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Expanding the European dimension in energy policy: the Commission's latest initiatives

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Summary

This paper relates to events taking place at the European level to help the European Union towards its ambitious 2020 energy and climate goals. Specifically, the paper tracks the European Commission's initiatives in 2011 to streamline national planning approval of vital energy infrastructure, to use EU funds to leverage more private finance for energy projects, and to lend some reality to a common external energy policy through Commission-led negotiations with foreign energy suppliers on international infrastructure.

These Commission initiatives by themselves will not, and cannot, deliver the 2020 goals. This huge job is overwhelmingly the responsibility of national companies, regulators, and governments, particularly when one large member state manages to complicate its own energy management task and that of its neighbours, as Germany has done with its accelerated exit from nuclear power. However, the Commission initiatives are important to the substance of energy policy, to the EU achieving the necessary doubling of the rate of energy investment over the next decade. They are also significant for the politics of EU energy policy making. Involvement of the EU, for the first time, in the sensitive area of infrastructure planning risks straining subsidiarity – the doctrine of keeping intervention from Brussels to the minimum necessary – while in external energy policy the Commission is making inroads on the traditional preserve of EU governments.

This paper analyses the problems that the Commission initiatives seek to resolve. The proposals to increase EU funds for infrastructure, and to use them to leverage more private sector finance, coincide awkwardly with the severe crisis shaking the eurozone. Yet the current impossibility for many state-owned energy transmission companies of obtaining more money from their cash-strapped government owners, and the present difficulty faced by many private sector energy companies in raising more money from the capital markets and banks, underscore the need for some EU funding assistance. The paper argues that there should be no shame attached to subsidy, which has an entirely proper role to play in Europe's energy transition. However, it cautions that subsidy should be kept in proportion, and suggests that one way of doing this is to 'Europeanize' national renewable energy support schemes.

The move to a low carbon economy will multiply the need for highly visible pylons carrying power from highly visible wind turbines. In order to increase social acceptance of energy infrastructure, the paper applauds the Commission's suggested re-casting of environmental impact assessments to take more account of climate change benefits.

The Commission has been emboldened in its 2011 initiatives by the new energy policy competences agreed for the Union in the 2009 Lisbon Treaty. The Commission has also received general encouragement from member state governments, which seem to see the usefulness of Union-level action as a catalyst to accelerate energy investment. But member states still have an unqualified treaty right to decide their own energy mix. Germany's nuclear decision in May 2011 shows that this treaty right should be modified to state that a member state should consult on at least the timing and pace of any change in its energy mix affecting its EU partners. Such a modification, on its own, would not justify a treaty revision. However, the change could be made as part of the general treaty revision that now looks increasingly necessary in order to settle the eurozone crisis.

Introduction

The European Union fixed the end goals of its energy and climate change policies for the next 10 years in its 2009 package of legislation. But there are doubts about whether these goals can be reached, or if they are reached how significant a step they constitute towards a lower carbon economy. Partly because of these doubts, the Commission is pressing ahead with proposals for new means of implementing the 2009 package.

Until recently, the European Commission thought it could rely on its traditional market-integrating and anti-trust policies to try to create a common energy market. Once freed of potential abuses and conflicts of interest, the market would – so the Commission had hoped – almost automatically produce sufficient infrastructure and generation capacity. The Commission's key goal was to make transmission networks independent of supplier interests so that, having no business other than running power grids and gas pipelines, and no domestic supply market to protect, transmission operators would extend their networks across borders, acting as common carriers for all and providing open access to all. In this way, new cross-border infrastructure would be virtually self-initiating and self-financing. Unbundling transmission operators from supplier interests was the prime aim of three major packages of legislation, passed in 1996–8, 2003, and 2009.

The Commission has not declared this legislation inadequate. Indeed it still vaunts the achievements of the third package of directives and regulations, passed in 2009, as the essential foundation for a single energy market. This package not only comprised the unbundling provisions, but also the creation of more powerful EU networks of regulators (the Agency for the Cooperation of Energy Regulators, or ACER) and of transmission operators (the European Network of Transmission System Operators for electricity and gas – ENTSO-E and ENTSO-G). Since then, however, the Commission concluded that, in order to reach its climate change goals, the EU would need to add infrastructure faster than market forces could provide, even if these forces were as effective as the legislators of the third package had intended.

Some of the same private disappointment surrounds the Emission Trading Scheme (ETS) as regards its ability, so far, to push Europe's energy generators and users towards a lower carbon mix. The ETS designers in the Commission are very proud to have led the world in emissions trading. However, they concede that past over-supply of permits and recession-depressed demand for permits have produced a carbon price that is not yet high enough to punish dirty fossil fuels, or reward low carbon. Reforms will improve the ETS in its third phase, but this will only start in 2013, and even then the EU's resort to regulatory measures to boost renewable energy and energy efficiency may undermine the market mechanism of the ETS price by keeping the carbon price too low to be effective. One simple way of boosting the carbon price would be to make a 30 per cent reduction in the overall emissions cap in the ETS by 2020, instead of the 20 per cent reduction targeted now. However, the Commission has not dared formally to propose this. It is aware that the EU is in no political mood to make an even bigger unilateral emissions cut in the sure knowledge that no one else in the world will match it.

So, the Commission is now venturing onto new ground in proposing, for the first time, changes in national permitting procedures for priority 'projects of common interest' in energy infrastructure, and in creating a special infrastructure fund within the EU budget and a new facility for the EU's own development bank, the European Investment Bank, to subscribe to 'project bonds' that would raise the rating of infrastructure projects to investment grade, making them appetizing to private investors. The Commission is also seeking to 'Europeanize' energy supply agreements and infrastructure that stretch beyond the EU. It has proposed that all bilateral intergovernmental agreements (IGAs) between member states and foreign countries should be vetted for conformity with EU energy market and competition rules. Moreover, as a sign of the emerging reality of this new external energy policy, member states have, for the first time ever, asked the Commission to negotiate an energy treaty with foreign suppliers on behalf of the Union – in this case with Caspian gas producers.

Most of the above proposals relate to infrastructure – the high voltage grids and high pressure pipelines that feed electricity and gas to the main centres of consumption. However, Europe's future infrastructure needs cannot be treated in isolation from

renewable energy. Much infrastructure is embedded in renewables such as connections to offshore wind turbines; is needed to link remote renewable energy sites to consumption centres; or is consequent on the development of more intermittent renewable energy, because this will require more gas, and therefore more gas pipelines, as backup. This paper therefore considers classic infrastructure and renewables, and their treatment at the EU level, together.

However welcome and necessary they may be, the Commission's initiatives come at a difficult time. Proposals on the sensitive issue of infrastructure planning risk straining the limits of subsidiarity – the doctrine of minimum EU intervention – at a time when the eurozone crisis is already weakening the political glue of European integration. Furthermore, most European governments are currently only interested in financial initiatives designed to deal with the eurozone's mounting sovereign debt problems.

It is not clear whether the eurozone tensions will hinder or help advances in EU energy policy making. Most probably they will hinder. For instance, some member states object to the Commission initiative on project bond finance for energy and other infrastructure, on the basis that it would add contingent liabilities to an EU budget in which the available fiscal headroom is already dedicated to guaranteeing the European Financial Stability Fund. Among some member states, the eurozone crisis is also causing a rise of euro-scepticism that could prove an obstacle to further energy policy moves; a British Conservative MEP, the energy spokesman for his group in the European Parliament, described the Commission's external energy policy proposals as 'the worst kind of meddling'. Yet the eurozone crisis could create a mood in which agreement on energy policy might be a welcome distraction for EU leaders, relieved to find at least one issue of consensus and one area of forward movement. On 4 February 2011 EU leaders held a summit that, for the first time, was supposedly devoted solely to energy. In the event, they spent no more than a couple of hours in committing themselves to completing all aspects of the single energy market by 2014, and in inviting the Commission to propose far-reaching planning, finance, and external energy measures. They then spent six hours arguing, inconclusively, about problems in the eurozone.

That February 2011 summit gave the Commission general encouragement from member state governments, which seemed to see the usefulness of further Union-level action as a catalyst to accelerate energy investment, on the basis of the energy policy provisions of the Lisbon Treaty. But that treaty still left member states with the unqualified right to decide their own energy mix – a right that Chancellor Angela Merkel naturally used when she decided, in the immediate aftermath of the Fukushima nuclear accident in March, to reverse her previous policy and to accelerate Germany's exit from nuclear power. She did so speedily, without consulting any of Germany's neighbours, and by July had passed all the necessary legislation.

The impact of Germany's nuclear exit should not be exaggerated. Formally, it means that Germany will end nuclear generation only a couple of years earlier – in 2022 – than was already the case under a 2002 law (that was briefly reversed in 2010). It is also true that countries do not frequently alter their energy mix in this manner; there are only so many such decisions a country can take. Moreover, few EU member states, perhaps none, could have such an impact on their neighbours as Germany, because of its size and central geographic position. That, however, is precisely the problem here, as well as the manner in which Germany has implemented its decision. Instead of a smooth phase-out, seven of Germany's 17 nuclear reactors have been closed for good, causing an immediate reduction in German electricity exports and an increase in its imports. France is wondering how to replace the German power it traditionally buys for the winter peaks in demand that it cannot cover with its own nuclear plants, while the Czech Republic and Poland are having to contend with disruptive flows through their grids of extra German wind power from the North and Baltic Seas destined to replace nuclear power in south Germany. There is therefore a good case for a requirement that a member state should consult with EU neighbours and partners on at least the pace and timing of changes in its energy generation, even if EU neighbours and partners should not expect to alter the country's fundamental decision. It is ironic that, under the Euratom treaty, EU states have to consult if they want to build a new nuclear reactor, but evidently not if they want to abandon existing ones.

1. What needs to be built?

1.1. Infrastructure needs

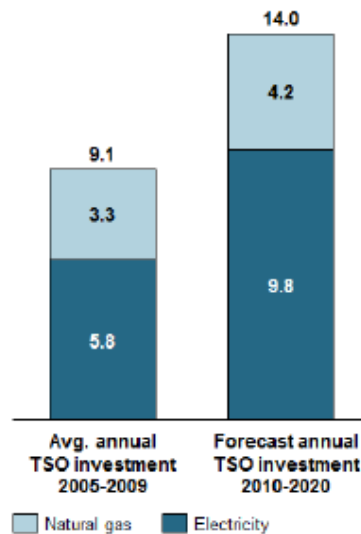
The European Commission estimates that around €210bn will be needed for gas pipelines and power grids by 2020, of which half 'should be delivered by the market unaided, whereas the other €100bn will require public action to source and leverage the necessary private capital'. [1] This breaks down to €140bn for high voltage electricity transmission (€70bn onshore, €30bn offshore, and €40bn for storage and smart grid applications), and €70bn for high pressure gas transmission pipelines, storage, LNG terminals, and reverse flow infrastructure. [2]

In physical terms of pylons and power lines, the European Network of Transmission System Operators for Electricity (ENTSO-E) estimated in 2010 that by 2020 35,300 km of new lines would be needed, and another 6,900 km would need to be upgraded. This estimate was derived only from projects considered to be of European significance (due to their contribution to market integration, to connecting renewable energy, or to security of supply), and not lines of purely local or national importance, some of which will have to be rebuilt in the coming decade anyway. To construct just the new lines would require a doubling over the next decade of the rate of grid extension seen in recent years. [3] Yet the chart below (Figure 1) shows that, though TSOs plan an increase in spending over the next 10 years, it is far from a doubling. Moreover, this estimate by ENTSO-E did not take full account of infrastructure required to connect offshore wind in Europe's northern seas, and solar power in southern Europe. Geographically, the big four priority projects, in power, are the Northern offshore grid and connections into central Europe; the Baltic Energy Market Interconnection Plan (BEMIP); more power links across the Pyrenees and possibly from Italy and Spain to north Africa; and better power links in central and southern Europe.

In relation to gas, the main challenge for infrastructure arises out of Europe's growing dependence on imports, as well as from uncertainties in the level of demand which is hard to predict because gas is used as backup generation for intermittent renewables. The Commission estimates that the level of extra gas needed by 2020, in comparison to 2005, could be anywhere from 44m tonnes to 148m tonnes of oil equivalent (mtoe)

a year. Much of the investment would not be in new gas pipelines, but in storage, LNG terminals, and reverse flow capacity. Geographically, the three big gas priorities are the Southern Gas Corridor to bring gas into south-eastern Europe from the Caspian and Middle East; development of north–south gas connections in central and eastern Europe; and similar improvements in north–south gas connections in western Europe.

Figure 1: Planned increase in TSO investment (€bn): nice but not enough



Source: Roland Berger report on financing energy infrastructure, 2011.

1.2. Clean energy generation needs

Generation investment requirements dwarf those for infrastructure. One estimate, from a 2011 report for the Commission, is that for renewable energy alone, EU states need €70bn of capital investment every year until 2020 to meet their clean energy and climate objectives; only half this level, €35bn, was invested in 2008, the peak year for such investment between 2002 and 2009. [4] The UK alone is reckoned by its government to need around £75bn in new electricity generation capacity by 2020, with £35bn in new transmission and distribution infrastructure. [5]

Even though investment in generation plant is easier to fund through project finance than investments in integrated grids, most utilities have, in the past, found it cheaper and more efficient to finance investment off their own corporate balance sheets. However, the investment requirements in generation are now becoming too large for

even some of the biggest utilities to finance on their own balance sheet. The UK thought foreign ownership of its energy generation and supply market was an advantage because it brought big players into its market. Few of these big players now have the means to invest much (and what means they have seem to be reserved for their home market). It is hard to put a single number on Europe's investment requirement for new generation, because estimates of generation investment requirements depend on a host of specific factors such as a country's energy mix and changes in that mix, whether it is abandoning nuclear power or adopting it, whether it is adapting its coal-fired power stations to the environmental requirements of the EU Large Combustion Plant Directive or shutting them down and building new gas-fired plants. A further potential cost is carbon capture and storage (CCS), on the assumption that this technology ever gets to, and beyond, the demonstration stage.

2. The permitting problem for energy infrastructure and renewables

2.1. The nature of the problem

Refusal to grant planning permits – or delay in granting permits – is probably as big a barrier to new investment in energy infrastructure and renewable energy as financial and regulatory obstacles. [6] Of the €10bn of required new investment, the Commission believes that in the normal course of events, or business as usual, around €100bn will not be delivered. Of this €100bn, around 40 per cent is considered unlikely to materialize because of permitting problems, with 60 per cent falling by the wayside due to financial and regulatory obstacles. For their part, the Council of European Energy Regulators (the grouping of 27 national regulators) believes that the Commission is underestimating the risk to investment from permitting problems (while perhaps overestimating the risk from financial and regulatory hurdles). [7] One reason for giving full weight to permitting problems is that they also constitute a large part of the difficulty in financing energy systems. Permitting delays add to cost. They also add to uncertainty, which in turn increases risk, and this may cause financiers to increase their required rate of return in excess of what a project can produce.

Public rejection of energy systems is more notorious in certain forms of generation and in certain countries. This is obviously true for nuclear, which Germany is now hastening away from, and which around half of EU states already shun. But the building of coal-fired plants can stir protest (as in the UK) unless accompanied by plans for CCS. In other countries (Germany and the Netherlands) coal with CCS creates even more opposition from people worried about stored CO₂ leaking into their backyards and water supply. And now the exploitation of shale gas has been banned in France.

However, a problem common, in varying degrees, to all 27 EU states is the growing difficulty in winning social acceptance for energy infrastructure – above all for electricity pylons, which many dislike for aesthetic reasons, and some fear due to concerns relating to the electromagnetic field surrounding high voltage cables. An obvious solution is to bury high voltage cables, as gas pipelines usually are. Putting power cables underground is 3–10 times more expensive than stringing them between

overhead pylons. Therefore one has to accept that overhead pylons will remain the normal means of power transmission, except in cities and certain beauty spots. Is it possible to create a more pleasing design for pylons? One European TSO, Britain's National Grid, has recently run a competition for a more aesthetic pylon design.

For its part, the three-bladed turbine seems to have become the standard design for wind power. To some it has a certain beauty, but to many it has the disadvantage of needing (whatever its height) to be placed in as prominent a location as possible, in order to catch the prevailing wind. Wind farm projects therefore attract many planning objections. According to a 2010 survey led by the European Wind Energy Association, across the EU the average time for wind farms to obtain building consents and grid connection permits was 54.8 months for onshore projects and 32 months for offshore projects.

The Commission is treading on sensitive ground in proposing change that may strain subsidiarity. The EU has never before intervened in planning decisions, as these have always been the sole prerogative of member states. Even national governments frequently step very warily around planning issues that have often been left to local decision. Nonetheless, emboldened by its Lisbon Treaty mandate to create a European energy policy, the Commission is proposing a new method of prioritizing infrastructures of high importance to the EU as a whole; a one stop shop in each member state for the decision on, or at least the coordination of, the permitting procedure, and a maximum of three years for permitting decisions on these priority projects.

2.2. Climate vs Environment – a new planning dilemma

Infrastructure planning always runs into the phenomenon of nimbyism, although this affects transport even more than in energy. People directly in the line of, or affected by, the new piece of infrastructure will oppose its construction unequivocally, as will those environmentalists who principally care about the aesthetics of the countryside – the 'landscape lobby'. But renewable energy projects and infrastructure to carry renewable electricity put some environmentalists who care primarily about climate change in a quandary. They may object to the unsightliness of a row of wind turbines on the crest of a hill, as they would to a new railway line cutting through that same

hill, but they will acknowledge that these projects will help to reduce carbon emissions. Equally, champions of biodiversity may object to the immediate loss of natural habitat, site, or species due to energy infrastructure and renewable energy projects, while at the same time accepting that these projects have a long-term emission-reducing rationale that may contribute to saving natural habitats, sites, or species.

EU legislation reflects the same quandary. On the one hand, the EU has its 2020 renewable energy and climate change targets (supposedly as binding as legislation). On the other hand, it has considerable environmental legislation on its statute books. At the heart of its biodiversity legislation is the Habitats Directive, the Natura 2000 network of no less than 26,000 protected sites across 27 countries accounting for 18 per cent of EU territory plus significant marine areas, and the Birds Directive (very relevant to wind farm development). Any wind farm, for instance, in or near a Natura site has to undergo an ‘Appropriate Assessment’ under the Habitats Directive. According to a 2010 guidance document put out by the European Commission, ‘if the Appropriate Assessment determines that the plan or project will adversely affect the integrity of the Natura 2000 site, the [member state planning] authority cannot agree to the plan or project as it stands unless, in exceptional cases, they invoke special procedures for projects which are deemed to be of overriding public interest’. [8] Hence the Commission’s latest effort to define what is of overriding EU interest in the infrastructure sector. Its proposed infrastructure regulation of 2011 provides that an EU priority energy project shall go ahead along ‘the least harmful route’ for reasons of ‘imperative overriding public interest’, on condition that environmental objections have been properly assessed and compensation properly paid.

In the Commission’s proposed regulation, climate change mitigation has been added to the factors used to judge which projects get the potential permitting and funding privilege of being considered ‘projects of common interest’ (PCIs). The climate criteria for these projects is defined:

- For electricity as ‘the capacity to transmit renewable energy generation to major consumption centres’.

- For gas as ‘the contribution of a project to innovative uses of gas networks, to support the backup of renewable electricity generation or power-to-gas and biogas transportation’.
- For carbon capture as ‘the reduction of carbon dioxide emissions’. [9]

These various forms of climate sustainability may well not conflict with the other and more traditional criteria listed to select PCIs – namely market integration, competition, and security of supply. They often tend to go together; for instance, domestically-generated wind/solar/biomass power can contribute to competition and security of supply. However, if they were to conflict, it is hard, in the present political circumstances, to see climate sustainability taking precedence over security of supply. Climate change mitigation is therefore unlikely to be a deal-maker or deal-breaker in the selection of priority projects. However, it could outweigh other environmental concerns, as a possible long-term benefit to the biosphere to be set against the short-term loss of wildlife or plant life.

It would be a step forward for climate sustainability if it were to count in the planning assessment of energy projects. This does not seem to be possible under present EU legislation on how environmental assessments should be carried out. The EU’s 1997 Environmental Impact Assessment (EIA) directive sets out the assessment and consultation procedure for individual projects. The EU’s 2001 Strategic Environmental Assessment directive does the same for policy development. It requires governments to take account of environmental impacts, including biodiversity, at an early stage in the preparation of plans or policies, so that there can be timely public consultation. However these two directives are more about process than specific content or setting standards (which is left to Appropriate Assessments). In terms of process, there is provision for cross-border consultation. The EIA directive allows scrutiny of cross-border environmental effects between EU member states, but these cross-border effects are costs, not benefits. On a wider canvas, there are two international conventions on environmental evaluation of projects. The Espoo Convention ‘on environmental impact assessment in a trans-boundary context’ just obliges governments to consult each other, while the Aarhus Convention ‘on access to

information, public participation in decision-making and access to justice in environmental matters' is, as its title suggests, about process.

The EU has two major gas import pipeline projects – one actual, Nord Stream, which is now pumping gas from Russia across the Baltic to Germany, and one potential, Nabucco, which would pump gas from east of Turkey through Bulgaria, Romania, and Hungary to Austria. If climate considerations could be factored in, proponents of these projects could surely have argued that importing more gas to displace coal, and to back up renewable generation, was a contribution to Europe's climate effort. As it was, the permitting of Nord Stream through the Baltic proved relatively easy, despite the perceived hazard of some 1945-era chemical weapons on the seabed. This was because the United Nations Convention on the Law of the Sea limits the ability of states to put restrictions on pipelines in their exclusive economic zones, beyond their territorial waters. By contrast, Nabucco, the subject of four national EIAs within the EU, has had the far more complex task of negotiating a route through 240,000 different plots of land across five jurisdictions. In addition, at the behest of its international lenders – the European Investment Bank (EIB), the European Bank for Reconstruction and Development (EBRD), and the International Finance Corporation – the Nabucco consortium has had to carry out an Environmental and Social Impact Assessment (ESIA). This goes further than an EIA, to consider the social and economic consequences for any people displaced or property disrupted along the pipeline route, and possible resettlement and compensation. However, it did not go so far as to enable Nabucco to take account of the relative benefit to the climate of importing cleaner gas to displace dirtier coal – assuming, of course, that such a fuel shift could be demonstrated. This climate dimension did not count in the permitting process for Nabucco.

At present, greenhouse gas considerations do not figure in the cost/benefit analysis guidelines of even the most climate-conscious member states. For instance, tackling climate change is not even mentioned in Denmark's 2009 Planning Act. [10] It is therefore natural that planners, in the absence of any guidance to take account of the global benefits of, say, a wind farm, will focus on negative local effects – such as spoiled scenery, noise, impact on wildlife – in their assessment of whether a wind farm should be given a permit. Elsewhere the emission-reduction aspect of projects

seems to be ignored in planning decisions. In Italy, Enel struggled for five years to get a permit to switch a power station from oil to coal *with carbon capture and storage* at Porto Torre in northern Italy at a cost of €3.5bn, only for the highest administrative court (Council of State) to overturn this 2009 permit two years later in May 2011. This project was due to get EU funding for installing CCS.

2.3. Applying a little money and diplomacy to bottlenecks

The Commission's October 2011 proposal is the first EU legislative initiative in permitting, but is not Brussels' first show of concern about the gaps in Europe's energy networks. As part of moves to complete the single market, a programme called Trans-European Networks, or TENs, was set up in 1996 in order to give an impulse to building more cross-border links. In English at least, the abbreviation was apt – ten being the number of years that it often took to get anything approved and built in this area. The permitting procedure for high voltage transmission between Hungary and Slovenia started over 10 years ago, and is still going on. The permitting procedure for a similar link between France and Spain was rejected in 1996, re-started in 2001, and finally concluded in 2011. [11]

At the time it was assumed that only a relatively small initial impulse from Brussels would be needed to set in motion the market forces that would drive construction of all necessary cross-border links. The TEN-Energy, or TEN-E, was given a tiny budget of just over €20m a year, to be spent essentially in subsidizing feasibility studies for projects. But this budget did not even begin to cover the number of infrastructure projects given priority status under the TEN-E programme. Because it accepted every project put forward for priority status by national and local governments, the TEN-E programme ended up in 2011 with no less than 568 priority projects of European and national interest.[12] The number of projects was far too high for the TEN-E budget to have any impact. Priority has to be scarce or it is meaningless.

The Commission therefore decided to try diplomacy. In transport it had already, with some success, appointed special 'coordinators' to negotiate certain cross-border links, and in 2007 it appointed four coordinators for four key energy projects. Mario Monti, a former EU Commissioner from Italy, was asked to resolve the Franco-Spanish impasse over a new power line; he succeeded because the circumstances in Paris and

Madrid were conducive to breaking the deadlock. Jozias van Aartsen, a former Dutch foreign minister, was asked to take time out from being mayor of The Hague to accelerate negotiations for the Nabucco gas pipeline; and he failed. Success, however, was not really within his grasp, or indeed of anyone in the EU, relying as it did on Azerbaijan and Turkmenistan, which hold the only gas that can get Nabucco underway.

The two other coordinators are still persevering. Professor Wladyslaw Mielczarski, a Polish electrical engineering professor, was asked to help create a power transmission link between Poland and Lithuania – as another step to linking all three Baltic states to the rest of the EU grid – and also to help upgrade Poland’s power links to Germany. The task was tackled with gusto and imagination,* and a major advance came in 2009 with the signing by eight Baltic littoral states of the BEMIP. [13] Georg Adamowitsch, a former senior German civil servant, was given the job of bringing coherence to offshore wind connections in the Baltic and North Sea, an issue that is now of even more importance to his own country, with Germany’s accelerated exit from nuclear power. His work has borne fruit in the 2010 signing of the North Seas Countries’ Offshore Grid Initiative (NSCOGI), involving nine EU countries (including the UK) plus Norway.

But more recently Adamowitsch has taken on another task, in Austria which, partly because of inadequate permitting consultation procedures, experiences a high rate of protests about any damage to its environment. The problem here is that there is a gap of 110 km in what is called the Austrian Power Ring (APR). This is a high voltage transmission line of several hundred kilometres that takes all the high voltage flows from Germany, through to Italy, Switzerland, and Slovenia. The APR is also connected very usefully to hydroelectric storage that is becoming of increasing importance to balance intermittent wind or solar power. Completing the APR through pristine Alpine farmland was one of those many TEN-E priorities, but inside Austria

* Two of the companies involved, Lietuvos Energija of Lithuania and PSE of Poland, took advantage of the 600th anniversary in 2010 of the battle of Grunwald (in which 30,000 Poles and Lithuanians defeated 20,000 knights of the Order of the Teutonic Knights) to organize a promotional side event (to the re-enactment of the battle) for the LitPolLink electricity interconnector.

there has been political deadlock between rival political parties over the issue, and it was thought outside mediation would help.

2.4. Legislation

Frustrated with the pace of progress, the European Commission has reached for a more structural solution. In February 2011 the EU heads of governments held their first ever summit on energy and, on the initiative of the Commission, committed themselves to completing the internal energy market by 2014, and to ending the isolation of ‘energy islands’ within the EU by 2015. In October 2011, the Commission came forward with draft legislation to bolster energy infrastructure. The principal elements of this were:

Selecting projects

The draft proposal gives priority to 12 strategic trans-European infrastructure corridors and areas. It sets out rules to identify projects of common interest (PCIs) to implement these priorities. Restricting priority projects to a dozen contrasts sharply with the number of projects given priority status under the TEN-E programme, which never went through a triage process. The selection process would be run by the Commission, acting in concert with national regulators (in ACER) and the TSOs (through their ENTSO European networks).

One stop shop

National governments would set up one so-called Competent Authority to coordinate and oversee the permitting process for PCIs on their territory. This authority would have the power either just to coordinate the whole process, or also to take the final permitting decision. Early consultation with the public would be required. The Roland Berger survey of infrastructure permitting across Europe, commissioned by the European Commission in 2011, was clear that early involvement of stakeholders (such as occurs in England and Wales and in the Netherlands) was beneficial, while late involvement of stakeholders in Germany and Austria was a cause of late-stage appeals, protests, and political campaigns against infrastructure decisions in those two countries. ‘As [these examples] show, it would be advisable to involve stakeholders proactively early on rather than waiting for them to become interested later, by which time their suspicions may have been aroused’. [14]

Creation of a one stop shop might help project promoters in those countries which demand multiple permits that have to be obtained sequentially. For instance in Poland, three different types of permits have to be obtained from up to 10 different authorities, and in Hungary, five different types of permits are needed from three different authorities. The situation in Hungary is eased by the fact that developers there can pursue different permits – for instance, the environmental and the right of way permits – in parallel. If Hungary is bad, Romania is worse, according to the Nabucco executives who report that Romania requires three times the number of permits as Hungary for the same length of pipeline. [15] In contrast, in Italy, approvals for high voltage grids and high pressure pipelines take the form of a single authorization permit, issued by the Ministry of Economic Development, that includes environmental, building, and operational licences. The Berger study also had praise for the Infrastructure Planning Commission (IPC) in England and Wales, which acts as a one stop shop ‘handling the entire permitting procedure. Only the operational handling of one process step – the public consultation prior to the submission of the application – is left to the developer’. [16] However, the UK coalition government is making changes that could slow permitting approvals.

Shorter process

The Commission proposes that the maximum duration of the permitting process should be three years. This would be composed of two years for the pre-application procedure – in order to allow early consultation before the finalized application is submitted to, and accepted by, the Competent Authority – and one more year for the Competent Authority to take the ultimate decision. The draft legislation would thus shorten this second phase of the process. The Berger study found that there was usually a minimum of two years spent in preparing project documents, and then an average of four years from the submission of documents to the issuing of a permit. [17] In fact, most EU states appear to fix a maximum duration for at least some stages of the permitting process, and in the UK it is one year for each stage of the process. But it seems these deadlines are often exceeded, and developers do not complain, for fear of jeopardizing their cause. In Hungary the planning authorities are supposed to repay fees if applicants complain that maximum periods are exceeded. But applicants do not complain for fear that ‘this would damage their relationship with the permit-granting authorities’. [18]

Legal appeal

The draft regulation merely urges member states to ensure that appeals ‘are handled in the most efficient way possible’. There had been some thought that the Commission might propose to set just a single level of appeal against planning decisions. This would be especially sensitive and difficult for federal states with several layers of courts. In their case, for projects deemed to be of common European or national interest, the single level of jurisdiction would be the highest court possible. In the event, the Commission decided it did not wish to run the risk of appearing to tamper with European citizens’ rights of legal redress. One further way of streamlining the permitting process would be to prevent legal appeals against permits being ‘suspensive’ – in other words, stopping the developer from starting construction until the appeal is decided. However, such an idea may, in fact, not be necessary. Most developers will not start construction until the appeal is decided, for fear of the expense in modifying or removing infrastructure if the appeal goes against them.

More suitable for a EU code of conduct than EU legislation might be recommendations that developers share with local communities the benefits of energy infrastructure and renewable energy, where possible, in order to win local acceptance for their projects. Some countries, however, require such benefit-sharing in their national legislation. The Danish Renewable Energy Act requires the mandatory auction of a minimum 20 per cent of the shares in a wind farm to all those within 4.5 km of the wind farm. It is probably easier to require this at a national rather than EU level.

3. Finance

3.1. Current financing arrangements

3.1.1. Infrastructure

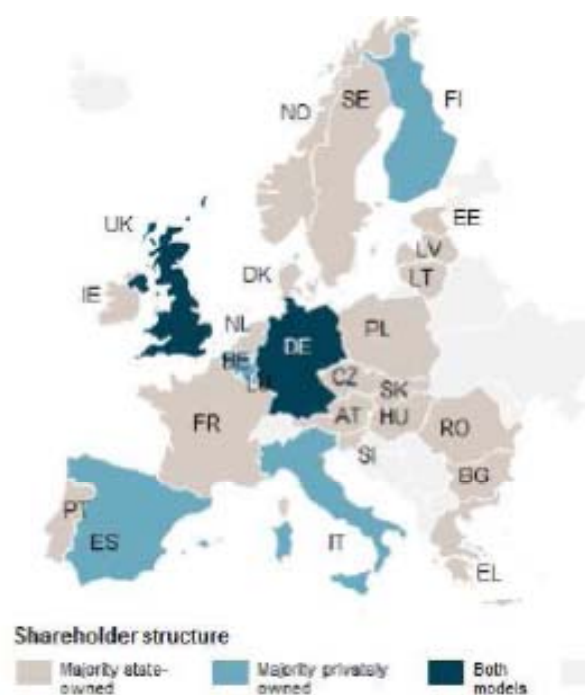
Most of the assets (pipes, pylons, and wires) of transmission system operators are regulated, because they constitute a natural monopoly. They therefore earn a rate of return that is set by their national energy regulators. In theory, this rate of return ought to be high enough to allow and encourage transmission operators to make new investments. In reality, there is pressure from politicians and consumers to keep transmission tariffs low, especially when the basic fuel costs (which are more significant in the overall energy price) are high. Income from congestion charges is commonly used to keep transmission tariffs low, rather than (more logically) to build more transmission capacity to reduce that congestion. Regulators should not be encouraging this, but they tend to allow it in order to keep transmission tariffs lower than they would otherwise be.

In many EU states the return on investment allowed to the TSO by the regulator is too low to encourage the TSO to expand the network. The Roland Berger study found that a low regulated return on assets was a particular problem when TSOs were part of a larger group in which projects had to compete with each other for investment money within the parent company. [19] Regulators are often slow to accept (and then to remunerate) new investments as part of the TSO regulated asset base. Some regulators (Germany, the Netherlands) only approve investments costs after the fact, on the basis of actual costs rather than on planned costs (as happens in the UK and France). This tardiness can pose a real problem for a TSO which is increasing its investment schedule and therefore has to take out a bridging loan until, in a sense, it is reimbursed by the regulator through a higher transmission tariff. [20]

Transmission companies that operate integrated grids are very dependent on their regulator and on their own corporate balance sheet to raise new money for investment. This is a problem for the TSOs of smaller and poorer member states, especially those owned by their governments – which are likely to be strapped for cash, unable to inject more money into the TSOs, but at the same time unwilling to privatize these TSOs.

In electricity, all east and central European TSOs are majority state-owned, as well as some in west European countries like France (see Figure 2 below). In gas, most of the large eastern and central European TSOs are majority state-owned. On average across the EU, the Berger study found that TSOs were leveraged to the extent of a ratio of 60–70 per cent debt to total capital. If they wanted to stick to this ratio for creditworthiness reasons, any further debt-raising would have to be accompanied by an equity injection to keep the debt/equity ratio stable. However, most EU governments are in no position these days to inject more capital into their TSOs. State-owned TSOs used to have a clear advantage in being owned by governments because this elevated them to sovereign risk status; these days such status can often be a credit demotion.

Figure 2: Ownership structure of electricity TSOs



Source: Roland Berger report on financing energy infrastructure, 2011

- The UK grid is privately-owned, except for Northern Ireland.
- Germany has four big privately-owned TSOs and many small community-owned ones.

The cheapest and most flexible way for TSOs to borrow is on the corporate bond market, and this is what, for instance, Italy's Terna, the Netherlands' TenneT, and Belgium's Elia regularly do. But they are among a minority of TSOs in Europe to do so. Only 12 TSOs in the power sector and four in gas have a stand-alone credit rating enabling them to raise money on capital markets through corporate bonds; the rest have either no rating at all or only as part of larger groups.

Project finance is a second option, but not for additions to integrated grids, because lenders insist there must be an identifiable, separable asset over which they can take security if their loan goes bad. By contrast, interconnectors between two grid systems – across a border for example – fit into this category and are eminently eligible for project financing through project bonds (see below). But even here, the sovereign debt crisis casts its shadow. Project financing is difficult if the project – say an electricity interconnector or an LNG terminal or gas storage – is within a state with a triple C rating. This project will not be classed single A (investment grade) if it relies essentially on a payment stream from within the triple C sovereign.

In deciding whether any given investment should be allowed a return, the national regulator will weigh up the costs and benefits of that investment, but only in terms of costs incurred or benefits gained within that member state. This can be problematic in the case of cross-border investments; if the cost of such investment is mainly incurred in country A but the benefit gain accrues mainly to country B, then the regulator in country A will be disinclined to give the utility in country A much of a return on the investment. Such cross-border mismatches of costs and benefits have slowed progress in projects for gas interconnectors between Slovakia and Hungary, and between France and Spain, and they also complicate permitting approval for cross-border infrastructure.

Therefore the Commission has been pushing for European regulators – through the new Agency for Cooperation between Energy Regulators – to agree on cost allocation rules for cross-border projects that take broader account of costs and benefits on a regional, if not European, level. Taking a wider view will be particularly important in planning advance capacity, or infrastructure that is dependent on complementary investment or future energy supplies, to make financial sense. For instance, if projects

for an offshore wind farm and for an offshore link to carry its power to market are not completed together, investors in one or other project will be out of pocket until both projects are finished.

A third source of finance for TSOs has been EU money. Under the Trans European Network programme for Energy, known as TEN-E, small amounts of grant money were available to cover feasibility studies for new infrastructure. Quite exceptionally, during the 2009 recession, large amounts of grant money were made available under the one-off European Energy Programme for Recovery, which provided €2.3bn to gas and electricity interconnectors, €65m to offshore wind infrastructure, and €1.05bn to carbon capture and storage.

The more normal route has been loans from the European Investment Bank, the EU's own development bank. The EIB has lent to power projects ever since it was set up in 1958 but 'energy' became one of its six priority objectives only in 2007 – in tandem with the EU's new focus on energy security and climate change. Since then, lending to the sector has more than doubled, due in part to the financial crisis. In 2009–10 the EIB greatly stepped up its lending to TSOs to offset the credit crunch elsewhere. In each of the years 2009 and 2010 the EIB lent no less than €bn for energy infrastructure – half for transmission (high voltage grids and high pressure gas pipelines) and half for local distribution (lower voltage and pressure). However, the EIB has stretched itself in infrastructure, and believing the worst of the recession over, announced in February 2011 that it intended to scale back annual energy lending within the EU to €0.9bn on average in 2011–13 from €1.6bn in 2010.

3.1.2. Generation

Investing in generation is inherently more risky than investing in transmission. Generation projects endure some of the same uncertainties as transmission projects – issues relating to planning and permits affect wind turbines as well as electricity pylons. But new types of generation, such as renewable energy or new nuclear reactor designs, carry more technology risk than traditional forms of grid or pipeline transmission. Moreover, generation is, to a large extent, a competitive business because it is not a natural monopoly and is therefore not regulated. In the normal course of business, therefore, generators are dependent on the market rather than the

regulator for a return. Renewable energy generators, however, cannot compete in the market against fossil fuel generators without subsidies. These subsidies can come in the form of feed-in tariffs which guarantee renewable generators a set tariff for a period of years and are paid for by consumers, or supply obligations which require energy supply companies to draw a minimum proportion of their energy from renewable sources.

Operating aid

By far the biggest subsidy for renewable energy generation comes in the form of operating aid, rather than investment aid. Normally, operating subsidies are heavily frowned upon in the EU because they indicate the project in question cannot survive on its own without being given special help that is either wasted or doing harm to commercial rivals. (This is in contrast to one-off investment aid, which may be justified on the grounds of getting a given project going, or rescuing and restoring it to a state in which it can stand on its own feet again). However, operating subsidies can be justified if they have a clear public purpose, such as to enable cheap public transport for environmental or social purposes. Clearly, operating subsidies for renewable energy serve just such a public purpose. However, there is another reason why renewable operational aid has been exempted from the EU state aid control regime. This is because these subsidies take the form of feed-in tariffs (which pay renewable generators above-market rates) or supply obligations (which require energy suppliers to buy a minimum share from renewable generators), and because utilities recoup the extra cost of these measures from their customers. So, while state support for renewable energy fulfils other conditions for being illegal state aid (because it favours a particular sector, distorts or threatens to distort competition, and can affect cross-border trade inside the EU), it involves subsidies funded by consumers, rather than by state resources. In the case of *Preussen Elektra* (2001) the European Court of Justice confirmed that renewable energy aid was allowable, because even if it was organized by the state, it was not actually paid by the state.

As a result, a patchwork of national renewable energy operational support schemes has developed, and they dwarf the investment aid provided by the EU and public sector banks. According to one comprehensive study, total renewable support (including also tax credits/exemptions for biofuels) amounted to €35bn in 2009 alone, with Germany accounting for a third at €11bn, Italy and Spain €5bn each, France

€3bn, the UK and Sweden €2bn each. [21] The subsidies paid out on actual generation – which in the case of intermittently available renewables can differ greatly from maximum potential output – will generally be lower.

Nonetheless support schemes for renewable energy are by far the most significant aid for clean energy. It is therefore important for investors, in a long-term business like energy, that these support schemes remain stable and are not changed according to the whims of successive governments or to the cycles of the economy. But, particularly in solar photovoltaic (PV) where production costs have come down, some governments have introduced changes that have rocked consumer confidence. Especially damaging have been the retroactive reductions in solar support in Spain, but other governments – Germany, the UK, and the Czech Republic – have cut support sharply for new investors in solar power. Some form of grandfathering is important to protect existing projects from retroactive changes. However, guaranteeing a long-term level of support can be inappropriate in the biomass sector where the cost of farm crops or forest waste, in contrast to wind or sun, varies the whole time. Another variable is the ability, or the perceived ability, of countries to bear the costs of support schemes. Clearly, those eurozone countries with the highest debts and the sharpest austerity programmes will find it hard to sustain a high level of renewable support. However, it is not obvious that even the relatively affluent German consumers will want to go on paying for a high subsidy.

If renewable energy support were decided, though not necessarily provided, at an EU level, then it would be harder to change; EU legislation always tends to be more embedded than national legislation, harder to pass in the first place but also harder to amend or repeal. But as we have seen, this is not the case. The European Commission has had to limit itself to issuing warnings to governments against making retroactive changes in their support schemes for renewable energy, but these have no legal effect. The Commission has also tried to create, in a very general way, an aura of long-term certainty about the direction of EU energy policy and its clean energy targets, by publishing a succession of energy ‘road maps’ up to 2050. But, again, these have no legal effect.

3.2. What does the EU currently do to help?

3.2.1. Research and Development

At the level of basic research, the EU seeks to reduce technology risk by spending money on R&D, but much of its money goes on nuclear research, and of this, much is spent on nuclear fusion. The average spent annually on energy during the 2007–13 Seventh Framework Programme is €886m, [22] but only just over €1bn is earmarked for renewable energy research in this seven year period. [23] The EU has a new (2010) Strategic Energy Technology (SET) plan designed to build platforms of cooperation across Europe between technology developers (academic and corporate) and the public sector. However, no new funding has been agreed for this, even though the European Commission has estimated that to make the SET plan work the level of public and private R&D expenditure in Europe needs to rise from its current level of €3bn a year to €8bn a year over the entire 2010–20 decade.

The risk that commercialized technology will not work as promised is, of course, not something that the EU or indeed any public authority can deal with. It is commonly dealt with by manufacturers' warranties, but it has been noted that in the renewable energy area solar PV manufacturers offer relatively short performance guarantees. [24]

3.2.2. Capital investment

Renewable energy generally needs help with capital investment because of its relatively high upfront capital requirements. The problem is not that solar plants or wind turbines are so expensive in absolute terms, but that almost all of their overall cost is capital equipment or, in the case of offshore wind, the cost of installation, which has to be paid for at the start.

Grants. The EU structural funds are the main source of grants for capital investment in renewable energy, though these have to be matched by member states. For the current period 2007–13, a total of €4.7bn has been allotted for renewable energy. Some of this money (coming from the Regional Fund that reaches virtually all member states) is distributed to older member states in western Europe, but most goes to new member states in eastern Europe.

Loans. The main public source of investment loans are from the European Investment Bank, the EU's wholly owned development bank. The EIB is now a major funder of renewable energy, and during the 2009 recession it expanded in this area to compensate for the withdrawal of other institutions. Lending for renewables within the EU rose from €2.2bn in 2008 to €4.2bn in 2009, and €5.6bn in 2010. The EIB is a good partner. Around 90 per cent of its loans are within the EU. The bank will lend up to 50 per cent of a project's cost for up to 15 years, and it generally keeps loans to the end of maturity, instead of selling them on as most commercial banks do. It is required to cover its cost of capital, but that cost is relatively low since the bank can borrow on Triple A terms, and it passes that benefit on to its borrowers. It also tends to be, in the words of one EIB banker, 'mechanistic, not opportunistic, in pricing risk' [25], so that, for instance, it does not exploit credit crunches to raise its interest rates as commercial banks would generally do. The EIB was once memorably criticized in the past for being chronically cautious by Etienne Davignon, an activist EU commissioner in the 1970s and 1980s, for virtually demanding gold as collateral to cover the slightest risk on a loan. But, especially with renewable energy, it has started to assume project risk, for instance in offshore wind in the North Sea.

A second European public sector source of loans is the European Bank for Reconstruction and Development, the institution set up after the fall of the Berlin Wall to help bring together the two halves of Europe that had been divided by the cold war. Its name apes the real title of the World Bank – the International Bank for Reconstruction and Development. Unlike the World Bank, however, the EBRD's goal is reconstruction and development with a distinct private sector bias that reflects the victors in the cold war. The bank's prime mission is to 'foster the transition to open and democratic market economies'. Although the EU accounts for nearly half the EBRD's 61-country membership, only the new EU member states that joined in 2004 and 2007 – the eastern and central Europeans plus Cyprus and Malta – receive EBRD loans and grants. However, the EBRD, which also has the USA, Japan, Korea, Australia, and New Zealand as members, can sometimes draw in grant money from further afield.

Some 85 per cent of EBRD lending is to the private sector, and the bank is careful to ensure additionality, so that it is not crowding out private banks. In addition, the

projects have to be economically self-sustaining. In other words, it is not supposed to act very differently from ordinary commercial banks by, for instance, undercutting them through offering loans with a lower or below-market interest rate.

The EBRD has other objectives, such as promoting clean energy, sustainability, and emission reduction, but these objectives are secondary. An EBRD official explains, ‘the ways in which we achieve our environment goals cannot conflict with the market oriented goals. So we cannot use subsidies that destroy price signals, despite the increased pressures on our bankers to step up loans to sectors such as renewable energy and energy efficiency in a world that is increasingly dependent on subsidies’. This is causing a tension between business pressures on the EBRD and the EBRD’s principles.

However, the EBRD is still of help to renewable energy generators. In 2009 it lent €1.3bn under its Sustainable Energy Initiative, and its current investment goal is €5bn in loans for renewable energy in 2009–11. Moreover, it does have some grant money for various kinds of technical assistance – such as feasibility and marketing studies – that banks are unwilling to finance. The EBRD official says that ‘we have no problem with using grants for technical assistance, which often addresses some of the barriers for renewable energy such as asymmetry of information for new investors, and provides expertise on technology and financial services’.[26]

Grants mainly come from the bank’s 61 shareholder governments, mostly from the EU. In 2009 the EU and its members states contributed €104m, with €68m from other donors, and in that year the bank committed €101m in technical cooperation grants.

3.3. Prospects and Promises of New Money

The eurozone crisis of 2011 was hardly the most auspicious backdrop for the Commission’s proposals to increase financing for energy and climate action, or indeed for any other sector. The Commission proposal of June 2011 to keep spending for the next multi-annual financial framework of 2014–20 steady in real terms was deemed too generous by many of the west European net contributors to the EU budget. The retrenchment required of so many national governments reinforced the calls for similar restraint in the EU budget. Likewise, the Commission proposals of

October 2011 for the EU to use innovative financial mechanisms to encourage infrastructure investments stirred fears of further contingent EU liabilities building up. Nonetheless, one big source of energy funding, the NER 300 programme, was decided before this crisis.

3.3.1. Grant money from sale of ETS permits

The ETS may not have changed the nature of how Europe's energy is generated so far, but it has already proved a novel generator of money for energy purposes. Some 300m permits are to be sold from the New Entrants Reserve (NER) in the ETS, in a programme known as the NER 300, which is aimed at funding at least eight demonstration projects for carbon capture and storage projects and more than 30 demonstration projects for innovative renewable energy. Sale of permits is expected to bring in around €4–5bn at current carbon prices, which will be used to leverage around the same amount from project sponsors who must bring their own funding to these projects too.

3.3.2. The Multi-annual Financial Framework

The Commission's Multi-annual Financial Framework (MFF) package of June 2011 is only the starting point for what will be a year-long negotiation with the European Council of Ministers and the European Parliament. But, for the first time, the Commission proposed a big infrastructure fund of €40bn over seven years for energy, transport, and information and communication technologies. Energy will get a quarter of this (€10bn), while most will go to transport. The proposal signalled a strategic entry for the EU into the area of infrastructure finance because, as the Commission communication put it, 'there is a need to address market failure – to fill persistent gaps, remove bottlenecks and ensure adequate cross-border connections. Experience shows that national budgets will never give sufficiently high priority to multi-country, cross-border investments to equip the Single Market with the infrastructure it needs'. [27] Use of the word 'never' in this sentence suggests that the Commission sees a permanent role for the EU in infrastructure finance. It certainly marks a shift from the philosophy that guided the Commission through three packages of legislation over a dozen years (1996–2009) – namely, that market forces and incentives alone could, if allowed to work without distortion, fill in the missing gaps in Europe's energy networks.

The proposed infrastructure fund, dubbed the Connecting Europe Facility, will be centrally managed to fund ‘infrastructures of EU interest’, such as those needed to link the Baltic states to the rest of the EU power and gas grid, and to build connections with energy suppliers outside the EU, like the planned Nabucco pipeline.

Much less clear is what the Commission is proposing in the area of climate action, and specifically renewable energy and energy efficiency. Environmental groups had lobbied for a standalone climate fund, but in the end had to settle for ‘mainstreaming’ climate and clean energy goals through existing programmes. The Commission argues that ‘due to the scale and complexity of the environment and climate challenges, the “mainstreaming approach” remains necessary’. Spending on climate-related actions in the current MFF of 2007–13 amounts to around 5 per cent a year of the EU budget. This is chiefly through cohesion policy (benefiting mainly central and east European states), the R&D programme, and the environmental portion of the common agricultural policy. The Commission has promised to earmark up to 20 per cent of the EU budget for climate change activities, but has given no detail on this.

3.3.3. Improve the risk/reward balance to encourage private investment

Today’s energy sector is not starved of money, at least not for today’s needs. But in order to move to tomorrow’s low carbon system, Europe needs to double its current rate of investment in infrastructure and clean energy. All acknowledge that the best way to do this, is to encourage more private investors into the energy sector by improving the risk/reward balance for such investors.

Increasing Reward. At the EU level, increasing rewards is not easy, because these ‘rewards’ are in the hands of national regulators, who set transmission tariffs (and still, in some member states, retail prices), and of national legislators who, for renewable energy, set feed-in tariffs and supply obligations. The EU has done a lot, through a mix of legislation and persuasion, to create a more harmonized system of regulation across Europe. The third legislative package of 2009 created the Agency for the Cooperation of Energy Regulators (ACER) to crown attempts to get national regulators to take a more pan-European view on issues such as cost allocation on cross-border interconnectors. The Commission’s draft infrastructure regulation of

October 2011 reinforces this. It proposes a common methodology for regulators across Europe to arrive at similar cost/benefit analyses for priority cross-border ‘projects of common interest’. The general rule would be that costs would follow benefits, that the expense would fall on the TSO of the member state ‘to which the project provides a net positive impact’. But national regulators would also be instructed to use tariff-setting to reward their own TSOs for any essential and efficient investment they might make in neighbouring countries’ transmission systems. [28] This should incline national regulators to take a broader view.

Decisions on the actual level of transmission tariffs (as with feed-in tariffs) are out of Brussels’ hands. Nonetheless, the Roland Berger team did suggest that the EU should enter the business of helping to reward investors in the new so-called transmission projects of European interest, with ‘priority premia’ to raise the level of fees. This kind of additional incentive has been used with some success in Italy, [29] according to this report. The idea is that these priority premia would be paid for a period of 10 or so years, and would be co-financed by the EU budget and by member states. The latter portion of this would pose no problem to national regulators, who would just add the premia to consumer bills. However, it is hard to see how the EU authorities could justify paying an operating subsidy out of the EU budget. Accepting that others pay operating subsidies (as member states do in the special case of renewable energy) is one thing; paying an operating subsidy directly out of the EU budget is surely another – though this is what the EU has long done for its farmers. In the event, the Commission just recommended a general obligation on national regulators to ensure that, with priority projects of common interest, ‘appropriate incentives are granted’. [30]

Reducing Risk. The alternative to the EU acting to increase the reward is to reduce or absorb some of the risk. This can be done in many mechanistic ways; by the EU itself putting in risk capital (equity), or by lending in such a way that the EU puts itself in a subordinate position to private investors, thus enhancing the latter’s security. But one of the hardest risks to reduce is one of the simplest to state – unpredictability.

Unpredictability risk. This is the risk of making long-term financial commitments in a sector where investment conditions depend so much on, and can be so easily changed

by, national regulators and politicians. This risk occurs at the national level, because that is the level at which rates of return on infrastructure, and subsidy levels for renewables, are set. (If, one day, these rates of return and of subsidy were set at the EU level, the risk of unpredictable and abrupt change would be smaller, simply because the process of making and unmaking legislative and administrative changes in the federation of 27 countries necessarily moves far slower than at a national level.) Of all the risks in energy investment, the unpredictability risk is one that exercises investors most, but is often least appreciated by regulators and politicians. At any one time, energy regulators and ministers will affirm that they absolutely stand by today's rules and laws (their own), but fail to appreciate investors' worries about the decisions that their successors as regulators and ministers will make in five or 10 years time. What can be done to minimize these worries at the EU level is to set medium-term targets, as done for 2020, mandate them as binding (though effective penalties on a member state missing its target are moot), and for the long term set out roadmaps for 2050. The real point about these roadmaps is not to give energy modellers work, or futurologists pleasure, in studying outcomes 40 years hence, but to try to give investors some sense of certainty about the broad direction of travel. But, beyond general unpredictability, there are some more specific risks.

Technical risk. The risk here is will the technology work? For infrastructure, this risk is very low for today's power grids and gas pipelines, but it might get higher with the development of super grids (with superconductor cables to reduce transmission losses from, say, the Sahara to Europe) or smart grids (with complex IT to enable demand management). Technical risk will be higher for offshore grid connections in stormy seas, and will be highest for frontier generation technologies such as wave and tidal power. The latter would only be financed by venture capitalists who look for projects with a possible 500–1,000 per cent payback, to compensate for the high rate of failure among their projects.

Project risk. The main risk is that of delay, which affects both infrastructure and generation in terms of projects getting planning permits and grid connections. Delay raises costs because it prolongs the period before any revenue comes in. Because money is also considered to have a time value which values money today above money tomorrow, future revenue counts for less than present revenue.

Market risk. This concerns the level of the revenue earned by the infrastructure or generation project. Investors in regulated infrastructure do not expect a high return, but they do expect a steady return. Typically, institutional investors, such as insurance companies and pension funds, are ready to make medium- to long-term investments in energy infrastructure for seven to 10 years, expecting an internal rate of return of around 15 per cent. [31] (The internal rate of return measures the annualized profitability of a given project, without taking account of the cost of capital, interest rates, or inflation.) In the case of renewable generation, some stability is provided by national legislation on feed-in tariffs or supply obligations/quotas. But because these are subsidies that politicians may cut at any time if they feel consumers or voters complain about paying too much, there is greater risk that the policy regime may change. To reflect this, investors usually demand a higher rate of return in renewable energy generation than in infrastructure, and this higher return could be as high as 25 per cent in the case of private equity funds. [32]

3.3.4. Equity investment in infrastructure

The EU has already made a start with the Marguerite Fund (the 2020 European Fund for Energy, Climate Change, and Infrastructure). This fund has six core investors, which are the EIB plus five of Europe's biggest state-owned development banks – KfW of Germany, Instituto de Credito Oficial of Spain, PKO Bank Polski of Poland, Cassa Depositi e Prestiti (CDP) of Italy, and Caisse de Depots of France. The fund is raising money towards its target of €1.5bn, which is expected to be reached by end-2011. But only a third of the Marguerite Fund's eventual lending will go to the energy sector, and therefore its impact is likely to be marginal.

In July 2011, some of the same investors launched a more focussed European Energy Efficiency Fund, which aims to lever private investors into smaller scale renewable and energy saving projects. It is mainly a debt fund but does not rule out providing equity. At the top are the holders of senior shares (institutional investors), then the mezzanine slice (the EIB, CDP, Deutsche Bank, the fund manager), and at the bottom the junior tranche held by the EU. 'These kind of debt funds are supported by a chunk of EU taxpayers' money at the bottom of the risk layering', explains an EIB official.

‘The concept is that the taxpayer money underpins our money, and our money in turn underpins some private sector money sitting at the top of the cake’. [33]

The Roland Berger team has suggested the creation of a bigger equity investment fund, called the Transmission Infrastructure Fund (TIF), which would have a specific focus on energy. The European public sector – the EIB and EBRD – would help set the TIF up, but most funding would come from private investors, such as pension funds, with a long-term investment outlook. The fund would take equity stakes in ‘projects of European interest’ if these were separately project-financed, or in TSOs themselves. The Roland Berger team claimed this could be particularly helpful for TSOs with a high level of state ownership. ‘EU-supervised funds could be used as “anchor investors” to reduce the potential reluctance of public shareholders to allow private investors in’ the report argued. [34]

This could be useful in state-owned TSOs in eastern and central Europe; they need more equity to balance any new debt they can raise, but their government owners have no spare cash to provide that equity. At the same time, many east European governments are anxious about certain companies, especially (or uniquely) Gazprom, investing in their TSOs. More generally, encouraging equity investment in TSOs could be a way of promoting unbundling of energy transmission from energy supply. It would enable TSOs, which would be still bundled in the sense of being majority owned by integrated energy groups, to acquire outside shareholders and therefore a little more independence. On the other hand, TIF investments in state-owned TSOs might be seen as closet privatization, and as such might be resisted by governments.

3.3.5. Debt funding of energy infrastructure

Debt financing is, and will remain, the main form of investment in energy. This is especially true in transmission infrastructure where the returns are relatively low, and therefore the investor risk needs to be relatively low. Investing through lending money to a company is always more secure than investing by buying a share in a company, because in the event of bankruptcy lenders always take precedence over shareholders.

Most of the European-level debt finance for energy has, as we have seen, come from lending by the EIB, which was €14.8bn (including activity outside the EU) in 2010. But the bank says it regards this as exceptional, arising from the need to fill the void of the 2009 recession. The volume of EIB lending will not continue to show the same level of increase as in recent years, unless EU governments give the bank another capital increase, which is not on the cards. So in order to get more out of the same level of EU budget funds and EIB lending, the Commission has come up with its Europe 2020 Project Bond Initiative (PBI).

The goal of the PBI is to attract more private capital to the finance of infrastructure (transport and information technology as well as energy) by reviving, and upgrading, project bonds. Companies, formed to carry out a specific project, can finance the project in question by issuing ‘project bonds’ – or they used to be able to do this, when they could buy insurance for these bonds from specialist insurers known as monolines, which guaranteed repayment plus interest to the bond buyer if the bond issuer defaulted. These monolines mostly folded during the 2008–9 financial crisis, and project bond issuance declined sharply.

The aim of the Commission initiative is to revive project bonds by getting them a higher credit rating with the rating agencies such as Standard & Poors and Moodys, because higher rated bonds attract far more investors. The Commission proposal is not that the EU or the EIB issues project bonds (because neither is building a grid or pipeline), but that it supports projects by means of the EIB either guaranteeing the bonds’ repayment (like a monoline) or taking a junior or subordinated position. In the event of a default, the EIB’s claims would be ‘subordinated’ to those of ‘senior creditors’ such as private investors. The more junior creditors like this there are, the better it is for senior creditors or debt-holders. So this raises the rating of the project bonds from the B category to the A category, in what is known as credit enhancement. Since the EIB needs at least to cover the cost of its operations, the slightly greater risk it takes as a junior creditor would need to be partly underwritten by the EU itself – meaning, at the possible end of the line, the European taxpayer.

The public consultation that the Commission held during 2011 on the PBI was mostly favourable, with 60 per cent of responding stakeholders saying that the initiative was

‘likely to attract private sector institutional investors’. [35] However, some of the EU governments, who would have to agree to the PBI, were unhappy about the implications of the PBI for the EU budget, unless a provision for guarantees was made in the EU budget. This anxiety is particularly acute at a time when the EU budget’s reserve credit capacity – or in EU jargon the margin under the own resources ceiling – is being used to guarantee some of the mechanisms to bolster the eurozone.

However, these governments’ anxiety about the PBI may prove groundless. The EU has indicated that the amount of budget money committed to the initiative will be capped in advance. The number of projects that can be project-financed is also finite, and therefore the whole initiative may be limited in its effect.

3.4. Subsidies for infrastructure and renewables – a proper use of public money?

This is a question that can be asked about energy infrastructure, and is always raised about renewable energy. Regarding infrastructure, there would be no need for any subsidy if it were not for Europe’s need to make a step change upwards in infrastructure building (in order to accelerate market integration and cross-border competition, to improve energy security through more diversification of energy sources and routes, and to link renewables to a more decentralized grid). A step change in investment probably needs temporary financial incentives. For its part, renewable energy is in chronic need of financial subsidy at this stage in its technical and commercial development, and one should not be ashamed of the subsidies necessary to correct the balance with fossil fuels, which get big production and consumption subsidies in many countries around the world.

The most sensible use for public grant money is to subsidize those costs for which energy project developers find it impossible to get outside finance – feasibility studies and technical assistance. All three main European sources of public finance – the EU Structural Funds, the EIB, and the EBRD – provide this already. In 2009 the European Commission and EIB launched the European Local ENergy Assistance, or ELENA facility, to help local authorities implement energy projects.

Subsidies should be spent as effectively as possible, so that public money can have the most impact with the least distortion. But this is not always the case. By far the

most significant areas of wasteful subsidy are the EU structural and cohesion funds devoted to poorer member states, simply by virtue of their size. These funds total €47bn in the 2007–13 period, and the Commission proposes raising them to €76bn for the 2014–20 period. One flaw in the current system is that the standard criterion for dispensing grants from the Structural Funds is to set the grant as a percentage of the project's cost. This gives suppliers an incentive to inflate overall costs (and then often to split the inflated difference with project managers) because such inflation has the effect of also increasing the size of the EU grant. Another flaw in the current system relates to co-financing of infrastructure. In Poland, for instance, railway upgrades receive EU co-financing of 50–60 per cent, instead of the maximum 85 per cent. This is because fees for using railway tracks have to be deducted from the overall grant from the EU, while EU co-financing for construction of toll-free roads is much higher, because no levies have to be deducted from the value of the EU grant for road building. [36] This is a distortion in the financing of road versus rail, and counter-productive in terms of reducing carbon emissions. These are the sort of flaws that need correcting in the new MFF period.

By contrast, the two European-level public sector banks do not have the same money to waste, and set themselves specific economic thresholds in their lending. In renewable energy, the EIB has a current rule that it will not lend to mature renewable technologies such as onshore wind power or biomass where the project costs exceed €6 per MWh. This assumes an electricity price of around €80 per MWh derived from the west European central market. This threshold can cause the EIB lending problems in some countries such as Italy with its high renewable energy costs, but the bank considers it an important safeguard against wasteful lending. The EIB sets no such cost threshold lending to emerging renewable technologies such as offshore wind and solar power; while these technologies are more expensive now, they also have more potential to cut their generation costs in the future.

The EBRD has a particular mission to behave as much like a private bank as possible, to add to private bank lending, and certainly not to displace it. It is therefore especially scrupulous in setting conditions on subsidies. On a renewable energy or energy efficiency project it will, typically, set the level of the grant subsidy at the level of the greenhouse gas emissions avoided by the project, and will only pay the

grant after the project has been completed and verified. In a case that showed the care with which the EBRD tries to avoid distortions, Taiwan, which is not a shareholder in the bank, recently offered to provide, through the EBRD, cheap loans to subsidize the installation of Taiwan-made Light-Emitting Diode (LED) street lighting in central and east European countries. The bank persuaded Taiwan that tying aid to purchases was inappropriate. Taiwan agreed to untie the aid, presumably because it was fairly confident that the LED purchases would come its way in any case, and agreed to structure the loan so that the level of subsidy would be calculated on the amount of greenhouse gases judged to have been avoided by the LED lighting. On the other hand, this is hardly the most adventurous use of public money and, with no upfront benefit to the energy project developer's cash flow, it is hardly likely to leverage much new private investment. It is therefore not surprising that some EBRD bankers complain of occasionally losing business to institutions which can offer an element of EU subsidy.

In the end, focus may matter more than subsidy. In other words, what may be more important is not a financial institution's willingness to lend to an energy project at a discount, but its readiness to lend at all to energy projects that serve a public purpose but generate an unexciting return. This is where other public sector banks – national versions of the EIB – come in. Banks like Germany's KfW play a valuable role in acting as an anchor in riskier ventures such as offshore wind, giving confidence to other lenders and investors. These state-owned development banks are, like the EIB, willing to lend long and to help refinancing in taking over the loans that commercial banks usually want to cash out of after a couple of years. Apart from the UK, most larger EU states – Germany, France, Italy, Spain, and Poland – have long-established public development banks to help them with low carbon energy (and some smaller states like Denmark simply succeed through the determination of their politicians). The UK has neither politicians with a long track record of determination in this field nor a long-established public sector bank. It is now setting up a Green Investment Bank, but this is very late in the day given its energy financing needs.

4. The Infrastructure Rationale in External Energy Policy

A third area of the expanding European dimension in energy has come in external policy, specifically in the Commission's September 2011 communication. [37] This proposed that the Commission should vet member states' bilateral accords with non-EU countries for conformity with EU law, and that the Commission should itself be able, on the EU's behalf, to negotiate and conclude energy infrastructure agreements with foreign partners.

In presenting the proposals, Gunther Oettinger, the energy commissioner, said the Commission was 'not making a power grab', but was responding to the conclusions of the European Council of February 2011. This stated that 'the Commission is invited to submit a communication on security of supply and international cooperation aimed at further improving the coherence and consistency of the EU's external action in the field of energy'. Indeed the Council of EU government heads went on very specifically to state that 'the member states are invited to inform from January 1 2012 the Commission on their new and existing bilateral energy agreements with third countries; the Commission will make this information available to all other member states in an appropriate form, having need for the protection of commercially sensitive information'. [38] In September 2011 the Commission was also given a mandate by the Council of Ministers to negotiate, on the Union's behalf, a legal framework with Azerbaijan and Turkmenistan for a Trans-Caspian pipeline, in order to increase the supply of non-Russian gas to Europe. This has led to the misapprehension that the Commission might also involve itself in commercial negotiations over prices and quantities – a misapprehension that perhaps for reasons of *amour propre* the Commission has been slow to correct.

However, for member states to invite the Commission to coordinate their energy foreign policies constitutes a major shift. Up to now, the federal role in the EU, and therefore the role played by the Commission, has been weakest in external energy policy. For a long time this suited most member states. In terms of assuring energy security in the event of a cut-off in oil supplies, member states were happy for EU legislation to set minimum levels of oil stocks, but this legislation only reflected

emergency arrangements previously decided in the International Energy Agency (IEA), to which most EU states belong. Indeed they resisted the occasional Commission attempt to go beyond the IEA oil stock arrangements.

In other areas of external energy policy, member states have been content for Commission officials to talk about energy to their hearts' content in all the 'dialogues' they hold with countries or groupings around the world, and to try to 'export' EU energy policy and rules to neighbouring countries through the Energy Community and the Energy Charter Treaty. Indeed much of the September 2011 communication was concerned with calls for a re-doubling of energy dialogues and of efforts to improve the working of these two bodies.

The Energy Community obliges its members to adopt EU energy rules. The EU can get away with this because the Energy Community members are mainly west Balkan states which are likely to join the EU in the long run. However, one key energy transit country – Turkey – refuses to join until it can be certain that it will one day fully join the EU, though another key energy transit country – Ukraine – joined in 2010 without any such assurance.

The Energy Charter Treaty is a more ambitious attempt at regulating cross-border energy trade and investment in countries which are never likely to join the EU. However, it has never worked properly because the country it was chiefly aimed at – Russia – no longer participates. This failure is all the more important because of the parallel lack of progress in the one EU energy dialogue that counts: the EU–Russia Energy Dialogue. Russia is the EU's most important partner, because it supplies Europe with gas, oil, coal, and uranium fuel, because its gas and oil arrive in fixed pipelines that create dependence, and because its huge reserves make it Europe's fossil fuel mainstay for the long term.

The European Commission did not cover itself in glory in the 2009 Russia–Ukraine crisis that temporarily cut gas supplies to several EU states; European gas companies were more effective in organizing emergency supplies. But the 10 eastern and central European states that joined the EU in 2004 and 2007 have constantly pushed for the EU to assume a bigger role in negotiations with Russia. These new member states

succeeded in getting ‘security of energy supply’ inserted into the 2009 Lisbon Treaty as a formal treaty responsibility of the Union.

4.1. Europeanization of bilateral agreements

Not only were new member states successful in inserting ‘security of supply’ into the Lisbon Treaty, but the Commission’s new proposal for the ‘communitarization’ of member states’ bilateral energy agreements with third countries also originated in eastern Europe – specifically in Poland’s 2010 negotiations to renew its long-term contract with Gazprom. The Commission first complained that Poland’s draft agreement with Gazprom breached EU competition rules. The Poles then turned to the Commission for help in negotiating their deal with Gazprom. As a result Poland won a series of concessions from Gazprom – the right of third party access to the Yamal pipeline that runs from Russia through Poland to Germany, the right to re-export Gazprom gas, and the right to re-import it back from Germany, if need be, through a new reverse-flow mechanism on the pipeline. The upshot is that Poland will no longer be a captive market for Gazprom, because the Yamal pipeline will give it access to gas from the west as well as from the east. It is this success, in making a bilateral agreement conform to EU law to the apparent benefit of EU (Polish) consumers, that provided the impetus for the September 2011 proposal for an ‘information exchange mechanism’.

This would cover all inter-governmental agreements (IGAs) between member states and third countries, and any related commercial company contracts. The Commission guesses that about 30 such IGAs exist on oil, about 60 on gas, and a lower number in electricity. But it does not really know – hence the point of setting up an information exchange. Member states would have to supply all information on new or existing IGAs to the Commission for vetting, but could restrict the Commission from sharing that information with any other member state. In fact, under the 2010 Security of Gas Supply Regulation, member states have already agreed to notify all their gas IGAs to the Commission. Advance notification effectively gives the Commission a veto over any part of an IGA it deems inconsistent with EU rules.

Almost all these IGAs relate to some form of energy infrastructure, whose construction will have required governments’ permission. According to the

Commission, the oil and gas IGAs 'are likely to relate either to the volumes of oil and gas imported into the Union from third countries or to the conditions for the supply of those volumes through fixed infrastructure'. [39] There was a time in the 1970s after the first oil shock when EU governments were panicked into making government-to-government oil deals with OPEC countries, but this era disappeared with the development of open trading of oil, which these days is bought and sold on commercial contractual terms, even when state-owned companies are involved. Moreover, little of the oil reaching Europe comes by international pipelines that are governed by IGAs between the countries they cross; the one major exception to this is the Druzhba pipeline carrying Russian oil from Siberia to Germany. Therefore some of those estimated 30 oil IGAs may be the legacy of a bygone era.

By contrast, much of Europe's gas imports come by pipeline – from Russia, Norway, Algeria, and Libya – hence the higher estimated number of gas IGAs. Electricity is of course carried by fixed infrastructure, but almost all of what the EU uses is generated within the EU. There are some exceptions, but these may disappear over time. There are some electricity IGAs between the three EU Baltic states on the one hand, and Russia and Belarus on the other, because the Baltic states are still linked synchronously to the Russian grid, but in a couple of years the Baltic states will have enough interconnection with the rest of the EU to start spinning with the EU grid. For the same reason of synchronicity, some EU states have IGAs with some Balkan countries outside the EU. Some of the latter, however, may eventually join the EU.

As to the nature of their IGAs, some EU states will probably have received relatively bad terms, and others relatively good terms. The terms that Poland was ready to accept before the Commission intervened were bad for Polish gas consumers. On the other hand, some bigger EU states such as Germany, France, and Italy, with a closer political relationship with Moscow, and energy company technology of interest to Russia, may have IGAs with better terms. Certainly, it has been the east European suspicion that some west European states get sweetheart energy deals with Russia. In order to smooth any political resentment and economic distortions inside the EU, it is probably useful to put IGAs to the common test of conformity with EU market rules on free access and non-discrimination. At present Gazprom appears to charge some east European countries a higher price for long-term contract gas where these

countries have no alternative recourse to cheaper gas on the spot market, as west Europeans do. But as Gazprom becomes unable to segment the market contractually, and as EU infrastructure programmes create a more integrated market physically, prices for Russian gas should equalize across the EU. In reacting to the Commission's proposal to 'communitarize' their bilateral energy agreements with third countries, member states have split along predictable lines. The smaller states have all welcomed the Commission's proposal to vet bilateral agreements before such accords are signed, while the bigger states are only prepared to submit their foreign energy agreements to the Commission for vetting after they have been signed.

4.2. The Commission as EU energy negotiator

For the first time, on 12 September 2011, EU ministers gave the Commission a mandate to negotiate an external energy treaty on their behalf. They authorized the Commission to negotiate an agreement for the legal framework for a Trans-Caspian gas pipeline system with Azerbaijan and Turkmenistan. [40] So, in this case, the Commission would replace national negotiators instead of, as in the Polish case, just sitting alongside them. If successful, this negotiation would make the EU a direct party to an IGA governing this pipeline system, encompassing all the legal aspects of the deal but leaving all the commercial details about gas prices and volumes to Caspian and European companies to settle.

This negotiating mandate crowns a prolonged diplomatic effort by the Commission to create the Southern Gas Corridor. This effort included, as mentioned in Section 2, the appointment of a special coordinator to try to move the Nabucco pipeline project forward. It also included an attempt to aggregate sufficient European gas demand to persuade the Caspian gas producers to diversify away from their traditional market in Russia. To this end, the Commission dreamed up the idea of a Caspian Development Corporation (CDC) which would group potential demand from all the pipelines in south-eastern Europe – not only Nabucco but also the ITGI (Interconnector Turkey–Greece–Italy) project, and the TAP (Trans-Adriatic Pipeline) project. So far, however, the formation of the CDC has been delayed by objections from the Commission's competition directorate, which fears the anti-competitive effect of a buyers' cartel.

Whether the Commission can actually bring the long-discussed Trans-Caspian pipeline into being is moot at this stage. However, on getting its Caspian negotiating mandate, the Commission claimed a similar approach could be used to set up the legal and political framework for the import of renewable electricity from North Africa, and said it had had promising exploratory talks with Morocco and Algeria. [41]

Not surprisingly, the Commission likes, wherever possible, to portray extension of its activities not as power grab, but as responding to the invitation of others, be it the Council of Ministers or foreign countries. In the case of Poland's IGA with Russia, Gunther Oettinger, the energy commissioner, stressed that the Commission had got involved in the negotiation at the request of Poland. In the Caspian case, he claimed that Azerbaijan and Turkmenistan actively sought EU involvement. 'Governments are looking to the EU as a negotiating partner', he claimed.

Conclusion

As with the infrastructure permitting and financing proposals examined in this paper, the Commission's external energy proposals were put forward after being endorsed, though in very general form, by EU leaders. This will not prevent considerable argument by some member states on points of principle, and by many on points of detail. However, most EU governments appear to believe a bigger role for the EU is needed. What should that role be?

In permitting, perhaps all that is needed is a single push from the EU, to get national governments to streamline their permitting process once and for all. In other words, a one-off change with a permanent effect. On the other hand, complex new networks – offshore wind connections and smart grids – will require constant planning on a European scale, and the third package of energy market legislation already involves the Commission in supervising ACER and the associations of European TSOs. So it is hard to see the Commission ever pulling back.

In financing energy infrastructure, some temporary impetus from the EU and public sector banks is needed in this time of tight credit, though it is important not to over-subsidize. Longer term, operating aid to renewable energy generators, in the form of nationally-organized levies on consumers, is necessary. These national support schemes will need to be rationalized to prevent distortions in the European energy market, and this could be done by agreeing some sensible guidelines at the EU level by, for instance, setting minimum and maximum levels of subsidy payment. There may come a day when all such subsidy can be dispensed with – when there is sufficient development of renewable technologies, and of robust CO₂ pricing with high price penalties on fossil fuels, so as to attract sufficient private capital to keep the low-carbon revolution going without public finance. That day, however, is still far off.

In external policy, the EU will probably never play the prime role in energy (or other raw materials) that it does in all commercial negotiations on trade in goods and services, where the Commission alone represents the EU member states. The EU's external role may be limited to negotiating the rules that govern energy infrastructure outside the EU (through the Energy Charter Treaty and the Energy Community

Treaty) as well as inside the EU. But this may be no small job, perhaps in the future requiring EU negotiation of an energy treaty on solar electricity from north Africa as well as gas from the Caspian.

References

- [1] Commission proposal for 2014–2020 Multi-annual Financial Framework, COM (2011) 500/II, page 55.
- [2] Commission Staff Working Paper, SEC (2011) 755 Final, page 2–3.
- [3] Commission Impact Assessment, SEC (2010) 1395 Final, page 17.
- [4] ‘Financing Renewable Energy in the European Energy Market’, report by Ecofys, Ernst & Young, Fraunhofer, and the Vienna University of Technology, page 111.
- [5] ‘Planning our electric future: a White Paper for secure, affordable and low-carbon electricity’, UK Department of Energy and Climate Change, page 27.
- [6] Commission proposals usually speak of ‘infrastructure’, which could be restricted to the main transmission pylons and pipes that act as common carriers of electricity and gas. But there is much infrastructure embedded in renewables, so this paper covers both. By contrast, the EU, and national regulators, are far less involved in the transport of oil and coal because these fuels depend less on fixed networks that require regulating.
- [7] SEC (2011) 755 Final, page 5.
- [8] ‘Wind energy developments and Natura 2000’, Guidance Document, European Commission, October 2010, page 25. Available at: http://ec.europa.eu/environment/nature/natura2000/management/docs/Wind_farms.pdf.
- [9] Article 4 & Annex III of COM (2011) 658 Final.
- [10] *European Energy and Environmental Law Review*, October 2010, page 241.
- [11] ‘Permitting procedures for energy infrastructure projects in the EU: evaluation and legal recommendations’, Roland Berger Strategy Consultants, July 2011, page 11.
- [12] *Ibid* page 11.
- [13] See Commission press release IP/09/945.
- [14] Roland Berger, permitting study, page 31.
- [15] Author interview.
- [16] Roland Berger, permitting study, page 60.
- [17] *Ibid*. page 53.
- [18] *Ibid* page 55.
- [19] ‘The structuring and financing of energy infrastructure projects, financing gaps and recommendations regarding the new TEN-E financial instrument’, Roland Berger Strategy Consultants, July 2011, page 51.
- [20] *Ibid*, page 53.
- [21] Ecofys et al. study, page 37.
- [22] *Energy and Climate Change: Europe at the Crossroads*, David Buchan, published by OUP for OIES, 2009, page 184.

- [23] Ecofys et al. study, page 63.
- [24] Ibid, page 116.
- [25] Author interview.
- [26] Author interview.
- [26] Ecofys et al. study, page 37.
- [27] Commission communication on MFF, COM (2011) 500/I, page 14.
- [28] Article 13 of COM (2011) 658 Final.
- [29] Roland Berger, finance report, page 78.
- [30] Article 14 of COM (2011) 658 Final.
- [31] ‘Private financing of renewable energy: a guide for policy makers’, Sophie Justice, Chatham House, 2009, page 7.
- [32] Ibid, page 7.
- [33] Author interview.
- [34] Roland Berger, finance report, page 94.
- [35] ‘Public Consultation on the Europe 2020 Project Bond Initiative: Key Messages’, EU public consultation, page 1, available at:
http://ec.europa.eu/economy_finance/consultation/pdf/summary_en.pdf.
- [36] ‘Unlocking the potential of the EU budget’, Volume 1 Smarter Spending, WWF, 2011, page 71.
- [37] Commission Communication on ‘The EU Energy Policy: Engaging with Partners beyond Our Borders’, COM (2011) 539 Final.
- [38] ‘European Council 4 February 2011 Conclusions’, General Secretariat of the Council, 8 March 2011, available at:
www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/119175.pdf.
- [39] COM (2011) 539 Final, page 3.
- [40] Commission press release. IP/11/1023.
- [41] COM (2011) 539 Final, page 7.