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The background of the cover is a photograph of parched, cracked earth. The cracks are deep and irregular, creating a mosaic of light-colored, angular fragments. In the lower right quadrant, a small, vibrant green plant with thin, needle-like leaves grows out of the cracks, providing a stark contrast to the otherwise desolate and greyish-brown landscape.

# Climate Change and Environmental Policy

British Politics and Policy Blog  
August 2012

# Climate Change and Environmental Policy

## British Politics and Policy at LSE ecollections

**British Politics and Policy at LSE** ecollections bring together key articles from the blog on specific themes so they can be downloaded and read as a short series. We hope these will form a useful resource for academics, students and those interested in particular issues that are covered more extensively online. We welcome comments and suggestions as to themes for future ecollections.

## Introduction

Policymakers in developed economies and emerging markets alike are increasingly concerned about the catastrophic implications of climate change and are beginning to work towards building a more sustainable future on an increasingly crowded and resource-hungry planet.

**Scientific consensus** now estimates that, at current yearly levels of Green House Gas emissions into the atmosphere, average surface temperature will increase by 2 to 4.5 degrees centigrade by the end of the century. The **economic costs** of inaction are estimated to be in the areas of 5 per cent of global GDP per year.

The risks of inaction are thus enormous and there are sizeable collective action problems that must be overcome. But, as Lord Nicholas Stern **recently remarked**, the costs of mitigating climate change are manageable and informed public discourse can be a powerful driver in overcoming sluggish policy progress.

**British Politics and Policy at LSE** ran a series on Climate Change and Environmental Policy in 2012. This ecollection is a select sample of some of the most interesting posts from that series. Access to the full spectrum of articles on this theme is **available online**.

**The articles contained herein give the views of the author(s), and not the position of the British Politics and Policy at LSE blog, nor of the London School of Economics.**

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# *Self-regulation is not working to keep British media factual about climate change*

Published: 15 March 2012

**Scientists and social scientists working on climate change are increasingly concerned about the way in which the issue is reported in the UK national media. Bob Ward argues that Britain's self-regulating press and weakly monitored broadcast outputs are unable to handle instances of blatant factual misrepresentation. As a result some media outlets can continuously fabricate controversy and denounce constructive environmental policies.**

The Leveson Inquiry into the culture, practice and ethics of the press has mainly been focusing on issues arising from the alleged hacking of phones by journalists at some national newspapers. But the Inquiry would perform a great service for the public interest if it also investigates the way that some parts of the media are choosing to cover the issue of climate change.

There is unequivocal scientific evidence that the Earth is warming, and little real argument that the main cause is the indisputable increase in atmospheric concentrations of greenhouse gases, due to human activities such as burning fossil fuels. The consensus view within the scientific community is that if greenhouse gas levels continue to rise unchecked, there are very clear risks of further global warming. This development could damage the lives and livelihoods of hundreds of millions of people across the world through changes in extreme weather events, rising sea levels, and other climatic impacts.

In the UK, we are already seeing the effects of climate change, with seven of the 10 warmest years on record all having occurred since 2001. The UK public can also see a range of positive policy responses from government, ranging from the growth of alternative energy sources to reduce emissions, to greater investment in sea and flood defences to prepare for those impacts of climate change that cannot now be avoided. Hence, climate change is a major public interest issue in the UK.

Many national newspapers and broadcasters are serving the public interest by covering both major developments in the understanding of the challenges posed by climate change and the options for overcoming them. But some parts of the media are failing their audiences, preferring instead to champion unscientific, or even anti-scientific, coverage of climate change.

Most national media frame climate change as an environmental issue, and primarily one of science, with a bit of politics and economics thrown in. News reporting of climate change is usually carried out by science reporters, or environment reporters who often have science degree backgrounds. By and large this reporting is of a high quality and avoids inaccurate and misleading information as required by the Editors' Code of Practice of the Press Complaints Commission (PCC) in the case of newspapers, and by Ofcom's Broadcasting Code in the case of television and radio companies.

However, some parts of the media have exploited weaknesses in the regulatory systems to promote demonstrably inaccurate and misleading information to the public about the causes and potential consequences of climate change, often under the guise of achieving "balance" in their coverage.

For instance, in March 2007, Channel 4 broadcast "The Great Global Warming Swindle", a long programme that sought to convince viewers that a change in the activity of the Sun, rather than the increase in greenhouse gas concentrations, is responsible for rising global temperatures. The programme contained numerous factual errors, as well as a doctored graph. And it generated more than 250 complaints to the broadcasting regulator Ofcom, including one from me.

After a year of considering the complaints, Ofcom published its ruling in July 2008. It found that the programme has been unfair towards some scientists. But it refused to judge the inaccuracies in the programme to be a breach of the Broadcasting Code because it could find no evidence that they had "materially misled the audience so as to cause harm or offence". Ofcom acknowledged that the programme was "a polemic clearly going against the prevailing scientific view on global warming", but judged that "it is important, in line with freedom of expression, that broadcasters are able to challenge current orthodoxy". In essence, Ofcom decided that broadcasters can show documentaries and other "factual" TV programmes that are factually inaccurate and mislead viewers, so long as they do not cause demonstrable harm or offence.

National newspapers are able to take advantage of a similar loophole in the PCC Editors' Code of Practice. In March 2009, *The Sunday Telegraph* **published a column** in which Christopher Booker reported the views of Dr Nils-Axel Mörner who claims that global sea level is not rising. I felt that the article contained numerous inaccuracies, so I wrote a letter to *The Sunday Telegraph* to correct them and later made a complaint to the PCC. After **a long exchange**, the PCC finally **reached a verdict** in December 2009. It ruled that the newspaper had not breached the Editors' Code of Practice because in reporting Dr Mörner's comments "its responsibility was for publishing his views accurately rather than for the accuracy of his views".

In my view, the PCC decided that newspapers are permitted to publish inaccurate and misleading information, so long as it is opinion. This surprisingly lax interpretation of the Code, which treats the laws of physics as just "a point of view", has allowed some newspapers to publish with impunity numerous inaccurate and misleading articles about climate change.

The *Daily Mail* is owned by a company that apparently **takes climate change seriously**. Yet its systematically misleading coverage is part of a campaign against the UK government "green" policies that was reportedly **agreed at a lunch** between Paul Dacre, the newspaper's editor, and Lord Lawson, the founder of the Global Warming Policy Foundation, a campaign group of global warming deniers.

There are indications that these systematic misrepresentations of the science of climate change are leaving many people grossly misinformed. The most recent **annual survey for the Department for Transport** found that nearly one in four of the UK public is not convinced that climate change is even happening. Let us hope that the Leveson Inquiry finds time to investigate how parts of the UK media are systematically harming the public interest through their climate change coverage.

#### **About the author**

Bob Ward is Policy and Communications Director at the Grantham Research institute on Climate Change and the Environment ([www.lse.ac.uk/grantham](http://www.lse.ac.uk/grantham)).

# *New policies are needed to reconcile climate mitigation and social equity in the UK*

**Published: 29 March 2012**

**Ian Gough argues that current climate mitigation policies are highly regressive because they bear much more heavily on lower income households. To achieve both equity and carbon reduction will require imaginative and radical new “eco-social” policies.**

The UK is now committed to one of the most demanding carbon reduction commitments in the world: to reduce the UK output of carbon and other greenhouse gases (GHGs – compared with 1990) by 80 per cent by 2050 and by at least 34 per cent by 2020 – just eight years away. A substantial set of climate mitigation programmes (CMPs) are now in place to implement these goals.

Yet the current targets and programmes suffer from two further problems. First the targets omit the wide range of GHGs “embodied” in consumption goods imported from abroad: we have found that the UK consumes one third more carbon than it produces and one half more greenhouse gases – one of the widest gaps in the world. We are conveniently outsourcing a large chunk of our emissions.

Second, most of the energy efficiency programmes focus on direct household emissions from fuel and electricity, rather than all the indirect emissions embodied in food, travel, consumer goods and services – which account for four fifths of the total. Yet current CMPs are highly regressive because they impose policy “obligations” on energy companies which they are expected to recoup from higher prices, which in turn bear much more heavily on lower income households.

Can a broader “consumption” approach to household emissions better reconcile environmental and social concerns? We have calculated the distribution of total household emissions, a process which requires marrying together the input-output resource database of the Stockholm Environment Institute with the UK Food and Expenditure Survey. The results show that income is the most important driver of per capita emissions across households. Bigger households emit less per capita than smaller households due to economies of scale in consumption. So do “workless” households – pensioners, unemployed and unoccupied – compared with those with one or more member in employment.

Targeting emissions from travel, services and consumption goods would be less regressive than those on essentials like food and heating. Nevertheless, any general carbon tax or pricing system would impact more on the low paid, single persons, pensioners and workless households. So we need new environmental, social and economic policies to target all personal consumption, but in a fair way. Advocates of “nudge” claim this can be done without seriously confronting commercial pressures and structural constraints. I am less sure.

One radical solution is to ration carbon, though most advocates prefer to talk of carbon allowances. A cap is imposed on a country’s total GHG emissions (decreasing year by year) and this is divided into equal annual allowances for each adult resident (usually with a lower allowance for each child). In effect, a dual accounting standard and currency is developed – energy, goods and services have both a money price and a carbon price. Those who emit less carbon than the average can sell their surplus and gain, while higher emitters would pay a market price for their excess.

This would be progressive and would directly bring home to consumers the carbon savings required. Though it could begin with electricity, domestic fuel and petrol, it would need to be rolled out to cover flying and other high income consumption. Yet Tesco’s brave pledge to put carbon labels on 70,000 products has not been followed through and there are other administrative problems. The British government scrapped a planned pilot in 2008 as “an idea ahead of its time”.

Another long-term solution directly addressing the issue of consumption growth is to reduce hours of work. This could directly cut consumption and emissions and alter time and expenditure budgets towards lower carbon intensity. It could be implemented gradually by taking more annual productivity gains in the form of rising leisure rather than consumption. Since 1975, when they had similar hours of work, the US has reduced average hours by 4 per cent and Germany by 22 per cent. All other things being equal, Germany has deployed its productivity dividend in a less environmentally harmful way than the United States.

Targeting rich world consumption in this way would assist international negotiations to curb climate change. Outsourcing is driving up the emissions of non-Annex 1 countries and this is an obstacle to international agreements. Including consumption-based emissions in the North's carbon account would remove some of this opposition and ease the constraints on economic and social development in the South.

An active European Emissions Trading Scheme will help, if its current problems are overcome, but it would be regressive which would damage public acceptability and would in any case be indefensible after three decades of rocketing inequality. To achieve both equity and carbon reduction will also require imaginative and radical new "eco-social" policies.

#### **About the author**

Ian Gough is Professorial Research Fellow in CASE (the Centre for the Analysis of Social Exclusion) and LSE Global Governance. Until summer 2009 he was Professor of Social Policy at the University of Bath, where he is now Professor Emeritus. He is currently researching climate change and social policy, funded by the ESRC.

# *We need to focus on growth and being greener – not “green growth”*

**Published: 3 April 2012**

**Subsidies to select renewable industrial sectors are paid for by the rest of the economy, in particular through increased energy prices. Simon Less argues that the government’s industrial policies will be costly and hamper growth; resources are being squandered that could have been used to deliver both more growth and greater emissions reduction.**

Both “green” policies – to promote reduced carbon emissions – and growth policies are important priorities for the government. But muddling-up these priorities under the banner of “green growth” or the “green economy” is damaging to both the goals of emissions reduction and growth.

Securing emissions reduction with minimum economic impact is likely to be best achieved through an effective long-term, technology-neutral carbon pricing framework to enable the market to discover the cheapest emissions reductions. The EU Emissions Trading System (ETS), which caps carbon in the “tradable” carbon-emitting sectors, is the key European policy. Public subsidies are also needed for research, development, demonstration and early stage deployment of promising new low carbon innovations and technologies.

But the government’s stated goal of promoting “green growth” leads it instead to favouring and subsidising selected green – usually renewable energy – industrial sectors. The argument for “green growth” policies is not that they are the best way to reduce emissions, but that they will increase overall levels of growth, exports and employment in the UK.

Chris Huhne, then Secretary of State for Energy and Climate Change, said at the Renewable UK conference in October 2011:

“We’re missing a trick unless we start supporting low-carbon manufacturing here in Britain – and ... creating the exports that will keep Britain competitive.... [T]his government has resolved that we will be the largest market in Europe for offshore wind.... We will not heed the ... green economy deniers.”

This appears to be a political pitch for the sort of industrial policy interventions seen in the 1960s and 70s. Historic industrial policy interventions, for example, in advanced gas-cooled nuclear reactors, car manufacturing and supersonic civil aviation, gave generous subsidies in the hope that these sectors would power future UK growth and exports. Following the most recent adjustment to renewable generation subsidies, in which long-term subsidies to offshore wind were increased, Climate Change Minister Greg Barker was quite explicit about this being “ambitious green industrial policy in action.”

The government’s renewable generation deployment subsidies are a hugely expensive way to meet 2020 carbon targets (and are a poor way to prioritise resources for low carbon innovation). The net cost to the UK economy of the government’s renewable electricity strategy (driven by the EU 2020 renewable energy target) **has been estimated** by the government at £43 billion. As part of its strategy, the government plans to deploy 13-18 GW of mainly deep water offshore wind, at a current cost of around £300 per tonne of carbon dioxide saved.

Yet, these subsidies save no more emissions by 2020 than would anyway be saved under the ETS cap (under which the carbon permit price is currently only around £5-15). Policy Exchange **has estimated** that by 2020 the full cost to an average household of existing renewable energy subsidies (including not just the impact on households’ energy bills, but also costs through general taxation and the pass-through to households of businesses’ higher energy prices) will reach about £400 a year.

It is these wasteful emissions reductions policies that are most often justified by “green growth” industrial policy arguments, in particular by those representing commercial interests in the subsidised renewable energy sector. In general, there is little reason to believe that subsidising any one industrial sector can increase overall UK growth levels. Overall UK growth and employment levels depend on fundamental economic factors such as skills levels, the functioning of labour markets, competition and overall investment levels.

Successful export sectors are based on comparative advantage. The government argues that it can create UK comparative advantage in relation to offshore wind, and other marine renewables, through the use of large subsidies, coupled with the UK's North Sea oil and gas engineering expertise and the potential for large-scale deployment on the UK continental shelf. The government also believes that, having created comparative advantage, that there will be a large world market in marine renewables that the UK will be in a good position to export into. The government is gambling £10 billions on these beliefs.

It is very far from clear that this gamble will pay off. There are huge unknowns about the future of the global marine renewables market – currently some of the most expensive forms of renewable generation. And there is surely grave doubt about the UK's ability to create comparative advantage and capture a significant proportion of any global export market, in competition with China and other countries.

Moreover, the track record of previous governments' industrial policy gambles is a stark warning. History provides little reason to believe that government has any special ability to pick winners. Where there is real comparative advantage, markets are better able to identify and exploit them. The government's main role in supporting green sectors should be to ensure effective carbon pricing and innovation support.

The current deployment subsidies to selected renewable industrial sectors are paid for by the rest of the economy, in particular through increased energy prices. They divert resources which cannot therefore be used for investment in other sectors (nor for other emissions reduction measures). Optimistically these subsidies may simply shift jobs around the economy, with no overall jobs and growth impact. But it seems more likely that growth will be lower than it would otherwise have been, as significant resources are diverted away from industrial sectors with greater growth and export potential.

Probably the key cost of the government's industrial policy approach is the valuable investment and innovation that never happens. Muddled 1970s-style "green growth" industrial policies mean resources are being squandered that could have been used to deliver both more growth and greater emissions reduction.

#### **About the author**

Simon Less is Head of the Environment and Energy Unit, directing Policy Exchange's research on energy, environment and utilities policy and regulation. He was previously a Director at Ofwat, leading market reform in the water sector, and has held a number of Senior Civil Service positions in the Treasury, including leading on energy policy, and in the Ministry of Justice.

# Getting real about decarbonisation involves deploying technologies now and at scale

Published: 24 April 2012

**Simon Less argued that the government is muddling up “green” and “growth” policies and suggests we could scrap support for renewable energy in favour of “technology neutral” carbon pricing. Dr Robert Gross, Director of the Centre for Energy Policy and Technology at Imperial College, argues that this is misguided.**

Simon Less’s critique starts by confusing press releases with policy. Of course ministers make speeches at renewable industry conferences that talk up jobs in renewable energy – that is what ministers do. That does not mean that the main reason for doing offshore wind is to create an industry. Energy policy serves multiple objectives, well described policy reports easily accessed from government websites. Industrial policy is far from the dominant goal. Promoting zero carbon power generation is a key goal; because numerous scenarios show it is essential to decarbonisation.

This is where Dr Less labours under a muddle far more serious than that created in speeches at conferences. The mix up is between the idealised world of economics textbooks and the real world where low carbon policies need to be investable and the prospect of a global carbon price is remote.

## Carbon pricing in theory and reality

Less contends that securing emission reductions “with minimum economic impact is likely to be best achieved through an effective long-term, technology-neutral carbon pricing framework....”

The often heard assertion, the “don’t pick winners” mantra that has pervaded British energy policy for decades, is a truism, not a self-evident truth or natural law. It rests upon economic theory not empirical evidence. Of course the carbon dioxide released by the energy industries is a formidable environmental externality. Putting a price on this pollution would be likely to discourage its creation. But this does not mean it is a sufficient condition for a low carbon future or that it cannot be complemented by other policies.

In the abstract world of textbooks, omnipotent policymakers can impose optimal carbon prices across all nations, and rational economic agents respond perfectly to price signals. Firms invest and come up with solutions at minimal cost, with the foresight needed to sustain efforts over decades.

The real world couldn’t be more different. Damage and abatement costs are both moot. Economists debate caps vs. taxes, but the world has made precious little progress in imposing either. Carbon dioxide is a big externality, but abating it is perhaps an even bigger collective action problem. A country going it alone risks “carbon leakage” and it is in every country’s interest to cheat or delay. Investors understand the politics very well. Their fear is that the political ask is too great, so by the time the more expensive low carbon investments begin to yield fruit, the incentive to use them will no longer be there.

Meanwhile, in the past twenty or so years more than forty nations around the world have put in place a variety of schemes to promote renewable energy. Most of them have used “feed in tariffs” (FiTs); premium prices for the electricity from renewable sources. These technologically targeted interventions have allowed wind energy to grow from a cottage industry to a mainstream player in global power markets. Global capacity now stands at well over 200 GW, already half that of nuclear, and growth rates in wind continue to sustain. Costs have come down. In Britain, generation costs of onshore wind are within shouting distance (around 15 per cent) of gas fired power.

It is a similar story for solar. Photovoltaic power on buildings is often close to competitive with grid power in the “sunshine belt” from Southern Europe through much of Asia, Africa and Central America. Whilst commodity prices and market factors can blow prices off course temporarily there is every reason to expect continued innovation in both technologies.

There are still challenges to be overcome with renewable energy; intermittency, visual intrusion, and that last step to cost competitiveness. But viewed against the great energy transitions of the past, renewable energy has done really rather well in its short lifetime. It is inconceivable that this progress could have happened without the sort of “picking winners” and deployment support Less derides. Numerous analyses, from academics, banks, international agencies and governments, have explained why the investor friendly characteristics of feed in tariffs yield real world results.

This is not to suggest we can scrap the whole idea of carbon pricing – far from it. Carbon pricing is difficult because the global energy system suffers from immense “lock in” to carbon based fuels. For 200 years increasing returns to adoption have accrued to fossil fuel technologies. Policies like feed in tariffs harness the same sources of increasing returns, moving technologies along a learning curve. Indeed it is possible to see such policies as complements to carbon pricing.

Less contends that supporting R&D and early demonstration is fine, but claims that deploying at scale using technology specific incentives is a mistake. The international evidence is precisely the opposite; meaningful carbon pricing has proved almost impossible, but technology specific policies have proved to be extremely effective.

## Offshore wind and industrial policy

Less compares support for offshore wind to UK industrial policy of the 1970s. There is a wider debate over industrial policy of course. Some question whether Britain really failed (pointing to our successful car industry or the likes of Rolls Royce and Jaguar-Land Rover). Others note that if Britain did industrial policy badly others (Germany, China, Taiwan) do it rather well.

Either way, the comparison to 1975 is misplaced. Support for offshore wind has nothing to do with national champion companies, nationalised industries, the unions, or rescuing lame ducks. Private consortia in a market based system build wind farms. Nobody in government is picking a turbine, turbine maker, or even a specific wind-farm location. But Less is right that the government has high hopes for offshore wind. So leaving saloon bar comparisons to the 70s aside, it is important to consider whether this is a good idea.

Offshore wind has several attractions: wind speeds tend to be high and more stable; turbines can be much larger at sea; noise constraints are removed; and the UK has a terrific resource. It also overcomes the visual intrusion onshore wind entails. Globally, there is a large potential resource and in Europe it could be a major contributor to power needs. However, marine installations cost more than onshore and access for maintenance is more difficult. Generation costs are about 50 per cent higher and in the past few years the costs of offshore wind have gone up.

The problems lead Less to conclude that Britain is backing a loser. However this stands very little scrutiny. Britain is far from going it alone. Offshore farms are being built both sides of the North Sea and many countries also have offshore plans, reflecting the large resource available. Second, the global capacity offshore is about 1 per cent that onshore, around 2GW, producing the output of a single gas power station. This is an infant sector and teething troubles are normal. It is very common for costs to go up in the early stages of deployment, before they fall as experience builds. Third, offshore wind has the potential to provide a significant fraction of UK electricity. Some scenarios even envisage exports from UK farms to the European grid. In all, the UK has good reason to pursue offshore wind irrespective of industrial benefits.

## Too expensive?

The final strand of Less's argument is that offshore wind is just too costly. The subsidy specific to offshore wind is currently about £5 per household per year. By 2020, the cost of all renewables policies will be around £90 per household. Higher numbers from Policy Exchange just don't make sense, as this author [explains elsewhere](#).

There are burdens on commercial consumers as well and it is important to ensure that they aren't excessive. Costs can come down. Bodies such as the Committee on Climate Change and UK Energy Research Centre have made recommendations about cost reduction, or linking future ambition to cost reductions. It is also sensible to pursue a range of options, and to ensure that the government does not become fixated on offshore wind (or any other option) alone. This is very different from scrapping offshore wind in its infancy, as Policy Exchange appear to prefer.

If we are serious about decarbonising, and not free riding on efforts in other countries then we need to start deploying technologies for real and at scale, using policies that are proven to work. That requires pragmatism and policy based on evidence, not saloon bar comparisons with the 1970s, policy based on doctrine or the fanciful notion that technologies will appear by magic once we “get the prices right”.

### About the author

Dr Robert Gross is Director of ICEPT at Imperial College and Senior Lecturer in Energy and Environmental Policy. He is also a Co-Director of the UK Energy Research Centre and the Policy Director at Imperial's Energy Futures Lab.

# *The government needs to go beyond the Green Deal if it is genuinely committed to making households more energy efficient*

**Published: 12 April 2012**

**Dave Timms argues that the Green Deal will not by itself be enough to drive take-up of energy efficiency measures, particularly for the least energy efficient segment of UK's housing stock; the private rented sector (PRS). Complementary regulation is required so that the combination of minimum standard regulations and appropriate financing mechanisms is achieved.**

Chris Huhne declared that it would be a "revolution", Greg Barker said it would drive the "biggest home improvement programme since the Second World War" and now Ed Davey claims it will create a whole new market that will function "without subsidy or regulation".

These extraordinary claims have been made by ministers for the coalition's flagship energy efficiency policy – the Green Deal – which allows households to get energy efficiency measures with no upfront costs by attaching a loan to their property and paying back via an addition to their energy bills (which will now be lower thanks to the new insulation).

But can DECC really claim to have discovered the free-market holy grail of driving mass retrofit of the housing stock without subsidy or regulation? If any part of the housing stock needs a radical new policy to improve energy efficiency standards it is the Private Rented Sector (or PRS). So will the Green Deal alone deliver a revolution here?

Over 15 per cent of the English housing stock is privately rented. Properties with the very worst energy efficiency rating (Energy Performance Certificate Band G) are more than **four times as common** in the private rented sector as in the social sector. PRS properties are the most likely to lack the basic energy efficiency measures such as loft and cavity wall insulation. The result is that 20 per cent of PRS households in England are in fuel poverty. In those 680,000 rented properties with the worst levels of energy efficiency (F and G rated), this rises to **over forty per cent**. It is **estimated** that £145 million is currently spent by the NHS in England every year treating illnesses caused by living in the worst cold rented homes.

There are a number of factors responsible for the sector literally "lagging" behind: high turnover, fear of eviction and lack of access to Energy Performance Certificates mean tenants don't ask for improvements. Landlords complain that investing in energy efficiency benefits the tenant but doesn't increase the value of the property. Take-up of energy efficiency schemes and tax breaks (such as the Carbon Emissions Reduction Target) by landlords has historically been **very low** even when these offer measures at low cost or even free, indicating that the availability of the Green Deal as a means to avoid upfront capital costs will not by itself be enough to drive take-up of energy efficiency measures, and therefore would require regulation to complement it.

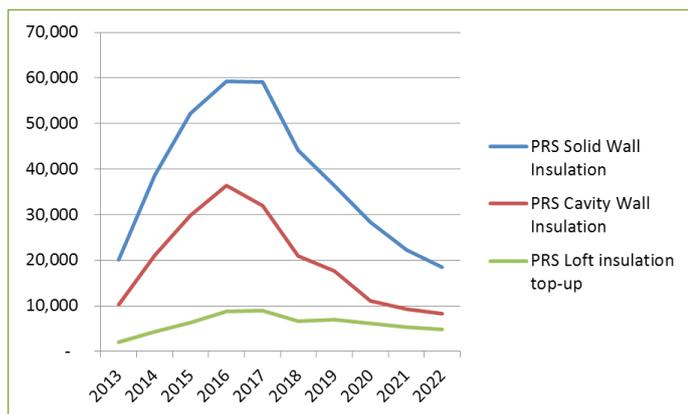
In 2010, over 30 organisations including consumer groups, children's and older peoples charities, health, environmental groups, councils, housing and tenants' rights campaigns came together to demand a new law to introduce a minimum standard of energy efficiency for private rented properties from 2016. After a year-long campaign, the government accepted the need for mandatory energy efficiency improvements in the sector and introduced an amendment to what is now the Energy Act 2011 that will, from 2018 at the latest, make it an offence to let properties with the worst two energy efficiency ratings (F and G).

The influence of the 2018 minimum standard contained in the Energy Act 2011 can be clearly seen in the table below with installation being driven to meet the deadline rather than by the Green Deal itself. The market driven owner occupied sector shows a very different trajectory. The comparison is especially dramatic considering the owner occupied sector is over four times the size of the PRS.

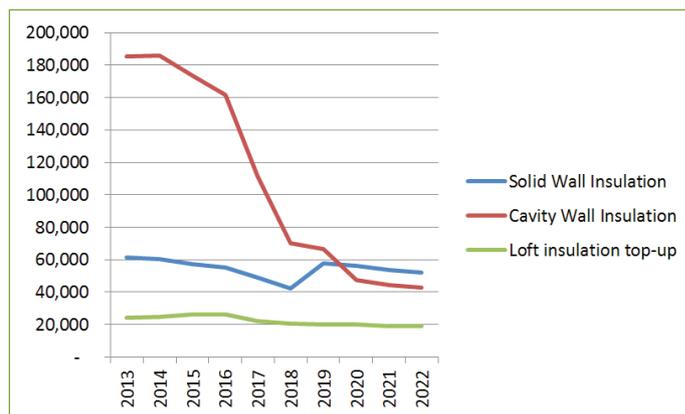
DECC's own Impact Assessment for the Green Deal spells it out:

"The model predicts that in the owner occupied sector, uptake is relatively constant. In the private rented sector, activity increases more rapidly as landlords take steps to meet the private rental sector (PRS) supporting policy that comes into effect in 2018. Once this regulation has come into effect and the stock of F and G rated properties have been retrofitted, uptake declines."

**Table 1 – predicted take up of energy efficiency measures in the Private Rented Sector. Figures from DECC in personal correspondence.**



**Table 2 – predicted take up of energy efficiency measures in the Owner Occupied sector**



**Research** by Consumer Focus shows a minimum energy efficiency standard of Band E for private rented homes could take 150,000 private rented households out of fuel poverty. This is 25 per cent of all those private rented households currently living in fuel poverty. The EST estimated that the measure would save an average of £488 annually from the fuel bill of the properties improved and 1.87 MtCO<sub>2</sub> a year overall.

However, there are three threats to these potential benefits from the regulation. Firstly, it's too slow to come into force. 2018 is two years after the date by which the government has a legal obligation under the Warm Homes & Energy Conservation Act 2000 to end fuel poverty. The independent Committee on Climate Change and the Fuel Poverty Advisory Group have both called for the date to come forward.

The legislation also contains a significant loophole which could considerably reduce its effectiveness by allowing a landlord with a dangerously cold F or G rated property to continue to let it legally as long as they have made improvements, taken out a Green Deal or benefited from the Energy Company Obligation. The possible presence of both legal and illegal F and G rated properties on the rental market will prove an enforcement nightmare for local authorities. It will also leave landlords confused about what they have to do to comply with the law. Ironically, for a government that talks so much about the importance of simple and transparent regulation, this is much more complicated and opaque than simply saying F and G rated properties cannot be let at that level once the regulations come into force.

Meanwhile landlords will also not act in anticipation of the regulations, as DECC predicts, if the details are still unknown. Friends of the Earth has joined with landlords organisations, tenants and consumer groups to call on DECC to write the secondary legislation before the Green Deal comes into force this autumn. Otherwise, we risk landlords delaying action until the detail is clear.

The Impact Assessment for the Energy Act 2011 states that:

“In a sector that is predominantly high turnover the Green Deal on its own is unlikely to exploit all cost-effective energy-efficiency improvements in the PRS... While it is the regulation in the PRS that would be expected to drive take-up in the sector, the presence of the Green Deal finance is required to make the take-up possible.”

So, the Green Deal is needed as a means of financing improvements, but it will not alone drive the take up of those measures. The government already accepts that the Green Deal won't, however, be able to finance improvements to fuel poor households, but following cuts to Warm Front grants the ring-fenced funding for fuel poverty from the Energy Company Obligation – just £330 million annually – is totally inadequate. This could be boosted with the addition of future treasury revenue from two carbon taxes (the European Emissions Trading Scheme and the Carbon Floor Price).

It is the combination of the minimum standard regulations and appropriate financing mechanisms – be that the Green Deal, Energy Company Obligation or something else – which will drive change in the private rented sector.

Given the dire expectations of the Green Deal in the overall housing sector, with loft and cavity wall installation rates expected to **drop off a cliff**, it is time that the government send a similar long-term signal to owner occupiers and the social housing sector that properties will have to improve their energy efficiency or meet a certain standard.

There are hopeful signs. Over in communities and local government, Lib Dem minister Andrew Stunnell is consulting on “consequential works”, regulations which will mean anyone wanting to do a major renovation such as a loft conversion or extension will have to carry out energy efficiency improvements to the rest of the property. It’s an excellent proposal which Labour twice backed away from while in government.

There is nothing shameful in accepting that households might need help beyond the Green Deal to realise the huge benefits of greater energy efficiency. What matters most to families right now is whether the government is committed to taking the action necessary to help them cut their energy bills rather than whether it has stuck to an arbitrary and ideological position on regulation. Having taken a positive step in the Energy Act, how government proceeds on implementing the private rented sector legislation and on Consequential Works will show whether the reality will be more pragmatic and sensible than the ministerial rhetoric might suggest.

**Note:** This article was written before the recent explosion of indignation from the right-wing media over the so-called “conservatory tax”, which is not a tax and won’t apply to most conservatories.

Though denounced as “bonkers” by Downing Street sources, in fact a nearly identical consequential works policy to the one proposed by Andrew Stunnell has been running quite happily since 2005 in Tory controlled **Uttlesford District Council in Essex**. They say they have never had a compliant about it! And a **recent report by the Energy Saving** trust found:

“Of households planning refurbishment projects, 85 per cent expressed willingness to stretch their refurbishment budget to pay for some energy-efficiency measures.”

### **About the author**

Dave Timms is Climate and Energy Campaigner at Friends of the Earth. He recently led its successful campaign for the introduction of a minimum legal energy efficiency standard for private rented homes. Dave has worked on various aspects of energy policy in his seven years with Friends of the Earth and in 2009 received the “Advocate” award at the British Renewable Energy Awards for his campaigning to introduce the UK’s feed-in tariff.

# Low-carbon innovation is up, but not because of the EU Emissions Trading Scheme

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By being part of the EU's Emission Trading Scheme, it was thought that UK firms would have increased incentives to decarbonise, spurring technological innovation. Raphael Calel and Antoine Dechezleprêtre argue that this is not the case. Their research indicates that the scheme has thus far failed to encourage companies as was intended; there is little difference in patenting rates for low carbon technologies between countries that are and are not part of the scheme. While low-carbon innovation is up, it is not because of the EU ETS.

The European Union Emissions Trading Scheme (EU ETS) was launched in 2005 and is today the world's largest carbon market, covering roughly 40 per cent of the EU's total greenhouse gas emissions. It is the main instrument of European climate change policy, and many policy makers envisage it as a driving force of the EU's transition to a low-carbon economy. By putting a price on greenhouse gas emissions, the Scheme is expected to encourage heavy polluters to reduce their emissions and to develop new low-carbon technologies.

At first glance, it is encouraging to notice, then, that patenting for low-carbon technologies has surged in Europe since 2005. However, when analysing a newly constructed data set we find compelling evidence that the EU ETS cannot explain this surge, and so far has failed to encourage companies to develop new low-carbon technologies.

## A surge in low-carbon innovation

A substantial theoretical and empirical literature argues that when companies become subject to a new environmental regulation, they will direct additional resources toward developing new technologies that reduce their emissions of the regulated substance. The EU ETS launched in 2005, so is there any evidence of an increase in low-carbon innovation?

**Figure 1: Share of low-carbon patents (1978-2009)**

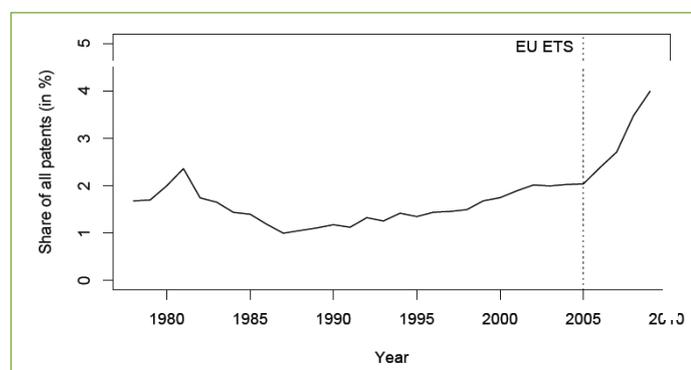


Figure 1 shows that the share of patents filed at the European Patent Office to protect low-carbon technologies has varied between 1 and 2 per cent over the past three decades. Looking at the share helps us take account of the rising total number of patents has over time. A sharp increase in the share is visible starting in 2005. Could this be due to the EU ETS?

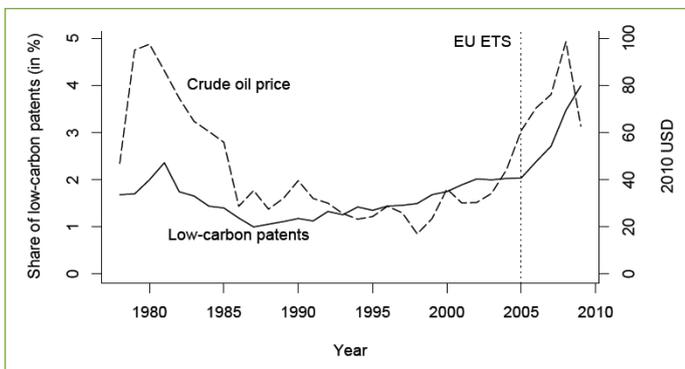
## Carbon prices or oil prices?

This preliminary evidence provides grounds for optimism, but other factors might explain the surge in low-carbon innovation. One candidate is higher oil prices. When fossil fuels become more expensive companies may try to develop new technological solutions that reduce their fuel use, and hence their carbon emissions. Figure 2 shows that the surge in low-carbon innovation has indeed followed on the heels of rapidly rising oil prices. How can we determine whether the surge is a result of the higher oil prices, the EU ETS, or some other change occurring in the early 2000s?

## To be, or not to be... regulated

The EU ETS now regulates the emissions of around 11,000 power stations and industrial plants in 30 countries. Several thousand companies own and operate these installations, but there are many more companies that are not directly affected by the Scheme. To separate the impact of the EU ETS from other factors that might explain the surge in low-carbon innovation, we can compare companies covered by the EU ETS with those that are not.

**Figure 2: Share of low-carbon patents and Crude oil price (1978-2009)**



Using a newly constructed data set, we can compare a group of over 700 companies that -by virtue of operating at least one sufficiently large installation – came under EU ETS regulations in 2005, with a group of roughly 1,000 comparable companies that were exempted. Before 2005, these two groups of companies were similar in size, in patenting activities, and operated in the same countries and economic sectors. Both groups would have faced similar macroeconomic conditions (eg, oil prices) throughout the period. But starting in 2005 they faced different regulatory obligations for their greenhouse gas emissions.

**Figure 3: Share of low-carbon patents for EU ETS and non-EU ETS companies (2000-2009)**

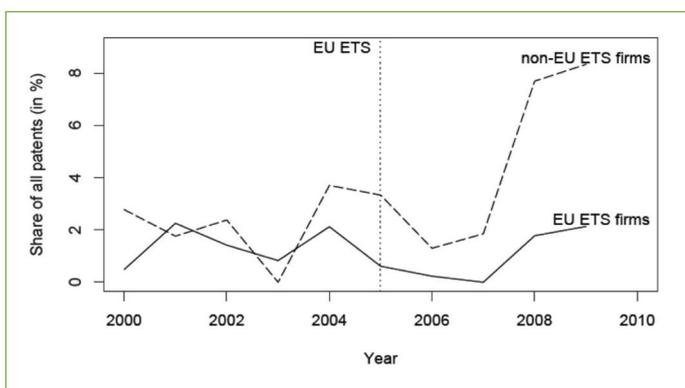


Figure 3 shows the share of low-carbon patents for these two groups of companies in the five years prior to the EU ETS launch and the five years since. The firms look roughly similar over the period 2000-2004. The pattern has also been much the same across the two groups since 2005 – if anything, it looks as though the response has been greatest among the non-EU ETS firms. When we take account of the different starting level in 2005, however, we notice that the shares of low-carbon patents filed by the two groups have risen by a similar multiple. More sophisticated statistical estimation procedures confirm this basic finding – since 2005 low-carbon patenting has developed in much the same way among comparable EU ETS and non-EU ETS companies.

## Low-carbon innovation is up, but not because of the EU ETS

On the face of it, there could be a number of explanations for this finding, only one of which is that the EU ETS so far has failed to encourage companies to develop new low-carbon technologies. We investigated a number of causal and technical explanations – looking at the patent filings from an additional 2,000 EU ETS regulated companies that could not be successfully compared in the first instance, looking at patenting by unregulated competitors, patenting by third-party technology suppliers, biases arising from study design and omissions of important control variables, etc.. While it is not always possible to conclusively rule on these hypotheses, we find evidence that none offer a compelling alternative. We are left to conclude that, while low-carbon innovation is up, it is not because of the EU ETS.

The EU ETS forms an integral part of the European Union's roadmap to a low-carbon economy in 2050. Moreover, policy makers in the process of implementing new carbon market programs in New Zealand, the North-Eastern United States, Australia, and elsewhere, can learn from the EU ETS experience. Emissions reductions in past emissions trading programs like the US Acid Rain Program have come largely from operational rather than technological changes, and the same appears to have happened with the EU ETS. New low-carbon technologies are needed, but our findings suggest that the EU ETS in its current form might not be enough to incentivise low-carbon technological change.

At this point we can only speculate about the reasons for this failure. Many have argued the EU ETS would not encourage innovation because it has provided overly generous allocation of emissions permits, and awarded permits to polluters free of charge. Future changes to the rules of the EU ETS may provide opportunities to answer these specific charges. To the extent that these factors account for our findings, however, there are relatively clear policy implications – tighten the emissions cap and/or sell permits instead of giving them away free. The current move to set aside permits, as well as the increased reliance on auctions to distribute permits in the third trading phase, would in these cases appear to be moves in the right direction.

### About the authors

Raphael Calel is a doctoral researcher at LSE's Grantham Research Institute. He also teaches Applied Environmental Economics in the Department of Geography and Environment.

Antoine Dechezleprêtre joined the Grantham Research Institute on Climate Change and the Environment in October 2009 as a Post Doctoral Researcher.

## British Politics and Policy at LSE blog

**British Politics and Policy at LSE** is run by a team based in the **Public Policy Group at the LSE**. The aim of the blog is to:

- increase the public understanding of the social sciences in the context of UK government;
- facilitate the sharing and exchange of knowledge between experts within and outside universities; and
- open up academic research to increase its impact.

The blog hosts contributions from academics and researchers from the UK and internationally who work on UK policy issues.

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