

Renewable energy and decarbonisation:

Opportunities and the risks of politicisation

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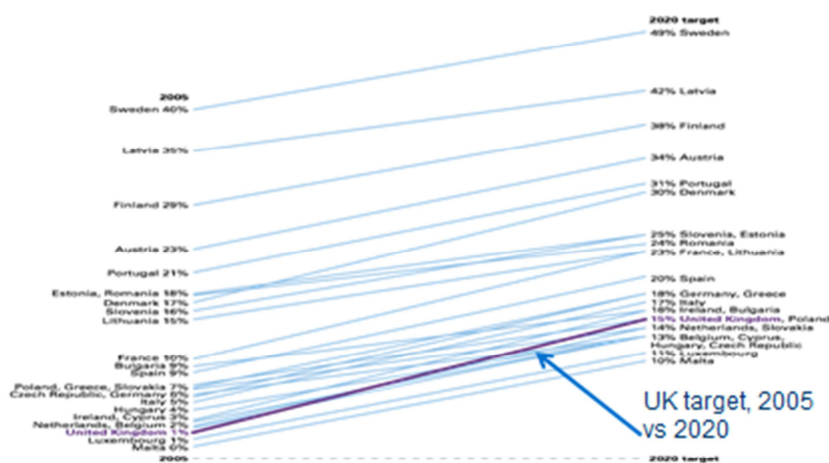
We live in interesting times - and right now, for energy and climate change issues, it feels the UK may be the most interesting of all. In three weeks time, the government introduces an Energy Bill to Parliament – a Bill which embodies a process of radical energy market reform, which is likely to do much to determine the shape of the UK energy system, its investment and its greenhouse gas emissions, for many years to come. It is a process being eagerly observed right across Europe, perhaps beyond.

At the same time, energy bills (costs) are front page news. Since 2004, wholesale gas prices have soared, domestic gas bills have doubled, and electricity tariffs have increased by over 65%. At a time when people are feeling poorer than for many years, the numbers paying more than 10% of their income on energy has mushroomed. And, as Ofgem’s capacity assessment 10 days ago warned, without new investment UK generation margins could become worryingly thin within 3-4 years.

At the same time, the country is mired in debt, and it desperately needs economic growth, which clearly cannot be funded from government coffers.

Anyone who thinks that climate change is going to be a major driver of policy in these circumstances understands nothing about politics. And yet, the UK has amongst the most advanced legislation in place, with its Climate Change Act setting out a framework for orienting long-term investment and policy, and with renewable energy targets an essential part of delivery both for this, and for obligations under European law – targets which would still by 2020 only drag the UK from near the bottom of the European league, to a modest 15% of our energy coming from renewables, despite the UK having amongst the biggest renewable energy resource base in Europe (Chart 1).

**Context: renewable targets under EC Directive:
UK starting from low level but with very high growth rate**



What I want to outline is how all these things fit together, and the dangers – and opportunities – that we face.

Let me start with the economy. Britain is still reeling from the economic crisis, and I see at least two fundamental links between this and our energy and climate challenges.

First: what caused it? The credit crunch and our mountain of debt was caused fundamentally by letting short-term interests run riot, through cheap credit and allowing complexity to obscure the risks, which meant that people could choose to believe what they wanted – namely that the future would take care of itself. We are now that future. The accompanying quote (**Chart 2**) from the IMF's former Chief Economist may feel unnervingly familiar to some of you working on climate change.

On learning from the financial crises ...

“.. A wide cast of characters shares responsibility ... [including] economists like me, and people like you. Somewhat frighteningly, each one of us did what was sensible given the incentives we faced. Despite mounting evidence that things were going wrong, all of us clung to the hope that things would work our fine, for our interests lay in that outcome. Collectively however, our actions took the world's economy to the brink of disaster, and they could do so again..”

R.G.Rajan, former Chief Economist at IMF, in *Fault Lines*



It is of course human to say we feel too poor to afford clean investment, but logically, it is bizarre. Some factions in this government seem to be arguing that because we are now all suffering from the accumulated financial debt, we should abandon our environmental commitments, and instead pile up a mountain of natural debt –save ourselves money, complain that the science is complex, pray it will be OK, and leave our children to clear up the consequences when it isn't. In other words, to take the philosophy that led us into the financial crisis, and transfer it to how we treat the planet itself. The old saying holds that those who do not learn from the past are condemned to repeat it – and such people seem determined to repeat the mistake at an even bigger scale.

Or, if you want the message in terms of money, you might consider the conclusions of the International Energy Agency (**Chart 3**) – that avoiding a dollar of required investment this decade is likely to cost us at least four times as much to make up thereafter.

False economies

“ Delaying action is a false economy: for every \$1 of investment avoided in the power sector before 2020 an additional \$4.3 would need to be spent after 2020 to compensate for the increased emissions.”

- International Energy Agency, *World Energy Outlook, 2011*



But back to the practical. The other link I would draw with the recession is that this country – and of course all others so afflicted – are desperate for economic growth. How do we get it? There is really only one answer, namely investment. That investment is certainly not going to be funded from the taxpayer: it has to come from international private finance – of which there are, as you know, vast pools, uncertain where to go, dropping government bond interest rates to all-time lows – close to zero.

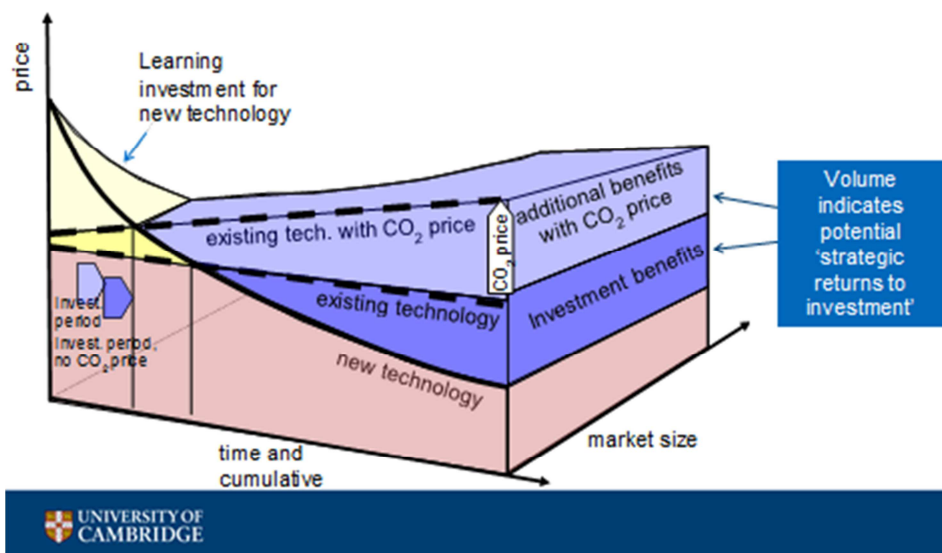
A few weeks ago I had lunch with Martin Wolf, the Chief Economics Correspondent for the Financial Times. I asked him, what does he really see as the key to renewed economic growth? He confirmed the view that most fundamentally the UK economy needs capital investment from international private finance. *What type?* The natural focus would be infrastructure-type investment – capital intensive with enduring benefits (obviously, not just ‘holes in the ground’); with interest rates close to zero “there has never been a better time to invest in infrastructure.” *How much?* At a scale of a few per cent of GDP – say, on the order of £50bn/yr.

Renewable energy as it happens fulfils all those characteristics: large capital investment which once constructed offers low operating cost energy for decades to come – a bequest to our children, rather than a debt, providing the finance is from international capital at low interest rates. Delivering the UK’s renewable energy targets and carbon budget could, to a first approximation, account for close to half of the total investment that Martin Wolf

indicates the economy needs – a crucial contribution whilst leaving plenty of room for transport, construction and other infrastructure.

The next Chart (4) shows the basic case for strategic investment: in the upper left part of the curve, investment to establish the technologies and integrated systems that stand to deliver huge benefits in a world of rising pressures on fossil fuels and the atmosphere, with (third axis) rising market shares. Note that energy innovation is usually a continuum – we make the future through our investment. The idea that we can wait for some future renewable technology to emerge from labs is a myth. We need to work with the resources we have, develop the industries, innovation, infrastructure, know-how and skills right across the innovation chain. The payoffs will go to those who act as part of this now, not to those who dither and deter the investment that is required.

Strategic investment in evolving, clean technologies can have large, enduring returns



The Department of Business, Innovation and Skills too seems to firmly recognise the opportunity. Alongside its backing for the Green Investment Bank, a report it published last month on sectoral strategies for growth identified investment in energy – along with construction – as key cross-cutting sectors for the UK economy.

Of course, the UK is not alone in identifying such opportunities. Germany – the heart of industrial Europe – has embarked on a radical transformation of its energy system towards renewable energy and energy efficiency. In France, President Hollande has announced plans to retrofit insulation in a million homes a year. Green energy investment indeed is being promoted worldwide.

And in the UK we have a solid base, with our domestic renewable resources particularly of wind energy, substantial current policies on energy efficiency, the legal infrastructure of the

Climate Change Act and renewable energy commitments, growing investment in North Sea wind energy and transmission infrastructure, and a government committed to the Energy Market Reform process in the Energy Bill, to provide the kind of contractual structures that long-term infrastructure investment needs.

But we also appear to have a vocal faction in the government and the media that is determined to undo all this. To unpick the framework. To attack renewable energy. An anti-wind lobby that seems to want to do everything it can to undermine investor confidence.

Why? There seem to be three factors.

The first seems to be mainly ideology. The recent government reshuffle appointed a new Secretary of State for Environment, who was reported last week as describing support for windfarms as “Stalinist”. If that report was accurate, he has a lot explaining to do to Messrs Hollande, Merkel, and indeed most governments in the world why he equates support for clean energy with the darkest period of Soviet excesses. Presumably, the undertow here is actually a generic distaste for government policies that seek to protect the future against the more rapacious tendencies of unregulated markets – a mindset on which I have already commented in the context of the financial crisis.

He was of course referring to onshore wind energy, about which there are indeed valid objections when badly sited. But these concerns seem to be being politically cultivated, with misinformation and neglect for example of the basic fact that onshore wind is our cheapest big renewable resource. It is a strange world indeed in which the Tory right appears to be fostering a campaign that will drive up energy bills, and/or breach both UK and European law – and leave us far more dependent on gas, which as noted has been and remains the main cause of energy price rises to date.

Which brings me to the second factor - a belief that shale gas changes everything. A belief that a source of energy has arrived that can save us from having to do anything difficult. A discovery which is claimed to justify undoing all the bipartisan efforts to set a sustainable path towards low carbon investment, which have been nurtured over the past two decades. Yet the strange thing is, all the technical reports I have seen this year conclude that shale gas will not, at least within the next 10-15 years, have a radical impact on either UK or European energy markets.

As a fossil fuel, shale gas has the backing of some of the deepest pockets in the world. If it is as ubiquitous and low cost as its proponents have proclaimed, it seems all the more strange that they have had to forcefully lobby the Treasury for tax breaks to get it going. Beyond all the hype and false parallels with the US experience, it turns out that shale gas in UK and Europe (and indeed much of the world) is likely to be difficult, slow, and contentious – rather like most other energy sources, in fact – except that we arguably know even less about its actual scope and likely costs in a UK or European context.

Posing gas against renewables is a fundamentally false and dishonest dichotomy. Some in the renewable energy industry seemed guilty of it when they had a fair wind – pardon the pun - now the boot is on the foot of the gas industry. But all the technical analysis indicates that the UK needs a good mix of gas and renewables for decades to come; that balance is central both technically, and for any sensible, long-term investment strategy. Ofgem's capacity assessment was not a call for a dash for gas, but it did flag the short-term risks that have arisen from sustained inadequate investment. These risks need to be managed with policies that could include a capacity mechanism to ensure sufficient gas power stations, together with interconnectors and demand side response capacity, as part of fostering a secure and sustainable energy system with a rising share of renewables.

The risk is that the growing chorus will politicise the UK energy scene – indeed, that seems to be an intent – so that energy policy becomes a political football of gas vs renewables. There could be no more damaging situation for the UK economy. We need both. Even with the strongest support for renewables, fifteen years from now, gas would still account for at least a third of electricity and most UK households would still get the majority of their energy from gas. Abandoning our renewable energy targets could raise its share in power generation to over 60%, and leave most UK households more than 2/3rd dependent on natural gas. That is not a healthy place to be, for either consumers, the economy, or the environment – and given what we know about climate change would be self-evidently unstable. Do not let UK energy policy become a political football.

The third reason for the backlash against renewables and the environment is bills. Price rises announced just in the last few days ensure that the cost of energy remains in the headlines. For many it is crippling, and it drives the political agenda. Environmental programmes are increasingly being blamed, though as noted the dominant cause to date has been gas price rises.

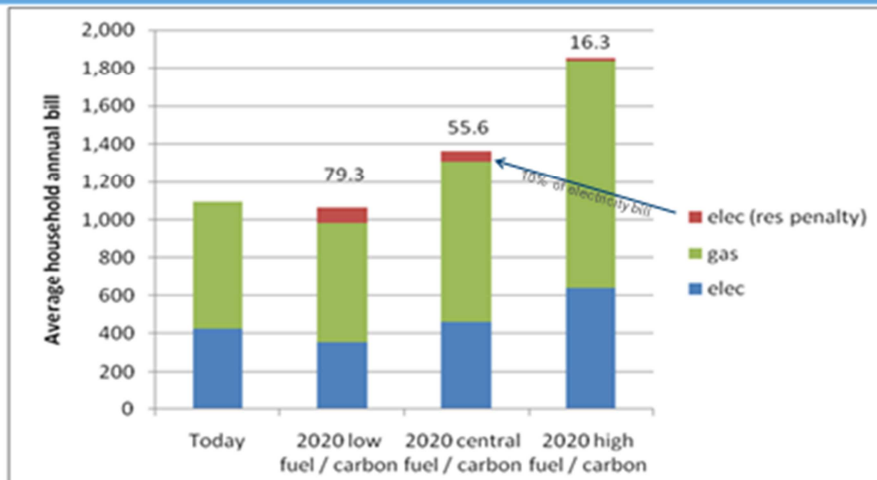
Herein lies the paradox. Future gas prices are uncertain; we'd better get used to it, because the most authoritative experts in the field say there is no way to predict future prices, perhaps to within a factor of two. Unfortunately, politics – and lobby groups even more – abhor uncertainty.

[The Chief Executive of British Gas, on the Today radio programme last Friday, I thought was admirably honest in saying that the best real protection against high energy prices is energy conservation – investment again, this time in the buildings sector. The political problem is that the cost of energy efficiency programmes add to all energy bills, whilst the direct benefits accrue less visibly to those homes taking up the opportunities].

Consider the cost of renewables. Chart 6 shows the cost (the red increment) against three different gas price scenarios. In a world of low gas prices (left hand side), these programmes indeed seem expensive. In a world of high gas prices (right hand side), the savings already by 2020 almost match the levelled cost. And of course, strong programmes on energy

efficiency and renewables will, particularly in the context of European and international action, reduce pressure on gas markets and prices. What consumers need most, after all, is to avoid the right hand side. That is far more important than the incremental costs of renewables.

The additional cost of renewable electricity supports depends on fossil fuel price trends & large scale renewables may dampen high price risk?



Source: UK Climate Change Committee, report on Renewable energy, 2011 (Supporting analysis)

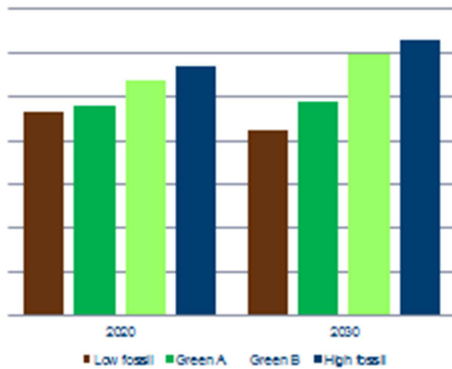


The next Chart (7) shows another way of looking at this: on a matrix of green vs fossil fuel dominated scenarios – the latter incidentally breaching the UK’s legal obligations, and thus further undermining investor confidence in any subsequent efforts – energy bills in the green scenarios fall between the two extremes, both in 2020 and 2030.

Renewable energy targets and programmes, in other words, have a double insurance role: insurance against extreme energy prices, as well as insurance against extreme climate change. Not to mention, ensuring that the UK economy benefits from green investment and gains a greater share of the long-term value chain.

Renewables supports and energy bills: an 'insurance' role of renewables investment?

Potential UK bill impacts: Renewables-intensive scenario costs between low and high fossil fuel price scenarios



- UK: Bills in green scenarios lie between high and low fossil fuel price scenarios

(See also CCC report on 'household energy bills – impact of meeting carbon budgets')

- Other studies: 'merit order', investment and trade effects tend to mitigate (or even offset) costs of renewables support

(See studies cited in EC Renewables Communication, 8 June 2012: Impact Assessment (SWD(2012) 149,

Note: fossil fuel scenarios assume lower carbon price



So what are the implications and conclusions to draw?

Antony Froggatt just presented research underlining how fickle public opinion can be. Indeed one can trace long term cycles of public attention. Bold international action towards 2015, particularly in Asia, could accelerate us towards the next wave of public concern. But energy is a long term business and the oscillations of opinion polls – or of international negotiations - are no basis for energy policy. I've a long background in modelling of energy systems and innovation, and that experience has taught me to distrust specific numbers and technological fads, whilst looking for the underlying messages: and a big message is that policy stability, to stabilise investment expectations, is key.

So against this febrile backdrop, what matters most is confidence, and on this some top members of the government seem unduly complacent. The electricity industry is not the oil industry, which will invest and usually make money pretty much irrespective of government policy. Renewable energy is a capital intensive sector, competing against fuel-intensive incumbents, and one key to lowering the cost is for the industry to tap into low interest rates. As a substantially regulated sector – and contingent upon one or other form of government policy to monetise the strategic value of renewable energy – the key to that is confidence in the stability of government policy.

The bipartisan consensus on energy and climate change that we have enjoyed in the UK for two decades is one of the greatest economic assets we have. Every report of warfare between the Treasury and DECC, and every rumour of Treasury constraints on policies

designed to meet obligations already enshrined in UK and European law, risk deterring investment and driving up the costs of transforming the UK energy sector.

The Energy Bill itself is a crucial opportunity, though of course it could be improved.¹ Alongside this, it would help to boost confidence if the government – this, post-reshuffle, government – would adopt a clear goal or planning range for the mid-term carbon intensity of UK power generation. At the European level, clear support for a floor price in the European emissions trading system, to match the UK commitment, would further reduce the strategic downside risks to low carbon investment, and make it plain that the first job of natural gas in a carbon-constrained world is to displace coal, not renewables.

As I indicated at the outset, attracting clean energy investment at scale is key not just for environment, but for UK and indeed European macroeconomic recovery. In these uncertain times, the prizes will go to those who do not waver, no matter how furious the media onslaught or behind-the-scenes lobbying may be. Stick with it, and the benefits – for the economy, the environment, and for the UK's international standing – will flow.

Professor Michael Grubb

Presentation to Chatham House, conference “Climate change: Security, Resilience and Diplomacy”, 15th October 2012

These remarks are in a personal capacity and should not be attributed to Ofgem.

¹ Amongst other things, I for one would like to see it broaden the scope of long-term contracts – which currently focused purely on government as the counterparty - to facilitate consumer involvement. It should open a window to help those who want to buy clean energy on long term contracts – whether for environmental reasons or simply for the benefits of long term price certainty. That however is another topic, as are numerous other complex features of the Energy Bill.