

DOCUMENT OVERVIEW

This file documents the responses of online focus group participants regarding their views of **energy and environmental policy in the United Kingdom**. The sessions were conducted between February 14 and April 6, 2022. The focus groups were moderated by the Doctoral Researcher (Joel A. Gordon) with support from members of the Department of Energy and Power at Cranfield University, including the primary supervisor (Dr. Nazmiye Balta-Ozkan).

Participants responded to the following questions:

- 1. What are your views about climate change and the environment?**
- 2. What actions do you take to help the environment?**

From a total of 58 participants (across ten focus groups), 38 individual responses were recorded. The responses have been amended where required to ensure better interpretability for the reader. Table 1 provides a summary of the focus groups categories, which can be viewed in more detail at the end of the document in Table 3. Table 2 provides the findings of interest on environmental views.

The full transcription from each focus group is found at (available 01/04/2023:

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Table 1. Summary of focus group categories

Focus Group(s) (FG)	Description
FG1	Moderate interest in RE and some willingness to join a RE community (Pilot)
FG2	Strong interest in RE and desire to join a RE community
FG3 and FG9	Owners of solar PV panels and multiple smart home technologies
FG4 and FG8	Actively engaged in environmental issues
FG5	Citizens of an industrial city or town
FG6 and FG10	Living in fuel poverty or facing high levels of fuel stress
FG7	Baseline group (filtering out all of the previous categories)

Table 2. Public perceptions of environmental and energy issues in the United Kingdom

Participant	Views of energy and environmental issues in the United Kingdom
FG1:1	<p>The village that I grew up in used to have a very free-flowing river, which is no longer, sadly. So, on the rare occasion that we get enough rain to fill it out, it's just a bog sadly, which needs to be cleared...I think we're [UK government] a bit short-sighted in what's the immediate changes as opposed to the long-term changes. For example, we might be trying to push electric cars but what are we doing about the recycling of batteries. Too many things like that haven't been answered yet...and then you've got a battery at the end of 10 years to put into landfill. So, as much as I'm in favour of progress, I think we're too quick to jump rather than plan for the long-term.</p>
FG1:2	<p>I think we are more aware of climate change and people are very good at talking about what we should do; but again, it comes back to practicalities of is it affordable to be greener – but also you know, not making the situation worse, is it possible? And how do we get that balance right of being comfortable?</p>
FG1:3	<p>... and how is the electricity being produced? If it's still coming from fossil fuels, then it's no better than driving your petrol car.</p>
FG1:5	<p>One of my concerns with climate change is you don't know how harsh the winter is going to be, and therefore you don't know how often you're going to need to have your heating on. Cause obviously you don't want to be suffering, but at the same time you don't want your pocket to be suffering either. So that's the concern I have, that it's not consistent each year...there's lots of marketing saying you need to be doing this, you need to be doing this, but actually we're not presented with all the facts to make an informed decision necessarily. And there's lots of targets and things that come in from the government to make these changes, but is it actually the right thing? Will it help us in the long-term or will we just be stuck in the same place, just presented slightly differently?</p>
FG2:1	<p>For me, it's about what it's going to cost overall. Energy bills are shooting up, the cost of living is rising, so what is this going to cost us? Because yes, I'm a supporter of net-zero and we want to do our best for the environment, but we can't afford it...I have a 22-year-old son moving out soon, and it worries me about how he can start off on the property ladder. If you're trying to pay your bills and your mortgage, and you have extra costs for the government's net-zero vision, that worries me a lot, I've already seen my energy bills shoot up...I'm also a teacher with the younger ones and that is what they are interested in – Year 6 that's what they study most, Climate Change - even the 5-year-olds are aware about recycling and passionate. But can we afford it? Government subsidies – they come from taxes, don't they? So that's what worries me. There's no free money from the government. For me at my point of life, I'm a bit more comfortable now, but it worries me about the younger generation.</p>

FG2:2 I'm teaching this [energy and environmental education] to students aged 16 and above, and they are too young to remember – I'm 68 and remember harsh winters...Spring would come, and then I see on the news tonight the weather we've got, all our flowers are out now in February which is bonkers. I'm teaching combined heat and power (CHP) to my students, and I worked in a Combined power generation station nearby. And it was using animal waste products burnt at high temperatures to get rid of dioxins and then reporting back to the government everything that was going up the chimney. It's education...if you can educate people to realise about nuclear power...or for example, if you have an electric vehicle but the energy you're using to charge your vehicle is not particularly clean or green. Okay...so let's re-educate everybody...it was the same with the solar panels scheme, and they had to scrap the feed in tariffs. It's a problem of recovering the capital costs. It just takes too many years for most people to even consider.

FG2:3 I've been vegetarian most of my life and became vegan four years ago, and my kids are vegetarian, and my wife is passive vegetarian. But the point is they'll ban plastic straws which are harming fish but then they will eat fish. So, if we really want to start making a change to the planet, we need a completely different mindset. To change farming and the way things are done...changing from gas to electricity won't change anything. We can solve a lot of problems by solving meat and dairy consumption...10-15k from the government goes nowhere... solar didn't even make financial sense in America with ten months of good sunshine throughout the year. For the gov. to introduce this stuff they need to give the right incentives for people to use it...I'm willing to cut down my company profits to do the right thing for the environment. It's a conscious financial sacrifice, but not sensible for most.

FG2:5 When you talk about electricity, when there's pressure on the grid you still have to back to using gas or coal, so anything that can reduce demand in general would be best. There is an app I use which shows the UK electricity generation and carbon emissions, and there are wide disparities. Yes, renewables are better than fossils, but the main thing is to use less energy, or to use it at different times. Smart controlling in building and using that with passive measures to reduce the carbon footprint

FG2:6 I think a problem is with all these technologies is that everything's moving so fast, that whatever the government backs today, it will be out of date tomorrow. You look at electric cars...I think all they've done is shift the problem somewhere else because mining lithium is clearly not environmentally friendly, although the finished car is meant to be the greenest thing on the planet. It's not really environmentally friendly. When you look at green vehicles, we're still years away from reaching it and I think hydrogen is really the way to go because we don't have the infrastructure for electric cars.

FG3:1 Climate change has got to be dealt with even in the short-term because we're hitting real trouble. Just look at the recent weather conditions for example. Things have to be done...with the modern technology, you can have solar panels installed into the roof, built into the floor tiles. The obvious one

[scheme] is the grants that are available for free solar panels, for those that are eligible, but it only applies if your income is lower enough – not in my case...the current batch, they are actually grants...watch out for loopholes, be careful! Even before the gas prices rocketed, renewables were approaching the same level. In fact, these days renewables are often cheaper than non-renewables. It's a matter of perception.

FG3:2

Well, we have a lot of wind farm here [in Southwest Scotland] which is great and cleaner. And there should be more of a shift to these renewable energies really. Solar is not that popular...wind there is...from these large-scale farms...a big nuclear part close by to here is being decommissioned, but I think it would be better to have nuclear. The perception you have from most people you speak to here, at least, is they don't like solar panels on the house because it diminishes the attractiveness of the house from potential sellers...a lot of people still frown on it. I think some places in the Mediterranean are more advanced in that way because the government give a lot of incentives to people, like in Cyprus and Malta for example, to install solar with 50% subsidies. Here, the amount you get back via the feed-in-tariff is peanuts nowadays, in fact it's even stopped since a couple years ago, so it's not pushing in the right direction. Some of these grants, you have to be careful too, because they're not really grants, they're loans. We have solar panel and smart devices and that kind of thing. We're interested in an electric car also, but they are still very expensive, and not all manufacturers have come out with a good model like Toyota...it's a big problem that there are still not enough charging points around, if you have to drive one hour to get to work... also the battery. The electric cars are great in of themselves, but what are we going to do with all the batteries once those need to be replaced and the cost of it.

FG3:3

In my area [Portsmouth], they've just introduced a clean air zone in the city because we were not meeting government standards. So, it is becoming a big problem, the air quality in a lot of cities around the country. So, it's something that's got to be addressed really. We're taking a bigger lead than a lot of other places [in the UK] to be honest...we're actively looking at getting an electric car, seeking advice to sort something out.

FG4:1

We have here [in Leeds], one of those 'Next Door' groups that often arrange litter picking sessions. Some involve the councils, others don't. But they go around with these big bags and gloves, and proper litter picking at weekends, and they get people to sponsor them, such as local bakers or butchers giving a voucher. It's just volunteering, but it has been quite successful, and it has made a big difference. It's a good community thing to get involved in. I think we could do better, there's definitely room for improvement. I think everyone is so busy, tied up with their own lives, juggling different priorities – families, work...I don't know...maybe if we all gave it just another 10% effort, it could make a big difference.

FG4:2

Living on the coast here (Pembrokeshire, southwest Wales), quite a few years back we did have quite a big disaster: the Empress ship...we had a lot of oil all over the beaches, and it took a good 5 or 6 years until we overcame

that...so anything that can help [with the environment]. We have a big thing down here with LNG [liquefied natural gas], so I think we need more wind farms and solar panels, and I'm seeing more...I'm seeing more in the fields...whereas when I was a child there was lot of spuds and veg. Now, every fourth or fifth field seems to be solar panels in there, which to me is fine if it helps the env. I'm all for that. We have both onshore and offshore wind, but the most I see is around the refineries everywhere down here at the moment...and they're looking into putting some more at sea...especially the solar panels seem to be picking up a lot actually. I've noticed a few of the farmers turning over their fields, if it works, it works...it's got to be better...18 months ago, our council introduced recycling, so we're only allowed to put one bin out a week, but they don't pick up the general rubbish for three weeks, but in between that time they give us quite big sacks that you put tins and other things in, all separate. Each sack goes out a week. I'm amazed by how much plastic and paper we use. I never gave it thought before, but now we've these sacks it's frightening and it's definitely made me think a lot more about recycling and what future we're leaving now for the grandkids You know, they're my life...but what about their future? If they don't do it now [climate change] ...what are they going to have? We're lucky everybody seems to have taken on board this recycling. It really hits home how much rubbish comes out of just one household. It's frightening, really is frightening...there's definitely room for improvement, but the government are aware of it and they're making us more aware of it...they have started to help really...I have seen a scheme about the boilers being replaced within the next six years, but at the moment they're [heat pumps] about 12k, which is way off. All new builds have got to have them in now, haven't they? They're not allowed to have new gas boilers, so I have heard about all that and the information on that. So, just waiting to see if the price comes down and how good they work.

FG4:3

Here in Ipswich, we've got a big litter problem. It is really bad. There's a gentleman on Facebook who's got his own page and he's does 'rubbish walks'. It's really bad. We have to cut down on plastic and littering. I definitely think we could do a lot more [for the environment], yeah.

FG5:1

There's been an increased focus over the last couple of years thinking about climate change, the use of technology, and what we're doing in the home. Recently, I've heard a lot of talk about different kinds of boilers and the different grant schemes...my biggest concern is I want to make a difference but at what cost is it going to come at? What will be the burden for future generations, and what will be the outlay on everyone to do the right thing? There's been a big focus on solar panels and wind turbines.

FG5:2

There's lots of education to be done going forward. Things that we used to do that we now take for granted, very simple things – like we have so much packaging and paper and cardboard boxes, and plastic for everything. Gone are the days of buying one lollipop or milk in glass bottles. It's all big orders and plastic clogging up.

FG5:3 There was reluctance as COP26 with some of the big countries like Australia not signing up to the agreement about fossil fuels. For me, we can all do our bit, and it will still amount to something if we do our bit individually; but without countries taking the lead properly and committing their outputs, climate change will continue to accelerate...the payback period on them [solar panels] is very long and a lot of them are not as efficient as perhaps they should be.

FG5:4 We must do everything that we can now because I'm worried about my children and grandchildren – children of the future – I mean I'm 68, it isn't the point that it lasts my lifetime only, is it.

FG5:5 I would love an electric car, but I don't think I'll ever be able to afford one. It's very important that everyone does what they can now because that's going to snowball into the future.

FG6:1 I recycle everything also and try to get the energy bulbs in, but they can be quite expensive...when changing the whole of the house...you recycle as much as you can at home, but when you're out in the community there's no recycling bins. If you go to the park, it's just one bin. We're not doing much there. It's good to see that we're reducing packaging...paper straws...we're a little bit behind everybody else. You go to Spain and walk down the street and they've got all different types of bins for you to put your rubbish in.

FG6:2 Gas and electricity and household fuels play a big part in climate change; somethings which is clearly happening. I do like that energy providers are making green tariffs now that actually make you think more about which supplier you go with...most people recycle now – for me, it's about trying to use less unnecessary heating and making sure the doors are draft proof, switching lights off. Just trying to make my home as energy efficient as possible without using loads of energy. I don't think we're [the UK] doing very well compared to other countries, others are much more efficient at getting households to be more on the ball with energy and I think the whole recycling thing is much better in other countries than it is in the UK. We're probably behind on a lot of things, even though we're doing it, we're quite slow to get the ball going. I only know about green tariffs, that's as far as my knowledge goes.

FG6:3 I've heard about green tariffs...especially solar energy to your house is coming into play but it's the expensive of having it installed into your house initially and hopefully using less gas and electricity. I think it's going in the right direction [policy action] with a big focus on climate change at the moment globally. It's definitely something to be looking at, and if it's feasible more people would be getting it and trying to do their part. I use smart bulbs around the house and recycle everything I can using all different bins and try to save water also. I feel proud of what I'm able to do on my behalf...if everyone did their little bit then hopefully it would make a big difference on the wider community.

FG7:1 Climate change is happening – just look at the recent nightmare weather. Watching the news regarding energy, climate change and the environment, the issue is going to be about cutting our foreign gas supplies and then we'll have to go back to more North Sea gas and even coal because we don't have enough wind turbines and renewables. We'll have to rely more on our own [domestic] gas source... You've got solar panels, but the cost to install them, you'll get the benefit in 10 or 20 years, but not many people can afford to install solar panels. You can get 'plug and move' solar and take it with you... I think one of the problems you'll find with solar panels, and in my case, the roof is not big enough. I've heard that these heat pumps aren't the panacea that people say they are and they're actually quite expensive to run.

FG7:3 I'm energy conscious around the home. I switch lights off and watch the energy and water I use. But the renewables like heat pumps and goodness knows what, you're talking £15,000. I know it's the cost again, how many people can afford that? Ans the theory that the government and others, but mainly the government are coming out with all this about heat pumps and do this for the environment...and also electric cars...in theory it sounds great, but in practice, general Joe public haven't got the kind of money for the environment that they [the government] want and unless they are willing to help everyone – Joe public – then I don't see how it can succeed

FG7:4 Renewables are the way forward, but we haven't scratched the surface as there are lagoons, tidal power. I've invested in some charitable wind farms. We've got a long way to go, but it's definitely here climate change, and I think the way forward is to cut down the energy that we use rather than looking for new sources.

FG7:5 My older children are less concerned than I am [about climate change] ...solar panels also look very ugly and if you're moving house, you're not going to install solar. I wouldn't entertain it, as we're moving in a couple years' time, and it would be a waste of money.

FG7:6 Climate change is a conversation that's constant in our kid's generation in school. All the time they are talking about renewable energy, and at home my kids say, "turn off the lights, think of the penguins!"

FG8:2 I invested in solar 10 years ago, paying the price of a good car – £6,000 at the time. Now I'm at the stage where I want to put a battery on, and I may need an air source heat pump (ASHP) due to my old central heating, but an ASHP is still the best part of 15k even with these new government allowances. So yes, it's pie in the sky territory as far as that goes. And also, you can't go to someone else's house and go you've got a heat pump and I want to listen to it in the middle of the night – nobody is sharing that kind of information. They are telling you how much it saves you and how well it's working in an insulated house. I have an older house and if I want to go for an ASHP, I have first got to spend thousands on getting my double glazing upgraded AGAIN, and my underfloor insulation and various other things up to a level they will accept for my use case. It's no fun.

FG8:4	I thought a while ago with the government planning and regulation, that it's all changing to put heat pumps into homes, but they seemed to have backtracked on that as well and never seem to understand why that was...but if you want to drive these technologies forward, you've got to put them into a lot of homes and have the investment there, then the price will come down.
FG9:1	We hit a turning point about two or three years ago, probably brought on by our children, and education through our children and what they're learning at schools or colleges. That's why we've ended up moving towards solar panels and battery storage. We've got tow electric cars now and got rid of a diesel camper van. We don't fly anywhere. So, all these little bits and pieces have pushed us towards doing the right thing, which is not easy for everyone to do. It's been really expensive making a lo of these changes, but for us we felt it was the right thing to do.
FG9:2	My personal opinion is that everybody needs to take relatively large steps to try to reduce wastage. Yes, you can change your light bulbs that's going to be miniscule. The biggest consumption of energy for the average person is travelling and heating a home using large-powered appliances. Efficiency of gas boilers is now 90 odd % which is pretty good and you're not really going to get much higher, but anything where we can curb our usage away from burning stuff, that must be kind of the objective for me personally.
FG9:3	I plan on switching all my appliances to ones that won't emit CO ₂ . I feel 'going green' is something that I've been trying to do and incorporate into my life and my family's. And I'm open to smart cookers, smart everything, and removing appliances that will emit substances harmful to the earth.
FG9:4	I feel there is more to it and climate change is something that we just have to cope with.
FG9:8	We need to invest more in renewable energy sources like the solar and we need to encourage the use of hot plates. I still think renewable energy sources are the long-term solution though.
FG10:2	Everybody is responsible – the entire nation, the local communities – and it's our responsibility to change the environment with proper recycling, energy saving and other actions.
FG10:5	For me, it's about the burning of fossil fuels and how these affect the weather and temperature patterns...one person can't do everything, one person making a change doesn't matter. It's more about putting it into law and making it compulsory for people to be involved in this process. That could actually help.
FG10:8	...with solar power, if we can harness this potential to the fullest...this means also collaborating with other countries to build solar in the desert...this pathway is much better. It should be a compulsory law that most industries go with renewables. Solar systems can be efficient for large scale industries, it's there to be harnessed.

Table 3. Details of Focus Groups, February–April 2022.

Focus Group no. and date^a	Focus Group category	Total no. of participants	Location(s) of participants	Recruitment method
FG1 14/02/2022	Moderate interest in RE and some willingness to join a RE community (Pilot)	5	Marston Moretaine, Bedfordshire	Networking with members of the local community
FG2 17/02/2022	Strong interest in RE and desire to join a RE community	6	Marston Moretaine, Bedfordshire	Networking with members of the local community
FG3 21/02/2022	Owners of solar PV panels and multiple smart home technologies ^b	11	Kilmarnock, Lancashire, Lincolnshire, London, Manchester, North Wales	Market research company (FG3)
FG9 05/04/2022				
FG4 23/02/2022	Actively engaged in environmental issues	12	Gloucester, Ipswich Kent, Leeds, London	Market research company (FG4)
FG8 04/04/2022				
FG5 25/02/2022	Citizens of an industrial city or town	5	Falkirk, Flint, Liverpool, Scunthorpe, Yorkshire	Market research company
FG6 28/02/2022	Living in fuel poverty or facing high levels of fuel stress	13	Cheshire, Isle of Wight, Leeds, Liverpool, London, Manchester	Market research company (FG6)
FG10 06/04/2022				
FG7 02/03/2022	Baseline group	6	Deeside, Eastbourne, Hertfordshire, Reading	Market research company (FG7)
Total		58		

Source: Authors' design.

^a Due to low participation in some of the initial focus groups (FG3, FG4 and FG6), the research team opted to organize three additional focus groups to secure larger sample sizes for the affected categories.

^b The following devices were included: smart lock, video doorbells, smart thermostat, smart alarms, smart camera, smart speakers, smart bulbs, smart plugs, smart kitchen appliances, smart light switches, robot hoovers, smart blinds, smart smoke detectors, smart TVs, garage door openers, universal robots.