EU Energy and Environmental Policy: Options for the Future

Dieter Helm

From: Tsoukalis, L. (ed.), (2009), "The EU in a world in transition: Fit for what purpose?", Policy Network.

In the aftermath of the Second World War, European integration had a wide and immediate appeal on the continent, if not in Britain. Europe had experienced two devastating wars, themselves premised on the Prussian victory over France in 1871. Alsace and Lorraine, security in the Rhineland and the great industrialisation of Western Europe all had energy security at their core.

Not surprisingly then, the European Coal and Steel Community and Euratom figured first in the steps towards a Common Market. As the economic recovery gained momentum, Europe moved on to a customs union—a kind of large-scale Zollverein—and the preoccupations of the Common Agricultural Policy.

Since these early days, it is fair to say that energy has not figured large in the EEC and then the EU. Energy was largely taken for granted, and even the great OPEC shocks of the 1970s did not elicit much by way of a European response. Indeed, on the contrary, the International Energy Agency was set up to address OECD-wide energy concerns.

Much has changed. Natural gas has become an important fuel, and hence dependency on Russia has arisen as an issue. Then there is privatisation, liberalisation and competition, which began to unwind the national energy policies and (for a while) the national champions. A Europe-wide internal energy market appeared possible. And then environmental effects from energy production and consumption became apparent—first through acid rain and the damage to Scandinavian lakes and Bavarian forests, and then climate change.

This change of circumstances has proved a challenge which so far the EU has failed to meet with much beyond token measures. But it also provides a very significant opportunity to craft a new rationale. Neither energy security nor climate change can

be solved at the national level. Both are at least European in domain, and both require an ability to negotiate at the global level. They involve Europe-wide infrastructure, Europe-wide markets and European foreign and defence policy.

This short paper sets out the context for this emerging European agenda, explains why Europe's policies on energy security and climate change have so far not matched the scale of the challenges it faces, and provides a series of proposals to deliver better outcomes for European citizens.

The European energy market—what makes it a European policy matter?

Whether an issue is a matter which requires intervention at the European level depends on first identifying clear and serious ways in which markets left to their own devices fail to meet public needs, and second identifying whether the domain of these failures and their solutions is local, national or European.

It has long been recognised that energy markets require significant intervention, despite the enthusiasms of some on the political right in the 1980s and 1990s. For most of the second half of the twentieth century the failures were deemed so serious as to mandate state ownership and statutory monopolies. These market failures included: investment and the need for commitment to meet the sunk costs (the private sector was thought to under-invest, in part for fear of *ex post* appropriation); market power and monopoly requiring price regulation; social cohesion and network extension to rural areas; the provision of energy as a basic social primary good (part of the wider Welfare State); and the complementarity to the economy and its competitiveness.

There were also important issues of coordination in a context of a desire for national self-sufficiency that played a significant part in energy policy, with domestic coal industries having had key roles in Britain, in Germany and even in France. Balance of payments considerations mattered greatly too, especially when exchange rates were fixed.

In the 1980s, this consensus on the need for state ownership and monopoly began to crack. For, although few doubted that there were serious market failures, the scale of government failures were becoming so great as to mandate a fundamental rethink. Energy policy had become captured by interest groups: trade unions, local politicians and the industries which provided the capital goods for the sector. Prices reflected political concerns, and these in turn reflected the impact of lobby groups. Most formidably, in Britain the government was brought to its knees by the coal miners.

But there were several further coincidental developments which made the time ripe for a (radical) change in direction. First, information technology was sufficiently revolutionised to allow trading in energy – and power station dispatch and system coordination – possible without central planning. Second, energy prices collapsed in the 1980s. Third, the stranglehold of coal was broken with the coming of natural gas. And, finally, there was the North Sea. These fundamental changes all occurred in the context of the great capitalist expansion of the late twentieth century, with its accompanying ideological faith in markets. Having been in retreat since the Second World War, markets were back in fashion – intellectually first, and then politically too.

But whilst the excess supply and low fossil-fuel prices of the 1980s and 1990s provided a fertile context for the new ideas about energy and markets, other longer-term trends were developing, and would be felt in the first decade of the twenty-first century.

The first of these was the consequences of the dash-for-gas – the displacement of coal by gas as the fuel of choice for industry and then electricity generation. Whilst the North Sea was producing surpluses, these effects looked benign, but by the post-2000 period, the gradual dependency on gas imports was beginning to have its effects, not least in resource-poor countries like Germany, but in Britain too. It gradually dawned on Europeans that Russia was becoming dominant in the energy relationships. Whilst Norwegians, Algerians and Libyans might add to supplies, the stranglehold of Russia began to loom over Europe. Local disputes in 'faraway lands' – like the Ukraine and Georgia – took on an unexpected importance.

The second was the Europe-wide impact of pollution. Acid rain was the first, and because it was very much a regional problem with effects that local populations could immediately see – acidification of lakes and images of dying forests with all their romantic connotations – action followed fairly swiftly and with considerable success. The Large Combustion Plants Directive (LCPD) used the traditional regulation toolbox to tackle the emissions on a plant-by-plant basis. European environmental policy worked.

But acid rain was easy compared with climate change, where there are few immediate visible signs analogous to acid lakes and dead trees. Climate change required a unique combination of action at home *and* persuasion abroad – to slow emissions in Europe *and* persuade the US, China and India to follow suit. The Kyoto Protocol came out of the United Nations Framework Convention on Climate Change (UNFCCC), but it became a European priority. Enormous political capital was expended in making it operational and then in designing and implementing the EU Emissions Trading Scheme (EU ETS). Yet for all this effort, achieving the Kyoto target makes almost no difference to climate change. It is but a molehill against the scale of the decarbonisation of the world's economy required, given the rise of China and India, and the projected increase of the world's population by 50% by 2050. Despite Kyoto, world emissions of CO_2 are projected to increase by substantially by 2030 – not even to stabilise.

Thus, at the end of the great capitalist expansion of the late twentieth century, the energy and environmental scene looks much uglier than the policy-makers in the 1980s and 1990s envisaged. Gone are excess capacity and what had seemed permanently low fossil-fuel prices. Instead, Europe faces oil prices shot up to as high in real terms as they were at the end of the 1970s before moderating in the face of global recession, a large electricity generating capacity gap as old power stations come to the end of their lives, growing dependency on Russia, and real concerns about security of supply sufficient to lead many European countries to consider building new nuclear and coal power stations, and a very difficult CO_2 position.

For European citizens, climate change is an important political imperative, embedded in political systems and often represented by parties which hold at least the implicit balance of power. But the impact of (much) higher prices after 2000 without the ability to cross-subsidise, which had been a hallmark of the statutory monopolies, had by the middle of this decade brought hardship as significant numbers fell into fuel poverty. Industrial competitiveness is affected too. And to cap the gloomy picture, the prospect of interruptions in supplies, and price spikes, has begun to reappear. Russia's invasion of Georgia, the vulnerability of Ukraine and Russia's response to missile defences, and NATO's expansion have added greatly to nervousness across Europe. The interruption of gas supplies via Ukraine for three weeks in January 2009 was a decisive wake-up call.

European energy policy to date—an (almost) abject failure

Whilst these fundamental challenges have been developing, the EU has concentrated on three separate agendas: the internal energy market and the liberalisation of electricity and gas markets; renewables, energy efficiency and the EU ETS; and the attempt to get Russia to ratify and implement the Energy Charter and to develop the EU–Russia Energy Dialogue through the Partnership and Cooperation Agreement (PCA) framework. The first has been agonisingly slow to implement; the second has been demanding but to a significant degree ineffective; and the third has been arguably actually counterproductive. And, in the meantime, the key challenges have been neglected.

The internal energy market proposals grew out of the programme to *complete the internal market* by the end of 1992, and initial proposals surfaced as early as the mid-1980s (CEC 1985). However, it took a decade to reach the compromise reflected in the weak electricity and gas directives (the 1996 and 1998 directives) (CEC 1996 and 1998), and it is only in the middle of the current decade (almost 20 years later) that liberalisation has been effected. The result, however, has not been a competitive market. On the contrary, whilst the EU energy directorate in its various guises has pursued liberalisation and competition, the competition directorate has facilitated (and in some cases actually encouraged) a massive wave of mergers across Europe,

with the result that a very small number of companies now dominate the European energy market. Far from breaking down national champions, EDF, RWE, E.ON, GDF-SUEZ and ENEL bestride the European landscape, with a number of large second-division companies joining the consolidation process. As a result, it is hard to argue that there is much genuine competition within and between European national markets *as a result of the European actions* (though national policies may have had more effect in national markets).

It might, at first glance, seem that the EU has been more successful on climate change, following on from the successes on acid rain. Appearances can be deceptive, however: carbon emissions have not changed significantly *as a result of European climate change policy*. There have been significant reductions in some countries—notably in Britain—but these have been for other reasons, including the contraction and closure of coal industries across Europe and the switch to gas, and de-industrialisation, with energy-intensive industries migrating to the Far East. Kyoto targets have proved a tough challenge despite their modesty, and they have been further eased by buying in carbon credits. Kyoto measures carbon emissions in a flattering way too: it measures home carbon production, excluding aviation and shipping. It does not measure carbon consumption. Hence, by contracting out heavy industries to China and then importing the products, Kyoto counts this outsourcing as if emissions had actually fallen (Helm, Smale and Phillips 2007). So achieving Kyoto is not a big deal in itself, and all the while *global* CO_2 concentrations continue to climb.

Then there are the ways in which the Europeans have chosen to reduce emissions, through heavy reliance on renewables and energy efficiency. The former has proved very expensive and slow; the latter just slow. Large-scale technologies, such as carbon sequestration and storage (CCS) and nuclear, have been largely absent from European policies. Indeed, the latter is still ruled out in Germany. Not surprisingly, therefore, the US, with its major technology drive, has probably done at least as much as the Europeans to address the scale of the climate change problem without Kyoto.

On Russia and energy dependency, the policy approach has been at best naïve. Europe has treated Russia for much of the 1990s as if it were a candidate for

membership, expecting it to converge on European approaches to liberalisation and competition. The Energy Charter and the Transit Protocol have been the main instruments, and whatever the precise legal forms of these agreements, the Europeans have argued that Russia should open up its pipelines to third-party access, and allow freedom for investment upstream inside Russia (Helm 2007).

Not only has this proved naïve and ineffective, but by concentrating on telling Russia how to run its internal energy market, the Europeans have failed to address the steps which would make its own market more resilient and therefore increase its bargaining power. The agenda set out at the Hampton Court summit in November 2005 (Helm 2005) – including completing electricity and gas grids and strategic gas storage – has not been determinedly implemented, whilst the effect of the renewables programme and the neglect of nuclear have meant that gas dependency has been growing, and will continue to do so. Finally, the failure of the Europeans to develop foreign (and indeed military) policy capacities to back up pipelines to the Caspian, the reluctance to engage with Turkey (and also Georgia), and Germany's developing special bilateral relationship with Russia (exemplified by the Baltic Pipeline and Schröder's chairmanship of it) have left Russia in an increasingly powerful position. After the invasion of Georgia, Caspian producers will understand that sending gas north via Russia, rather than west via Georgia, may be a better way of maintaining their own national security.

Taken together – the internal market, the climate change policies and the security agenda – in all three cases European policy has been largely a failure, and arguably on the security front an abject one. The Commission has not appreciated this, however, and for its two main energy packages – the January 2007 unbundling proposals (CEC 2007a), and the 2008 climate change proposals (CEC 2008) – the old agenda remains in the driving seat. Yet in each case it is not rocket science to think through practical European solutions, and it is to these we now turn.

The internal market and the 2007 January package

The internal market is a good idea, but like all good ideas it needs to be tempered to practicalities. What is missing in the internal market is the *physical* interconnections: the creation of internal European electricity and gas grids. The Commission's emphasis has been on creating a market *before* the physical framework is in place – to have competition without connectivity. Thus, rather than spend the 1990s and the early years of this decade on the grid project, it has spent it on liberalisation first. Not surprisingly, the result has not been much competition, except in the national markets where the infrastructure is already in place. Competition *between* European countries has been limited.

The January 2007 package has taken this one step further—to try to force through physical unbundling of existing networks. To support its case, the Commission produced a devastating critique of the extent of competition in European energy markets (CEC 2007b)—but drew the conclusion that this was due to bundling rather than the absence of interconnections or the market concentration as a result of mergers. To be fair, the Commission has tried to promote interconnections, but largely on a bottom-up basis, focusing on bilateral links rather than the European network as a whole. Belatedly, as the unbundling proposals have run into the predictable political obstacles of Germany and France, it has changed the rationale too. Now unbundling is supposed to promote the formation of regional and then European grids.

This approach has some merits, but it is wholly inadequate to the challenges and economic opportunities that network integration and development offer. European grids offer major economic efficiency gains because they reduce the portfolios of excess capacity that the systems need to hold to manage peak demand (so there is a very significant competitiveness advantage); they enable the competition that the Commission wants to encourage; and they enhance security by making mutual support a physical reality. European grids would in the process greatly improve the capacity to use the existing system more efficiently and thereby effect significant reductions in CO_2 emissions too.

The 2007 package is a fairly feeble step in the required direction, and it will take years for the regional and eventually European grids to be realised. Rather the Commission would be better advised to start from the other end – to urgently devote considerable resources to completing the European networks and to drive the regulation and management of these networks from the top down – to treat them as European systems, rather than a patchwork of national ones. The great achievement in the middle of the twentieth century was to take the patchwork of local and municipal utilities and create national grids. An analogous effort is needed now, and as a matter of urgency.

The 2008 January package on climate change

Whereas the 2007 unbundling package is ambiguous in its effects, the 2008 climate change package is of greater concern, if only for the sheer scale of its implications for the European energy markets. The 2008 package is very much a political one – the clue is in its catchy '20 20 by 2020' sound bite. It envisages that by 2020, emissions will be reduced by 20% overall, and that this will be achieved through three main mechanisms: a 20% renewables target, a 20% energy efficiency target, and the EU ETS. It would indeed by a miracle if all these components added up to the magic 20 number.

Examined in closer detail, the most significant part is probably the 20% renewables target. Because this is the share of *total* energy, it translates into a massive expansion of wind power across Europe. Even for Britain, with a more modest 15% target, this may translate into an increase from the current share of wind of around 5% of electricity generation to as much as 35–40% *in just 11 years*. Whilst such a target could be achieved across Europe, it would require the sort of intervention that was seen when the Europeans moved from peace to wartime economies in the mid-1930s. As yet, nobody is arguing that this will be achieved. Thus the target is not credible.

But that does not mean that it will not have effects. A dash-for-wind before renewable storage technology catches up will also mean a dash-for-gas (or, worse from a climate change perspective, a dash-for-coal) to back up the new wind capacity and replace the

large-scale closures of existing old power stations. It means, in effect, that just when the concerns over dependency on Russian gas are rising up the agenda—and Europe's import dependency is growing rapidly—the Europeans will deliberately ratchet up that dependency.

Other parts of the 2008 package have greater merits. Energy efficiency in particular has an important part to play in any security and climate change policy. But it remains to be seen what will drive energy efficiency. Price—and in particular sharp price shocks—are much more likely to change behaviour than European policy—as indeed they did as a result of the oil price rises, though these have now substantially reversed. The credit crunch is also reducing consumers' ability to pay as real incomes stagnate or fall. As witnessed after the 1979 oil price shock, the energy ratio improves as a result of price signals, and this improvement may be sustained even if prices then fall back, as they did in the mid-1980s.

The EU ETS has obvious merits too: it is market-based, and it provides a mechanism to broaden out action beyond the EU to the US in particular. However, it is far from perfect. It will run to 2020 only, while most of the supply-side responses and technologies will have their impact *after* 2020 (including nuclear, CCS and non-wind renewables). And it could easily descend into a pork barrel for cash-strapped governments. Already in Britain the revenues are variously earmarked to pay for renewables *and* reduce fuel poverty.

The missing components

Whatever the merits of the particular components in these two packages, the most important point to note is what they leave out – what is missing. Not only are both packages deeply flawed, but they are in large measure sideshows which reflect more the political concerns of member countries and the European Commission, rather than the needs of a robust European energy policy.

These missing components are relatively easy to identify, and hard to develop and deploy. First and foremost is the external dimension – to build up an external energy

policy to deal with gas import dependency from Russia. As noted above, to date the steps have revolved around the Energy Charter and the PCA – in effect telling Russia how to run its own internal market. This has failed: Russia has continued to monopolise its gas pipelines within Gazprom and to follow the overwhelming international trend towards nationalising its resources and reserves. Whether this is in Russia's own interests is debateable (although it has a core rationality and is very similar to the approach taken in developing British and Dutch North Sea gas). But for Europe it is a fact which needs to be recognised and responded to. There is no real chance that Russia is going to change its energy policy.

It is also a fact that, for Russia, energy policy and foreign policy are intimately linked, and the main components of Russian foreign policy towards its near neighbours to the south, south east and the west are very clear. The Caspian States on the eastern shore will increasingly realise that it is in their narrow security interests to send the gas north through Russia, rather than across the Caspian and west through Georgia and Turkey. Ukraine is likely to continue to feel the pressures on its energy prices and supplies, not least as the issue of the Russian naval base at Sebastopol comes to a head.

The correct response to this external challenge is in three parts: mutual protection backed by foreign and military support; diversification away from gas dependency in general and Russian dependency in particular; and increased internal resilience to shocks. The first part is almost entirely missing—as witnessed, on the one hand, by the failure to recognise that the Nabucco Pipeline proposal could not be left entirely to private companies and market forces, but needs to be protected by a foreign policy and security framework and, on the other, by the bilateral approach of Germany towards Russia, notably in respect of the Baltic Pipeline.

Contrary to much European Commission rhetoric, renewables are not much of an answer to the second missing element—security of supply and diversification. As noted above, they may actually make matters worse by inducing a further dash-for-gas. Serious diversification requires the Commission to deal with the questions of nuclear and coal head on. The former has remained a national competence, and there is not even a European-wide licensing and safety regime. And whilst renewable

generation is protected from markets through explicit EU quotas and obligations, nuclear is not.

On coal, the Commission has largely evaded the issue – notwithstanding that coal is the most obvious and immediate large-scale means to increase security. It does, of course, have major environmental consequences, but if the Commission is serious about climate change, it must recognise that the rising coal-burn in China and India in particular will undermine any global climate change strategy unless CCS technology is advanced rapidly. Europe has the shallow and depleted North Sea fields, and coal stations around the perimeter. If the EU was serious about global warming, coal and CCS would figure much higher up its agenda than the commitment to the demonstration plants indicates and would be at the centre of its 2008 package. The fact that the impact of the EU ETS and the LCPD will fall heavily on coal generation in exposed eastern European countries like Poland (with 90% coal-fired electricity generation) is of particular concern to those on the Russian front line.

The third missing element is internal resilience, and this has two main parts: strategic gas reserves and integrated European electricity and gas grids. The former are expensive and resisted by oil and gas companies who worry about the impact on prices and profits. The latter, as we have seen, has been approached in a piecemeal bottom-up fashion. Both policies were endorsed at the Hampton Court Summit, and carried over into the 2006 Green Paper (CEC 2006). Neither has made much practical progress. Any mutual support arrangements – a further missing element – depend on the ability of networks to carry through the support. These still remain largely nationally based and bilateral, not European.

Stepping forward with intent

There are some signs that the first tentative steps towards formulating a credible European energy policy are being taken – to recognise the inadequacy of existing policies and to appreciate the urgency of the challenges that Europe now faces. It takes a crisis to get energy policy changed, and Europe now has the beginnings of a crisis. Russia's invasion of Georgia has proved cathartic and the interruption of

supplies to Ukraine in January 2009 removed any lingering complacency. Over the next decade there is every indication that it will get much worse, as existing old power stations close down, as gas dependency rises, and as the full costs and consequences of the dash-for-wind unfold. As, if and when energy prices fall, complacency could easily resurface – reinforced by the collapse of demand as a result of the recession.

Whilst there is this recognition of policy failure and trouble ahead, the European Commission has a number of steps it could usefully take to implement the Hampton Court agenda. Completing the grids, strategic gas storage, mutual support, and common nuclear licensing are measures which should be introduced quickly. In addition, the EU needs to confront the more difficult technologies – nuclear and coal – and recognise that these options require a careful rethink of the market designs – in terms of both the EU ETS and its limited horizons and a level playing field with other technologies, notably wind. CCS in particular needs to be taken much more seriously.

References

CEC (1985), 'Completing the Internal Market: White Paper from the Commission to the European Council, Milan, June 28th–29th, COM(85) 310, Commission of the European Communities http://europa.eu/documents/comm/white_papers/pdf/com1985_0310_f_en.pdf.

CEC (1996), 'Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity', Commission of the European Communities.

CEC (1998), 'Directive 98/30/EC of the European Parliament and of the Council concerning common rules for the internal market in natural gas', Commission of the European Communities.

CEC (2006), 'Green Paper A European Strategy for Sustainable, Competitive and Secure Energy', Brussels, March 8th, COM(2006) 105 final.

CEC (2007a), 'Communication From The Commission To The European Council And The European Parliament: An Energy Policy For Europe' Brussels, 10.1.2007 COM(2007) 1 final

CEC (2007b), 'Prospects for the internal gas and electricity market' Brussels, 10.1.2007 COM(2006) 841 final, Commission of the European Communities.

CEC (2008), 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions—20 20 by 2020—Europe's climate change opportunity' COM(2008) 13 final, (COM(2008) 16 final), (COM(2008) 17 final), (COM(2008) 18 final), (COM(2008) 19 final).

Helm, D.R. (2005), 'European Energy Policy: Securing Supplies and Meeting the Challenge of Climate Change', Paper for the EU Informal Summit, Hampton Court, London, October 27th.

Helm, D. (2007), 'The Russian dimension and Europe's external energy policy', September, available at: http://www.dieterhelm.co.uk/ September.

Helm, D. R., Smale, R. and Phillips, J. (2007), 'Too Good to be True? The UK's Climate Change Record', available at: http://www.dieterhelm.co.uk/ December.