

Getting real about decarbonisation involves deploying technologies now and at scale

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In a [recent post](#), 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.



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'.

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Note: This article gives the views of the author, and not the position of the British Politics and Policy blog, nor of the London School of Economics.

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.

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