

## The Infeasibility of our 80% Decarbonisation Plans

### Contents

Page 1	Preface
Page 2	Introduction - the Approaching Nemesis
Page 5	Summary
Page 7	Decarbonising Road Transport
Page 8	Decarbonising Domestic Heating
Page 9	Calculating Future Electricity Generation Capacity
Page 10	Decarbonising Electricity Generation - only by Going Nuclear
Page 15	Climate Change - a Review of the Unconvincing Facts
Page 19	Debunking the Faked 97% Consensus on Climate Change
Page 21	The Delusional Committee on Climate Change
Page 21	Conclusions

### Preface

Almost three months ago I sent a first edition of this email to a number of government ministers. I had a reply from BEIS but it contains nothing of substance, just a standard “fobbing off” with the usual climate change delusional clichés and unjustified assertions.

Undaunted, in this second edition I have refined my decarbonisation arguments and extended my analysis on the undeniable doubts surrounding the establishment’s [unravelling](#) theory of man-made climate change which, let us not forget, is the main justification for the government’s decarbonisation policies. My original calculations on the infeasibility of these policies are essentially unchanged.

Since my original email the government has published its [Clean Growth strategy](#) which is built around the [dubious assertion](#) that a massively expensive upheaval of our national and domestic energy infrastructure using expensive, inefficient renewables combined with expensive, energy-squandering technologies like hydrogen domestic heating and carbon capture and storage, the whole made worse by the ever-increasing green taxes and levies on which Professor Dieter Helm [recently reported](#), will miraculously drive higher economic growth in the future.

A more realistic prediction is that this strategy will inflict [further self-harm](#) on the productive parts of the economy and further erode our national competitiveness given that most of the rest of the world (ex-EU) is not in thrall to climate change orthodoxy to anything like the same extent. Contrary to government claims, most people would argue that our modest economic growth since 2008 has been achieved [despite](#) our debilitating climate change policies, deprecated by David Cameron as “[all this green cr@p](#)”.

The Clean Growth strategy is slave to the flimsy, empirically unproven theory of dangerous global warming caused by man-made greenhouse gases (hereafter abbreviated as CO<sub>2</sub>). Given that this theory could be falsified within a few years by real world evidence, it is irresponsible to use it to justify pressing ahead with a massive upheaval extending to 2050 and beyond and possibly costing upwards of £1 trillion without undertaking a due diligence review of all the issues, including the main justification. It is unacceptable to invoke the precautionary principle on such a huge and expensive undertaking.

The whole endeavour should be put on hold until such time as we have real, undoctored, validated, empirical proof of dangerous man-made global warming, previously hyped as “catastrophic anthropogenic global warming” (CAGW), particularly as it has been calculated from the UN’s own figures that all the painful 2030 CO<sub>2</sub> emissions reductions pledged under the supposedly vital Paris Agreement

will have [only a 0.05°C impact](#) on global temperatures by the year 2100. All the unscientific hysteria about alleged man-made climate change effects - droughts, floods, wildfires, extreme snow, [plagues of locusts](#), no knee-jerk opportunity is missed - can be ignored as they are contingent on indiscernible man-made global warming (see the section on Climate Change for details).

The hysteria has even afflicted Cambridge University where the Union [recently debated](#) “This House would rather cool the planet than warm the economy”. It seems that many of the country’s most elite undergraduates have been brainwashed into believing that bad weather is due to the planet being too hot because of man-made CO2.

It is clearly impossible for a member of the public to engage meaningfully with ministers on this subject. All I would ask is that you read this paper (which I admit has unavoidably become quite lengthy in order to include all the relevant facts), at least the Introduction, Summary and Conclusions, and perhaps use it as a cross-reference to your own researches to call the government to account on their uncoded, unjustified decarbonisation schemes.

### **Introduction - the Approaching Nemesis**

For 25 years a supranational establishment alliance of politicians (predominantly left-wing), unelected and unaccountable UN, EU and NGO bureaucrats and activists, opportunist financiers trading carbon credits, big businesses selling renewable energy products, taxpayer-funded academia, scientists and quangos all pushing the [unravelling](#) man-made climate change agenda, anti-capitalist environmentalists, hypocritical jet-setting celebrities and the left-wing media have been trying to convince the general public that CO2 emissions from fossil fuels will lead to planetary thermageddon and hellish weather unless global fossil fuel consumption can be cut drastically, a policy which would in practice condemn the poor of the world to remain poor.

Despite no credible evidence of these dire forebodings, the harsh reality of these climate change policies is not just [39% fuel poverty](#) here in Scotland in 2014, up from 16% in 2004 before hefty green taxes and charges were loaded onto household energy bills; not just sacked steelworkers at Redcar and Port Talbot whose jobs have gone mainly because of [sky-high energy costs](#) due to green taxes and levies; but also poor third world countries being punished by establishment energy policies, obliged to adopt expensive, low-reliability renewables because they are [denied financing](#) for cheap, reliable fossil fuel plants, the continuing bedrock of Western prosperity.

These regressive policies are morally repugnant, especially as (i) they will probably yield no discernible global [climate](#) or [sustainability](#) benefits and (ii) the alleged man-made climate change ill-effects which are “projected” to affect the poor the most, the supposed justification for these regressive policies, are simply made-up imaginings while man-made global warming [remains indiscernible](#).

Spin, propaganda, misinformation, deception and, to be charitable, sheer ignorance: the establishment’s unconvincing climate change narrative is betrayed by its heavy reliance on these unpleasant tools for its support. Typical examples include:

- trying to shut down debate by claiming that “[the science is settled](#)” on climate change when [it clearly is not](#), particularly annoying when coming from an ill-informed or doctrinaire propagandist like Gordon Brown referring to the [manipulated pseudo-science](#) of the politicised UN IPCC\*.

\* UN IPCC = United Nations Intergovernmental Panel on Climate Change which reports about every 7 years, last report 2014, next due 2022.

- denying or ignoring the continuing [almost 20 year net standstill](#) in global temperatures, the so-called “pause” in global warming which is threatening to falsify the man-made global warming theory (see the section on Climate Change for details).
- implying that the recent [global warming spike](#) caused by the natural, short-term 2015-16 El Nino (“[the hottest years on record!](#)”) which briefly raised global temperatures above the 1998 peak (itself arguably due to natural global warming) before falling back down again was due to man-made CO2.
- claiming without [scientific](#) or [statistical](#) justification that severe weather events are caused by man-made global warming when even the biased UN IPCC has said there is [no evidence](#) of any such worsening weather, unsurprising given that global temperatures have flatlined almost the last 20 years, never mind trying to attribute such imaginings to man-made causes (see the section on Climate Change for details).
- publishing a deluge of establishment propaganda in the run-up to every climate summit such as this [Climate Science Special Report](#) full of half truths, exaggerations, omissions and outright lies with the deliberate, possibly criminal, intent of deceiving the general public. See also [here](#), [here](#) and [here](#).
- invoking the fraudulent “[97% Consensus](#)” on climate change (see the section on Debunking the Faked 97% Consensus for details).
- using the obfuscatory phrase “climate change” all the time to deliberately blur the distinction between natural and alleged man-made climate change. This shockingly simple propaganda ploy was originated by [the shameless UN IPCC](#) to replace the original phrase “anthropogenic global warming” (AGW) when it lost its scare-factor potency after global warming stopped at the end of the last century. The deceit is to suggest that all climate change is bad but that it can be controlled by the simple control knob of reducing CO2 emissions, despite having admitted that [climate prediction is impossible](#).
- claiming that expensive, inefficient renewables like [wind](#) and [solar](#) which cannot function without expensive near 100% backup duplication, balancing support and the essential grid stability provided only by conventional plant will lead to lower energy bills.
- excruciating interviews like that by [Andrew Neil on YouTube](#) of then energy minister Ed Davey, now “[following the money](#)” in several lucrative renewable energy jobs, who used every trick in the book of climate propaganda, spin and deceit (or sheer ignorance), called climate sceptics crackpots, flat earthers and deniers who should be denied a platform because the science is supposedly settled, dismissed the significance of the “pause” in global warming (this was in 2013) and invoked the fraudulent 97% consensus mantra, rebutted on this occasion, often [invoked](#) by the [biased BBC](#) itself.
- unscientifically demonising the overwhelmingly naturally produced, essential to all life on Earth, atmospheric trace gas of concentration about 0.04% by volume [carbon dioxide](#) (CO2) by describing it as a “pollutant” or as “carbon” to suggest it is dirty and nasty.
- politicians claiming that their impoverishing, ineffectual climate change policies are “[world leading](#)” and that they are actually “tackling climate change” by anything other than an immeasurably inconsequential amount given that the UK accounts for [just 1% of global CO2 emissions](#).

Emeritus Professor Dr Richard Lindzen debunks the most egregious examples of such false and misleading climate change claims in [this article](#), including the extreme weather scare, the sea level rise scare, the Arctic sea ice scare, the ocean acidification scare and various others.

Yet at long last, after all these years of climate change spin and propaganda - successfully fobbing off all climate sceptical arguments, [ostracising and censoring](#) dissident scientists and branding highly informed, often scientifically-trained climate sceptics with the literally nonsensical, deliberately insulting label [climate change denier](#) (with undertones of holocaust denial) - the climate establishment is finally facing a

"multiple whammy" nemesis of inconvenient facts and reality checks which are about to shake its cosy consensus to the foundations:

- 1) The global climate itself is not conforming to the "official" climate change narrative. Despite ever-increasing global fossil fuel consumption, global warming has stalled for almost the last 20 years and real world indicators of global climate such as the progression of natural [solar](#) and [oceanic](#) cycles suggest that, contrary to the establishment's virtual reality computer climate models, the world is going to experience global cooling over coming decades rather than global warming. Thankfully, climate scientists are finally starting to admit that their climate models are [seriously flawed](#), a situation which the UN IPCC has disgracefully shrugged off for years as shown by [this simple graph](#) backed up by [this expert testimony](#). Hopefully the forthcoming "Red Team" investigations by the new USA administration will fully expose all the flaws in these "always wrong" climate models.
- 2) Climate evangelists like Amber Rudd insist that the Paris Agreement, the mainstay of establishment climate policy, is vital to help "save the planet", or words to that effect. However simple [fact-checking](#) shows that the Paris Agreement will have negligible impact on curbing the inevitable increase in global fossil fuel consumption over coming decades as developing countries like China and India are exempt. The UN is now admitting - hoist on their own petard of the [political pseudo-science](#) used to concoct their "two-degrees of warming" target - that the 2030 pledges made under the [absurdly expensive](#) Paris Agreement are [not nearly enough](#), giving only a [0.05°C](#) impact on global temperatures by the year 2100 against the several degrees of man-made global warming predicted by their equally concocted climate models. The general public will hopefully soon see through all the intelligence-insulting political spin and misinformation and will quite rightly be very angry at the deceit of having been told that our domestic sacrifices of [sky-high energy prices](#), outsourced or otherwise lost jobs and a [degrading electricity supply](#) are worthwhile when they are actually futile. Hopefully the general view will be that any increase to the current punitive pledges (so-called "ratcheting") is out of the question and that, actually, these pointless pledges need to be urgently reduced.
- 3) Despite years of climate change striving, our politicians have so far only managed to take "baby steps" towards their goal of decarbonisation. This is because they are attempting to decarbonise using wholly inappropriate technologies like wind and solar power (the latter particularly unsuited to our cloudy, northern climes) which last year between them supplied a mere 2.9% of UK primary energy (see Decarbonising Electricity Generation for details) but at ruinous cost which has already created widespread fuel poverty, increased the risks of blackouts and undermined business competitiveness.

As the years have [ticked by](#) towards our legally binding 80% decarbonisation target - we are the only country in the world to have saddled ourselves with such an unrealistic mission: the Paris Agreement that other countries have signed up to is voluntary - our politicians now have no option but to show serious intent with dramatic policies such as the decarbonisation of road transport and domestic heating. **This will be their ultimate undoing** because these policies are technically and financially infeasible using current technologies other than nuclear, as this paper explains. Our politicians have been living in a parallel universe (actually a groupthink bubble) of climate and energy fantasy and self-delusion for so long, and have so underestimated the scale of their naively undertaken 80% mission, that they are wholly unprepared for the engineering realities which are now [starting to puncture](#) their make-believe delusions.

Even Boris Johnson has fallen for the establishment's wishful thinking with his naively unrealistic conference talk of "unlimited renewable energy". Sorry Boris, but unless you can come up with a cost-effective alternative to expensive, impractical, unscalable wind and solar, it just ain't gonna happen.

Our politicians should learn from the painful experience of [green pioneer Germany](#) which has spent about \$800 billion on its failing "energy transition", burdening consumers and industry with sky-high energy costs only to see no CO2 emissions reduction at all in the last 7 years. Germany will miss its 2020 emissions reduction target [by a mile](#) and its 2050 target looks like "[pie in the sky](#)". They should

also learn from the painful experiences of ultra-green South Australia which has been [suffering regular blackouts](#) caused by over-reliance on wind power and consequent inadequate system inertia margin, which has also led to [sky-high energy bills](#). In 2003 [Northeast USA and Canada](#) suffered a catastrophic blackout due to a similar cascade of automatic cut-outs which affected 55 million people and took 4 days to black restart. Our own politicians are being irresponsibly reckless with our national energy supply.

- 4) The new climate sceptical administration in the USA is about to [start questioning](#) its climate and energy officials and scientists on the alleged “settled science” of the establishment consensus. This will be a disaster for the establishment which has always refused to engage in public debate on these issues because they know they are on such weak ground. The new USA administration will demand straight answers and will simply not accept the make-believe, pie in the sky climate change platitudes and unjustified assertions which are the stock in trade of our own politicians and public officials. Whether or not these USA personnel engage properly, the world’s general public is going to see that climate and energy delusionists have no credible arguments.
- 5) Although politicians living and working in their establishment bubble may not be aware of it, ordinary people are becoming [increasingly unconcerned](#) about climate change as a threat and [increasingly sceptical](#) of our never justified, ineffectual but economically damaging climate and energy policies. A simple indicator of this groundswell of opposition is given by the reader comments under most online newspaper articles nowadays on the subject of climate change or renewable energy. Most comments are strongly against these policies, despite the weight of supportive establishment propaganda.

The minority of comments in support of these policies are often from poorly informed, unscientific, sometimes obsessively irrational zealots who claim to believe “the science” but only the manipulated pseudo-science of the climate establishment (see the section on Climate Change for details). They mentally block out all contrary scientific and common sense evidence. They are mostly found on echo chamber climate propagandist newspapers like [The Guardian](#), which despite its slogan “Comment is free”, often deletes climate sceptical comments as I know from my own experience. I only ever went there to question their quasi-religious climate beliefs.

The day is surely not far off when voters are going to give the proponents of these duplicitous, ruinous policies their long-overdue comeuppance. Our climate and energy policies are clearly untenable. The sooner our politicians face up to these inconvenient facts, the sooner we can stop committing unilateral slow but sure economic self-harm and the sooner we can excise the cancer of all-pervasive [dogma and deceit](#) surrounding “climate change” which is blighting our entire political discourse. We might then be able to have an honest debate about sustainability.

Unavoidably, an analysis of this technical subject cannot be adequately conveyed in just a few short paragraphs or bullet points. However I believe my text should be easy to understand and I hope you agree that this is a crucially important national issue. If you do not have time to read all the way through I hope you will at least read the Summary and Conclusions.

### **Summary**

The [recent ministerial statement](#) on electric cars prompts me to respond with practical calculations, based on the government’s own energy statistics, which illustrate the sheer infeasibility and futility of the government’s decarbonisation policies based on so-called renewables. For simplicity these calculations are limited to the easily understandable sectors of road transport and domestic heating. Together these account for about 50% of UK final energy consumption whereas the legally binding 2050 Climate Change Act 80% decarbonisation target covers the entire economy.

My decarbonisation calculations show that in order to electrify road transport and domestic heating the UK could have to build the equivalent of about 60 new Hinkley Point C nuclear power stations or an impossible number of new wind turbines. If these calculations are anywhere remotely near the right ballpark the total cost and impact on our energy bills could be horrendous, with Hinkley Point C currently estimated at about £20 billion.

Renewables like wind and solar simply cannot be deployed at anything near this scale so most of the electricity would have to come from conventional plant (see the section on Decarbonising Electricity Generation for details). Even if the additional electricity supply could be procured and our vehicles and homes converted, at astronomical cost, the overall decarbonisation gain could be little more than proportional to the share of emissions-free nuclear in our future electricity generation mix. Emissions-free nuclear was 21% of the mix last year but could fall to zero within a decade or so when the last of our worn out old nuclear plants is closed down unless new nuclear replacements are commissioned and built soon.

New nuclear might have to be expanded to 60% or more of the much bigger future mix to get within even distant sight of the 80% decarbonisation target, perhaps to ten times our current nuclear capacity, and that's just to deal with 50% of the economy. That [makes sense technically](#) (as a mainly nuclear and gas combination) but would it be politically feasible? This has never been the stated policy and there could be lots of opposition from nimbies, anti-nuclear politicians, greens and others misguidedly wedded to ineffectual "renewables". Also, the hugely expensive Hinkley Point C is not expected to be online before 2027 and the government is still debating [\(page 101\)](#) what type of nuclear plants it wants beyond that.

The government needs to undertake a comprehensive, open-minded review of its unworkable Climate Change Act and climate and energy policies. An [independent analysis](#) based on the government's own figures has calculated that on current projections, between now and 2030 (never mind 2050) climate policies in the power sector will have cost the UK £216 billion, equivalent to about £8,000 per household. The government should belatedly acknowledge that the Paris Climate Agreement is a very bad deal for the developed countries, obliging them to use expensive, ineffectual renewables in a [forlorn attempt](#) to make big cuts in their CO2 emissions while developing countries get a free pass to greatly increase their own emissions. Sub-continent sized China and India are planning to double and triple their respective CO2 emissions by 2030. There are [plans to build](#) about 1,600 new coal power stations around the world which will still be running long after 2050.

The only G20 countries still committed to CO2 emissions reductions account for [just 11.3%](#) of global emissions. The latest [IEA Energy Outlook](#) predicts that global energy consumption will increase by 28% by 2040, with fossil fuels accounting for by far the most (77%). Booming Southeast Asia's energy demand is predicted to climb [nearly 60% by 2040](#), led by fossil fuel power generation. Yet despite all the establishment propaganda and taxpayer-funded subsidies, the latest [BP Statistical Review of World Energy](#) gives 2016 global wind and solar power as a tiny 2.2% of global primary energy consumption. The IEA has a possibly [more accurate calculation](#) which gives global wind, solar and tidal combined at under 1% in 2014.

It is clear that [Paris will do very little](#) for the global climate, like Kyoto before it. It also seems clear that the supranational establishment, aided and abetted by our own politicians, is taking the general public (or themselves) for fools on the subject of climate change (see the section on Climate Change for details). Politicians need to stop all their unscientific eco-posturing and knee-jerk scaremongering and, for the sake of their hard-pressed, energy poor constituents, face up to climate and energy realities. In view of the [economic hardships](#) which flow directly from the flimsy, empirically unproven man-made global warming theory, why aren't more of our politicians seeking every opportunity to challenge the establishment's stance on climate and energy?

The government should also take the opportunity of Brexit to distance the UK from the misguided and economically damaging climate and energy policies of the EU (see Conclusions for details).

### **Decarbonising Road Transport**

Data on UK energy usage are taken from “Digest of UK Energy Statistics” ([Dukes](#)) and “Electricity Consumption in the UK” ([ECUK](#)). Terminology: GW = gigawatt (billion watts); TWh = terawatt hour (trillion watt hours).

This analysis assumes decarbonisation using electric vehicles although the government is also considering a hydrogen-powered option ([page 56](#)).

Total 2016 UK fossil fuel road transport energy consumption calculated from the 12.0 million tonnes of petrol and 24.6 of diesel used (Dukes Table 3B) was 469 TWh. This was almost 40% more than the 339 TWh (Dukes §5.18) of UK electricity generated in 2016. Note that 64 Mtoe (Dukes §5.17) = 744 TWh of primary fuel was used to generate this electricity, an overall efficiency of just 46%. As a cross-check, total 2016 UK road transport energy consumption which includes existing EVs was slightly higher at 41,450 ktoe (ECUK page 10) = 482 TWh.

(In passing, the detailed breakdown of the Dukes fuel consumption figures shows that low fuel economy goods vehicles and buses are responsible for over a third of UK road transport fossil fuel consumption. Will these all be electrified with the massive batteries they will need for their heavy weight and high mileage? Also in passing from ECUK, fast-growing aviation, which would be very costly to decarbonise using synthetic fuel, currently accounts for 23% of UK transport energy consumption versus 74% for road transport and 2% for rail.)

There is debate on the relative efficiency of electric vehicles versus internal combustion engine vehicles but a simplifying assumption for this ballpark estimate would be that the overall energy required to move a vehicle of a given weight against the same friction and gravity would be roughly the same for both types of vehicle when the origin of the energy is the same for both. Electric vehicles have a more efficient drivetrain and do not incur the losses of petrol refinement but offsetting these are the heavy losses incurred in the generation (see the 46% figure above) and distribution of electricity and substantial battery charging and discharging losses (up to 40% on rapid charge). Significantly more energy and CO2 emissions go into manufacturing an electric vehicle than a conventional vehicle including the losses incurred in the mining and processing of the lithium for the batteries. [This video](#) explains why electric vehicles are not nearly as “green” as is often made out.

Electric vehicles are dishonestly marketed as “zero emissions” which would only be true for CO2 emissions if electricity generation were 100% decarbonised. It is possible that switching to electric vehicles might do little more than move the CO2 emissions from the vehicle exhaust pipe to the power station chimney and achieve no net CO2 emissions savings unless the electricity used to charge them can be decarbonised. The analysis below (Decarbonising Electricity Generation) shows that the overall decarbonisation gain from converting the nation’s road vehicles to run entirely on electricity might be relatively small (worst case even negative), quite possibly nowhere near the 80% target.

There is no doubt that electric cars will make our city streets cleaner but don’t forget it was politicians who encouraged motorists to switch to diesel to help “save the planet” from alleged man-made climate change. Now our politicians are misusing statistics on the health effects of NOx emissions and blurring the distinction between pollution in the correct sense of the word and CO2 emissions in their continuing mission to save the planet. These health risks need to be taken seriously but the government uses a scare

story about an alleged 40,000 deaths per year from air pollution which [simply isn't true](#), another case of computer modelling “garbage in, garbage out”.

Electric vehicles are no doubt the future but that future could be a long way off. UK electric car registrations have been running at [less than 2%](#) of all registrations for the past 2 years, and that's with an [unsustainable subsidy](#) on the purchase price. As electric vehicle charging is relatively inconvenient, especially on [long journeys](#) and for households without off-road parking - to the extent that “[range anxiety](#)” and “[charge rage](#)” are already established terms - there must be significant doubt as to public acceptance of the government's 2040 date for the banning of petrol/diesel vehicle sales, even more so for the SNP's childish “we're greener than you” 2032 date for Scotland.

Clarity is needed on the government's fiscal arrangements for electric vehicles, in particular on the unfairness and unsustainability of ordinary tax-payers paying for the £4,500 purchase price bribe and the loss of 80% petrol fuel duty revenues. Political excitement about electric vehicles should perhaps be tempered by the [latest OPEC review](#) which predicts that “there will be more than 2 billion automobiles on the world's roads by 2040, almost double today's number. Over 80% of these will continue to be powered by internal combustion engines.”

Politics aside, for this rough calculation I'll ignore any overall fuel efficiency difference between electric and petrol/diesel vehicles, I'll ignore the lower CO2 emissions from the gas-fired component of the electricity mix versus internal combustion engine petrol and diesel, I'll ignore the projected 16% growth in the UK population by 2050 and I'll use the above all-electric UK road transport figure of an additional 469 TWh of electricity per year.

### **Decarbonising Domestic Heating**

The breakdown of 2016 domestic energy consumption by fuel type (Dukes §1.1 page 30) was electricity 9,284 ktoe and fossil fuels (coal, oil, gas, etc) 29,932 ktoe = 348 TWh. The latter was about 3% more than the 339 TWh of UK electricity generated in 2016.

This analysis assumes that the plan is to convert all fossil fuel domestic energy consumption to electricity using [heat pumps](#), resistive heating, heat networks and so on. However the government is also considering [\(page 82\)](#) the use of hydrogen in place of natural gas for domestic power. It has started a £2 billion pilot scheme for this in Leeds. This option would be no panacea as hydrogen does not come out of a well in the ground: the proposal is to produce it from natural gas by the expensive process of Steam Methane Reforming (SMR). The process also creates CO2 emissions so this hydrogen scheme would only be emissions-free if expensive, unviable carbon capture and storage were used (discussed below under Decarbonising Electricity Generation).

There are many practical difficulties with this expensive and dangerous hydrogen scheme. There is debate on the costs relative to the electrification option as natural gas (methane) is much cheaper than electricity per unit of energy (£/MWh), but in terms of national energy consumption it could be worse as the second law of thermodynamics dictates that the more energy is transferred and transformed, in this case by the extra step of converting electrical energy to hydrogen energy, the more of it is wasted. For further information see [this post on technicalities](#) and [this post on costs](#).

Returning to the electrification option, domestic electricity costs about four times as much as domestic gas per unit of energy (kWh) and the above breakdown figures show that domestic fossil fuel consumption uses over three times as much energy as domestic electricity consumption. Thus switching from home fossil fuels to electricity could send future domestic energy bills through the roof and into the stratosphere, on top of the huge domestic capital expenditure that would be required and all the other

sky-high [green taxes and levies](#) consumers are having to shoulder. Decarbonisation of domestic heating by electrification could be politically infeasible on these cost and disruption grounds alone.

As with electric road transport, switching to electric domestic heating may do little more than shift the CO2 emissions from the house to the power station with relatively insignificant decarbonisation gain. Electric domestic heating could be less efficient overall than fossil fuel domestic heating due to the heavy losses incurred in the generation and distribution of the electricity.

I'll again ignore the projected 16% growth in the UK population by 2050 and assume that the switch to 100% electric domestic heating will require an additional 348 TWh of electricity per year.

### **Calculating Future Electricity Generation Capacity**

I will use the much delayed Hinkley Point C nuclear power station as a standard measure of our future national capacity requirements. Hinkley Point C is designed for a massive power output of 3.2 GW, almost three times the average of our existing nuclear power stations. This output equates to about 25 TWh per year assuming a 90% capacity factor to allow for outages.

The figures above mean that all-electric UK road transport and domestic heating could need an additional annualised electricity generation capacity equivalent to  $(469 + 348) \div 25 = 33$  Hinkley Points. However the actual rather than the annualised total would be much higher when peak demand is taken into account.

Most electric vehicle charging will probably take place in the evenings and overnight when the vehicle owners are at home. Although many urban vehicles will be able to go for several days without a full charge, many may still get plugged in regularly for a top-up just to be on the safe side, especially those with older batteries which have degraded with age. Most commercial vehicles could need a big charge every day. The numbers suggest that overnight charging of electric vehicles could turn the current surplus of overnight electricity generation capacity into a shortage.

We must surely question the usefulness of the rather desperate idea being floated by the government under "vehicle-to-grid" services ([page 92](#)) whereby our national fleet of electric vehicles would serve as backup to the grid to help out with electricity supply difficulties. This might help in dealing with short term supply troughs or demand peaks, so long as it doesn't leave batteries flattened just because the wind has stopped blowing. However this would still do nothing for the "elephant in the room", a possible multi-day loss of all wind power due to a UK-wide becalming.

Only time will tell what charging patterns and smart charging regimes will evolve but it would seem prudent to allow for a daily peak which is above the annual average so for the purposes of this calculation I will apply an uplift of 50% on the annualised 2016 figure to allow for peak demand.

Domestic heating will be heavy throughout the evenings and will obviously peak in winter. My own domestic meter readings show that my weekly winter peak gas heating usage can be about 50% higher than my annual average, equating to a daily peak of over double my annual average because my heating is switched off overnight. The national peak ratio could be even higher as most working families (I'm at home most days) will have their heating switched off while they are out at work/school. However for this rough calculation I'll use a domestic heating peak demand of double the annualised figure.

When these peak patterns are factored in the actual capacity figure rises to, coincidentally, 28 new Hinkley Points each for road transport and domestic heating, i.e. a total of 56. And remember that this is just for electrifying road transport and domestic heating, not the entire economy which could be much worse - [this paper](#) submitted to a parliamentary advisory group estimated that UK heating alone could

need a peak supply of 300 GW which equates to just over 100 Hinkley Point equivalents. Independent scientist Clive Best has [made an estimate](#) based on first principles which suggests a theoretical national peak demand of 500 GW.

As a rough cross-check on road transport, 50% of 35 million electric vehicles plugged in at the same time to chargers with an average rating of 4.5 kW, which would take about 10 hours to fully charge a 40 kWh electric car battery, would need 79 GW which equates to 28 Hinkley Point equivalents.

I will round up from 56 to 60 new Hinkley Points to allow for the replacement of our remaining coal power stations and our current fleet of eight aged nuclear power plants which are all due to be shut down over the next decade or so.

To put this in context, current UK peak demand is about 61 GW which equates to about 21 Hinkley Point equivalents. Electrification of road transport and domestic heating could require roughly a tripling of current UK electricity generation capacity.

This massive increase in electricity generation capacity would also need a massive expansion of the national, regional and residential grid infrastructure. The latter, to deal with the logistics of electric vehicle charging, could be very disruptive and costly.

### **Decarbonising Electricity Generation - only by Going Nuclear**

When the Climate Change Act with its legally binding 80% decarbonisation target was passed into law in 2008 the politicians who supported it presumably believed, based on the political fantasies they were told at the time, that supposedly near emissions-free renewables could supply most of our future energy needs. As the years have gone by it is surely becoming obvious to even the most wishful thinking of reality-deniers, if they ever bother to give any serious thought to this important issue, that this is nowhere near feasible, on both technological and cost grounds.

These [expensive](#) so-called renewables are impractical, energy sparse/space hungry and can only be deployed on a limited scale, besides which they achieve nothing like the system-wide CO2 emissions savings claimed of them. Starting from their pseudo-scientific, “plucked from thin air” two-degrees of warming [political target](#), our politicians have bamboozled themselves with statistics on CO2 emissions reductions and percentage share of renewables in our energy mix, as if such numbers really mean anything. In their obsession they are failing to see the woods for the trees on the infeasibility of what they are trying to achieve, as the following analysis explains.

The share of 2016 UK electricity generation by main fuel type (Dukes Chart 5.3) was: coal 9%, gas 42%, nuclear 21% and renewables 24.5%. The contributions of the main renewables (Dukes Table 6B) were wind 11%, bioenergy 9%, solar 3% and hydro 2%. The installed capacity of all renewables was 36 GW, with a load factor of under 30% for wind and just 11% for solar (Dukes pages 188-9), the latter reflecting the fact that solar output falls when it is cloudy or foggy, drops to zero overnight and to near zero during dark midwinter when power is needed most, made worse by degradation of panel performance with age.

Looking at the government’s flagship renewable in more detail, total UK wind power electricity supply last year was 37.4 TWh, of which onshore (10.9 GW) produced 21.0 TWh and offshore (5.3 GW) produced 16.4 TWh. To put these numbers [into perspective](#), two and a half gas-fired power stations like the one recently built at Pembroke for a mere £1 billion and capable of supplying about 15 TWh per year, or one and a half Hinkley Points at £20 billion apiece but with relatively low fuel costs, could replace the entire wind power capacity in the UK, at a stroke avoiding all the wind power intermittency problems. The crazy

thing is that these replacements have to be provided anyway, as backup duplication for when UK-wide becalmings occur (see below).

The [sheer futility](#) of trying to decarbonise the entire UK economy using these so-called renewables is obvious when their electricity generation contributions are expressed as puny percentages of UK final energy consumption (ECUK page 5): wind 2.3%, bioenergy 1.8%, solar 0.6% and hydro (includes generation from pumped storage) 0.3%. The tiny 2.9% annualised contribution of wind and solar falls effectively to zero when there is no wind and no sun.

Even if it were possible to, say, quadruple the deployment of wind and solar - at huge environmental, economic and social cost - and engineering reality indicates that may not be feasible for the reasons explained below, they would still only account for about 12% of UK final energy consumption (and still be hopelessly intermittent) assuming a pro rata expansion of essential baseload and balancing supplies, still only a minor contribution towards the 80% target.

So if we are to build the equivalent of 60 new Hinkley Points to supply all-electric road transport and domestic heating (and it would be many more to meet the 80% decarbonisation of the entire economy), how could this be structured?

### Baseload and Dispatchable Power

The first obvious point to make is that they could not all be emissions-free nuclear which is traditionally only suited to supplying baseload electricity. Many would have to be dispatchable gas-fired power stations or clean coal (but hopefully not “cheating” biomass which ought to be banned, as the Mayor of London is [seeking to do](#) with domestic wood burning stoves) to provide essential grid balancing minute by minute every day of the year, much as in the current mix. This cannot be undertaken by unreliable intermittent renewables: in fact they make the task of balancing more difficult. Moreover a change of priority is needed from favouring intermittent renewables over conventional plant as this has increased the risk of blackouts, with last winter’s national capacity margin (the safety buffer between peak electricity demand and available supply) at a challenging 5% - it used to be a comfortable 20%.

### Wave and Tidal

Wave and tidal energy appears to be going nowhere in the UK. [This article](#) reports on some of the problems and failures.

### Hydro and Pumped Storage

We can immediately rule out a massive expansion of hydro and pumped storage for the simple reason that there are not enough suitable sites in the UK, besides which it would be prohibitively expensive. The SNP Scottish government tried to promote this via the [Coire Glas](#) pumped storage scheme as a way of storing the surplus wind power they [promote so obsessively](#) - trying to outdo the auld enemy in virtue-signalling but using a technology which is [not green, not clean, just irrelevant](#), laughably trapping themselves into dependency on England for backup yet all the while illogically striving to exploit North Sea fossil fuel oil and gas to the max - but although it was consented in 2013, the supplier has opted to shelve the project. In any case pumped storage does not add capacity, it merely time-displaces capacity, with an energy loss.

### Solar Power

We can also rule out an expansion of expensive solar power as its output falls to zero overnight and to near zero over the cold, dark midwinter months when power is needed most. The converse constraint is perhaps even more important, namely that deploying too much intermittent solar power could create

grid instability problems if too much [uncontrollable solar electricity](#) gets generated on a sunny summer weekend when demand is low. Total 2016 UK solar capacity was 11.9 GW (Dukes page 188) which is already within sight of the estimated [minimum daytime demand](#) of 20.8 GW. The situation is made worse when intermittent wind (16.2 GW installed capacity, maximum output about 13 GW) is blowing strongly.

In any case despite its allegedly plummeting prices, installation of new solar [is drying up](#) since its Renewable Obligation regime was closed to new capacity in April 2016. It seems that solar is not commercially viable without the subsidies which ordinary households have to pay for, many already in fuel poverty.

### Wind Power

A huge expansion of [expensive, nonsensical wind power](#) can also be ruled out, on multiple grounds. It is astonishing that a government minister could even consider deploying wind power to support our postulated all-electric future: peak road transport and domestic heating alone could need about 250,000 new wind turbines of standard 2.2 MW rated output with an average capacity factor of under 30%. Even if improved design (5 MW, 40% capacity factor) reduced this to about 80,000 new turbines (our current total is about 8,000 of the smaller variety), such a deployment would still be utterly infeasible: installing four such monsters every day would take over 50 years and that ignores the fact that their service life is only about 25 years.

A lower but still horrendous estimate requiring enough wind farms to “cover the whole of Scotland” has been produced by [Professor Jack Ponton](#) covering electric cars only but his calculation details are not given.

In any case the minister ignores the fact that the entire UK is sometimes [becalmed for days on end](#) during anti-cyclonic conditions, statistics which can be easily obtained nowadays via websites like [Gridwatch](#). No pie in the sky [electricity storage scheme](#) could bridge such a huge, indeterminately-long energy gap. The new battery storage systems which some technically uninformed are mistakenly getting so excited about have no long-term storage capability: they are just fast-response systems designed to keep grid frequencies within acceptable limits when sudden wind fluctuation spikes occur, to avoid automatic cut-outs. For example, the world’s biggest lithium ion battery which Tesla’s [Elon Musk is supplying](#) to South Australia to prevent the [regular blackouts](#) they have been suffering will have a capacity of 129 MWh. The installed price for this system has not been made public but has been estimated to be [over US\\$100 million](#). This is a hefty additional cost on top of the original wind farm outlay.

To contrast this with becalming, the capacity of a hypothetical battery able to store enough electricity to make up for a rare but not impossible week long UK-wide becalming based on the 2016 annual UK wind electricity generation of 37.4 TWh would be about 0.7 TWh = 700,000 MWh, over 5,000 times the capacity of Musk’s costly South Australia battery. These numbers show conclusively that barring a miraculous technological breakthrough, the only thing which could bridge a multi-day UK-wide becalming is near 100% duplication of the entire UK wind power fleet by conventional plant with 24/7 availability.

This wasteful duplication or spare national capacity margin exists at present, incredibly some as polluting [standby diesel generators](#), but it would be even more outrageous if wind power were hugely expanded as the minister suggests. This invites the obvious question: why deploy environmentally damaging wind power at all? This applies especially to offshore wind which, contrary to government and [industry misinformation](#) is still very expensive, in fact getting [more expensive](#). Moreover the supposed net CO2 savings of UK wind power are negligible on a global scale and modest even on a national scale because the wind fluctuations force the supporting fossil fuel plant essential for balancing into inefficient operation due to more frequent starts and stops, ramping up and down and operating at part load, the resultant increased wear and tear causing yet more loss of efficiency. This was explained long ago in studies such as [this](#) and [this](#), the latter suggesting that the net CO2 savings of wind power at high penetration levels could even be negative, long ignored by wind power-obsessed politicians, now given a

token acknowledgement by the Committee on Climate Change through its small “[cost of intermittency](#)” allowance.

The energy costs of deploying wind power also need to be taken into account: manufacture (all that steel and fibreglass), transportation (usually from overseas), installation (on heavy concrete blocks) and premature (compared to conventional plant) replacement or decommissioning. Then there are the energy infrastructure costs of providing grid connections to the population centres from wind farms built in the outer reaches, e.g. the far north of Scotland.

On top of all that, the danger of grid voltage and frequency instability due to too much asynchronous wind electricity when the wind is too strong is also a severe constraint on wind power expansion. This problem can be partly but expensively managed by discarding the excess wind electricity and paying the contracted owner for the loss. So far this year alone [approaching £100 million](#) has been paid out to wind companies for shutting down their turbines. However a rough rule of thumb has been postulated which puts an upper limit on wind power penetration, namely that wind power share of national electricity output cannot be more than its own capacity factor, currently about 28%. The regular blackouts occurring in South Australia where they rely on wind power for 40% of their electricity show that this rule of thumb needs to be taken seriously.

The minister should take the advice of establishment climate and energy “experts” on the subject of wind power with a large pinch of salt. The former government chief scientific advisor Professor Sir David MacKay (a self-confessed greenie) [warned years ago](#) of the futility of trying to use wind power as a source of national electricity supply. In his last interview before his death he said that the idea that renewable energy could power the UK was an “[appalling delusion](#)”. Unfortunately his wise words have been ignored by successive technically uninformed, poorly advised energy ministers who have unknowingly (to be charitable) concluded that the laws of physics and engineering reality can be ignored.

It is hard to believe that ministers have been unaware of the multiple serious drawbacks of wind power. It is telling that the government has never produced a credible justification of the supposed lifecycle net CO2 savings of wind power or its [very high costs](#) relative to conventional plant. It seems that they have gone ahead with it in a desperate attempt to be seen to be “doing something”, no matter how wasteful and futile. Ideology seems to have trumped common sense. It is pointless to continue vandalising our national energy infrastructure (and our land/seascapes) with yet more [irrelevant wind power](#).

### Biomass

Expensive, inefficient plant biomass (wood) which generated 6% of 2016 UK electricity should not be considered a renewable at all as it is neither sustainable nor low-emissions. It also emits high levels of carcinogenic particulates (as do domestic wood burning stoves). The Drax power station units expensively converted to burn biomass in the form of wood pellets made from [clear-felled North American forests](#) shipped across the Atlantic in diesel powered ships create CO2 emissions higher than the locally mined coal they used to burn. Biomass is only classified as renewable because of a [scientifically disputed](#) EU dispensation to make decarbonisation look more feasible. Surely we should drop this polluting, self-deluding pretence after Brexit?

### International Interconnectors

The government has increased our dependence on electricity supplied from abroad via international interconnectors, with more planned over coming years, no doubt all part of the EU’s drive for “ever closer union”. This arrangement suits the government’s “carbon” accounting as the foreign CO2 emissions used to generate these imports are simply ignored. Interconnectors play a useful role in short-term balancing but there is no prospect that they could make more than a small contribution to our all-electric future electricity supply; net imports in 2016 were less than one Hinkley Point equivalent (Dukes Table 5A).

In any case this is a double-edged sword as we cannot be sure that the supply will be available when we really need it, especially with France planning to run down its reliable nuclear fleet in favour of [green diversification](#) and many European countries struggling with tight power margins to meet mandatory EU-imposed energy directives. These interconnectors could even go into reverse just when we need them most! With so many countries apparently relying on one another for help with their supply problems, these international interconnectors look like a [disaster waiting to happen](#), as the Centre for Policy Studies has noted. For post-Brexit energy security surely we should build a couple more Hinkley Point equivalents to avoid this dependency (and import bill)?

### The Optimal Combination - Nuclear and Gas

Thus we are drawn inexorably to the conclusion which has been [obvious all along](#), namely that to power our economy with reliable 24/7 electricity we need a mix of predominantly nuclear and gas (perhaps with clean coal), much like the present mix which stands at 51% fossil fuels, actually 57% if wood biomass is reclassified as fossil fuel. Intermittent wind and solar are redundant to this end: the only reason to deploy more would be to try and save more CO2 emissions, but that would be at the penalty of further eroding the commercial viability of our indispensable fossil fuel plants (ignoring unsustainable, polluting biomass which ought to be banned). Achieving the required mix assumes that suppliers can be persuaded to make the necessary huge investments in new plant which is unlikely with our incoherent current energy policies which are designed to force essential fossil fuel plants out of business.

### Carbon Capture and Storage

The reluctant acknowledgement that fossil fuels are essential to our established methods of supplying electricity prompts demands from green activists for carbon capture and storage (CCS) to be fitted to fossil fuel power stations as a last hope of “salvation”. This is the process whereby the by-product CO2 emissions from the power station could, at significant energy cost, be extracted and pumped into underground reservoirs where they would be sealed away for posterity - as if that prime requirement could ever be guaranteed!

CCS is used around the world in a number of commercial, revenue-generating enhanced oil recovery operations but there are very few examples of its use solely for CO2 sequestration. Many CCS projects have been abandoned in recent years, mainly on cost grounds, for example [Sweden's Vattenfall](#), [Canada's SaskPower](#), the [EU's NER300 project](#) and the UK government's own [pilot at Peterhead](#) while [Norway](#) has recently shelved its plans.

There is no evidence that CCS is [viable](#) on the national scale required, it would be extremely expensive, it is anti-sustainability as it uses more fossil fuels overall, it would not capture all the CO2 emissions, it would be dangerous (the Lake Nyos leakage killed nearly two thousand people), it will have at best limited take-up globally - how many countries have the necessary underground reservoirs, even if they thought such an expensive, energy-hungry scheme was worthwhile - and so it would have negligible impact on global emissions. All it would do is hasten the economic decline of UK plc.

### Decarbonising Electricity Generation – Conclusion

Fossil fuels currently account for somewhere between 50% and 60% of current UK electricity generation and assuming that unviable CCS is a non-starter and unsustainable, polluting biomass is curtailed, there is no realistic prospect of reducing them and their emissions significantly below present levels other than by hugely expanding nuclear power to take over more of the current fossil fuel baseload supply. To what extent this would be possible is difficult to predict although it will be easier if future baseload demand is a bigger share of total demand as a result of all-encompassing electrification.

However there are severe baseload and balancing supply problems looming just a few years ahead with all our [nuclear plants](#) near the end of their lives and the government wanting to close down all our

remaining [coal power stations by 2025](#) but with no functionally equivalent replacements anywhere on the horizon (Hinckley Point C maybe by 2027). Suppliers are reluctant to build new gas powered plants under the current incoherent regime because the politics of climate change has made them commercially unviable. The long lead times on building new plant means that the dreaded scenario of “the lights going out” may already be unavoidable.

This analysis has only looked at the 50% of UK final energy consumption covered by road transport and domestic heating suggesting that the chances of getting near to the 80% decarbonisation target are remote when the full 100% of the economy is taken into account. Continued efforts to achieve this unrealistic target are pointlessly driving up energy bills and making UK plc less competitive.

These efforts are pointless because (i) for practical engineering reasons renewables can only achieve limited national penetration so their emissions savings (which in any case are overstated) are correspondingly limited, and (ii) even if the UN IPCC’s unproven theory of man-made CO2 global warming were valid, and it is being increasingly falsified by real world evidence such as the [never-ending "pause"](#), the [missing tropical hotspot](#) and recovering [Arctic sea ice](#), most of the world’s countries have not bought into it and [only pay lip service](#) to it, so our tiny domestic emissions reductions have very little global impact.

If responsible government ministers had reached this realistic conclusion years ago they could have saved us all a great deal of heartache, e.g. businesses made uncompetitive by high renewable energy costs and green taxes, households driven into fuel poverty (currently 35% in SNP wind power-obsessed Scotland) and precious landscapes despoiled by ineffectual wind farms.

### **Climate Change - a Review of the Unconvincing Facts**

Before discussing climate change in the form of global warming it is necessary to explain the shocking fact that the main establishment-controlled global temperature records can no longer be trusted because they have been subjected to flagrant [retrospective adjustments](#) to make global warming look worse than it is. The establishment claims these changes were needed for consistency but this is implausible as they used the trick of [raising](#) modern era temperatures and [lowering](#) those in the past. An article on the [fiddling of temperature data](#) went viral with over 12,000 reader comments. Lord Lawson’s Global Warming think-tank has [launched an inquiry](#) into the integrity of the global surface temperature records but has not yet published any findings.

Unfortunately climate propagandists use these faked temperature data to claim that global warming is a problem which needs drastic action, usually without even bothering to question whether the warming might be natural, like the 2015-16 El Nino. Fortunately a few praiseworthy researchers have archived “before and after” records which allow us to reconstruct the true global temperature history. [This simple graphic](#) shows that global temperatures were originally recorded as being higher in the 1930s (the time of USA mid-west [dust bowls](#)) than in modern times before they were “officially” adjusted lower to make modern global warming look worse. Fortunately since 1979 we also have the uncorrupted [UAH satellite temperature record](#) which is not subject to politically-motivated “up adjustments” and has the further advantages of providing true global coverage with no [fraudulently "filled in"](#) data for areas with no surface measurements and not suffering from [poor siting practice](#) seen on some measurement stations, including the urban heat island effect.

Together these trusted records show the global temperature trends from the start of the 20th century, needed to put the discussion in context:

- 1) The ending of a global cooling phase from about 1880 to 1910.

- 2) Global warming from about 1910 to the mid 1940s. This must have been caused by natural climate variability because, as the UN IPCC concedes, atmospheric CO2 levels were too low and unchanging at that time to have had any effect.

The records show the scale and duration of this global warming to be essentially indistinguishable from the global warming which occurred from the mid 1970s to the late 1990s (4th bullet), which prompts the obvious question: why shouldn't that global warming of the late 20th century, the main plank of the UN IPCC's flimsy case, also have been due to the same natural climate variability, rather than man-made CO2? The UN IPCC simply flannels on this.

- 3) Global cooling from the mid 1940s to the mid 1970s. The scale of this cooling phase has been adjusted in the official records to make it look less significant. The UN IPCC asserts that man-made global warming should have started from around 1950.
- 4) Global warming from about 1975 to the late 1990s. This is exhibit A of the UN IPCC's man-made global warming theory, except that they say in their 2014 report that [about half](#) of the global warming from 1951 to 2010 was man-made. Coming after the adjusted global cooling phase which ended around 1975 (3rd bullet) and given that 2010 temperatures were raised by a large natural [El Nino warming spike](#), any real net increase in alleged man-made global warming over this period must therefore have been so small as to be imperceptible.

It is highly revealing that the trusted [satellite record](#) shows no discernible slow but steady trend of alleged man-made global warming through this period which the models predict as a slope of about [0.2°C per decade](#), just warming and cooling fluctuations at much more rapid rates of change which are clearly natural rather than due to man-made CO2, culminating in a huge natural jump of over 0.7°C in less than a year in the [1998 El Nino](#) which lifted global temperatures to a new, slightly higher thermodynamic equilibrium which has endured to the present time.

- 5) Finally, despite [steadily rising atmospheric CO2](#) - which is helping to [green the planet](#) and improve crop yields - a net standstill from the 1998 peak to the present time, the so-called "[pause](#)" or "[hiatus](#)" in global warming once the short-term warmings and coolings of [El Nino and La Nina](#) and [other](#) natural weather events have [evened out](#). If this pause continues, or turns to global cooling, it threatens to falsify the entire man-made global warming theory.

This chronology shows that all the political hysteria over "climate change" boils down to about 23 years (4th bullet) of sustained global warming in the last 72 years, an unexceptional warming spell which ended almost 20 years ago with nothing to prove that most if not all of it wasn't caused by natural climate variability, e.g. the result of a series of stronger than usual sunlight-fuelled El Ninos.

So why all this political hysteria over the non-scary reality of [CO2 and global warming](#), especially when the "solutions" to this non-problem are so obviously infeasible and unaffordable? Most real world climate indicators such as the progression of natural [solar](#) and [oceanic](#) cycles suggest that global temperatures are most likely to fall over coming decades. This contrasts starkly with the virtual reality computer model predictions put out since 1990 by the establishment scientists of the politicised UN IPCC that - based on their [pseudo-scientific assertion](#) that the main cause of climate change is atmospheric CO2, with the natural drivers of climate such as [solar influences](#) including magnetic field and ultraviolet variations, oceanic influences such as the Pacific and Atlantic Oscillations, winds and clouds, all relegated to being ignorable, on average neutral - global temperatures would rise steadily and significantly from around 1950 when, [they say](#), atmospheric CO2 reached a level at which man-made global warming would inevitably kick in.

This UN IPCC model-predicted man-made global warming has simply not happened over the past almost 20 years, nor over the 30 year period from about 1945 to 1975 when, doubly inconveniently for climate alarmists, global temperatures [fell](#) while global fossil fuel consumption rose exponentially through the

post-war economic boom. Whatever unlikely effect allegedly negated supposedly inevitable man-made global warming for these 30 years (aerosols?), it magically disappeared in the space of about a year at the sudden transition from global cooling to global warming around 1975. We are also expected to believe that the same effect or some unidentified equivalent inconveniently (for their global warming theory) reappeared to nullify supposedly inevitable global warming from the turn of the century to the present time. It all seems very implausible. The temperature record of the last 72 years clearly shows that the UN IPCC climate computer models are prime examples of the old computer science GIGO adage, **“garbage in, garbage out”**.

The UN IPCC pretends that it cannot explain the 21st century pause. This is because they would have to contradict their 2014 report assertion that natural climate variability was a neutral influence on the global warming of the late 20th century. The obvious explanation, which they have shockingly ignored for many years, is that their [climate models are seriously flawed](#) because they run **“too hot”**, predicting steadily increasing man-made global warming which simply doesn't come about. Climate expert Hans von Storch [said in 2013](#) that if the pause continues, “in 5 years at the latest we will need to acknowledge that something is fundamentally wrong with our climate models”. Emeritus Professor Dr Richard Lindzen thinks that climate sensitivity, the increase in global temperatures from a doubling of atmospheric CO<sub>2</sub> (perhaps by the end of the century) is [of the order of 0.3°C](#), very much lower than the UN IPCC predictions and nothing to worry about, certainly not worth spending [hundreds of £ billions](#) on, as it will be indiscernible amongst the natural fluctuations of the climate. These flawed climate models will be high on the priority list for “Red Team” investigation by the new climate sceptical USA administration.

An important but seldom mentioned feature of the UN IPCC climate models is that their scary global warming predictions rely on rising CO<sub>2</sub> levels to only a relatively minor extent. It is generally agreed (as by Dr Lindzen) that the greenhouse effect will, all other influencing factors being equal, cause temperatures to rise as CO<sub>2</sub> levels rise. However the climate models depend mainly on a hypothetical, unverified [positive feedback mechanism](#) (via water vapour) which would amplify a minor temperature increase to cause potential “runaway” global warming. This modelling theory is obviously flawed because if such an aberration of nature actually existed, it would have turned the Earth into a hot, waterless planet like Venus in the distant past when CO<sub>2</sub> levels were much higher than now, which obviously did not happen. Studies have proved that our stable planet has [negative climate feedbacks](#) and historical evidence shows that rising CO<sub>2</sub> levels actually [lag behind](#) rising temperatures, by hundreds of years, not the other way around.

Looking [back 10,000 years](#), the Earth's temperature has actually been [falling](#) at an accelerating rate for the past 8,000 years, interrupted at millennial intervals by periods of natural global warming followed by natural global cooling: from the Holocene Climate Optimum 6,000 years ago through the Minoan Warm Period, the Roman Warm Period and the Medieval Warm Period when crops were grown in Greenland, all warmer than our current modest warming and all having occurred naturally without any man-made CO<sub>2</sub> emissions. We must be thankful for the indisputably natural global warming which has lifted us out of the Little Ice Age which lasted from the start of the 14th century to the end of the 19th century, probably the worst cold period of our [precarious interglacial](#), with ice fairs on the frozen River Thames still being held 200 years ago. **Climate history makes a mockery of UN IPCC climate science.**

There is no empirical evidence to disprove the so-called null hypothesis that our recent brief spell of global warming, which stopped almost 20 years ago and can in no way be described as dangerous, was due to cyclical climate variability which has been going on naturally for centuries and millennia. A [recent study](#) confirms that the ongoing “pause” in global warming is real and that “climate change” is much more likely to be due to natural, cyclical fluctuations than man-made CO<sub>2</sub> emissions. Climate scientists are finally starting to admit that their [climate models are faulty](#). Given that the UN IPCC's man-made

global warming theory relies above all else on their doom-mongering computer climate models, their theory is now looking flimsier than ever.

The above layman-level analysis is by itself sufficient to cast extreme doubt on the establishment's unconvincing and empirically unproven man-made global warming theory. However there is a non-technical clincher to the climate sceptical argument, namely the high level of blatantly obvious spin, propaganda, exaggeration, obfuscation and downright deception amounting to brainwashing put out in support of the establishment's "climate change" narrative, many examples of which have already been described. **What kind of supposedly noble cause can only be kept going by such all-pervasive dishonesty?**

One of the most egregious examples of this dishonesty is the endlessly repeated but fraudulently concocted "97% consensus" mantra which is exposed in the following section on Debunking the Faked 97% Consensus on Climate Change.

The corruption confronts the unwary when searching the internet on climate change issues. The first hits are often from climate propagandist websites like EU-funded [CarbonBrief](#) or Skeptical Science, who originated the [97% Consensus fraud](#), presenting their own misinformation on the issue concerned.

Look at the UN IPCC. It brazenly insists that [the science is settled](#) when this is [obviously not true](#). Despite the PR image that it tries to present, the UN IPCC is a blatantly [political, not scientific](#) organisation which does not even study climate change in the round. It was set up with a deliberately restricted mandate to assess only [human-induced risks](#) of climate change. This restriction, which it never makes public, allows it to surreptitiously downplay natural causes of climate change such as solar irradiation and magnetic field effects. Its Summary for Policymakers reports are [written by politicians](#) and then their Science reports, which are issued months later, are retrospectively revised as necessary to support the predetermined political conclusions. Politicians have funded/encouraged the UN IPCC scientists and bureaucrats to find (invent) a problem of man-made global warming, which they have duly done, in the form of a "[mumbo jumbo](#)" fabrication.

We must never forget the **climate science skulduggery** which came to light through the [Climategate emails](#) leaked in 2009 from the UEA's Climatic Research Unit, a key hub of UN IPCC climate science. These emails laid bare how biased UN IPCC climate scientists were behaving like alarmist political activists rather than objective professionals, e.g. scheming to prevent publication of contrarian scientific papers; discussing how to blackball journals that dared to publish opposing views; colluding to thwart Freedom of Information requests; planning how to alter temperature records to make global warming look worse; the infamous "Harry Read Me" computer file detailing all the fudges and spurious adjustments used to doctor their temperature records.

Another disgrace which featured in the Climategate emails was the infamous [hockey stick graph](#) which showed no temperature increase for 1,000 years with a sudden rise in the 20th century. This was gleefully promoted as a poster-child icon by the complicit UN IPCC as it suggested that the late 20th century global warming had been unprecedented. It took years of dogged investigation by layman truth-seekers, hindered all the way by the establishment climate scientists who refused to make public their data, to prove that the hockey stick graph was bogus, created by [flawed data and statistical chicanery](#).

To add to the doubts caused by this climate science skulduggery, UN IPCC officials have exposed their ulterior [political](#) motives, never mentioned by the establishment media, which have nothing much to do with climate change. For example UN IPCC unelected co-chair Ottmar Edenhofer [said in 2010](#):

*“Climate policy has almost nothing to do anymore with environmental protection. The next world climate summit in Cancun is actually an economic summit during which the distribution of the world’s resources will be negotiated”.*

Christiana Figueres, the unelected ex-boss of the UN IPCC [said in 2015](#) prior to the Paris Agreement:

*“This is probably the most difficult task we have ever given ourselves, which is to intentionally transform the [world’s] economic development model for the first time in human history”.*

A detailed account of the UN IPCC’s spin, misinformation and deception is given in the book “The Deliberate Corruption of Climate Science” by Dr Tim Ball, who has studied climate scientifically and academically for over 40 years. The following extract from his Preface gives a flavour, available [online here](#):

*“I watched my chosen discipline - climatology - get hijacked and exploited in service of a political agenda, watched people who knew little or nothing enter the fray and watched scientists become involved for political or funding reasons - willing to corrupt the science, or, at least, ignore what was really going on. The tale is more than a sad story because it set climatology back thirty years and damaged the credibility of science in general.”*

**Why would any informed person blindly accept anything these scheming, politically-motivated zealots have to say about “climate change”? What will it take for our politicians to re-consider their doctrinaire stance - a stance which harms the poor the worst? Surely we can’t afford to wait for the next UN IPCC report which is not due until 2022 and, based on their past political, unscientific shenanigans, could not be trusted anyway?**

All the evidence indicates that the supranational establishment, led by the unelected UN IPCC, is committing an outrageous climate change deception on the global general public for its own opaque political goals. Its flimsy case for man-made global warming is founded entirely on the cherry-picked brief period of global warming in the 1980s and 90s with no proof that this wasn’t entirely natural. What a brazen, opportunist switch from the 1970s climate scare of a [pending ice age](#)! It is depressing that they have managed to get away with it for as long as they have just by blinding the general public (and most politicians) with their [impenetrable pseudo-science](#) and spin. But as Emeritus Professor of Physics Hal Lewis [famously said](#):

*“The **global warming scam** ... is the greatest and most successful **pseudo-scientific fraud** I have seen in my long life as a physicist”.*

### **Debunking the Faked 97% Consensus on Climate Change**

The establishment media and climate alarmist politicians are always quick to justify their anti-fossil fuel climate and energy policies by quoting the mantra that “97% of climate scientists agree that ...”. When questioned, those who repeat this mantra are usually vague about what exactly these scientists allegedly agree on and how exactly they allegedly proved it. They gloss over whether the alleged fossil fuel climate problem is serious - requiring drastic, hugely expensive, globally coordinated measures - or is perhaps manageable by much less expensive adaption, never mind that it might even be a non-problem.

Believers in man-made climate change range from ideological zealots who will never be persuaded otherwise to ordinary people who are not aware of the true facts, understandably because of the barrage of establishment brainwashing they are subjected to and because the truth is suppressed by most of the establishment media, especially the [biased BBC](#). This brainwashing applies particularly to [young people](#) who get [heavily indoctrinated](#) on the establishment’s doctrinaire stance on climate change during their schooling.

These believers often ignore or are ignorant of the fact that our expensive, impractical renewables contribute only a tiny share of our national energy supply, nowhere near enough to keep our society working and, in contrast, that our prosperous, highly mobile, computerised society has been [built on fossil fuels](#) (and nuclear) which completely outmatch in efficiency, versatility and cost any current renewable alternative - a society which [would collapse](#) if fossil fuels could no longer be used. They also ignore or are ignorant of the fact that most non-Western countries intend to keep on increasing their [fossil fuel consumption](#) over coming decades (developing countries are exempt under the Paris Agreement), rendering any unilateral emissions reduction efforts on our part pointless. They also ignore or are ignorant of the fact that the Paris Agreement will probably have a [negligible impact](#) on global temperatures. On top of this are the extreme doubts reviewed in the previous section as to whether man-made global warming is even discernible.

For those who consciously deny such obvious facts this is a clear case of cognitive dissonance or Orwellian doublethink. [Elitist, politically correct](#) climate alarmists seem intent on a futile, self-flagellating sacrifice of our industries and living standards on the alter of their irrational, [virtue-signalling](#) beliefs, behaviour which is bordering on ideological or religious fundamentalism. For some green extremists the preferred option seems to be a return to the horse and cart poverty and squalor of the Middle Ages.

Such irrational thinking is often linked to the 97% consensus myth. The truth is that the mantra “97% of climate scientists believe in man-made global warming” is a propaganda deceit completely devoid of any factual basis, most recently (2013) devised by climate activist John Cook by means of [statistical skulduggery](#). Sadly, the fact that it has been **comprehensively debunked** (see further links below) does not deter the poorly informed and unknowingly deceived from continuing to quote it. In his bogus survey of 12,000 scientific papers only 1.6% agreed that “humans are the primary cause of recent global warming” yet by classification chicanery he managed to get it up to 97%.

In fact it was an earlier (2009) Zimmerman bogus survey, **also thoroughly debunked**, which first came up with the 97% figure, deliberately conjured up to imply overwhelming unanimity. The fact that John Cook contrived to replicate, in order to bolster, the exact same discredited 97% figure by his completely different method tells you all you need to know about his driven mendacity.

It is incredible that the once-respected NASA, [now a hotbed](#) of climate establishment corruption and propaganda, should have sunk so low as to refer to the 97% fraud [on its website](#), spinning a false justification that the surveyed papers were peer-reviewed. It is less surprising that the climate propagandist Guardian newspaper has emblazoned this fraudulent 97% consensus mantra [onto its masthead](#).

For details on refuting the 97% mantra see [this set of posts](#) and [this set](#).

The sad truth is that the phrase “follow the money” explains most of the scientific and business enthusiasm for alleged man-made climate change. Emeritus Professor of Physics Hal Lewis made this point (see link above) when he resigned from his professional society because of its biased stance on climate change, betraying a vested interest in furthering the climate scare in order to get funding - just like our [disgraceful Royal Society](#). See also the comments made above by Dr Tim Ball. It also applies to many countries which signed up to the Paris Agreement for a share of the hoped-for \$100 billion a year [Green Climate Fund](#). Climate campaigning groups like Greenpeace and WWF only lobby to the extent they do because of the [money they are granted](#) to do so, including from political groups. The same “follow the money” point was made by independent physicist Dr Piers Corbyn on the Andrew Neil [politics show on YouTube](#) when he denounced “UN IPCC fraudulent science” as “a con” and called for more public debate on climate change. We’re still waiting.

The groupthink climate consensus is so deeply entrenched in establishment organisations that their tenured scientists have little choice but to toe the party line, otherwise they risk seriously damaging their career prospects. Not long ago a [French weatherman was sacked](#) for the heresy of publishing a book questioning establishment orthodoxy on climate change.

The claim that 97% of climate scientists agree about something, whatever that something is said to be, has always been totally worthless, not to mention anti-scientific as science does not advance through consensus.

### **The Delusional Committee on Climate Change**

The Committee on Climate Change is the independent body which advises the government on implementation of the Climate Change Act. It comes across as a high priesthood of “climate change”. Its [2017 Report to Parliament](#) is almost hysterical, twisting the truth and distorting reality to warn of a looming man-made thermageddon which is nowhere to be seen on the real world horizon. Their dogmatism shows in their continual use of the obfuscating, conveniently unfalsifiable phrase “climate change”, as in “climate change is happening, not waiting”. A more reasonable form of words would be “postulated man-made climate change” or the old-fashioned phrase climate alarmists stopped using when global temperatures stopped rising, hypothetical anthropogenic global warming (AGW). By its own words the Committee shows itself to be uncritically committed to the anti-scientific political claim that [the science is settled](#).

The Committee’s [2015 Fifth Carbon Budget](#) (1928-1932), characterised by one expert as [green cr@p trumps common sense](#), comes across as an academic study in self-delusion. For example it hopes that expensive, unviable CCS will be implemented on a large scale. It blithely talks of 400 TWh of expensive new offshore wind power ignoring the fact that it would require an impossible number of new turbines which couldn’t be deployed anyway because of the grid instability they would create and which in any case can be becalmed for days on end. It also wants a huge expansion of expensive solar which generates nothing overnight and next to nothing in midwinter. It assumes a carbon floor price of an eye-watering £78/tonne by 2030 which would severely discourage gas power stations essential for grid balancing yet at the same time they want a big expansion of gas power in this budget, except that they want to phase it all out in later budgets. The irrationality of their proposals directly mirrors the unachievability of their aims.

At least they are realistic on the poor prospects for battery storage other than as an expensive method of coping with wind power “stress and unexpected circumstances” (see Elon Musk above), which still does not help with the becalming problem - in fact it would make it worse if it allowed even more wind power to be deployed. A detailed analysis of this wishful thinking, deliberately misleading carbon budget “plan” [is given here](#) with a follow-up [here](#).

The government response to this carbon budget is its recently published [Clean Growth strategy](#) (see the Preface for an outline critique) which is long on [trendy green words](#) and plans for yet more consultations (page 131) but short on specific proposals, indicating that they still have little idea on how to proceed. It remains to be seen whether the government is serious about this strategy or whether it will be quietly sidelined through inaction when they finally accept that it is just not worth the candle, as the green energy pioneers in Germany are already [starting to realise](#).

### **Conclusions**

We are living in times of so-called austerity because of the large national deficit run up by Gordon Brown which is proving very difficult to get under control. We are also on the brink of Brexit when we need to be

as “match fit” as possible if we are to survive competitively and prosper by developing new markets.

**So why are we undertaking an astronomically expensive upheaval of our national energy infrastructure in the name of “climate change”** - estimated by Owen Paterson MP at up to [£1.3 trillion](#), creating widespread fuel poverty, damaging our national competitiveness and forcing businesses and jobs out of the country to save CO2 emissions only to have the same emissions generated by developing economies abroad - **when the whole upheaval has no hope of reaching the hoped-for renewables-based “low-carbon economy” and will make only an imperceptible contribution towards “saving the planet”?**

If the decarbonisation calculations in this paper are anywhere near the right ballpark they confirm that the government has its head stuck firmly in the sand over its muddled, unrealistic energy policies. Basic engineering reality dictates that so-called renewables like wind and solar can never supply more than an insignificant percentage of the energy we need to keep our society working. Our 2050 80% decarbonisation plans are currently going nowhere. The illusory progress to date, achieved by picking low-hanging fruit such as the “dash for gas” switch from coal to gas for electricity generation, simply cannot be extrapolated other than by going massively nuclear, which has never been the stated policy.

Never mind the plans for 2050, the government will be lucky to avoid a collapse of our electricity supply system some cold winter soon as by 2025 half of our remaining nuclear plants and all of our remaining coal-powered stations are due to be shut down with no functional replacements in the pipeline.

The government should take with a large pinch of salt the untrustworthy advice of the [climate alarmist media](#), the [renewables industry](#), the [alleged 97%](#), the [Met Office](#) and other “follow the money” hangers-on to the climate change bandwagon, including the [Chairman](#) of the Committee on Climate Change.

The government has got itself into this mess - hoist on their own petard of having brainwashed the electorate and themselves for so long about the imagined dire threats of hypothetical man-made climate change - because the supranational establishment, led by the UN with its ulterior political agendas (global governance, global redistribution of wealth and who knows what else), has painted itself and all conforming governments, which now excludes the USA, into an untenable corner over the empirically unproven, indiscernible alleged problem of dangerous man-made global warming.

The government needs to pause its ineffectual efforts and undertake an objective, unprejudiced review of the alleged problem of “climate change”. If that leads to a long-overdue [epiphany](#) and if the government can summon up the courage, it should channel the currently prevailing anti-establishment mood to take a defiant stand against the supranational establishment’s untenable climate and energy orthodoxy, including reconsidering the UK’s thus far \$1.2 billion contribution to the UN’s hoped-for \$100 billion a year [Green Climate Fund](#). As most ordinary people nowadays are sceptical of the politically-contrived global warming scare this approach would have widespread voter support. It would also confound the other political parties (bar Ukip) who are all innumerately and illogically (because the imposed “solutions” hurt the poor the most) obsessed by “climate change”.

After Brexit we need no longer be constrained by the EU’s [“green-energy basket case”](#) climate and energy directives such as:

- mandating an arbitrary percentage share of ineffectual renewables in our energy mix, with the added absurdities that (i) they encourage unsustainable, polluting biomass (wood) with net CO2 emissions higher than coal and (ii) [rain forest razing biofuels](#) which are pushing up [world food prices](#), but (iii) they perversely discourage emissions-free nuclear power, their best hope of actually reducing emissions, by not allowing it to count in these quotas.

- the EU-mandated £11 billion smart meter programme which is mainly for supplier benefit to try to make unworkable renewables work a bit better, fraught with technical difficulties and set to cost each household £420 on their energy bills to save just “[a tenner a year](#)”.
- the EU’s Large Combustion Plant Directive which mandates the closure of our remaining coal-fired power stations, due to be shut down by 2025 but with no functionally equivalent replacements anywhere on the horizon.

Any Brexit negotiation concessions to remain party to such EU climate and energy policies must be firmly ruled out. We must take back control!

Finally, the Scottish Government [needs to be reined in](#) to stop it despoiling the countryside with yet more [unwanted](#), unworkable windfarms. The SNP’s misguided policies have already reduced Scotland to dependency on England for imported backup electricity to keep the lights on when the wind doesn’t blow, and that’s with two Scottish nuclear power stations which they abhor still running. They are now proposing to [ban new diesel and petrol cars](#) in Scotland by 2032 which is beyond absurd as these Scottish nuclear power stations are due to be retired without replacement by then which could leave us hopelessly short of electricity. These politicians are like children playing with toys except that their uninformed, dangerous meddling with these “toys” is jeopardising the secure, affordable and efficient working of our modern computerised society.

Douglas S Brodie

Nairn, November 2017 (Edition 2)

PS: For further information see my previous offerings:

[The Disadvantages of Wind Power](#), January 2017

[Open Letter to Mr Pete Wishart, MP](#), January 2016

[Why the Climate Change Act should be Repealed](#), November 2015