

GEORGE MONBIOT'S BLOG



The Heart of the Matter

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This is by far the most interesting and challenging debate about nuclear power I have had to date.

By George Monbiot and Theo Simon, over the course of eight months.

George's note: This debate began with an email I sent to Theo, which I did not intend to publish. Theo wrote a powerful response and posted the correspondence on his site. I then replied, and Theo has now answered my second letter. Here is the whole debate.

I have had many discussions about nuclear power since changing my mind about the technology: by correspondence, online, in person and in the broadcast media. But this has been, by a long way, the best. Unlike so many others, Theo Simon has directly addressed the points I have made, rather than attacking me for things I have not said (see this for a prize example of the latter tendency). He has engaged seriously with the dilemmas we confront. In other words, he has listened before responding: I wish more people would. Just as tellingly, he has remained courteous and friendly throughout: a rare enough quality in online debates. I hope I have responded in the same spirit.



From George To Theo, 21st February 2012

Dear Theo,

I hope you are all thriving. I'm writing because I saw that you have been campaigning to prevent a replacement for the nuclear power station at Hinkley, and I think that is the wrong thing to do.

It is true that we could replace all current power generation with renewables. But it would take longer and cost more than if we were to sustain nuclear power as part of the mix. As you know, we are already on the margins of possibility of avoiding more than two degrees of global warming. Replacing

coal and gas in time to prevent runaway warming is a tough enough challenge for any country. Doing so at the same time as replacing nuclear power is nigh-on impossible. I hope you are aware of the dire news from Germany, in terms of the massive contribution to emissions the shutdown will make, despite Germany's efforts at efficiency and new investment in renewables: if not, you can follow the links in the article I've appended below. Now we see a similar disaster emerging in Japan, as it switches from this low-carbon option to coal and LNG.

I admit that none of our options for generating electricity are good ones. I don't like nuclear power, and I would be happier if we could do without it, but I know that if we shut down the UK's nuclear plants and don't replace them, the gap will almost certainly be filled by coal and gas, greatly increasing greenhouse gas emissions. In fact it is quite likely to be filled by shale gas.

Yes, we could and should cut total energy use. But should we cut it in order to help get rid of fossil fuels, or cut it to help get rid of nuclear power? We certainly can't do both by these means.

Faced with a choice between the two options, there is not a shadow of doubt in my mind that fossil fuel is the worst. I don't need to spell out to you the impacts of climate change, or of coal extraction, or of the local pollution associated with coal and to a lesser extent gas burning. Beside these the potential impacts of nuclear power are tiny. Coal kills more people when it goes right than nuclear power does when it goes wrong. In fact coal kills more people every week than nuclear power has in the entire history of its deployment.

The uncomfortable fact is that the opponents of nuclear power (among whom I numbered until recently) have justified their position with levels of bullshit and junk science very similar to those used by the climate change deniers, and Stop Hinkley is no exception. When I wrote to Katy Attwater, expressing my concerns about the quality of the scientific evidence on their site, she told me "I have no faith in the Scientific peer review process as it currently works." Just like James Delingpole, David Bellamy etc when it comes to climate science. I've attached our correspondence for you to see. I have to say it made my heart sink.

Theo, we need you too much for the battles that need to be fought. God knows there are enough of them. But the inevitable result of this one, if it succeeds, will be to raise our greenhouse gas emissions, help threaten life on earth and compromise the life chances both of future generations and of people living now in countries poorer than our own. That is not what you or any of us began campaigning for. But as the results of both the German and Japanese experiments demonstrate, it's now clear that this will be the legacy of anti-nuclear campaigning. Please think again before you counteract all the good work you've done on other issues.

With love from George



From Theo to George, 29th March 2012

Hi George,

and thank you for taking the time to write. I appreciate your commitment to getting our energy policy right and to bringing your friends along with you.

I was unable to receive and then easily respond to your mail after you sent it on Feb 21st as I was living at the Hinkley occupation camp, then preparing for a High Court case, and then dealing with

the eviction and it's aftermath. However, I think this is a welcome opportunity to contrast our positions around nuclear new-build, so I am writing now.

It's ironic that you wrote to me about my involvement in our Somerset campaign against the proposed Hinkley C at a time when we were trying so hard to raise national media awareness. Normally you would have been my journalist of choice for amplifying the story, as it has a lot of the elements you might have liked to get your teeth into: little people vs. big business; corruption of the planning process to favor corporate interests; democratic decisions prejudiced and mis-directed by government officials; lack of accountability and transparency; flagrant disregard for processes which protect our natural heritage; media monopolization, and of course, bribery.

But I didn't think you would want to champion this particular case because the outcome of the whole sorry process is set to be... a new nuclear power station! And since you have already decided, ahead of ongoing public consultation and the IPC examination now in progress, that Hinkley C must be built, any efforts to challenge or interrupt that process must therefore be "the wrong thing".

I can give you the benefit of the doubt and guess that you aren't aware of the detailed issues here on the ground. Your legitimate pre-occupation with cutting CO2 emissions – which is in itself welcome – has led to the exclusion of other important concerns from your thinking about a new-nuclear future. The process in West Somerset has now brought those real-life concerns into sharp relief.

Interestingly, some of the best and most supportive people who passed through our brief occupation camp were not anti-nuclear per se, and a few of them had been persuaded by your recent arguments. But they were people who value the democratic safeguards which limit corporate land-grabbing and environmental destruction in Britain – safeguards which the new planning process has now fatally undermined. From their point of view, what is happening at Hinkley is a test-bed for the whole "fast-track" planning regime and what it could mean for projects in other parts of Britain – road-builds, runways or any other project favored by a government that justifies new-nuclear by its commitment to reducing carbon emissions (!)

I don't want to pretend I hadn't already come down on the side of the antis when I joined the occupation. After some re-evaluation in the light of yours and Mark's recent articles, I had. Beguiling as your recent contributions about re-assessing danger levels, possible new designs for nuclear reactors or the need for strong regulation of the industry have been, experience on the ground in Stogursey Parish has only confirmed my suspicion as to what a "nuclear renaissance" will look like in reality.

After a lengthy pre-application process, the IPC has just embarked on its final 6-month examination of the EDF application to build 2 new reactors at Hinkley point. After this period of hearings and written evidence, the panel of commissioners will make a recommendation and a secretary of state will make the final decision. Regardless of your own preference for nuclear, I assume you accept that for this process to be meaningful it must include the possibility that EDF's application will be rejected. If not, then you would have to accept that we now live in a planning dictatorship and that the whole IPC process is in fact a charade at public expense. But if we assume that the consultation is genuine, then clearly by any normal standards of fairness and objectivity it would be wrong for major construction to commence before the permission has been granted.

But bizarrely that is exactly what has happened here in West Somerset. In the next month or so, apparently with a special license to clear ground during the nesting season, EDF's contractors will commence the erasure of 400 acres of West Somerset coastland, including the habitats of red-list species, skylark breeding grounds, bat roosts and the little stand of West Quantocks oak woodland, not to mention a place of much archaeological interest and recreational amenity. All this will be demolished, felled, stripped and leveled before EDF have obtained planning permission to build.

It's an unprecedented decision – and a terrifying precedent. First, get a National Policy statement in favor of your construction project – this means you can then rule out all further discussion about the project's technology, its impact on future generations, its toxicity and safety, and whether we even need it. Even the people whose district it is going to be in may not consider these matters once it is a National Policy.

Next, slice up your planning application into smaller bits. Apply to the District Council to start the earthworks – since it isn't structural it doesn't need to go to the IPC, and since the project before the IPC will be in line with National Policy anyway, you can probably assume it will get the go ahead and rip up those TPOs now. This has the advantage that the environmental impact will be irrelevant by the time they make their recommendation: it will have already happened. Rare habitats? – What rare habitats? The other advantage is that by the time it gets to the secretary of state the site in question will have been reduced to a series of bare platforms, ramps, pits and trenches – it will seem almost bloody-minded not to grant EDF permission to finish the job. Of course, there is a very real chance that they will pull out – as Eon and Npower have just done – for financial reasons (or even because of a change of government in the French elections). They may well pull out after the worst damage has been done.

So in the case of Hinkley C you'll end up either with an expensive and carbon intensive trashed building site, or with 2 new nuclear reactors being installed, and a new pile of radioactive waste being prepared, without any consideration having been given to either the ecological impact of the construction or to the health and safety impacts of the process itself on local communities. As you yourself prophesied in a piece about the government's draft National Planning Policy Framework last year "it will be almost impossible to resist development, however destructive or detrimental it might be....everything will be permitted unless there is a powerful reason why it should not be, and the powerful reasons have been ruled out in advance". (Terra Nullius 5/7/11)

The powerful reasons in this case were presented by a host of conservation, heritage and ecological bodies, parish councils and local residents. None of them believed for a minute that the damage could ever be ameliorated or repaired once the preparatory work had been done. EDF's pledges to do just that if the project falls through were described as "ludicrous". (Exactly how this restoration will be achieved is something that EDF have promised to work out later, once they have got the destruction under way). Nonetheless, most District Councillors decided to bow to the stick of National Policy, follow the carrot of local job creation and handouts, and turn a blind eye to the skylarks.

The happy compliance of the West Somerset population with this development is an EDF myth however. The most common description I've heard of the process locally is "steam-roller". Most people I met in local villages while we camped there agreed with the argument we put – that either EDF's preparatory works are an obscene act of negligence, or the entire planning process is now a sham whose outcome is, as they say in Stogursey "a done deal".

But if you want to build a nuclear power station, best build it where they've already got used to it. West Somerset is a community adapted by 40 years of experience to life in the shadow of a toxic industry, resigned to its council-issued Potassium Iodide tablets, trying to make the best of a bad job. It's also a community where the dominance of the public space by EDF and the atom industry is so total it has the appearance of a company town. Several local rags would collapse if they now had to stop being EDF free-sheets. Locals are compromised, not only by the desperate fears over jobs – which of course could be provided for in many other ways too – but also by their dependency on EDF handouts, which are really a kind of corporate social bribe.

One man told us he would like to come up to our camp, but he daren't be seen supporting us as he was a governor of a school set to receive several grand from the developer. In this way, cuts in the social budget lay the way open for a corporation to become an indispensable benefactor to a community. The people of Stogursey are left cowed, muted and confused. "Don't tell anyone else in

the village I was here” says the woman who brings us a generator to charge batteries. I tell her that’s what they all say. They secretly wish us well, but they’ve given up. The best they can hope for is the little concessions they can wring out of EDF. Rumors of corruption and manipulation abound, but no one wants to go public.

It’s that strange atmosphere of fear and paranoia that always seems to hover around the nuclear industry. It hovers around the faceless, box-ticking, bullying EDF as well. Of course, as you pointed out in your piece “Corporate Power? No Thanks!” last July, and as I discovered at the Vestas wind turbine factory occupation – and even in dispute with the BBC – heartless manipulation is a quality shared by most corporations. Although you candidly admitted that “... In most parts of the world the nuclear operators remain secretive, unaccountable and far too close to government” you went on to conclude that “There is no contradiction between favoring the machines and opposing the machinations”.

But I think you miss an essential point about the nuclear machine here: it’s not just its history as “a by-product of nuclear weapons research” that has left it with a few old creases we need to iron out. Its guardedness arises implicitly from the technology itself. Because it is a prime target for terror, a prime source for lethal military material, and so potentially hazardous that all activity around it must be tightly and carefully controlled, it is a process that demands impenetrable security, armed policing and authorized-only access. The paradox is that, as one of the most uniquely toxic industrial processes we have ever developed, the greater good requires that there is total public scrutiny of its affairs – but the world is not safe enough for that, so we must rely on unaccountable self-regulation instead.

Now give a manipulative, greedy corporation a financial interest in that process and watch what happens. Here is EDF being handed a prime piece of our natural heritage on an NPS plate; here is David Cameron’s office cajoling District Councillors to pressure a recalcitrant land-owner into selling her land: here is the County evacuations officer, the aptly named Mr Hurry, visiting our camp to hand out EDF corporate calendars with the Potassium Iodide tablets; and here are the legal papers served on our camp with evidence supplied to EDF by the District Council Press Officer. (Oh yes, and here are EDF extending their Licensed Nuclear Site boundary without permission from the ONR, just so they can deter protesters). I think before you demand solemnly, (but to be honest irrelevantly in terms of the influence you wield), that “A new generation of nuclear power stations should be built only with unprecedented scrutiny and transparency” (ibid) you need to take a reality check. It’s not happening here in Somerset. Our nuclear furnaces are being built and will be administered by a suited snake-tongued gang of legal weasels who even the Somerset and Avon Constabulary have come to despise. But that’s ok; they’ll have their own police force won’t they? – The Civil Nuclear Constabulary, soon to be merged with the MOD police. “It is through such collusion that accidents happen”. You said it.

But it’s not just through collusion. Accidents happen anyway. They just do. I’d love you to have a head to head with a technical expert like the retired high-ranking Hinkley B engineer who came to our camp. From a far deeper knowledge base than mine or yours he’d explain the shortcomings of the EPR design, and tell you how contractors driven by deadlines and financial pressures inevitably build mistakes into complex systems. Actually you could chat with any ex-workers, from this or any other large hazardous industrial process, and get all the hair-raising insights you need into the inevitable foibles of human behavior, compounded by the capitalist bottom line, which make some processes just too risky to pursue.

I see that Mark (Lynas) has been using the term “green luddite” about people like me – a compliment I am not worthy to bear having never risked either a soldier’s bullets, state execution or life-exile as they did for their cause. But this is an appropriate time to recall the words of one such Ludd, 200 years ago this year, that we must “put down all machinery injurious to the commonality”. We don’t need to pick nuclear up. We know it is one of the most hazardous industrial processes we have yet

stumbled upon and that the waste product will remain hazardous into future generations. Just the imposed and non-negotiable responsibility for looking after that nuclear fire once we've lit it will be injurious to them. So also, on an emotional level I think, will be the knowledge that their ancestors just couldn't be arsed to get more creative with meeting our energy needs than leaving them to pick up the tab. In the meantime we have to hope that it won't turn out "injurious" to us.

I do understand of course that, in the light of it's climate changing effect, releasing CO2 through burning fossil fuels is "injurious to the commonality" on another scale altogether. I have campaigned for 2 decades on cutting emissions. But if it turned out that asbestos dust had a temperature decreasing quality I still wouldn't favor spraying it in the air. Other elements haven't suddenly become less toxic to humans because of climate change. There is a constant pressure in capitalism for lowering toxicity thresholds, which makes the current green revisionism promoted by people like Mark very welcome in some quarters. But we should defend lines drawn in public and environmental safety as gains in our evolution towards a rational society. In my opinion, the boundaries drawn around my behavior by the duty of care and the precautionary principle that stems from it are in line with the biological interests of my species and with maintaining the integrity of the biosphere. In other words they are as inviolable as the 7 planetary boundaries identified by the Stockholm Resilience Centre (and used by Mark in "The God Species" as the springboard for his own reactionary ideas). That means I have to create ways to live within them and still thrive. That means, like it or lump it, I'm going to have to do it without nuclear.

As far as I can tell, you don't think that's impossible, but you have given up hope that it's feasible or likely in the time-frame you believe is necessary. That has put you in the contradictory position of on the one hand decrying the existing "monstrous pile of nuclear waste" (Nuclear vs nuclear vs nuclear, 2/2/12) and on the other calling on me to stop opposing the Hinkley C development so that they can make another monstrous pile of fresh hot waste which will need to be stored undisturbed on the edge of the sea for several centuries at least.

You have explained several times now that you favor the deployment of new nuclear reactors which you believe could consume the existing waste legacy as fuel. Some people question the feasibility of this technology and I don't know enough to comment on it, but I would encourage you to continue this line of research, as a supportable method for dealing with our toxic legacy is still needed.

But good or bad, this is not the technology on offer at Hinkley C. What we are opposing here is the same old waste pile, the same old lengthy and expensive decommissioning, the same old secrecy and state collusion, the same old "off site emergency" hazard, and potentially the same old thyroid cancer for my daughter, 25 miles away. It only looks different because it has been re-invigorated by the fear of climate-change, modern propaganda techniques, the aging of the anti-nuclear generation, and the lack of any democratic platform for opposing specific plans on the ground.

It has also been aided by environmental authors like yourself whose public promotions of nuclear have disorientated and disheartened the green movement and the left, while finding a willing audience among the broader middle-class who welcome a chance to salve their guilt about energy-intensive lifestyles with the re-assuring news that "apparently nuclear's ok now, and it's the only way to solve climate change".

I know that isn't the pure message you wanted to convey. But what we write, just like the technology we devise, has a political and social context which determines how it will be used and by whom. You advocate an "energy mix", (as do the energy investors with broad portfolios), which in Britain includes 10 new nuclear power stations. You believe that if we don't take that course then the money will go into carbon burning, not a renewables revolution, energy efficiencies, reduction of waste and false needs and a massive investment in R&D for alternative energy production. But that's a political decision.

The renewables revolution route is one which had growing social traction after COP15 and still does, even in the hostile environment of public spending cuts and a triumphalist nuclear lobby. If we do not choose nuclear AND we drive rigorously to meet carbon reduction targets, that will simply apply more pressure on the renewables sector and other innovators to deliver. Partly this can be market-driven, and the diversity of the sector makes brilliant creative innovations far more likely than they are in the monolithic nuclear industry. But it will only be possible with massive public investment and direction, and that raises the unavoidable issue of who is controlling the wealth and resources.

At COP15 I concluded that capitalism (yes Mark, I'm an unashamed anti-capitalist!) could not respond effectively to the challenge of climate change, because it's primary motive will always be profit and competitive advantage, even where planetary well-being is concerned. At the very least, a large degree of state intervention and socialized initiatives are needed, and this in turn requires a big degree of political control being exerted over capital, which may or may not be possible. It's that uncertainty which is the difficult bit. I don't think that you believe we can find the political will or the social base for a meaningful green revolution to occur in time to reduce UK emissions by other means than re-embracing nuclear. I also think that you have forgotten that you yourself are a subjective factor in determining the political landscape, as am I. What is necessary is to encourage and empower a left democratic social movement which is steeped in ecological understanding.

Your current commitment to nuclear in Britain cuts across that agenda, and to paraphrase your email to me, potentially undoes all your other good work.

Each time you write something like "I don't like nuclear power, but..." it sounds like defeatism. It sounds like you have decided it's better to run with a toxic solution that doesn't challenge the existing social order than to wait for a social movement with real political power to develop. I can really understand that perspective. My dad reluctantly held it at the end of his life even though he spent the eighties resisting Hinkley C.

But I think it's wrong. In order to get through our evolutionary crisis in any meaningful way, we need optimistic, life-affirming, movement-building messages right now. We need more than ever to champion a vision of the kind of creativity which a democratic revolution would rapidly liberate. Nuclear entrenches power firmly in the hands of a state-protected, unaccountable and ruthless elite of technocrats and power-brokers, at a time when the urge of young humanity is towards transparency, openness and democracy. It can give no ultimate assurance of its safety or its costs. Neither can it demonstrate the kind of long-term resilience which may prove necessary if runaway climate change does, in spite of our efforts, develop. Resilience is to my mind something which we should be designing into our energy production plans now, as the future is so uncertain for our children. Nuclear requires a stable and continuous technocratic society to exist for centuries.

I imagine that when you contemplate runaway climate change – running so rapidly towards us – your feelings are similar to that dreaded nuclear terror which haunted so many people in the early eighties. That fight forged many of our political identities, and ended with a false dawn of hope that the nuclear genie was being backed back into it's bottle – that nuclear weapons would diminish and we were turning our backs on the toxic technology of the nuclear furnace for good.

So you can't really be surprised – or even dismayed – that so many people respond emotively to your propagandizing for nuclear. From their point of view you seem to have become a one-man pro-bono PR Company! In the letter you just co-authored to Cameron you suggest that nuclear would be a lot cheaper and better by now if Porritt and FOE etc hadn't "devoted decades" to fighting it. Well they did. Lots of people did. Personally I'm proud of it, even if I regret that our political naivety, coupled with the defeat of working-class representation in that decade, meant that capitalism and it's appetites continued unabated. If we had moved in a more rational direction back then, renewables and other energy options could also have been a lot further developed by now, and the fabled "energy gap", which you say we need nuclear to fill, might look a lot smaller.

We are currently, on this issue, political opponents, and it pains me. While preparing for our eviction from Langborough Barn by EDF bailiffs I heard you on the radio discussing the London Occupy eviction which had happened the night before. As I would expect of you, you were championing the spirit of liberty, equality, and fraternity, and explaining the need for grass-roots democracy to hold the elites of capital to account. I'm afraid this position cannot honestly co-exist with your apparent support for the EDF, the IPC and the National Policy frameworks of the Tory coalition.

When Cameron did his good-news-for-growth photo-op with Sarkozy he announced, with all the vote-rigging confidence of a third world dictator, that "Hinkley C will be built". In a Guardian piece celebrating the deal, Mark mentioned "a small number of "environmentalist" protesters (eight at the last count)" at Hinkley, of which I was one. His inverted commas around the word environmentalist were bizarre, but telling. Defending the land and it's inhabitants against major destruction arising from flagrant abuses of the planning system is still the work of earthbound environmentalists, as I'm sure you agree. I expect you to support me in that work, and to condemn the current travesty of a democratic process which is unfolding in West Somerset. I also hope that you will draw a clearer public line between the reactor technology you support and the kind which will leave yet more hazardous waste for our respective children, and their children, and their children, to take care of.

The latter is what we are being promised in West Somerset, and I will continue to do all in my power to prevent it, until I have either demonstrably failed in the attempt, or been persuaded otherwise.

When you have the time I'd be very interested to hear your response to my thoughts. I have cced this mail to others in the movement who I think may find our discussion interesting.

Love and best wishes, Theo



From George to Theo, 30th May 2012

Dear Theo,

First, may I say how sorry I am not to have replied before. I have some good excuses – a new baby and a book to finish – as well as the usual crap ones.

Secondly, I would like to thank you for the reason, consideration and decency with which you responded to my initial email. This subject raises intense emotions, and I've found that all too often they cloud what should be a rational discussion. All of us in the environment movement have the same overarching goals – to protect both the biosphere and the future of humanity – and we should be able to discuss them without tearing each other's eyes out. I just wish that everyone could approach this disagreement in the spirit with which you have handled it.

Your letter provides the most persuasive case against both the Hinkley plant and nuclear power in general that I have ever read. It has persuaded me that the way in which the new power station is being shoved through the planning system is undemocratic, coercive and morally wrong. I now see that – on planning grounds – your protests are both worthwhile and necessary.

So I would like to retract my flat statement that campaigning against Hinkley C is the wrong thing to do. I would like to replace it with a more nuanced one. On planning grounds it was and is the right thing to do. But where climate change is concerned, the consequences of success would be, to put it mildly, unfortunate.

For the reasons I have given you I still believe that new nuclear power stations should be built. I don't like the technology, but I believe that abandoning it or failing to replace it will exacerbate the disasters caused by climate change. Replacing fossil fuels with renewables in time to prevent runaway climate change is hard enough. Replacing fossil fuels AND nuclear with renewables in the same timeframe makes the task even harder. The most likely result of abandoning nuclear power is that fossil fuels will fill the gap.

We agree that the first task in confronting climate change is reducing demand for energy. I think we would also agree that the current government is utterly failing to do it. But even under ideal political circumstances, there are physical limits to the extent to which demand can be reduced.

Writing Heat forced me to recognize and understand these limits. For example, I found that the UK's housing stock is the worst in Europe. The last government estimated the technical potential for energy saving in the UK's housing – in other words the maximum that could be done even with huge resources and unlimited political will – to be between 40 and 42%. This could be a conservative estimate – perhaps with a massive push it could be raised to 50%. But this still means that half the energy our houses consume will have to be found from somewhere. We cannot wish this demand away.

Our heating fuel is primarily gas and oil. The quickest and easiest means of replacing it is with low-carbon electricity. As a result of this and the need to electrify transport systems, even with the maximum deployment of demand reduction for energy, the supply of electricity is likely to have risen if the UK is to be decarbonised (the Centre for Alternative Technology's Zero Carbon Britain report suggests that it will have to double). It's a paradox some people find hard to grasp, but I know that you will understand it. So where is the electricity going to come from?

The points you make about the culture of security and inscrutability surrounding nuclear plants are good ones. Nuclear power could be seen as concentrated nastiness. On two occasions of note – Chernobyl and Fukushima – some of its nastiness has been dispersed (though the consequences of that dispersal have been wildly exaggerated by certain people, including the Stop Hinkley campaign, who have deployed junk science very similar to that used by climate change deniers. See this for the latest scientific assessment of Fukushima).

But what of other large-scale sources of power? They could be described as wide-ranging nastiness. I'm thinking of coal and gas, and the air pollution, acid rain and climate change they cause. Forgive me if you've heard me say it before, but I reckon it's worth repeating: when coal goes right it kills more people than nuclear power does when it goes wrong. It kills more people every week than nuclear power has in its entire history. And that's before we take climate change into account.

But I'm also thinking of public perceptions of an energy source I support: onshore wind. Attending a mass meeting in mid-Wales, I became aware that people see wind farms in the same terms as we see other industries: self-interested corporations are making profits at the expense of the landscape and environment they love. I sought to put the case for building them, and I still do, but I do not dismiss the truth of local people's principal concern (once you've sifted out all the bullshit about capacity factors and health issues). To them, wind power is another form of extensive nastiness, a blight spread over a wide region.

The maximum deployment of wind in mid-Wales, which will be spread over a very wide area, is 800MW, at a capacity factor of 26%. Hinkley C is a 3.2GW project, with a capacity factor of approximately 90%. In other words, it will produce 14 times as much electricity as the entire deployment of wind across mid-Wales, but on a very much smaller site.

So the choice we face is:

- Nuclear : Concentrated impacts (the security and exclusion you describe) in a small area. On two occasions diffuse impacts (radiation) over a large area.
- Wind : Diffuse impacts (landscape) over a large area.
- Fossil fuels : Intense impacts (air pollution, acid rain, climate change) over the whole bloody planet.

None of these options is good, none of them is desirable. So do we say no to everything?

Of course the ideal solution would be none of the above: a decentralized network of micro-generators. Unfortunately in the UK it simply cannot meet more than a small fraction even of a massively reduced electricity demand. I hope I don't have to persuade you of the problems associated with micro-wind, or to remind you that micro turbines were largely withdrawn from sale, after it turned out that in many locations their manufacture and use consumed more energy than they generated.

Let's focus on solar power instead. The government's 2050 Carbon Pathways Calculator allows you to choose the most extreme of all possible solar options: using "all suitable roof and façade space" in the UK, or 9.5 square meters of solar panels per person. Such a program is likely to cost hundreds of billions of pounds. In fact we would need a larger economy than today's in order to support it: something I know we both oppose. Yet, by 2050, it would reduce the amount of energy provided by fossil fuels by a grand total of nine per cent. I'll repeat that: nine per cent. Is that your favored option?

So this leaves offshore wind and wave power and an international super-grid, connecting the richest sources of ambient energy in Europe and beyond. I support both of these solutions, though I am conscious that both require a massive deployment of new infrastructure. But if we were to rely on them alone, it would take decades longer to bring down our emissions than if we were to use all the useful and relatively cheap sources of low carbon power, among which is nuclear.

And that's the key issue: time.

I agree with you that "what is necessary is to encourage and empower a left democratic social movement which is steeped in ecological understanding." And that one of its aims should be to achieve greater controls on capital and greater state intervention in decisions affecting the biosphere. But how close are we to that point?

It's not just that we have had a succession of spectacularly craven governments, which seem to act only at the behest of corporations and the super-rich, but also that the social movements which might confront them and reshape politics in this country are in disarray. We are fairly good at contesting what we don't like. We have been truly awful both at identifying what we do like and at creating the social and political structures required to bring it about. The capacity of social movements to change the direction of policy in this country is weaker than it has been at almost any time since the Peterloo Massacre. They are reactive, fragmented and ephemeral.

We have produced no coherent alternative economic theory. We have no programme, no clear set of aims, no strategy. Worse, I have seen no sign that any of this is changing. Occupy has been brilliant at highlighting inequality and injustice, but has so far been unable to translate that into political change. On the contrary: the populist right appears to be rising, while the radical left sinks ever further from view.

You suggest that rather than proposing a solution "that doesn't challenge the existing social order", we should "wait for a social movement with real political power to develop." I would love to believe we can. But at my back I always hear Time's winged chariot hurrying near. You and I both know how small the window is in which we can effect the necessary changes to prevent two – or even four –

degrees of global warming. Do we give up on this aim while we wait for a transformative social movement to arise?

This is the cruelty and peculiarity of climate change: it imposes time limits on our dreams. The political vision you articulate, which I share, can be sustained through hard times by the belief that one day, when the circumstances are right, it will triumph. The fact that it is scarcely closer to realization today than it was when Gerrard Winstanley proposed a common treasury for all does not invalidate the dream or provide a reason not to strive for its realization, however elusive it may seem.

But if we rely on a social movement with real political power to deliver the reductions in greenhouse gases required to prevent two or more degrees of global warming, we will miss the boat. We have to make the necessary cuts in greenhouse gases not in the indeterminate future, but now.

You call this defeatism. You say “we need optimistic, life-affirming, movement-building messages right now”. I agree. But messages do not mitigate greenhouse gas emissions. Action does. The only two actions which can reduce emissions are demand reduction and the substitution of energy sources.

Like you, I wouldn't start from here. But because this is where we are, and because the only time to prevent escalating climate change is now, we have to work with what we've got: the current political system and existing technology. If we are serious about stopping runaway climate change, if the threat is as great as both of us believe it to be, we should surely pursue the most effective means of reducing emissions, as quickly as possible. The harsh reality is that campaigning to prevent nuclear power from being replaced pushes us – if it succeeds – in the opposite direction: out of low carbon energy and back into fossil fuels. It will exacerbate rather than mitigate climate change.

You suggest that nuclear power hardens and strengthens the economic system we both contest. You might be right. But it does not differ in this respect from the mass roll-out of renewables you call for. In both cases, large companies lobby governments for the policy they favor, then mobilize capital to build infrastructure, from which they hope to profit. The economic system is just the same.

As if to reinforce this point, one of the biggest investors in renewables in this country is ... EDF. Blocking atomic energy in the (vain) hope that it will be replaced by wind does nothing to damage the interests of these companies: they merely shift their resources from one part of the business to another, as EDF has done since Germany decided to shut down its nukes.

Far from bringing down the system we contest, or even rocking it ever so gently, blocking nuclear power will simply create more opportunities for fossil fuel deployment, which is the greatest threat of all, and which has far more financial and political leverage than either the nuclear or the renewables industries.

In deciding whether we favor nuclear, renewables or fossil fuels, we are choosing between competing technologies, not between competing political systems. They are all deployed by the same system. They all reinforce the same system.

None of this is to suggest that we should not also be attempting to create political and economic alternatives. But we should not allow this task to blind us to the climate change crisis, and the need for immediate and effective action to reduce greenhouse gas emissions. To be campaigning against this country's primary source of low carbon energy in the midst of a climate emergency seems to me, to put it mildly, to be the wrong thing to do.

So are you right or wrong to be campaigning against Hinkley C? I now believe you are right to be campaigning against a planning system that is grossly undemocratic and unfair, and against the way in which it is being used to steamroller this project past public objections. But I believe we should try

to separate that concern from an attempt to prevent low carbon electricity sources from being built, knowing that, if we succeed, they are most likely to be replaced by gas and coal.

With love and respect,

George



From Theo to George, 1st October 2012

Dear George,

Thank you for your warm-hearted and generous response, which confirms that our concerns for the biosphere and for social justice are essentially the same. In the current situation our points of agreement are far more important to me than our differences over this one aspect of national energy policy.

From the broader perspective of our evolutionary crisis, the way that our political positions get hitched to issues of identity and self-interest could yet prove to be the fatal flaw of human civilization. We do not listen well to each other. Because of that, I have forced myself to consider your arguments as honestly and disinterestedly as I can. This involves surfing through pages of contrary and specialist information to try and tease out the essential arguments – a task which I barely feel qualified to perform.

However, at the end of this process my opposition to a new EPR nuclear power station anywhere in Britain remains intact, and I will be supporting the Bridgwater protest and Hinkley trespass this weekend. I'd invite you to come, but that would put me in breach of EDF's High Court injunction against me.

I am very pleased that you have been persuaded by my email to amend your position slightly, and I respect you for it. You have seen why "on planning grounds" the stand I have taken with others at Hinkley Point C is morally and politically justifiable. But this puts you in a paradoxical position since you still believe that the power station needs to be built to avert climate catastrophe. In other words, I am both right... and wrong. This position, which you call "a more nuanced one", could well qualify you for a seat on the IPC! Like you, they are prepared exhaustively to consider all our objections to EDF's proposal "on planning grounds". And like you they have already decided what the outcome must be. The only difference is, they are pretending they haven't.

As you know, the public consultation, which has just ended, ruled out in advance any consideration of the safety, sustainability, viability or necessity of the project, since these are all deemed to be issues already decided by higher bodies. This reduces local people and their councilors to showing their resistance through wrangles over bits of road widening or costs to the public purse. However, I have been able to identify one aspect of the Hinkley C proposal which is both a planning consideration and a central issue to the argument against taking the new-nuclear route.

This issue falls within the remit of the IPC as outlined in DECC's "Overarching National Policy Statement for Energy" which reads:

5.14.7 The IPC should consider the extent to which the applicant has proposed an effective system for managing hazardous and non-hazardous waste arising from the construction, operation and decommissioning of the proposed development.

It should be satisfied that:

Any such waste will be properly managed, both on-site and off-site;

The waste from the proposed facility can be dealt with appropriately by the waste infrastructure which is, or is likely to be, available.

I have studied the 15-page proposal for waste management and de-commissioning at Hinkley C and it is essentially the same proposal which will be made for any new-nuclear site in Britain. You can read my IPC submission regarding Waste management and De-commissioning on my blog , but I can summarize EDF's proposal here:

It will be someone else's problem, in about 100 years time.

That's not to say that somebody hasn't worked very hard to bury that message in techno-babble, well-referenced assurances and statements of good intent – and made a pretty convincing job of it. But in the end what possible assurance can anyone give about “the waste infrastructure which is, or is likely to be, available” at the Hinkley C site 100 years hence? In the words of the planning application itself: “There are substantial uncertainties with respect to the characteristics of the future baseline conditions.” There are indeed. Yet that is the point at which managing the radioactive waste and spent fuel rods – which cannot be safely moved for up to another 100 years after that – will become the sole activity of the site.

People living in Somerset then won't have any choice about it, but neither will they be receiving any benefit. Indeed, they will have to generate substantial amounts of power from somewhere else in order to fulfill their compulsory duties. For several generations they will need to monitor, maintain and refurbish a toxic waste heritage site bequeathed them by their great great great great grandparents. They may not want to do it. They may not know how to do it. They may not even know why they have to do it. But do it they must.

Of course, they may not have the parts. Or the staff. Or the money. They may have other far more pressing concerns. Yet, in the make-believe world of an EDF functionary who will have long since changed jobs, retired, died, and become no more than ash on the wind, and after the same time interval as that which separates us from the mid-1800s, there will apparently still be a company called EDF, meeting its financial commitments, monitored and regulated by a body called the ONR, and sending Letters Of Compliance to somebody called the RWMD. Around 2190 these make-believe people will do the necessary paperwork, make good EDF's 21st century promise on speedy and efficient plant de-commissioning, and then safely remove the still highly radioactive material for transport to a hole in the ground. Dog-walkers in 2200 will be pleased to hear that at this point, “there is the potential for the provision of new Public Rights of Way or other amenity uses”(!)

I'm not saying it's completely impossible that things will work out as EDF “anticipate”. But you and I both know that over that time-period, considering the geophysical, biological and social turbulence that is most probably ahead and the historical precedents behind, it is unlikely. Great resilience has to be built into the systems and the least favorable developments prepared for in advance. As for showing that the hazardous waste arisings will be properly managed... off-site, the people who are proposing to produce this waste can only say that they expect some one else will have dug a suitable hole to put it in by then.

This hole in the ground, or “Geological Disposal Facility” (GDF), is the place that all of Britain's quaintly named “Legacy Waste” is supposed to end up. To get a sense of what this involves I recommend that you watch the evocative documentary “Into Eternity”. It charts the excavation of a GDF at Olkiluoto in Finland. The Finns have taken their obligation to the future far more seriously than the Brits, but as they approach completion of the project they are still vexed by the question of whether they should leave clear warning signs outside to deter future entry – in which case people thousands of years hence (who will have no reason to think that the symbols we leave carry any

more weight than a Pharaoh's curse drawn on a pyramid) may be tempted to explore – or try instead to conceal its' existence, in which case someone may stumble upon it by accident.

Britain's GDF hasn't even started. We've been thinking about it since the mid 70s but we still don't know where to dig it, and according to some calculations, if we start any more nuclear reactors here we're going to need two GDFs anyway. In the light of this EDF's application acknowledges "it is possible that the life of the on-site storage facility may need to be extended until the GDF is available". In other words, the obligation on future people in Somerset to securely oversee and monitor our radioactive heritage is open-ended – anything from 100 years...to several millennia.

There is surely no other industrial operator in Britain who could seriously expect permission to start a toxic process that they didn't know how to finish. If the plans for new-nuclear are given the go-ahead in the UK the state will effectively be sanctioning an act of gross corporate negligence. Meanwhile in America the US Court of Appeals concluded in June 2012 that, before any new nuclear sites can be licensed there, the Nuclear Regulatory Commission must address these issues of future uncertainties and ultimate waste disposal.

I know that you yourself share these concerns, but you have apparently decided to ignore them. In your oft-quoted blog of March 2011 you laid out your 5 conditions for an expansion of nuclear including that "We know exactly how and where the waste is to be buried". You still haven't told me how you think the waste problem has been solved since then. I have allowed you your enthusiasm for researching new nuclear technologies that might consume the waste – a genuinely nuanced position – but I repeat that no such new technologies are being proposed here, and I cannot let you off the hook over it. If your acceptance of objections "on planning grounds" is to mean anything, it must include the possibility of ruling the development out. The issue of waste management does that.

The children of the future will be compelled to catch this red-hot ball and to organize their lives, their economy and their labour around it. If they could be represented today, they would take the government to the European Court of Human Rights. The fact that, because they are in the future, they will lack any such redress means that their Article 13 "right to an effective remedy" will also have been violated. Only we who live today can fight for inter-generational justice on their behalf. I write this not to be legalistic, but to draw out what this abrogation of responsibility represents.

It's the identical attitude which got us into this mess in the first place, the ethical dis-connect which underpins capitalist exploitation: Financially, socially, medically and environmentally, our profligate lifestyles are paid for by people we do not know and ecological systems we do not see. This is one-sided predation, freed from the virtuous self-renewing cycles of Gaia. You know as well as I do how divisive, cruel, oppressive, and ultimately suicidal for our species it is. Sooner not later, even without fossil fuels, our continued subjugation to this mode of existence would render the biosphere uninhabitable.

It is a central lie of capitalist "common sense" that humanity cannot thrive without doing violence against itself and against its life support system. It is a central truth of ecological awareness that we must turn rapidly to those developing technologies which at least begin to move us in the right direction – re-integrating our own activities with the larger metabolism of nature and empowering democracy at every level of human community. A new generation of radioactive waste factories will do neither.

We are in a climate emergency, and in an emergency it can be acceptable to suspend normal operations and make unpalatable compromises. But starting more nuclear fires and leaving our children's children to put them out is not the only option we have for continuing our lives on Earth. It's just the one that looked easiest to the British status quo at the point where it became unavoidable that we had to de-carbonize the economy. It is as if we were saying to our children "We have had to behave irrationally (nuclear) to avoid behaving even more irrationally (fossil fuels), because we didn't

care enough about you to take a rational, but more politically challenging, route". To me this is the path of political expediency over ecological principles. In its train come the eager proponents of Geo and Bio-engineering, with their new-styled technocratic optimism, which looks a lot like the old-fashioned hubris of the 20th C "men in white coats" rebranded.

That sounds harsh, and I know that you advocate new-nuclear because you think that time is just too short to bring about the kind of revolution in renewables, efficiency, and consumption we need and that "the most likely result of abandoning nuclear power is that fossil fuels will fill the gap". But to me "most likely result" means that another alternative result is still not ruled out. But will we make the serious effort we'll need to make to "fill the gap" sustainably, if we think the nuclear project is underway?

You say in a response to Oliver Tickell's recent piece , "to abandon our primary current source of low carbon energy during a climate change emergency is madness", and so you advocate building new nuclear power plants as part of the mix. Professor of energy policy at Exeter University Catherine Mitchell explored this in her report "New nuclear power: implications for a sustainable energy system". Rather than being a part of a future low carbon energy mix, new nuclear is more likely to absorb the funds and young talent which should be channeled into renewables, ensure that government skews the market in its favor, delay action on decarbonisation, and re-assure the capitalists that business-as-usual can continue, while preserving a corrupting culture of secrecy and sending the wrong message to emerging economies. If they in turn commit to the nuclear route, weapons proliferation and the danger of nuclear war will follow, especially if, as now seems possible, there is a resurgence of fascism and global conflict. If on the other hand there is a resurgence of capitalist growth, then with or without nuclear, my hunch is that fossil fuels will continue to be exploited to the last available drop.

I'm afraid the argument in your reply is a simple re-iteration of that in your first email, and contains no answers either to the waste question or to the other real-world rational concerns around this technology and how it will actually be implemented by real people. Neither I think have you understood my point that while all corporate behavior is the same, the particular twist of nuclear is that it removes corrupt and negligent corporate behavior from public scrutiny – and it is an industry where scrutiny is most needed.

As you can imagine, I have had many friends and comrades asking me to raise objections with you over: the relative cost; the impact of off-site emergencies; the impacts, greenhouse footprint and peaking of uranium extraction ; the contentious issue of public health and acceptable levels of radiological pollution; weapons proliferation etc etc. I don't have the time to research and argue them all, and they are all rehearsed frequently and well in the discussion threads, which follow every pro-nuclear piece you publish. But I have been particularly struck by Paul Mobbs' refutation of your key argument that Coal "turns out 100 times more radiation than Nuclear", which seems to rest on a misrepresentation of the original 1977 research in America. I think you should revisit it. Increasing the incidence of thyroid cancer among our young ones will never be an acceptable outcome in my book.

But even disregarding my issues, it doesn't look to me as if your own reservations have in any way been met by what's on the table. Crucially in the case of Hinkley C, your fifth caveat, which you believed was "so obvious that it didn't need spelling out", should rule out this particular project. "No plants should be built in fault zones, on tsunami-prone coasts, on eroding seashore or those likely to be inundated before the plant has been decommissioned." Hinkley C would be located at the mouth of the Severn Estuary which has the second highest tidal range in the world, on a site which historically has already been inundated with a huge tidal wave (in 1607). In the uncertain conditions ahead, this doesn't look like a safe bet.

If we remove all the alleged prejudice, irrational fear, superstition, identity politics and bad science from the discussion it still appears to me that on rational grounds and with compassion for future

generations, the current nuclear technology is ruled out as an escape route. That means no Hinkley C or Sizewell C. I may not have persuaded you, but you should at least demonstrate how your own 5 preconditions have been met by the current proposals, or else oppose them “on planning grounds”.

Saying no to new-nuclear limits our options – to the acceptable ones. When the going gets tough, we need to hold our nerve. It is not our job to offer an “acceptable” way out to the status quo if that no longer exists. If the only (relatively) benign option left is a renewables revolution, with all the measures that that will entail (which you yourself mapped out so well in your book “Heat”), then that option is the one we must champion and that will be the one most likely to build up united pressure behind it as the climate crisis becomes more obvious to the majority of people. This is especially true if the solutions we are proposing also imply some practical means for improving the economic conditions afflicting working people and the poor. Our dual concerns of economic and environmental justice may then have a chance of being married together in the popular imagination, as they must be if there is to be any further human progress.

Your response has confirmed my hunch that you feel a certain amount of despair about any kind of meaningful social movement developing. “The capacity of social movements to change the direction of policy in this country is weaker than it has been at almost any time since the Peterloo Massacre. They are reactive, fragmented and ephemeral”. I agree about the current state of things in the UK, although I would flag up the achievements of many more movements since Peterloo – for instance, the Labour Movement, the suffragettes, the 1945 generation, the feminist movement, anti-racism – not to mention the effect of the 60’s revolution on human culture and environmental regulation. Right now the labour movement is atomized, environmental awareness has been co-opted and political analysis has been dumbed down. But historical experience shows that things can turn around very quickly in the right conditions, with the availability of the right ideas.

Right now the future of new nuclear build in Britain looks shakier even than the fuel rod storage pool at Fukushima Daiichi. It seems increasingly likely that the envisioned “nuclear renaissance”, which was promoted by the likes of Bernard Ingham (who seeded the anti-wind movement on behalf of the nuclear lobby), instigated by the likes of Tony Blair, and bungled by the nobody-likes of the Lib-Dem/Tory Collision, will end up floundering on the rocks of hard finance. This means that the only realistic and socially just way to carry it forward now would be through public ownership and investment. But if we could ignite the political will to make that happen, then we could equally well direct that will to beginning a massive publicly funded and democratically directed Renewables Revolution in Britain instead. That also includes the R&D investment, the super-grid development and a total building insulation program. This has the advantage of creating a lot of meaningful work and a friendlier society as its by-products rather than CO2 or future radioactive hazards.

When I hear the weather news, and then witness the short-term egoistic posturing of our global political actors, like you I despair. We do not have the movement we need and it’s hard to see how we will get it. But as you yourself have recently observed, “when the masonry begins to crack, impossible hopes can become first plausible, then inexorable”. We have both learned through bitter experience that there is only one life-affirming way to deal with despair: Rage, weep and thump the pillows, put the whiskey bottle out of reach, re-assess your thinking, and then figure out who your allies are and start to make a plan. I know that, notwithstanding the nuclear debate, you are already engaged in this work. If everyone who read our debate did the same we would be well on the way to salvaging a future for life.

Warm regards, Theo