Energy and Climate Change:

EUROPE AT THE CROSSROADS

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CHAPTER 1

TAKE-OFF

Surely, this is just the moment in history for which the European Union was created.

Prince Charles talking on climate change to the European Parliament, February 2008.

Climate change is transforming energy policy in the European Union. The scale of the problem – the risk of irreversible warming from the world overdosing on fossil fuels – dwarfs Europe's more traditional preoccupations with energy market structures and stable supply. The international nature of the required response to global warming has put the EU institutions centre-stage, too. EU member states automatically look to their Union for solutions to the ultimate cross-border problem, in a way that they have never done with other aspects of energy policy.

From the dawning of popular awareness about global warming, EU member states have sought a collective solution. Two years before the United Nations earth summit in Rio de Janeiro in 1992, EU ministers were talking of stabilizing emissions 'in the Community as a whole'. The nature of global pollution makes solutions even on the scale of the EU insufficient. But it is politically significant that on no other issue in the EU's 50-year history – not currency, not defence, not foreign policy, not agriculture – have member states become so unanimous on the need for EU-level action.

This consensus may, of course, still depend on what the action is. In 1991 the European Commission proposed that the action should take the form of an EU energy-cum-carbon tax (to curb carbon emissions). This tax was strongly opposed by some member states, and might be again if the idea were re-proposed. The EU has since settled on a more disguised – therefore more palatable – form of carbon taxation, dressed up as the cost

of carbon allowances traded on Europe's Emission Trading Scheme (ETS). Still, this system imposes costs, which seem very unwelcome in the light of the banking crash of autumn 2008 and the consequent economic slowdown. Not surprisingly, the only way the EU could agree, in December 2008, on its new climate change programme for 2013–20 was by continuing to allow companies in various countries and in various sectors to get a sizeable share of allowances for free.

Yet the political mood about climate change in 2008 is very different from 1991. The rate of increase in greenhouse gases – two-thirds of which come from energy use – has visibly and worryingly accelerated. Cost/benefit calculations of environmental action have altered, not least because of the 2006 report on the economics of climate change by Professor Nicolas Stern. His description of climate change as the biggest 'market failure' ever is no way invalidated by the autumn 2008 bank crashes.

In the EU, climate change has developed an integrationist dynamic that has only been paralleled by the '1992 single market' programme. This dynamic has shown itself in the way EU climate change policy touches on the core of nations' sovereignty by dictating the renewable share of their energy mix; in the way that parts of national policy-making are moving over to the EU and its ETS; and in the way that one piece of legislation always seems to require another. And almost no member state complains about the principle of this, though many complain about the practice. Governments may object to the precise measure of their renewable target, but not to the setting of these targets at EU level or by EU agreement. A government like the UK's is very concerned about the stability of the ETS because its environmental policy now relies so heavily on this European instrument. The EU sets overall emission reduction targets that then require further legislation to cut fuel use in cars or increase insulation in buildings. But there are few objections to this domino effect of one piece of legislation leading to another.

By contrast, national resistance to EU prescriptions is still strong in the two other main areas of EU energy concern: the drive to liberalize and integrate Europe's energy markets and the effort to improve the security of energy supplies from countries such as Russia.

It is not surprising that some member states, with a big industrial base at stake such as Germany, or with chronic competitiveness worries such as Italy, or poorer ones as in Central and Eastern Europe, are nervous at taking climate change measures ahead of much of the rest of the world. But EU members ought to feel they can be bolder as a bloc than as individual states. For countries worried about saddling their industry with environmental costs, there is economic safety in numbers. Being part of a 27-country regional trading bloc means that many EU states do most of their commerce with each other. (Contrast this with Canada's predicament – its partial backtracking on the Kyoto Protocol has a lot to do with its wide exposure to trade with the US, which opted out of Kyoto).

If the US had stayed in Kyoto, the EU might not have occupied the driving seat in global climate change negotiations. But its leadership became inevitable once the Bush administration pulled the US out in 2001. The EU was very instrumental in getting the Kyoto Protocol signed. It was central to cajoling Russia into the key ratification that brought the Protocol into effect. It set up the ETS, Kyoto's main implementation mechanism. And it is leading the way for the next phase with a programme to extend emission reductions with a 20 percent cut by 2020 (from 1990 levels) and a promise of a 30 percent cut, if others were to match it.

Less obviously, the EU is also offering a possible model to the rest of the world about how richer and poorer countries can combine to carry out differentiated emission reductions. The EU's particular clout in international negotiations stems from its states' willingness to have their greenhouse gas emissions treated as a single 'bubble' and to take on a collective commitment to reduce it. Delivering on this commitment requires hard internal bargaining about which countries do what to reduce the overall bubble.

But the EU did it with Kyoto. It came to a burden sharing agreement that at one extreme required rich Luxembourg to cut its emissions by 28 percent and at the other allowed poorer Portugal to continue its catch-up growth with a 27 percent increase in emissions. For emissions reductions after Kyoto, the burden-sharing negotiations become more complex because

the EU has nearly twice the membership it had at the time of Kyoto's signing. But for emissions outside the ETS (60 percent of the total), the EU has agreed differentiation ranging from a 20 percent increase for Bulgaria to a 20 percent decrease for Denmark and Ireland.

Naturally, in a permanent Union of neighbouring countries that aspire to common values and have common policies to promote economic cohesion, richer states would be expected to take on more of the burden than poorer members. Even so, it was clear in autumn 2008 that getting agreement on a system of differentiated responsibilities and actions between richer west European and poorer east European states would not be easy. But now that the EU has got such an agreement among its members – in a Union where the spread in wealth per capita between richest and poorest (Luxembourg and Bulgaria) is greater than the income gap between the US and China – it should prove an example to the rest of the world.

But getting agreement is only part of the battle, ensuring it works is the other. The EU will only be a convincing example to the rest of the world if its climate change measures convince. It is unfortunate that a general economic slowdown should loom just as the EU was working up a comprehensive climate programme for 2013–20. It would be doubly unfortunate if a temporary slowdown, which will surely be over by 2012, became an excuse to weaken a much longer programme, and there are some fears that this is what happened in the December 2008 agreement. Europe cannot afford to waste the next decade. This is not an experiment that, if it fails, can be re-run without the underlying global warming problem being, by then, worse.

But concern about climate change – the focus of Chapters 10–12 in this book – does not sweep aside the two more traditional strands to EU energy policy that are dealt with in earlier chapters – market liberalization and security of supply. Indeed the EU has never pursued one strand of energy policy to the exclusion of the other two. The three strands or threads of energy policy have always been interwoven. For energy policy actually combines economic policy, security policy and environmental policy. The emphasis in policy changes according

to events – rather like a skier, shifting his weight from ski to ski to turn, although if climate change is the avalanche behind him straight downhill might be wiser.

These shifts of emphasis create a sort of timeline, which the book follows. So the first set of issues to be discussed focus on market liberalization (Chapters 3–7), because it has been the most active area of EU energy policy-making in recent years. It started as a postscript to the 1992 single market programme, then gathered momentum as the EU developed the argument that efficient energy needed to be a building block of its so-called 'Lisbon agenda' ambition to make Europe the world's most competitive economy. But the European Commission has been trying to give liberalization an ultimate push – further than anywhere else in the world – with proposed legislation to take networks out of vertically integrated energy companies. This has led to a heated debate over the economic pros and cons of unbundling in terms of investment, price, market structure and transparency. The confrontation over ownership unbundling analysed in Chapter 6 and charted in Chapter 7 also came just when energy insecurity had made some governments (see Chapter 5) very loath to allow Brussels touch their national energy champions. Climate change has not eclipsed liberalization policies, but has significantly altered them with the introduction of non-market mechanisms like targets and subsidies for the generation of more renewable energy.

The other traditional preoccupation of EU policy is security of supply. This is the oldest common energy concern of EU states, going back to the 1973 Arab oil boycott, and arguably to the EU's very beginnings. But the concern returned with a jolt in January 2006 when Gazprom sharply reduced gas flowing through Ukraine, conduit for 85% of Russian gas reaching the EU, as part of what has become a chronic payment dispute with Kiev that has serious knock-on effects on some EU members. The jolt became a shock in January 2009 when Gazprom stopped stopped for two weeks all gas supply to and through Ukraine. Repeated scares about cut-offs of Russian gas have fuelled intense debate in the EU about how to respond to Russia's erratic behaviour towards transit countries (which never arose when these countries were all part of the Soviet Union)

and to Russia's reassertion of state control over its own hydrocarbon resources. These issues are addressed in Chapter 9.

Any EU response, however, is complicated by the tension between, on the one hand, smaller east European EU states, which clamour for the EU to speak with a common voice on their collective behalf to outside suppliers like Moscow, and, on the other hand, bigger states which are still content to settle energy ties with Russia bilaterally. In the past, EU authorities have had little legal right to involve themselves in securing energy supply. Only in recent years have governments been ready to confer on their Union formal competence to 'ensure security of energy supply'. And even this must wait upon decisions about implementing the Treaty of Lisbon, after the Irish voted it down in their June 2008 referendum.

This book, while following the time line of the shifts in EU energy policy, does not attempt to be a history of it, certainly not before 1990. But three points need to be made about the evolution and distinctiveness of EU energy policy.

A misleading debut

First, in order to appreciate the distance travelled in policy terms, it is important to realize there never was, at the outset of the EU, a golden age for energy policy-making. The early institutions appeared to give energy great prominence, yet had less to them than met the eye. The 1951 European Coal and Steel Community treaty was the essential building block for the creation of the European Economic Community (EEC). It did not, however, lead to a common energy policy covering energy sources other than coal. It became essentially a social instrument to assist, with money, the run-down of west European coal mining. That job largely done, the treaty was allowed to expire in 2002. The 1957 Euratom treaty still exists, but it had to wait until 2002 to get a European Court of Justice ruling (against member states' challenge) that the Union, as Euratom, had legal competence in the vital area of reactor safety. The EU contribution to developing nuclear power in Europe has been less than stellar (see Chapter 13).

Moreover, neither nuclear power nor coal proved to be the expanding energy source that oil emerged to be. And when the supply crisis in oil first came, in 1973–4, it was dealt with at a wider level by the founding, on American initiative, of the International Energy Agency to organize emergency oil stocks among its members that include some but not all EU countries.

Organic growth

Second, over subsequent years the EU dimension of energy policy grew organically. Where necessary, policy-makers borrowed legal competence from the economic and environmental parts of the EU treaties in order to justify proposing and passing energy measures. Energy's economic importance gained recognition in the 1986 Single European Act and in the subsequent single market programme. The 1992 Maastricht treaty increased the EU's ability to act on the environment as well as giving it competence to improve cross-border energy infrastructure in a programme known as Trans–European Networks.

Undismayed by its failure to exploit the general integrationist surge around the time of Maastricht by inserting an energy chapter into the treaty, the Commission kept returning to the subject of energy policy. In 1995, 2000 and 2006 it produced 'green papers' that emphasized the need for a joined up energy policy, linking market liberalization, security of supply and increasingly climate change.

One reason, among many, why this steady thud of green papers began to have an impact was a switch of tack by the UK. As a country whose entry in 1973 into the EU coincided with major oil discoveries and development in its zone of the North Sea, the UK had traditionally been neurotic about Brussels somehow making it share oil reserves, as it had had to do with fish stocks. As long as it remained an exporter of, or even just self-sufficient in, oil and gas, the UK remained neurotic on this score. So when, in the wake of the treaties of Amsterdam and Nice that followed that of Maastricht, discussions on a further treaty (this time dubbed a constitution) started in 2002, the UK fretted for its sovereignty over North Sea reserves. The

issue arose because for the first time a specific article about 'community competence' in energy was being written into the treaty. Eventually, as a constitutional convention turned into the formal intergovernmental conference that produced the 2004 draft constitution, the UK was pacified with a clause (in the energy treaty article) protecting 'a member state's right to determine conditions for exploiting its energy resources'.

But French and Dutch voters killed the constitution in their referendums of 2005, and by the time a slimmed down version of the constitution was revived in 2007 in the form of the Lisbon treaty, the UK attitude had changed considerably. Not only had the UK less to protect, as its reserves, especially in gas, began to fall steeply into deficit, but it had also become keen on having an EU policy influencing the terms under which Britain imports gas from the continent. This change – plus a growing interest in climate change – had already persuaded UK prime minister Tony Blair to make energy policy a feature of his presidency of the EU and of the Hampton Court summit in autumn 2005, which in turn helped pave the way for the Commission green paper in January 2006.

The Treaty of Lisbon, whose future Irish voters have made uncertain, took up in almost identical language the dead constitution's wording on energy. Its Article 194 stated that:

> In the context of the establishment and functioning of the internal market and with regard for the need to preserve and improve the environment, Union policy on energy shall aim, in a spirit of solidarity between member states, to:
> – ensure the functioning of the energy market;
> – ensure security of energy supply in the Union;
> – promote energy efficiency and energy saving and the development of new and renewable forms of energy;
> – promote the interconnection of energy networks.

However, there was the crucial caveat:

> Such measures shall not affect a member state's right to determine the conditions for exploiting its energy resources, its choice between different energy sources and the general structure of its energy supply.

The inclusion of security of supply as an EU goal suggested

action in an area that had always been EU energy policy's weakest link, and the solidarity reference aimed to provide reassurance to new east European member states. Basically, however, the treaty would only codify what had been happening in real life within the EU for some time. That was striking in itself. The fact that EU energy policy had developed organically, running ahead of treaty clauses, suggests that ministers and governments saw increasing value in a common policy, more perhaps than they would openly admit.

A federal energy policy unlike others

Third, the nature of this common policy is different from those in other federations. The mission statement for energy policy, cited above in the Lisbon treaty, looks broadly similar to the energy policy goals and legal competences of federal governments in such federal systems as the US and Canada. Yet it is undermined by the caveat clause, cited above, about residual national sovereignty.

So, to take internal energy, the EU dimension in energy policy is weaker than in traditional federations. In these federal systems – where fossil fuel reserves are the property of states, provinces or (in the case of the US) private landowners – the federal authorities levy royalties, impose retail taxes, and own all offshore and some onshore reserves. The EU has no power over member states' energy mix, depletion policy or taxation (at least not on upstream production). And this is what one would expect, given the generally weak centre of a very loose federation of nation states whose existence is centuries older than their 'Union'. And it leads to the obvious result that member states are totally free to pick, choose and, in the case of nuclear power, reject energy sources they dislike.

Bizarrely, however, Brussels has greater potential power to shape the energy market design of its member states than Washington has over US states or Ottawa over Canadian provinces. This stems from the market-opening and market-liberalizing provisions written into the original Treaty of Rome. It took time to apply these provisions to energy, but they now apply to

energy as to every other sector of the EU economy (except, by special treaty exemption, defence).

Compare this with the situation in the US, where electricity regulation is largely left to states that are free, should they desire, to maintain monopoly utilities and to exclude out-of-state competitors. The chances, therefore, are greater of getting even a halfway standard electricity market design for the EU's 27 ancient nation states than for the 50 US states, some of which came into existence long after the American Union. (The paradox does not exist in gas. US federal regulators have powers over states in siting long distance interstate gas pipelines that the Commission only dreamt of in its Trans-European Networks programme of the early 1990s, and in its 2007 proposal for a semi-federal Agency for the Cooperation of Energy Regulators.)

Backing up the EU's market-liberalizing provisions are the Commission's powers in anti-trust enforcement and scrutiny of state aid. Exercise of these powers is subject to control by the European Court of Justice, but not by governments. This gives the Commission unusual autonomy in the anti-trust field, which as shown in Chapters 4 and 7 it has had no hesitation in using in the energy sector.

The Commission also has a unique role in controlling market-distorting state aids. The EU is alone among federations in having an executive that can stop member governments from spending their own money on their own companies in their own territory, if the result is to distort the market to the disadvantage of competitors. This power, which for obvious reasons the Commission has to exercise independently of governments, is considered an essential safeguard in a federation where state budgets vastly outweigh the central budget. For the time being, Brussels' state aid control powers are less relevant in energy, because it concedes that, in the rush to get green power projects off the ground, states can remain free to use whatever type and level of national financial subsidy they choose. However, if ever there were to be a move to a harmonized EU-wide renewable energy subsidy, Brussels' state aid powers would come into play.

Yet in external energy policy, the federal role in the EU is feeble. Only in the 2007 Lisbon treaty (if it holds) did the EU

get formal competence in energy security and, by extension, external energy supply policy. There is no requirement or tradition for member states to speak with one voice when they talk about energy with outside suppliers. Likewise there is no requirement or tradition for EU governments to inform Brussels of the bilateral energy deals that they or their companies make. Few advocates of Europe 'speaking with one voice' provide a precise prescription of what they mean. Certainly the Lisbon treaty does not. Indeed the treaty could, by member states' insistence on maintaining national prerogatives in choice of energy source and supply, perpetuate the cacophony in external energy policy. The noise of 28 groups (27 plus the EU) of policy-makers all sounding off at once about energy security is confusing and invites derision. When people say dismissively: 'there's no such thing as EU energy policy', it is generally external policy they are referring to.

Such criticism now hits home because of nervousness about growing reliance on imports and an increasing belief that only a unified Europe of consumers can carry weight with foreign oil and gas producers. By 2030, Europe could be importing 84 percent of the total gas it consumes and 93 percent of its oil, according to a Commission projection.[1]

Climate change is giving a new rationale and coherence to energy policy at an EU level, because Europe is seen as the right dimension for a solution to a problem that so many want tackled. The same could go for energy security, but it hasn't so far. This could alter, depending on how the world energy scene evolves. If its main feature becomes a mad scramble for remaining fossil fuels, then the EU could be seen as a lumbering bureaucracy unable to match more agile nation states in signing up scarce supply, and as the wrong institution to be entrusted to bargain collectively on behalf of the 500 million citizens in its 27 member states. If, however, it seems possible to develop a multilateral, rules-based approach to energy security as well as to climate change, then the EU will appear to be the right institution to pursue it.

1 European Commission, 'An Energy Policy for Europe', COM (2007) 1, p. 3.

CHAPTER 2

TRADE-OFFS

For far too long we have been in a situation where, in a haphazard and random way, energy needs and energy priorities are simply determined in each country according to its needs, but without any sense of the collective power we could have in Europe if we were prepared to pool our energy and our resources.

Tony Blair, UK prime minister, speaking as EU Council president to the European Parliament, 2005.

If there is one characteristic that sets the enlarged EU apart from all other federations or nation states, it is diversity. And, rather aptly, this diversity can be a source of EU weakness or difficulty or strength.

Part of the energy diversity evidently lies in differing geological endowment or geographical position. Some states have a lot of coal (i.e. Germany, Poland). Some have oil and gas (UK, Netherlands, and Denmark). Some coastal states (Portugal, Spain, UK, Netherlands, Denmark, and Germany) have a lot of wind potential. Some states (in East and Central Europe) have forests of considerable biomass potential. But diversity can be man-made too. France's massive nuclear programme sets it far apart from almost all EU states in terms of reliance on atomic power for electricity generation. History also still plays a role in setting some countries apart, notably the heavy dependence of some Central European and Baltic states on Russian energy.

Such diversity can render averages meaningless for individual states. Do the Baltic countries really care that the Union is self-sufficient in electricity or only 60 percent dependent on imports for its gas, if their only outside grid connection is still with Russia, and their sole source of gas is Russian too? Here diversity is a source of weakness, at least until there are more energy interconnections among EU states.

Diversity can also be the cause of difficulty in, for instance, trying to design a common climate change policy to suit, on the one hand, France, with its 80 percent electricity dependence on low-carbon nuclear power and, on the other hand, Poland, which generates 95 percent of its power with carbon-rich coal. Provided EU states are sufficiently interlinked, however, diversity must be considered as extra security. Diversity could help ensure that if one energy source were knocked out – oil (another Arab embargo), gas (a Russian cut-off), nuclear (an accident), coal (pollution) – others could fill the gap.

Even the most diverse collection of states can gain from acting together. Collective action can produce something that is greater than the sum of the parts, as in the case of a single, trans-European energy market. It can achieve greater impact than individual countries could, as demonstrated by EU leadership in climate change negotiations. It can also be a way of limiting the costs, as well as sharing the benefits, of pursuing common energy goals, such as countries protecting their industrial competitiveness by trying to ensure that as many commercial rivals as possible shoulder the same cost of carbon. This avoids the problem of companies or countries getting a 'free rider' advantage on the backs of the collective action of others.

How and why collective EU action works better in some areas, and not at all in others, is a theme developed in this book. Below is a rough scorecard of actual EU performance, in given policy areas, set against EU potential. It does not attempt to be scientific, but rather as a spur to thinking about the EU's relevance to energy policy.

Potential is harder to judge than performance. It is more subjective, because there is little hard data. It also has to pay some regard to past history and present necessity, because these factors determine what is legally and politically possible today. If EU-level action is considered essential, there is top potential for it because sheer necessity will override politics and legalities. This is the case with climate change, where even action on an EU-wide scale is considered too geographically limited. Potential of internal market policies gets a slightly lower, but still high, rating. EU law-makers and regulators have invested a lot of time and effort in this area, and have all the necessary legislative and

anti-trust tools at hand. Yet there is still some national resistance to EU energy market blueprints, and this somewhat mars the chances of success.

The potential rating for EU policies on energy security issues is lower. This is the net effect of the clear desirability for the EU to speak with one voice to its outside energy suppliers, but also its patent inability to do so because of entrenched national attitudes. There ought to be a strong EU dimension to energy research which, however, is a sector with unusually low public and private R&D investment. The EU potential in energy efficiency is somewhat reduced by the political need, on grounds of subsidiarity, to leave many decisions to national discretion and implementation. The biggest disappointment – measured as the gap between potential and performance – has been the failure of Euratom, for all its heavyweight institutional machinery, to contribute more constructively to nuclear power around the EU.

Table 1: Buchan's Benchmark

EU policy	*EU potential*	*EU performance*
Climate change	A+	A–
Internal market	A–	B+
Security of supply	B+	D
Nuclear power	A–	D
Renewable energy	A–	C
Energy R&D	B+	C
Energy efficiency	B	C

Source: Author

However, irrespective of their rating, common policies will not suit all countries all of the time in all areas. The European Commission argues its three main policy strands – a more integrated and competitive energy market, improved energy security and climate change controls – can be woven into a seamless synthesis, and that it is perfectly possible to pursue policies to arrive at an energy supply that is competitive, secure and sustainable. A perfect equilateral triangle. And in the abstract, this may be true. In general terms, an efficient market, with cost-reflective prices that respond to carbon pricing signals from the trading system, would make maximum use of available energy resources and so keep imports and pollution as low as possible.

In practice, this is not a perfectly compatible triangle. It is possible to meet two of the three goals, perhaps any two, but policies to meet all three goals equally may be impossible, with the important exception of energy efficiency and research whose EU dimension is explored in Chapters 14 and 15. Elsewhere there will tend to be trade-offs, meaning fulfilling less of one goal to attain more of another goal.[1] Trade-offs will differ according to member state. Not all member states can achieve the three objectives equally. Nor might they want to. Left to their own devices most member states would probably come to a different balance of policy goals. Indeed it is membership of the Union that forces member states into trade-offs in energy as in other sectors.

There should be no surprise. It is part and parcel of every country's experience of the EU in which some national sovereignty is traded off for a wider benefit. So France has had to swallow far more market liberalization than it would have done, of its own volition, in order to share in a common climate change policy. Germany, left to itself as a country without an oil major of its own but with a sizeable environmental movement, would rank energy security and climate change goals above structural reform of its fiendishly complicated domestic energy market. Britain is now compromising its long-standing market liberalization by agreeing to give much more financial support to renewable energy so that it can meet its very ambitious green power target. Smaller member states, especially those in Eastern Europe with an historic mono-supply from Russia, are most concerned about energy security, but are obliged to undertake market reforms and climate change measures that interest them far less.

So member states are continuously trying to find new ways to pursue national energy preferences within the EU policy

1 For stimulating thinking on policy trade-offs, see Roeller, Lars-Hendrick, Juan Delgado and Hans W. Friederiszick, *Energy: Choices for Europe, 2007*, Bruegel: Brussels, 2007.

template of collective action. Another theme of this book is the Commission's constant battle to keep countries corralled within the template. And a third theme is the Commission's efforts to deal with conflicts between different EU policy goals (represented schematically in the chart below). Indeed it is ironic that Brussels should devote so much rhetoric to denying the existence of such conflicts when it spends so much time actually dealing with them.

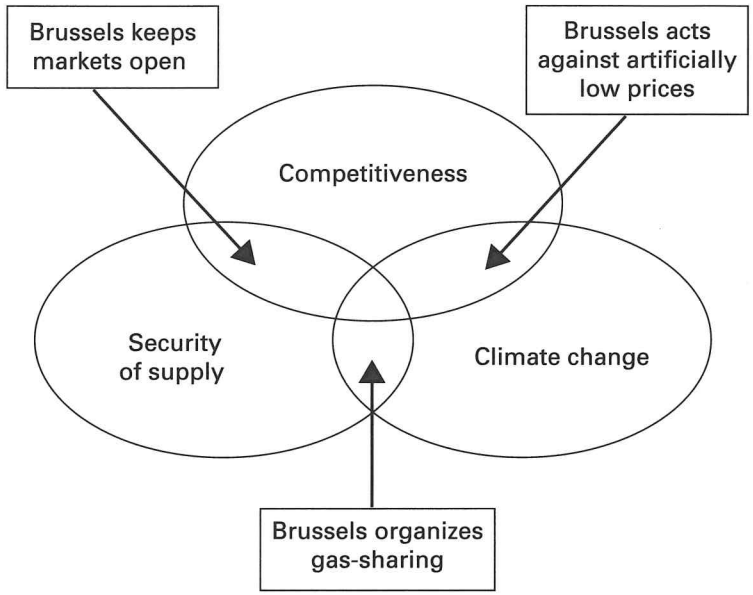

Figure 1: Reconciling Policy Conflicts

Source: Author

Let us start with the possible contradiction between competition and security of supply. As it happens, some bigger member states such as France and Germany are heavy oil and gas importers and, because of that, want to retain big national energy companies. A national champion strategy is not illogical as a deliberate attempt to create domestic market power to offset a foreign supplier's market power (such as that of Gazprom). But the creation of such national champions can have distorting

consequences for the internal market (see Chapters 4 and 5). Once created, such EU national champions develop a strong affinity with non-EU national champions (such as Gazprom, see Chapter 9) in opposing structural reform inside the EU. For their part, smaller member states cannot build up national champions of any external consequence. Nonetheless, the desire to keep their incumbent energy suppliers intact leads several small states to oppose the Commission's plans for ownership unbundling (see Chapter 7).

Yet the scale of the EU helps reduce the overall loss of competition that some member states are ready to accept for the sake of security of supply. The Commission has no powers to stop mergers entirely within a single member state (see Chapter 4). But if companies get bigger or stay big, competition can still be preserved if the overall market can be enlarged. So Electricité de France may not serve French consumers very well by continuing to dominate the French market, but it renders consumers in the UK, Germany and Italy a service by invading their markets and increasing competition there. And the Commission has helped make some of these invasions possible by removing legal barriers that a few countries erected against EdF takeovers on their territory.

The interrelationship between competitiveness and the environment is somewhat different. Here, some trade-off between the two goals is probably desirable. The EU will only reach its energy efficiency and emission reduction targets if the price of fossil fuels and fossil-fuel generated electricity stays relatively high (also a goal of the emissions trading scheme). One qualification to this is the risk of 'carbon leakage' (see Chapter 10). This is the danger that, because of the cost and scarcity of EU carbon permits, EU industry will lose market share to companies outside Europe operating without any comparable carbon controls or costs, and therefore a portion of carbon 'saved' in Europe will 'reappear' elsewhere.

It is clear that attempts to keep these prices, especially of electricity, artificially low do not help the environment. One of the reasons why, for instance, Spain's emissions are way over its Kyoto target is that its politicians fix retail power prices too low (see Chapter 5). Spain is not the only country to frustrate in this

way the free play of supply and demand to set prices. In theory, the EU can help here institutionally, with the Commission taking to the European Court of Justice those governments that regulate prices in defiance of EU energy directives. Naturally, such action will hardly feel like help to those governments taken to court. But it does, or should, dissuade governments from sacrificing rational energy policy to their short-term desire to please voters with energy price controls.

The Commission reacted with the same sort of advice to the 2007–08 surge in oil prices and to the clamour from fuel users for governments to make offsetting cuts in fuel taxes. The EU has no harmonized level of national excise tax on fuel, only an EU-agreed minimum floor for national fuel taxes that is well below current rates. So, in contrast to price controls that are in contravention of EU electricity and gas directives, the Commission cannot stop governments cutting their fuel taxes to the minimum to appease protestors. Nonetheless, it has highlighted the eminently sensible message to Europe's politicians that they should target financial aid directly to those hardest hit by fuel price rises, rather than cut fuel taxes in a general way that would delay the necessary shift away from fossil fuels. Obviously delivering such a message is easier for unelected Eurocrats than for politicians whose position is directly dependent on voters.

The trade-off between security of supply and the environment depends very much on a country's energy mix. At one extreme, France faces no trade-off or conflict because it largely achieves both goals through nuclear power, while at the other, Poland gains security through heavy reliance on its own coal but at the expense of pumping carbon into the atmosphere. A more collective EU energy policy could ease the security constraint felt by Poland and other central and eastern EU states that lack indigenous coal and rely solely on Russia for gas imports. This would involve Europeanizing member states' energy relations with Russia and other outside suppliers, and common arrangements for the strategic storage of gas and sharing it in emergencies (see Chapter 8). Yet while smaller member states would welcome such a common policy, the larger ones might see it as cramping their freedom to strike bilateral energy bargains with Russia and other suppliers.

All these examples are ways in which the EU tries to reconcile conflicts arising out of member states' desire to pursue national policy preferences that do not fit into the EU template. They generally involve the EU preventing member states making trade-offs. But in the climate change arena, there may be some flexible trade-offs that are *not* being made, but which perhaps *should* be. For the EU has set goals to develop more renewable energy and biofuel than is strictly necessary to meet its overriding 20 percent greenhouse gas (GHG) reduction goal (see Chapter 10). The extra development of renewables and biofuels will add to energy security and possibly give technology a push. But they are an expensive way of avoiding carbon. So scaling down renewables and biofuels targets could help fund more ambitious cuts in GHGs, if one could be sure – and it is a very big if – that savings on renewables would be spent on clean coal or nuclear.

There are rigidities – some good, some bad – inside the proposed renewables and biofuels programmes. An example of a 'good' rigidity is the environmental criteria for biofuels (Chapter 12); without some restrictions the EU could end up using plant fuels that produce more carbon emissions than they save. An instance of a 'bad' rigidity is the likely restrictions on trade in renewables. Segmentation of the renewable market will limit the potential for scale economies, because of reliance on different national targets and subsidy schemes in individual member states, and limits on trading green power between member states (see Chapter 11).

This is a pity. For if there is one intrinsic advantage that the EU offers its members, it is that of a continental size market with economies of scale allowing producers to lower unit costs. However, many in Europe's renewable energy lobbies have a reasonable riposte to complaints about their desire to protect national subsidy schemes for green power, even at the cost of segmenting the EU market. They admit the distortions in the renewable energy market, but say policy-makers' first order of priority should be to remove the many market barriers in conventional energy that still accounts for the overwhelming share of Europe's energy consumption. And these barriers are the focus of the next few chapters.