!!!

01:01:39 Rachel Smith-Lyte: forgot about the huge sequestration done by salt marsh too...

01:02:00 Craig Simmons: If you want a primer on zero carbon buildings – read the ZEDBook (<https://www.amazon.co.uk/ZEDbook-solutions-shrinking-world/dp/0415391997>). I co-authored more than 10 years ago but very little has changed since.

01:02:30 Dave/Andi Holladay: My 1849 home had passive air conditioning built in and sash windows are designed to passively circulate air in and out of a room

01:02:37 Alban Thurston: Disputes over nuclear power have driven a rift into Europe's biggest Green vote-winners, the German party.

The Green front-runner in September's head of government elections supports nuclear; her party co-leader opposes nuke. Germany's GHG emissions today are reported to have rocketed after lockdown, as brown coal has taken up the slack left by nuke closures.

01:02:45 Paula Chatfield: And kelp and sea grass ... (with co-benefits for fish stocks and wave force absorption).

01:02:52 Marie Zabell: Linda - can't we adopt a sword into ploughshares position on nuclear technology? Climate change is heating the oceans to the tune of at least 3 Hiroshima bombs per second. That's a bigger worry surely?

01:03:12 Rachel Smith-Lyte: apprenticeships are key. govt/ DfE so so behind on up skilling our young people - focus on academia being the be all and end all for far too long!

01:03:19 Green Party Events: You can learn more about Green Homes and some solutions to the issues faced, here: <https://livingroom.greenparty.org.uk/2021/03/11/green-investment-into-housing/>

01:03:30 Peter Tutt: By the way, green hydrogen does not exist at scale at the moment. There are a large number of technical problems

01:04:12 Green Party Events: Just a reminder to put your questions in the Q&A for upvoting!

01:04:40 Linda Walker: <https://gmdcnd.com/wildlife/> Important webinar on Nuclear Power effect on wildlife with Jonathan Porritt, Craig Bennett and Juliet Davenport.

01:04:43 Richard Burnard: France has one of the lowest CO2 emissions in Europe. Nuclear has some negatives but on balance worth it.

01:04:56 Jacob Dawson: For those who are anti nuclear look to Germany as an awful example of a country who has abandoned nuclear and has now got themselves hooked to Russian natural gas due to the inability of renewables to power the whole grid - <https://grist.org/energy/the-cost-of-germany-going-off-nuclear-power-thousands-of-lives/>

We should look to France for inspiration not follow the Germans down their very dark path.

01:05:19 Anthony Mills: Is there a possibility of using biochar as part of the aggregate in concrete? There are lots of materials being considered for inclusion in concrete for different purposes and functions, including as batteries for electricity storage, as well as for carbon capture

01:05:20 Jane VeganforAnimals alexander: Thank you Rachel S-L

01:06:21 Arthur Stansfield: I live 12 miles away from Sizewell. The impact of building it will be awful. A building site of over 300 hectares in an AONB. Part of an SSSI will be destroyed. The Suffolk coast is fragile and not a place to build nuclear facilities that will remain for over 150 years. Since applying for the DCO EDF have made 18 significant changes to their plans. This seems designed to make it more difficult for people to examine and comment on.

01:06:42 Amy Wilson: yes, David, YES!!!!!!!

01:06:46 Amy Wilson: Halleluh

01:06:47 Dede Liss: we need to move away from concrete and steel here's a radio program that talks about it <https://>

www.bbc.co.uk/ideas/videos/will-we-all-live-in-plyscrapers-in-the-future/p09k9z1g

01:06:53 Stephen Hesketh: Carbon Tax – YES!

01:06:55 Sue James: Agree with Carbon Tax and £100 per tonne is very modest!

01:07:04 Green Party Events: Learn more about carbon tax, here: <https://livingroom.greenparty.org.uk/2021/08/03/what-is-carbon-tax-funding-a-just-transition/>

01:07:13 Kate Silvester: reduce the speed limit to 50mph on motorways and 30 mph on single lane roads.

01:07:26 Katherine Barbour: I agree Kate

01:07:30 ROBIN HENSHALL: For a fun analysis of all the funding and changing the world, read GOSH by Xac Howard

01:07:43 Jo Salter: What about getting freight lorries off the roads by incentives to use rail for freight?

01:07:48 j m: reduce the speed limit to 20mph in built up areas

01:07:57 Lee Booker: individual approaches are always ludicrous. So much of our society is structurally generated.

Capitalism being the primary issue. Need to read some Jason W Moore.

01:08:01 Ian Lodwick: We struggle to build the new houses that we need in the uk. Effort required to deep retrofit all the houses to zero carbon is enormous! Many decades to complete. Will english heritage allow all the thatched cottages to be covered by polystyrene insulation?

01:08:06 Jane VeganforAnimals alexander: tmro? stop consuming animals in any way to give us time!

01:08:08 John Blakemore: How are you going to stop the oil industry from stopping carbon tax

01:08:11 Carla Smith: Sue I hear you , but in terms of fabric if you have a solid brick construction with no cavity you can't insulate. heat pumps come in various sizes according to heat loss. External insulation isn't a choice for us, underfloor insulation is something we want to do ourselves, our windows are very leaky old double glazed and we have opted to replace them ourselves with triple glazing and enerphit standard insulation type fitting – we know our heat loss calculations and gains through our measures to top up the loft insulation, the triple glazed windows, draught proofing measures and heating controls – we will gain 2kws – so we know that our heat pump should be 7kws. the current EPC ratings are setting us up to fail because once I add my measures my EPC will reach C so then I won't qualify for a heat pump and cannot decarbonize my heating despite me being financially eligible.

01:08:25 Peter Ryland: Insulation is THE big one for buildings. We have millions of homes which throw out heat into the atmosphere because the UK has never had a prolonged insulation programme for external insulation. With no grants what ever for this available at present (and the green homes grant which was so badly managed that vanishingly few households could ever get a quote.....now ended!) If oil, electricity and nat gas were to be standard VAT rate and all insulation(not high tech) were zero rated. Then we can all get our homes insulated much more cheaply and be incentivised to use less energy altogether.

01:08:27 Kate Silvester: increase VAT to 40% and encourage us to buy les stuff and freight!

01:08:47 Sue James: Carla...you can do internal insulation on solid walls.

01:08:55 Mark Hepner: Harlow? That's great news!

01:09:00 Jane VeganforAnimals alexander: first be vegan - then retrofit

01:09:16 Joe Downie: Greens in the room. Yes, absolutely!

01:09:18 Philippa Fleming: Green Party policy is to scrap VAT because it is one of the most unequal taxes we have.

01:09:34 Amy Wilson: On the carbon tax - this would be a useful thing to sign #clicktivism: <https://petition.parliament.uk/petitions/574678>

01:09:38 j m: read up on REGOs ~ beware of greenwashing

01:09:52 Joe Downie: Yes, a carbon tax would make far more sense than a vat hike!

01:09:55 Maryla Hart: What other deep green energy suppliers are there?

01:10:01 Green Party Events: If you switch to Ecotricity they donate £50 to support our plans plan for a #GreenFuture (plus £50 for every year you stay). <https://www.ecotricity.co.uk/our-green-energy/green-electricity?partner=GP1>

01:10:10 j m: is Octopus?

01:10:24 Dede Liss: I buy from Good Energy 100% renewable!

01:10:28 Jane VeganforAnimals alexander: many of us have been doing 100% green energy for years - octopus is not really green

01:10:29 Jo Salter: Me too :-)

01:10:33 j m: is Good Energy?

01:10:38 Zana Dean: Only other one is Good energy

01:10:39 Olly Davey: Totally agree about Greens in the room. As one of only two Green councillors on our council, it's interesting how much everyone wants to show how green they are!

01:10:43 Green Party Events: By switching to Ecotricity they donate £50 to support our plans plan for a #GreenFuture (plus £50 for every year you stay). <https://www.ecotricity.co.uk/our-green-energy/green-electricity?partner=GP1>

01:10:46 Kate Silvester: To learn how to reduce the carbon footprint of your home, visit the National self build and renovation centre in Swindon or do their on line courses on 'heating your home'. - best £60 have I spent.

01:10:52 Carla Smith: Sorry, i missed that one, but we want to do it ourselves also. The green grant prices for it are highly inflated. They don't take into account disruption within a household and how we need to take phased approaches.

01:10:55 Joe Burlington: Do you agree that 'Carbon tax' would raise prices beyond what poorer people could afford and create yellow vest-type-riots unless accompanied by rationing - same for every one or Tradable-Energy Quotas (TEQs)?

01:10:59 Jane VeganforAnimals alexander: ecotricity is ONLY truly 100% green

01:11:22 Anne Thomas: What about ecotricity's Green Gas from anaerobic digestion of grass?

01:11:42 ROBIN HENSHALL: www.gosh-book.org

01:11:44 ANDREW MELVILLE: Good Energy also are 100% and reinvest in small renewable set ups.

01:11:50 Peter Dunsby: To get to net zero by 2030 will definitely

require a twin pronged approach to housing. We don't have sufficient skills to get close to doing the deep retrofits needed by this timeline. Nor do we have the skills to fit all the heat pumps we need BUT we can combine these approaches to improve things. FURTHERMORE we have scope to rollout BIG district heating schemes like this one in Norway <https://www.bbc.co.uk/news/business-31506073>. Similar ones recently in Scotland AND Bristol. The Thames could provide heat for around 2 millions homes and businesses for example. Add in waste heat and over London rivers and we start moving the dial. This heat could easily be at 85 degrees C which means the need to do immediate deep retrofits is eased. Large scale heating like this also gives great grid flexibility.

01:11:54 Paula Chatfield: I think hosts can save, not attendees ...

01:12:00 Brian Utton: Re carbon tax - isn't it important that the tax is a predictably RISING carbon tax, so everyone knows that fossil fuels will be even more expensive as time passes - this is what green industry needs - predictability

01:12:08 Jane VeganforAnimals alexander: cant see ... on mine

01:12:08 Green Party Events: We can also upload the chat document onto our blog post follow up where we host the reply

01:12:13 Sue James: Carla...you can do a phased approach one wall at a time...the tricky thing is underfloor as that is the most disruptive. the challenge for everyone and so the retrofit challenge is how to do enough retrofitting to be effective while people are living in a house.

01:12:18 Maryla Hart: the ... only works if you make the chat "pop out"

01:12:24 Rachel Smith-Lyte: yes Kate! its appalling round here our country lanes being ruined by white van man etc the roadkill is horrendous!

01:12:24 Mik Norman: That doesn't work either

01:12:36 Jane VeganforAnimals alexander: but everything disappears at end of zoom

01:13:08 Lee Booker: Joe Burlington is correct. A lack of class analysis in much of this. Dissappointingly.

01:13:17 Dede Liss: I don't feel promoting one energy company as a party is equitable! So I feel ambivalent about the green party promoting Ecotricity alone

01:13:26 Anthony Mills: As an anti capitalist, Ecotricity is the only company I've ever invested in, been with them from the beginning as they have always made all their own...

01:13:34 Dave/Andi Holladay: or use the options box with 3 dots - which drops down a save chat option

01:13:34 Linda Walker: The most popular on my screen is nuclear power. And only one speaker has commented on this.

01:14:54 Sue James: AGain - see LETI report on hydrogen...

01:15:02 Adrian Bowyer: Yes - nuclear power is top of the list on my screen as well.

01:15:13 Frances Hinton: I agree I'm uneasy re promoting only Ecotricity. I scrutinised and went with Octopus Green tariff

01:15:41 Paula Chatfield: Ethical Consumer does the analyses of our consumption choices to inform our decisions on what supplier to use.

01:16:08 Elena Daniilidou: The nuclear power question is more popular.

01:16:32 Paula Chatfield: <https://www.ethicalconsumer.org/energy>

01:17:37 Craig Simmons: Councils can also set up their own housing companies.

01:17:51 Carla Smith: Isn't it true that hydrogen extraction carries a carbon footprint that far exceeds it's use? And isn't it somewhat explosive ? Just things I heard – is this propaganda ?

01:18:21 Jules Bristow: @Carla Smith – hydrogen is explosive, but so is petrol!

01:18:22 Anthony Mills: Craig Simmons – that was what bankrupted Croydon

01:18:26 Rachel Smith-Lyte: I heard some of that too Carla S

01:18:36 Amy Wilson: Hydrogen extraction is incredibly energy intensive to produce... so is only a green solution if it is produced by renewables

01:18:47 Anna Abdelnoor: Hey Frances – Ecotricity are one of the few providers that actually generate their own energy from renewable sources. As is the case with Good Energy. Orgs like Bulb, Octopus Energy and other 'green' energy suppliers tend to supply green energy through renewable energy certificates. That means that for every unit of energy you use, those companies guarantee that they have purchased a unit of renewable energy that has been generated by a renewable energy supplier. This doesn't mean that this purchased renewable energy has actually gone into the grid (I think – it's complicated and I'm still researching this!). It's much better to be buying renewable energy, any which way, to create the market for it, make it common and make it normal!

01:18:53 Jacob Dawson: Grey hydrogen yes, green hydrogen no. Especially from nuclear.

01:20:02 Rachel Smith-Lyte: yes its really mostly about jobs for the boys in construction and Tory party doners, not often actual housing need...

01:20:04 Joe Burlington: Housing rationing? So many square metres of floor space per person/family.

01:20:09 j m: @KateSilvester thanks for National Self-Build & Renovation Centre in Swindon ~ courses heating your home x

01:20:09 Amy Wilson: Producing hydrogen as a fuel is one way to use the excess solar produced at times of curtailment.

01:20:16 Jules Bristow: Hydrogen is more of an energy storage technology than an energy generation one – you can split water into hydrogen and oxygen by putting energy in to store excess eg wind energy generated at night

01:20:28 Amy Wilson: What Jules said!

01:20:31 Carla Smith: I know..thats why we want to do it ourselves as we can't remove all the floor at once to check the joists, DPC and ventilation. We don't trust the insulation system to do the necessary checks and safeguard the work around insulation.

01:21:13 Jules Bristow: @joe Burlington All getting a bit bedroom tax!

01:21:16 Peter Dunsby: A recent paper from Stanford University indicates that only hydrogen made from clean electricity can help us reach net zero. We cannot capture and store enough CO2 because there are too many methane leaks from the gas network aside the CO2.

01:21:41 Gina Dowding: Read recently in 'Inside Housing' journal that Govts own figure of 300k new homes needed per year was rounded

up from a figure of 265k homes (from their evidence.)!

01:22:10 Sue James: We need decent guidance on retrofitting and how to do it. Wales has looked at each housing type and made proposals – <https://www.optimised-retrofit.wales/>

01:22:18 Peter Dunsby: Heat pumps take time to organise. They can't be seen as a replacement for a broken boiler unless the homeowner is prepared to be without heat and perhaps hot water for up to 10 weeks.

01:22:28 Jan Davis: There are different ways of extracting hydrogen and so it is more complex as just referring to "hydrogen". There is brown hydrogen (from coal), gray hydrogen (from natural gas), and blue hydrogen by electrolysis from water (which can use green electricity to produce). Each option requires energy to produce and so it also depends on where the energy comes from.

01:22:29 Lee Booker: Jesus all these "market based" approaches are depressing as hell. Capitalism has caused this crisis. Can we get some socialists on this policy team to get some balance. Individual rational actors in the economy maximising utility is a flawed economic approach to environmental issues.

01:22:51 Craig Simmons: Green hydrogen (produced by electrolysis from renewables) is a zero carbon process.

01:22:53 Ann Parker: We had in Victorian building – now two self contained flats, externally insulated this spring with a govt grants

01:23:29 Adrian Bowyer: The key thing to remember about biomass is that photosynthesis is only 3% efficient. An ordinary rooftop solar panel is over 20% efficient.

01:23:49 Carla Smith: Lee Booker – I hear you. It's all about monopolisation – feels like they don't want anyone to be sustainable because then we wouldn't rely on their systems.

01:23:54 j m: We could use biomass but wouldn't get to eat

01:23:59 Anthony Mills: Thank you for that link Sue. My daughter is looking at heat pump v storage heaters v gas for her Victorian flat at the moment...

01:24:00 Alban Thurston: Log rolling, and to this audience's benefit. Interested in educating yourself as to what smart money and smart techologists are doing in a very fast moving, complex energy landscape? Read my news reports online free in "The Energyst.com", and its rivals BusinessGreen.com, SolarPowerPortal, EDIE, EnergyVoice, EnergyNews.

01:24:15 Green Party Events: Come to conference: <https://www.greenparty.org.uk/conference/>

01:24:31 Terry: The top question on my list is about nuclear. Is this going to be addressed?

01:24:54 Peter Dunsby: "Blue hydrogen" refers to hydrogen made from methane gas via a chemical process that causes CO2 emissions however the CO2 emissions are captured as far as possible. Green hydrogen is made via clean electricity and electrolysis which is splitting H2O into H2 and O – water goes to hydrogen and oxygen.

01:25:51 Peter Tutt: The IEA say that methane leaks from oil and gas can be reduced by 72%, CCS may not be perfect but until some viable means of storing energy is invented, unless we want societal collapse, we need it to provide energy for when the wind does not blow, which is a very frequent event. With CCS 96% of CO2e emissions

can be prevented

01:25:52 Linda Walker: Agree with Lee Booker that we need more thinking about changing the whole system

01:26:07 Sue James: But no wood stoves especially in towns and cities!

01:26:23 Joe Burlington: @julesbristow Do you think we can avoid riots without rationing of some kind/

01:26:39 Lee Booker: when people choose an energy supplier, unless you have the means to spend, which most dont. You choose the cheapest deal you can find. Most people are not bothered what it is, they are bothered about affording it. Most energy companies lie about being green anyway, which is beside the point.

Most people dont have much money. and this is why you need more of a class based analysis and approach. You need to look at the relations of production. Eco socialism, Eco Marxist reading.

01:27:04 Jan Davis: Thanks Peter Dunsby, I was typing too quickly!

01:27:14 Colin McCulloch: Lee Booker: indeed! Extractive financialised 'late capitalism' especially... which demands perpetual economic growth to produce 'rents'. De-growth, post-growth etc need seriously different economic models. Otherwise we head to 'eco-fascism' with corporate power controlling the green transition; and no justice in that.

01:27:26 Rachel Smith-Lyte: yes Nick!

01:28:04 John Booth: Efficiency of photosynthesis: https://en.wikipedia.org/wiki/Photosynthetic_efficiency For actual sunlight, where only 45% of the light is in the photosynthetically active wavelength range, the theoretical maximum efficiency of solar energy conversion is approximately 11%. In actuality, however, plants do not absorb all incoming sunlight (due to reflection, respiration requirements of photosynthesis and the need for optimal solar radiation levels) and do not convert all harvested energy into biomass, which results in a maximum overall photosynthetic efficiency of 3 to 6% of total solar radiation

01:28:12 Joe Downie: Public transport also needs to be way cheaper.

01:28:16 Jane VeganforAnimals alexander: How can Herefordshire farmer get DEFRA to destroy his trees so as he can be paid for new tree planting? URGENT he must be stopped

01:28:17 Jules Bristow: @joe I think there's a lot of scope for doing things that people will see improving their lives first, eg insulation making homes cheaper and healthier, support for active transport making life more pleasant for everyone in terms of particulate pollution and road safety

01:28:22 Joe Downie: Or even free!

01:28:24 Terry: Electric cars are creepy, you cant hear them coming.

01:28:34 Drusilla Long: Public transport such as buses need to be free and trains cheap and frequent

01:28:35 Anna Abdelnoor: Hey Lee. Absolutely, you choose the cheapest energy supplier! But it's a misnomer that it's 'more expensive' to have green energy. Websites like Big Clean Switch are designed to help you swap to renewable energy providers that are

affordable. This isn't to say we should be looking at a class based approach, but swapping away is really not comparatively expensive!

01:28:56 rosamund adoo-kissi-debrah: Evs are part of the revolution

01:29:03 Chris Harris: Hydrogen is not pollution/greenhouse gas free if simply burned as in a current gas boiler or internal combustion engine. The high flame temperatures give rise to NOX. Fuel cells are good, but see earlier comments on rare materials. No free lunch here.

01:29:14 j m: @LeeBooker I'd like that too. & could do with a trip to the museum of neoliberalism.

01:29:22 Lee Booker: electric cars need to be affordable and reliable. Government needs to intervene far more. Its not just the intiail cost that needs considering, its cost of maintenance, repairs etc.

01:29:37 mike longman: It takes 27 hours to get from one end of the country to the other by train

01:29:46 Jane VeganforAnimals alexander: Farming fiddle with defra. How can Herefordshire farmer get DEFRA to destroy his trees so as he can be paid for new tree planting? URGENT he must be stopped

01:29:48 Sue James: Terry...I agree the electric cars are dangerous...they will have to make a noise...like an engine???

01:29:55 Kate Silvester: what 'drives' the need to travel in the first place? The NHS accounts for something like 15% of the journeys by road. can we reduce these journeys?

01:29:56 Lee Booker: and the batteries, people ignore the issue of the batteries for electric cars.

01:30:04 Carla Smith: I would be happy to have a heat pump despite knowing we might not be as warm as with fossil fuel. I'd compensate with a jumper and a blanket if it mean't we could decarbonize with a heat pump and do our bit to help. My biggest gripe is how the Green Grant is set up for householders and how much money is being wasted in the rollout of it - it's not currently decarbonizing, its insulating.

01:30:17 Craig Simmons: green energy is a finite resource!

01:30:40 Gina Dowding: Can we have those average journey figures - did anyone catch them please ?

01:30:44 Joe Burlington: @Jules This year is 2021 not 1991.

01:30:57 Anna Abdelnoor: @gina - average person travels 8k - 9k per year, and about 5k by car

01:31:11 Dave/Andi Holladay: Public Transportr is cheap- if you don't own a car, and you buy it in bulk at discounted rates typically under £2/day for unlimited bus trips (& tram & local trains for some places)

01:31:19 j m: 8,000 miles av p/a 5,000 by car?

01:31:37 Sara Nairn: Re EV... how much carbon is produced in the making of each vehicle. including transportation?

01:31:50 Terry: Public Transport needs to be able to carry bikes. I use my bike to go to and from the station and the train does the longer bit of the journey. My e-bike wont go on the train through the bike entrance so I use the wheelchair door as its wider. That often puts me in conflict with the conductor. In Europe the trains are built to carry many bikes easily, but its not so easy here.

01:31:58 Bill Bordass: There is a clear argument against nuclear: it takes so long to build that you could done more, for the same or less money, in the time it would take to bring new plant onstream. So it makes no economic sense even before you start to count the risks of fuel extraction, transport, use and legacy.

01:32:01 Lee Booker: Public transport isnt cheap, its unreliable and it certainly isnt clean. The trains are an absolute robbery!!!! People are ignoring structural issues en masse and its melting my mind.

01:32:19 Bill Bordass: Surely the challenge is not just to decarbonise energy but to reduce stuff generally.

01:32:28 rosamund adoo-kissi-debrah: I agree Lee

01:32:34 Carla Smith: embodied carbon - everything has a carbon footprint!!

01:32:43 Jules Bristow: The pandemic has shown us a lot of people can work form home if the broadband infrastructure is there, and it seems popular, that's a quick win for reducing journeys

01:33:05 j m: Stop buying stuff, watch your consumption, fund libraries

01:33:28 Bill Bordass: So we must shrink demand as well as re-engineering supply. That also unlocks a multiplier effect.

01:34:01 Carla Smith: I opt to wear a jumper to keep warm for a start - live more based on my need rather than want. BUT what is the government doing??

01:34:14 j m: Email your local, regional, national MPs. Let them know that if you can see with no degree that they haven't got a grip & they need to now

01:34:22 Lee Booker: is investment based code for keynsianism ?

01:34:28 judy seymour: But UBI is a consumption based policy

01:34:40 Joanna Collins: Yes, reduce stuff

01:34:47 Sue James: Agree Bill!!

01:35:09 Jason Light: Can we move to an Environmental Contribution rather than Carbon tax.. to take into account all the environmental implications of decisions (Pollution, Air Quality, Ecological decline.. & Carbon).

01:35:11 Peter Dunsby: Electrifying heating and transport reduces demand (measured in kWh) massively as heat pumps and electric cars are 3x as efficient as gas boilers and petrol / diesel cars. Hopefully we can cut car numbers even if not car miles!

01:35:11 Jane VeganforAnimals alexander: yes cut methane

01:35:12 Carla Smith: @bill the economy won't like our shrinking demand!! What will they do for profit !!

01:35:17 Drusilla Long: Stop driving, flying, eating meat and using air con

01:35:22 Sara Nairn: diet Is and energy issue!

01:35:42 j m: Find Mike Berners-Lee books

01:35:58 mike longman: reducing Methane is unlikely to have a cooling effect just reduce the rate of warming

01:36:02 Jane VeganforAnimals alexander: Yes Sara Nairn tx

01:36:26 j m: reducing warming makes a difference

01:36:35 Jon Prince: Could we have a link please to the diagram shown earlier of the Green Party view on a renewable energy balance. How does this plan match the CAT Zero Carbon plan?

01:36:42 Adrian Bowyer: If we get 40+ degree summers, we're going

to need air con to avoid killing people.

01:37:01 j m: every 0.1°C we don't rise is very useful

01:37:02 Chris Harris: Would a carbon tax end up as an extra tax on poorer people? Buy a £40,000 electric car and the government gives you money. If you can only buy a car costing 1% of that your travelling subsidizes the EV and doesn't help reduce your footprint

01:37:08 judy seymour: Universal Basic Services is an investment based policy. Put it together with a public sector job guarantee and you have the real deal.

01:37:08 Stephen Hesketh: Has ANYONE managed to copy the chat?

01:37:12 Sara Nairn: if you move to live in Wandsworth you get a free dog! Stop feeding meat and fish to your dog..or better still get rid of it!!

01:37:13 Jo Salter: Re-align subsidies for planet damaging industries ie. meat, airlines, general mass farming and production

01:37:23 Carla Smith: seems to me like the public are more willing and wanting ... not sure about other bigger industry drivers..I can't see any benefits from there yet.

01:37:27 Peter Dunsby: Adrian B. - heat pumps can cool too!

01:37:55 Drusilla Long: Air con is the main one of the worst fossil fuel consumers and polluters

01:38:03 Adrian Bowyer: Yes they can. Unless you have one that is being reimbursed by the govt., when you can't reverse it to do that.

01:38:29 j m: @AdrianBowyer heat pumps cool as well as heat

01:38:39 Peter Dunsby: Adrian - latest RHI language allows cooling, Very recent change.

01:38:40 Lee Booker: companies in this country pollute our rivers with impunity due to no funding for environmental agency anymore. If you want to carbon tax you need to think how to enforce it!

01:38:47 Adrian Bowyer: Ah! OK.

01:40:10 ANDREW MELVILLE: Copy of RSPB report please.

01:40:22 j m: Some people love their cars more than their families :-(

01:40:30 Anna Abdelnoor: @Cedric Knight - who are you? Thoroughly enjoying all your comments! Keen to connect offline - LinkedIn? I'm findable :)

01:40:34 Jenny Kirtley: Local groups here in Suffolk are having a peaceful demo on Sizewell Beach on 19th September details on Stop Sizewell C & Together Against SZC, please join us

01:40:35 ROBIN HENSHALL: This has been fascinating and extremely useful. Many, many thanks to Carla and the presenters for an outstanding session.

01:40:38 Anne Thomas: Listening in from Scottish Greens and we are having a lot of discussion about our carbon Neutral target would really like to talk to someone from the energy working group. Anne.Thomas@higreens.org

01:40:50 James Kirkham: Thank you all. Really informative.

01:40:51 Kris Frank: Thanks everyone for all the useful links

01:40:55 Julian Goode: Brilliant session - thanks Carla and everyone!!

01:41:02 Terry: Thank you for the ideas and discussions.

01:41:05 Kate Silvester: thank you for all your hard work

01:41:11 Chris Harris: Thank you. A really good session.

01:41:12 Anthea West: Thank you everyone
01:41:18 Sue James: Thanks everyone
01:41:21 Amy Wilson: @lee You may need to rely on market mechanisms to police the carbon tax! (*slinks guiltily away...*)
01:41:32 Green Party Events: Come to conference:
greenparty.org.uk/conference/
01:41:34 Marie Zabell: Thank you. And please please don't be anti-nuclear.
01:41:44 Sarah Alewijnse: Thanks all :)
01:41:46 Dave/Andi Holladay: @Terry as the NL will tell you PT should NOT carry bikes as there is finite space - just as we stopped doing Motorail & ferries should boy need to carry cars & trucks - gire one at each end of the journey you can'y tide the bike on the train!
01:41:46 khalid mahmood: Great webinar very informational
01:41:48 Brian Utton: Thank you
01:41:50 j m: Thankyou folks
01:41:54 khalid mahmood: Well done host
01:41:58 Amy Wilson: Brilliant sesh!!! Ta!
01:41:58 Mike Airey: 😊
01:42:01 Mik Norman: Thank you
01:42:01 Dan Thomas: Thanks all that was great
01:42:02 Dorothy Wilson: Thanks to everyone
01:42:02 Jenny Kirtley: Please be anti nuclear
01:42:03 Jason Light: Thanks all
01:42:03 Ken Barker: thanks all!
01:42:04 Barry Wheatley: Thank you for a well run and very stimulating session