

CLIMATE POLICY IN CRISIS?

FOR DISCUSSION AT BIEE SEMINAR ON 5 FEB 2014

CONCLUSIONS ON CLIMATE POLICY TO BE DRAWN FROM THE 2013 BIEE SEMINAR SERIES

INTRODUCTION

The theme for the BIEE seminar series in 2013 was *Climate Policy in Crisis?* based on the perception of a growing gulf between, on the one hand, aspirations for tight emissions limits based on the imperatives indicated by the climate science, and, on the other, the widespread projections of “business as usual”. The intention was to cover, as far as possible, the full scope of the subject, starting with a review of current positions on climate science, the rational economic case for actions, the realistic prospects for global agreements, the development of policy instruments in markets and regulation, the particular issues of investment and cost, and the translation of these questions into the political and economic priorities at national (eg UK) or regional (eg EU) level. Full reports on the proceedings at these meetings are available on the BIEE website.

The discussions on which this memorandum is based took place against a background of continuing developments in all the above, and reports from bodies such as the International Energy Agency, the Inter-Governmental Panel on Climate Change, and the UK Committee on Climate Change. The points made are for the most part relevant and applicable at every level of policy making – UK, EU and internationally. But not everyone will agree with this summary and I hope for a lively discussion at the seminar.

REVIEW OF THE SCIENCE

The science continues to be incremental in adding evidence and understanding, but there has been no fundamental change in the message that we should draw from climate science. We should not expect this process to change in any fundamental way. There are known imperfections and anomalies in our understanding of the processes involved and our ability to reconstruct the past, and limitations to the predictive power of climate modelling. But it is clear that none of these challenge the conclusions that can be drawn from the underlying science. These are best summarised as the presumption that continued increase in atmospheric concentrations of CO₂, and other greenhouse gases (GHG), is a dangerous and possibly catastrophic experiment with the planet. Contrary to the impression that is sometimes fostered by commentators, no real evidence has been forthcoming which contradicts this position. The same message, in its essence, has been presented this year by reports from the IEA, the IGPPC and the UK's CCC. These projections have now been remarkably consistent over several years.

“There's pretty close to universal agreement in the serious science community. In the political community there's a lot of controversy.... [We need] ... a framework for people to think about ramifications of this over time, and making all of it real in the political system and in the financial system. ...an immense challenge.”
(Robert Rubin, former US Treasury Secretary, very recently) The argument needs to be continued and any remaining scepticism about the risks needs to be dispelled.

Regional and detailed impacts are much harder to anticipate with confidence, but the science is increasingly confident that these are likely to include a higher incidence of severe weather events such as floods, droughts and storms (not individually attributable to a global climate change). The 2°C target, and associated emissions targets have been selected not as the optimal achievable outcomes but as the best available estimate of the maximum global temperature rise that provides a reasonable chance of escaping much more serious damage, with the possible catastrophic consequences that might imply.

We believe that there are a number of fundamental points stemming from the science that are frequently understated or ignored in policy making at all levels. These are the cumulative nature of emissions, especially CO₂, the irreversibility of the processes involved, and the long time lags between cause (atmospheric concentration levels) and their full effect on climate. These should lead to adoption of the following principles:

1. Recognition that the real target for policy must be the cumulative stock of CO₂, not the level of annual emissions per se. Inter alia this attaches a

significantly higher value to reducing current and near term emissions, since early emissions that persist indefinitely have an effect for longer and will bring forward particular atmospheric concentration milestones and climate consequences, reducing the options for future amelioration or adaptation. Any rational basis for global agreement will therefore necessarily (for equity and other reasons) require some reference to cumulative emissions.

2. Improving future options by early action must be the highest priority. In terms of decision theory, it is early action for immediate emissions reductions that provides more options for the future. The conventional notion that options are kept open at low cost by a policy of “wait and see”, pending some future appreciation of the long term economic and human consequences of inaction, is the opposite of the truth. A general observation from options theory is that the highest benefit often attaches to avoiding irreversible actions. In relation to the global issue, it is current emissions that are irreversible actions. Early reduction in emissions, globally, has several “option benefits”. It postpones “climate milestones”, the dates at which any particular concentration of CO₂ is attained. It therefore allows more time to develop low carbon alternatives. It also allows more time for more effective adaptation to the future adverse impacts of rising atmospheric concentrations of GHG.
3. The cost of delay is high. For any given target or acceptable limit to CO₂ concentration, failure to take timely early remedial action implies larger, more costly and more disruptive remedies at a later date, as well as earlier and more severe climate impacts. The CCC has recognised and analysed at least some aspects of this issue explicitly in its recent report.
4. Ceilings on cumulative emissions imply very tight carbon budgets. Attempts to limit cumulative emissions to levels consistent with a high chance of limiting global average temperature change to 2° C are, in global terms, becoming very close to unachievable. This does not mean that mitigation policies can be abandoned, simply because targets may not be met. It does mean either that we now face potentially much tighter carbon budgets, and so more expensive and economically damaging measures in mitigation than might have been required with effective earlier action, or that we face higher risks of negative outcomes across a wide range of food and environmental issues, or both.

THE ECONOMIC JUSTIFICATION FOR ACTION

The scientific prognosis points to very substantial risks of severe adverse or even catastrophic outcomes, corresponding risk to the value of existing assets, and the potential for additional global conflict if climate change leads to increasing competition for water, food and habitable land. Many people will find formal arguments over the economic case, at a global level, to be redundant or superfluous in relation to what might be properly regarded as essential and unavoidable courses of action.

Our view is that arguments over the formal economic justifications for action, eg as in the Stern review, have become confused by some of the shortcomings of conventional applied economics, especially cost benefit analysis, in dealing with issues of this magnitude. These weaknesses are both conceptual, in dealing, inter alia, with risk and uncertainty, non-linearity and inter-generational discounting, and practical, in the inability of conventional macro-economic or integrated assessment models to capture the complexities, and indeed the potential scale, of major disruptions caused by climate factors.

The issues are so serious that they do deserve more effort to spell out the case in a fuller and more rigorous way, set in a decision theory context that deals explicitly with issues of risk and uncertainty, the costs of mitigation or remedial action, the possibility of a “magic bullet” (such as low cost carbon sequestration), and maintaining options that provide for an acceptable future. This would be preferable to the naive cost benefit approach that has to some extent hindered debate hitherto, and is likely to be closer to some of the “risk of ruin” approaches adopted in the insurance industry. To do this effectively should over time improve the ability to achieve public acceptance of policies for damage limitation. However the essence of the case is clear, and is largely summarised in this note. If we believe there is a significant risk of truly severe adverse or even catastrophic effects from climate change, then we should note that the costs, even of the very substantial actions to mitigate change, are in reality comparatively modest in relation to other shocks that the global economy has endured in recent decades, including oil price shocks and recessions induced by financial sector mismanagement. In terms of an insurance analogy the premiums are very modest in relation to the scale and risk of the potential costs.

GLOBAL ACTION AND NEGOTIATION

A fundamental feature of the climate policy problem is the dependence of its resolution on collective action. Global agreements on the mechanisms for action, and on burden sharing, are therefore of first order importance, and their absence is frequently invoked as a justification for national or EU inaction. The following points have been made very forcefully this year.

1. **Global recognition of the serious nature of the problem is growing**, not least in the business community, and a growing proportion of emissions are covered by taxes or cap and trade limits of some kind. This should be at least a partial answer to the argument that unilateral action is of no value. Purely in terms of national interest, and irrespective of climate outcomes, there are risks associated with failures to take action at a national level, and in falling behind on policy development.
2. **2. In particular, China matters hugely and China is taking action.** China has ambitious targets for reducing the carbon intensity of its economy. China's emissions levels will, on their own, have a significant climate impact, and the exemplary effect of successful Chinese policy is potentially of equal significance.
3. **3. EU or UK leadership.** It is now both misleading and unhelpful to talk about EU leadership on climate matters. There are serious shortcomings in EU policy which need to be addressed, but improving EU policy has to be a priority for member states, both because it matters in global terms and to make their own policies more effective.
4. **The 2015 Paris discussions will be critical** in meeting the urgency increasingly reflected in the science consensus. They will follow a series of disappointing summits, many of which have reflected serious weaknesses in the framework of global governance for decision taking on these issues. These have included the ability of relatively small interest groups to delay or veto agreements in pursuit of relatively insignificant opportunistic gains.
5. **Maintaining or developing global markets in carbon.** In a global context an important objective should be to continue the search for agreements and policies that provide market linkages, even if some of these are bilateral (eg EU and others) and not global. Not least this would increase the incentive for effective and efficient low carbon innovation, and promote more effective and lower cost solutions. Without market linkages, we will be reliant on a patchwork of national regulations.

INVESTMENT ISSUES AND COSTS

Climate and emissions policy emphatically does not currently, nor in the foreseeable future, present a major macro-economic problem. On a macro level dealing with climate change, if this done early enough, is relatively low cost and the investment and other expenditures involved are relatively small.

To put into perspective, mitigation measures have conventionally been assumed to be around 1% of GDP (eg Stern). Even if somewhat higher than this, they are substantially smaller in their effect on national economies than the impact of (say) the oil price movements of the last decade (some of which were for the UK equivalent to c. 3% of GDP) which most Western economies handled without major disturbances. Compared to these, or the effect of the financial crisis, with major economies at 15% below trend, the impact of climate policies, on growth and standard of living, is intrinsically small.

The problems arise primarily through micro-economic issues, the many distributional and perceived competitiveness impacts, the effects on particular interest groups, and the difficulties in managing those effects.

Financing Issues

Capital availability, likewise, should not, in principle, be a real constraint on mitigation. Globally, capital has never been so plentiful or so cheap. Its deployment in the energy sector, for low carbon generation, and “utility” and infrastructure activities, should be a low risk and hence modest reward set of investments. Any failure to secure investment capital on reasonable terms can only result from a poor allocation or appreciation of risk, of which the prime cause is poor or absent policy frameworks, policy uncertainty and lack of policy commitment. This however emphasises the role of government. Getting financing arrangements right is a critical policy instrument.

POLICY FRAMEWORK AND POLICY INSTRUMENTS

Road maps

The broad policy framework required by governments engaged in action to limit emissions is clear. The first requirement is a clear pathway that allows the major tasks to be identified and sequenced. The work of the CCC in the UK provides a useful example. Indicative projections have an essential role in identifying the sequencing of the major infrastructure and other investments, and provide a road map for policy and investment strategies for all parties. The most important element within almost any national or multinational policy framework, with few exceptions, remains recognition of the central role of the power sector. Decarbonisation of the power sector remains the central plank, and a necessary although not sufficient condition for meeting ambitious emissions targets. The power sector therefore remains absolutely centre stage in any discussion of climate policies.

Markets versus regulation

The three main planks of policy remain: markets and prices, regulation and innovation. The challenge is to find the right balance so that these work in the same direction and are not in conflict.

The biggest single issue in terms of policy is the appropriate balance between markets on the one hand, and regulation and planning or central direction on the other. The dichotomy is to some extent a false one. There are clear examples, for example in the transport sector, where simple regulatory measures have worked very effectively without creating significant market distortions. Equally the importance of working with rather than against competitive markets ought to be obvious, with benefits to innovation and incentives for deployment of low carbon technologies.

However the prime problem is that market solutions are only possible within a context of interventionist policies that successfully reflect the externality of the damage caused by CO₂ emissions. Current policies (for the ETS, for example) have produced close to zero current carbon prices, with a vague indication of higher future prices, even though the economic externality (or economic and social damage) of emissions is even greater now than in the future. This provides no real incentive either for current fuel substitution or for future investment.

In consequence some of the opportunities for early, and hence even more valuable, emissions reductions are being missed. This is particularly evident in the failure, in Europe, to engage in gas for coal substitution in power generation –

a perverse outcome from a badly calibrated and inflexible policy framework for the EU carbon market, combined with the advent of cheap US coal exports. The strengths and limitations of the marketplace have become a central tension in the whole of electricity policy. Carbon prices alone are not enough to drive through transforming technologies; frameworks and plans are necessary too. This has been very evident in the delays seen in bringing forward carbon capture (CCS) technologies. It is equally apparent in UK efforts to promote low carbon power sector investment.

Equally there are whole areas of activity, especially in electricity capital investment, which will not now function at all without significant elements of government commitment to a course of action. Inevitably that is drawing governments in to decision making. The challenge is to make sure that this is done efficiently, and that may require some institutional change. In the UK currently the only entity bearing any responsibility for key strategic decisions is DECC, and this is in our view a serious weakness.

EU Problems

Our attention has been drawn to a number of fundamental problems in EU policy towards energy and climate, and in particular its flagship policy for emissions trading – the EU ETS. It is clear that the effectiveness of the ETS has been undermined by a combination of:

- Past excessive lobbying for over generous allowances
- The effect of recession and insufficient flexibility in adjusting caps to changing circumstances
- Undermining of the carbon price by additional EU policy and by national policies
- Timescales too short to underpin major investments

There is room for debate on how to apportion blame between these numerous contributory factors, but key elements are the failure to make the emissions trading cap sufficiently responsive to changing circumstances (eg recession) or to properly manage its interaction with additional regulatory measures and targeted subsidies. With hindsight a carbon tax could have been a much more effective and flexible instrument.

There is a real risk that dissatisfaction with this experience will discredit future proposals for the necessary and sensible use of market mechanisms. This is unfortunate since their essential role in promoting efficient and effective solutions, especially in an international and trading context, ought to be obvious.

The issue is one of policy design. The EU ETS mechanisms may have operated smoothly and delivered on their ostensible (and arguably too loose) target of short to mid-term CO₂ reductions. But, especially when combined with a plethora of other interventions at EU and national level, they have not delivered on the “real” objective of producing carbon prices that would underwrite the investments needed for transformative change in the energy sector. “Markets” have worked, at least in limited technical terms, but they have been designed to deal with the wrong objective.

The balance of policy

It is a truism that the demand side, including distributed generation, has received too little attention in policy making. It will inevitably become a significant priority. The demand side will take on a much greater potential role as energy markets decarbonise and governments will need to develop a coherent and integrated strategy to harness this potential effectively.

However it remains the case that many of the biggest choices remain primarily supply side questions – especially in power generation. Demand side policies are essential, but, as with renewable energy sources, many of these will, under foreseeable technologies, tend to reinforce the importance of central grids and of coordination and system control issues.

We also need to be cautious in the assumptions we make about how much can be delivered by energy efficiency measures and policies. Energy efficiency may be very welcome in its own right, but the well-known Jevons paradox suggests that, without accompanying price increases (to reflect the cost of emissions or low carbon energy), it can be at least partially offset by increased use of energy services. It is also important to maintain the distinction between lower energy intensity and lower carbon intensity.

Policy conflicts

There have already been some serious policy conflicts between measures for emissions reduction, that were substantial, valuable and relatively easy to implement, and the norms of EU competition policy. These involved attempts within one member state of the EU to implement gas for coal substitution agreed between generators. Similar issues are likely to recur in relation to single market, competition and state aids issues. Comparable questions will also arise in relation to WTO and global trade policy.

The seriousness and urgency of the climate issue is such as to indicate first priority to emissions objectives, rather than to objectives which have so far operated on timescales measured in decades rather than years.

Competitiveness

The link between competitiveness and energy prices is regularly overstated in current policy discussions within the UK and the EU. A rational debate has to recognise the following fundamentals.

1. Simply in terms of comparing the costs of goods in international trade, comparative energy costs are demonstrably of limited importance compared to real wages or exchange rate movements, and of little

competitive significance for much of industry. Given that exchange rates adjust over time, to reflect inter alia trade surpluses and deficits, raising energy costs in an individual geography will lead to exchange rate adjustments that benefit less energy intensive local industries at the expense of the more energy intensive. Countries, in this respect, are not “competitive”; companies and industries are.

2. If we adopt the alternative concept of competitiveness for national or regional economies, to mean those that appear innovative and capable of high growth, once again energy prices appear to have little influence. Germany is widely regarded as the most competitive economy in Europe but has had among the highest energy prices. Asia has the highest gas prices by a large measure, but also the highest proportion of high growth “competitive” economies.
3. The EU may need to accept that the US may have advantages in natural resource endowment that are not easily countered other than through exchange rate adjustment, and that these may confer comparative advantage in certain high energy content activities.
4. There is however a real policy issue, not for general competitiveness per se, but for trade and the efficacy of climate policy, if some countries remain competitive in energy intensive industries by **not** following emissions reduction policies – thus increasing global emissions through “carbon leakage” from those countries that do follow such policies. If so those issues are best dealt with directly on a sectoral basis, through measures that target the particular issue directly. A variety of possible measures can be considered, including border adjustment taxes in a few industries, derogations or compensation packages as transitional arrangements, and improved policy design at EU level.

Fracking

Fracking should not be seen as central to the competitiveness debate and is not discussed here. It may indeed constitute a worthwhile investment opportunity in parts of Europe, generating jobs, wealth and public revenues. But expert opinion suggests its scale is unlikely to shift the price of European gas, so fracking per se is largely irrelevant to the wider competitiveness and energy policy debate.

Distributional Issues

Although most of the increase in household energy prices in recent years has actually been caused by the rising price of gas, the impact of policies on prices remains an important political issue. Low carbon policies will inevitably impose some additional burden on costs and prices, although much of this can be offset by effective policies for improving energy efficiency.

These issues, while important, should not be allowed to delay low carbon policies. Fuel poverty is important but should be addressed first and foremost as a problem of poverty, not just a problem of fuel, and there are several alternative policy options.

SUMMARY AND CONCLUSIONS

We need a much improved analysis of the real case for climate action. The conventional (cost benefit) analysis almost certainly understates the “risk of ruin”, ie late realisation of the extent and nature of the dangers posed by (say) a +4° C world, and of the ruinous economic and human costs of late mitigation or adaptation. This needs to accompany continued demonstration, to the public, of the real science and economic case.

There is, at a global level, a dangerous and growing gap between the actions demonstrably necessary to contain climate risk, as established within the context of climate science, and “business as usual, slightly modified” projections within the energy sector.

Postponement of national or EU actions on the grounds of lack of international progress is potentially both dangerous and misleading. Realisation of the scale and importance of the issue is growing, not least in Asia.

Early action carries a double premium in postponing adverse outcomes, and improving options both for mitigation and adaptation. Inter alia this implies action to accelerate early substitution of gas for coal; this is not taking place with current carbon markets, and has in some instances been inhibited by focus on policies, such as nuclear phase-out (in some countries) and competition policy, which should be considered of lesser importance. Primacy of policy on climate is essential, even at the expense of other objectives.

The power sector remains the central focus of any effective policy to lower emissions, but the necessary investments require government commitments to

both decarbonisation policy, and to the individual investments, to make them happen. This inevitably draws governments into decision making, but currently they often lack the institutional framework to deal with this effectively. The competitiveness debate has been a further dangerous and largely irrelevant distraction. National energy policies may have some significant effects on individual industries, although much less than the larger macro-economic drivers such as exchange rates; but they are not a major factor in national “competitiveness”.

For the UK two particular conclusions stand out. First, notwithstanding the real risks that global emissions cannot now be curtailed sufficiently to eliminate the risk of dangerous climate consequences, the UK should continue to urge international action aimed at reducing the risk of exceeding the so-called 2°C target, and follow domestic objectives consistent with that aim. Second, the ability to make progress is everywhere constrained by insufficient political commitment to the problem, and weak perceptions of the nature of the risks associated with irreversibility in global climate systems. Improving the effective communication of these risks should be a high priority.

John Rhys January 2014