

TO THE COMMISSIONER FOR ENERGY

GEORG ZACHMANN

You must respond to a changed context for EU energy policy characterised by concerns about security of supply, the emergence of low-cost fossil fuel sources and obstacles to decarbonisation policies; you must work for a long-term strategy and reverse the trend of renationalisation of energy policy

STATE OF AFFAIRS

European Union energy policy has three primary objectives: security of supply, competitiveness and sustainability. The ‘green package’ of 2009 translated these three objectives into three targets for 2020: reduction in greenhouse gas emissions by 20 percent, increase in energy efficiency by 20 percent and a share of renewable energies of 20 percent in the energy mix. These 20-20-20 targets represented a quite ambitious plan based on an – at the time undisputed – narrative. In 2008, the oil price reached a new peak and it was generally expected that increasing energy demand from emerging economies and the slow-down or even decline in oil and gas production would result in continuous increases in energy prices. Furthermore, oil and gas production was expected to decrease faster in regions that are associated with low risk (eg the EU itself), reducing the security of supply. Finally, it was expected that the nations of the world would embark on a joint strategy for decarbonisation. Consequently, the 20-20-20 targets that initiated the shift to a low-carbon economy in the EU were very much in line with the three objectives: sustainability, security of supply and competitiveness.

Targets

The EU is now (almost) on track to meet the targets that were seen as quite ambitious when they were adopted five years ago. Final energy consumption fell by 7 percent in the period 2005-11, energy produc-

tion from renewable sources increased by 5.8 percent points to 14.1 percent in the period 2005-12, and greenhouse gas emissions dropped by 13 percent in the period 2005-12. While an active renewables policy has contributed most to these achievements, the effectiveness of the emissions cap was not tested because much of the emission reduction was delivered by the economic crisis, and almost none of the observed reduction in energy consumption can be attributed to energy efficiency policies.

Despite being on track to achieve the targets, EU energy policy is generally not perceived as a success. This is for two reasons. First, recent events have changed important assumptions on which the 2020 package was built, and hence the selected targets were insufficient for meeting the objectives. Second, the policies for achieving the targets – although at first sight effective – were far from efficient.

Since 2009, five major events have significantly shaped the environment for EU energy policy.

First, the emergence of shale gas and shale oil in the United States heralded a new ‘golden age of gas’ and shifted the resource constraints by two decades. This has severe consequences for EU energy policy: (1) new low-carbon technologies will find it much more difficult to become competitive globally when hydrocarbon prices do not increase; (2) increasing availability of fossil fuels in ‘safe’ countries could reduce European concerns that oil and gas consumption is a security-of-supply issue; (3) the increase in hydrocarbon resources further reduces the prospects for a global climate pact. The owners of these additional resources worth about \$86 trillion have a strong interest in preventing any deal that implies not burning a part of this bounty.

Shale gas

Second, the nuclear accident at Fukushima turned the political climate in many member states against nuclear power. In addition, two other new technologies – hydraulic fracturing (fracking) to extract shale gas and carbon capture and storage to decarbonise coal plants – are confronted with public safety concerns that will further delay or even prevent their deployment in many European countries.

Fukushima

Despite being on track to meet targets, EU energy policy is generally not seen as a success

Third, the economic crisis in Europe shifted the focus of economic policymakers from long-term industrial policy projects such as developing a renewable energy industry, to shoring up in the short term the competitiveness of existing sectors such as energy-intensive aluminium and steel production. A good example is Spain, where a massive renewables deployment programme was curbed in the face of the crisis. Apart from an important shift in time horizon, the recession also pulverised the assumptions that underlie the 20-20-20 targets. Reduction of industrial production translated into lower carbon emissions and lower energy consumption, making some EU policies redundant.

International climate talks

Fourth, the international community failed to deliver a post-Kyoto framework with binding decarbonisation commitments by the major emitting countries. Consequently, there is less appetite for unilateral European climate action.

Russian gas

Finally, policymakers all over Europe are regretting that Europe's dependence on natural gas imports from Russia (in 2013, 30 percent of EU gas consumption) reduced the political room for manoeuvre in the Ukraine-Russian crisis. Consequently, the objective of supply security – with respect to the sourcing strategy – has become more important.

National markets

In addition to dramatic changes in the factors underlying the energy strategy, energy policy in Europe also suffered from inherent problems. National energy policies undermine the internal energy market. Most investments in power plants, networks and consumption continue to be based on national remuneration schemes – such as German renewables support, UK contracts for new nuclear plants or French capacity mechanisms. These national investment incentives failed to deliver a well-balanced European energy system that can

deliver simultaneously on the three energy policy objectives. Energy prices are also largely determined by national policies. About 70 percent of the final electricity price for companies consists of components not determined on European markets. The cost of energy for a steel plant is determined far more by which side of the Rhine it is located than by how energy efficient it is.

CHALLENGES

You will face two overarching policy challenges. The first challenge is to resist all those *ad-hoc* interventions that are counterproductive in the long-term, and that will certainly be tabled in the dozens by industry, member states, the European Parliament and others. There is a substantial risk that you will be pressed hard to take ineffective short-term action against structural issues. In the energy sector, short-term thinking has more severe negative effects than in most other sectors because asset lifetimes of often more than 40 years require clear long-term signals to all stakeholders. Your second challenge is to reverse the trend of renationalisation of energy policy. The currently observed renationalisation is not only undermining the benefits of further integration but is already depriving European energy policy of the means to achieve Europe's energy policy objectives. Security of supply could be improved at no cost when reserves are shared and the operation of assets is coordinated. Competitiveness increases when energy companies from different countries compete and the best resources from all member states are shared. And optimal geographic deployment of low-carbon technologies and joint technology development reduce the cost of making the European energy sector sustainable.

To avoid both short-termism and renationalisation, you should work to: (1) complete the internal market for energy, (2) decarbonise the energy sector, (3) increase energy efficiency and (4) improve security of supply.

It would be hugely welfare-enhancing for Europe to have a functioning internal energy market in which companies and technologies freely compete to provide the best energy services at the lowest price while respecting societal and environmental constraints. Despite three EU legislative packages, neither gas nor electricity supply is organised in such markets. In electricity, the approach to create a European market by coupling national day-ahead markets proved only partly successful.

Reversing the
renationalisation
trend

Internal energy
market

A European electricity market will not spontaneously evolve; it needs to be designed

National market prices have somewhat converged, but no internal electricity market has developed, because important parts of the electricity sector are still subject to widely differing national rules and arrangements. As a consequence, investment decisions in the electricity sector are based on national policies and not on European markets. This non-cooperation is costly, and the corresponding welfare loss is set to increase with rising shares of renewables in the European power system.

The past 20 years have demonstrated that a European electricity market will not spontaneously evolve based on the enforcement of some first principles. Functioning electricity markets need to be designed. That is, products need to be defined and schemes for their remuneration need to be engineered. An efficient market design needs to include all parts of the relevant system. That is, the design needs to ensure efficient incentives for trade-offs, such as demand response versus storage, transmission lines versus decentralised generation or solar versus lignite. And to be efficient, this design needs to be European.

Decarbonisation

Global decarbonisation is an essential insurance policy against potentially catastrophic climate change. It is only feasible with technologies that are more or less competitive with hydrocarbons (see the memo to your colleague in charge of climate policy). The big challenge is to organise public support to bring these technologies to the market. In the past, national support schemes for the deployment of politically selected technologies, such as nuclear in the 1970s or solar photovoltaic in the 2000s, cost huge amounts of money without so far making these technologies commercially viable at large scale in the European context. So there is a risk that the energy transition will become prohibitively expensive when public hands prescribe the investments the 'market' should deliver. Your challenge is to ensure that technologies and support schemes are primarily selected based on their potential

Issues such as dependence on imports from uncertain sources and rising hydrocarbon costs will return

contribution to decarbonisation, and not only based on secondary policy targets, such as regional development, or social or industrial policy.

Improvements in energy efficiency would simultaneously benefit security of supply, competitiveness and sustainability. Corresponding policies are, however, extremely difficult to engineer because optimal policy would involve addressing numerous market failures (for example the ‘owner-tenant-dilemma’) and policy failures (such as capped energy prices) at either the local, regional, national or European level. This shared responsibility was one of the main reasons precluding a binding energy-efficiency target. So your challenge will be to push member states to do more, without allowing them to conduct policies that undermine the ability of the internal market to select the lowest-cost solutions. Furthermore, energy-intensive companies will fight for preferential prices to maintain their competitiveness. But subsidies to specific sectors will not only reduce the incentives for efficient energy usage, they will also undermine Europe’s competitiveness in the long term.

Energy efficiency

The perceived vulnerability of the EU to a reduction of gas (and oil) supplies from Russia in the context of the Ukrainian crisis has put supply security back to the agenda. Individual stakeholders will try to push for support for individual projects to ensure supply security. But expensive publicly-funded flagship projects that render private investments unprofitable will discourage the best supply security investments conducted by private investors.

RECOMMENDATIONS

You should fight hard to establish an institutional framework that enables market forces to deliver a secure and sustainable energy system at the lowest cost. You should focus on four areas in particular:

Renewables

Re-focus renewables support on innovation

Though the context has changed since the EU decided in 2008 on the 20 percent target for renewables by 2020, in the longer-term, issues such as dependence on imports from uncertain sources and rising costs of hydrocarbons will return. Most importantly, affordable decarbonisation of the energy sector in Europe and elsewhere will require competitive renewable energy sources (RES).

The major market failure that policy should address is that private companies invest too little in new low-carbon technologies because they will be unable to fully reap the benefits of such an extended investment programme. Consequently, you should shift the focus of renewables support from a ‘deployment target’ that encourages the quick build-up of the cheapest currently-available renewable energy technology, to an ambitious ‘innovation target’ that encourages investment in bringing down the cost of RES. This implies that support should shift from almost only subsidising deployment (currently more than 99 percent of support) to also supporting research and development (R&D) to a sensible degree.

If successful, an innovation target will be the greatest possible contribution of Europe (and its partners) to saving the global climate, and it might be instrumental in developing a competitive edge in what will eventually become an important global market (the value of annual fossil energy production and the corresponding oil and gas-consuming appliances is in the order of 10 percent of global GDP). To achieve this, you should make sure that Europe has a renewables policy that incentivises a well-balanced, timed and coordinated mix of deployment and R&D policies for a wide portfolio of promising technologies.

Single Electricity Market

Revamping the market

To achieve a single electricity market, you need to prepare a fourth legal package outlining the framework of a functioning European energy market. This proposal should not shy away from curtailing the role of national energy policymaking. It should propose one or several

generic market designs that are consistent and comprehensive¹. The co-legislator (European Parliament and Council) should then decide which of those generic designs should be developed further. Because of the complexity, the strong information asymmetries between stakeholders and the significant redistributive effects, this task of developing a market model should be entrusted to a well-staffed and accountable institution that will also be responsible for organising the evolution of the design after it has been implemented². For example, the Agency for the Cooperation of European Regulators (ACER) – which has built up substantial expertise in European energy markets – can be trusted with this role. This would, however, require resources matching the level of its responsibility and an overhaul of the decision-making process. The final design then has to be approved by the European Parliament and Council.

Creating a functioning internal energy market would be a major shift that will not be achieved by a smooth convergence of existing national markets. However, the alternative to a comprehensive single market would be to get back to a system of more-or-less administered national electricity systems – with some unreliable cross-border exchanges of energy. This will not only make the systems less efficient. It will also make national security of supply more costly, and deployment of renewables beyond a certain penetration level will become prohibitively expensive.

Energy efficiency

Reducing wasteful energy consumption would be a major contribution to mitigating greenhouse gas emissions and to reducing import dependency. The key tool to ensure efficient energy usage is confronting all users with market-based price signals. Wasteful usage does not only refer to using more energy to produce a certain good, but also artificially maintaining a specialisation in energy-intensive goods. As Europe should not strive to subsidise its labour cost to make the European textile industry competitive with Asia, Europe should not subsidise its energy cost to make European aluminium production competitive with the US. Europe should not waste resources on such an uphill battle, especially as defending energy-intensive sectors at all costs locks in high energy consumption and implies that Europe needs to draw on more expensive supplies for all other sectors.

Energy efficiency policy

Beyond price, the question is whether energy efficiency needs to be regulated and whether this should be done at the European level. The need for regulation is often deduced from the finding that even efficiency measures with positive net present values are not delivered by the market, for example because of myopic consumer preferences or split incentives, such as those of tenants and landlords. Consequently, policies can make everybody better off by enabling these measures. As energy efficiency is an issue in virtually all sectors, there is a myriad of existing and proposed measures. The effectiveness and efficiency of corresponding policies strongly depends on the implementation. For example, predictably tightening performance standards (for cars, light bulbs, etc) has been praised for encouraging innovation and promoting a fast transition. If applied ignorantly, however, this approach might feature three substantial drawbacks. First, standards are typically defined on the basis of usage (for example, emissions per kilometre). This can put an undue burden on rarely-used items. In the worst case, the higher upfront energy investment in the more efficient installations cannot be recovered during the lifetime of the product – such as an LED in the basement. Second, at certain hours even wasteful electricity use can be efficient. For example, two cheap and inefficient installations that only run when excess electricity is available might be a better use of energy than one efficient installation that has to run 24/7 to recover its high cost. Third, if prices are not adjusted, energy efficiency measures might be foiled by the ‘rebound effect’. That is, the lower energy consumption of products encourages consumers to use more energy. So, energy-efficiency policies can be welfare enhancing, but their efficiency depends very much on the detailed design of the measures.

Subsidiarity

The same holds for the question of subsidiarity. The obvious argument for a European energy-efficiency policy is its interdependence with the single market. National energy-efficiency standards for products, national energy-efficiency schemes for energy companies or even distorting energy taxes and levies could be a burden on the integrity of the single market. But the structure and regulatory environment for important energy-consuming sectors (eg buildings) differs markedly between countries. This might make a one-size-fits-all European energy-efficiency policy very inefficient in these fields.

So the somewhat generic conclusion on energy efficiency is that individual market failures should be addressed by the most efficient meas-

Security of the gas supply is about maintaining unused alternatives that could be tapped into

ures at the right level of government. For the broad portfolio of regional, national and European policies necessary, a binding European target in terms of maximum amount of energy consumed in 2030 is not well suited because it neither addresses who has to deliver nor does it properly take economic developments into account. To benchmark energy-efficiency policies you should pursue a bottom-up approach. Based on the *ex-post* evaluation of each individual energy-efficiency policy, the incentivised demand reduction and the corresponding policy cost should be reported. For example, the energy-efficiency loans in Germany in 2011 had an estimated cost of about €1 billion and encouraged annual savings of 0.1 million tonnes of oil equivalent (Mtoe).

Two targets would then serve to benchmark the success of the overall policy framework up to 2030: one for total incentivised energy savings (for example, more than 400 Mtoe of induced energy savings between 2020 and 2030) and one for the total energy-efficiency policy cost (for example, less than €1,000 billion). This target might be broken down by member state (or even to sub-national levels) and even be made binding.

Supply security

A particular issue for you will be security of gas supplies. It is here that the failure of individual suppliers might have the greatest impact. Security of the gas supply is not primarily about reducing dependence on imports (overall or from individual sources) or increasing Europe's negotiating power with foreign suppliers, but about maintaining unused alternatives that could be tapped into for an indefinite period of time in case the most important supplier fails for technical or political reasons.

Possible targets

A secure gas supply

There is a long-standing debate about whether completing the internal market will on its own deliver supply security. A functioning internal market offers the most efficient rationing mechanism in times of crisis, and market-based long-term prices in Europe ensure that suppliers have the right incentives to develop new sources. However, the market – that typically goes for the cheapest available source – might fail to sufficiently diversify. For example, the current market design will not provide infrastructure connecting normally uncompetitive sources that can serve as insurance in case the cheapest supplies become unavailable.

But, administered approaches, such as providing security via administered investment in certain infrastructure, run the risk of crowding out private investment if not properly shielded from the market. If, for example, Europe financially supports a pipeline from Turkmenistan, the business case for the corresponding volume from the Levant region might disappear. Furthermore, national administered approaches regularly fail to select the most efficient portfolio of options (such as demand curtailment, storage, liquefied natural gas plants, pipelines, domestic production or domestic fuels).

So neither the current market design nor *ad-hoc* administrative approaches appear well suited to efficiently ensure security of supply. You should pursue a European market-based approach to gas supply security – a market for ‘reserve supplies’. Each domestic gas supplier would be legally required to have available a certain amount of alternative supplies. A sensible volume could be 20 percent of the contracted energy demand for three years. The domestic suppliers can meet their obligation in very different ways, such as (1) interruptible contracts with their customers; (2) volumes stored in gas storage facilities; or (3) option contracts with other domestic and foreign suppliers. The domestic suppliers would need to make sure that the infrastructure needed to deliver the corresponding volumes to its customers is available when needed. That is, it has to reserve enough transport capacity with the infrastructure providers to deliver the secured reserve supplies (eg domestic and foreign pipelines and LNG Terminals). Furthermore, it has to be ensured that reserve supplies cannot be met by options involving pivotal suppliers/infrastructure. That is, holding an option for additional supplies from Russia would not qualify as reserve supplies. To ensure this, a European security-of-supply report

‘Reserve
supplies’ market

will have to define which suppliers/infrastructure are pivotal. In case a supplier finds itself in a situation in which all existing infrastructure is either already used or pivotal, it will have to invest in new infrastructure. Only in cases of security crises, which would be politically established through an ordinary legislative procedure, would suppliers be allowed to draw on these reserve supplies. This system, the cost of which domestic suppliers will largely pass-through to the final customers, should ensure security of supply for all customers at the lowest cost and without undermining the internal market.

Such an approach would obviously have distributive effects. Consumers in well-connected regions such as central-western Europe that face a very limited risk of supply disruptions, will have to pay for 'their' share of reserves, which most likely only their eastern neighbours might need. But this solidarity will not wash away regional differences resulting from different infrastructure endowments. Suppliers in areas with less-developed infrastructure will find it more costly to ensure the level of supply security. This is efficient because it provides an incentive against locating the most vulnerable sectors in vulnerable markets. For example, a chemical plant in Cyprus will only get an interruptible contract because no supplier could secure the required reserve capacities at an affordable cost.

NOTES

01 EU PRESIDENTS

1. 'Strategic agenda for the Union in times of change', European Council conclusions, 26-27 June 2014.
2. Also, the President of the European Parliament should accept that national parliaments use the subsidiarity review more often.

04 COMPETITION

1. The antitrust definition of a market is conventionally based on tests that identify the boundaries of a market by measuring the degree of competition that different products exert on each other. If two products are very good substitutes – such that a significant proportion of demand and/or of supply would shift to one product if the price of the other is changed – then the products are considered to belong to the same market.
2. All figures quotes are up to April 2014.
3. See Mario Monti (2010) *A new strategy for the single market*, report to the president of the European Commission José Manuel Barroso, available at http://ec.europa.eu/bepa/pdf/monti_report_final_10_05_2010_en.pdf.

05 SINGLE MARKET

1. The European House – *Ambrosetti, 2014 European Business Leaders Survey*, June.
2. Eyal Dvir and Georg Strasser (2014) 'Does Marketing Widen Borders? Cross-Country Price Dispersion in the European Car Market', mimeo, available at <http://fmwww.bc.edu/EC-P/wp831.pdf>.

3. Trade integration of goods (or services) as a share of GDP is defined as the average of imports and exports of goods (or services) divided by GDP.

4. See for instance the series of reports accompanying the 2007 Single Market Review exercise http://ec.europa.eu/citizens_agenda/single_market_review/index_en.htm

5. Some initial steps towards a framework for implementing a market monitoring exercise in the Commission were already developed in 2008, laid down in Commission Staff Working Document SEC(2008) 3074.

06 DIGITAL AGENDA

1. Sources: Domo.com: www.domo.com; onesecond.designly.com; and Intel: <http://www.intel.com/content/www/us/en/communications/internet-minute-infographic.html>.

2. Scott Marcus, J., I. Godlovitch, P. Nooren, D. Elixmann, B. van der Ende, and J. Cave (2013) *Entertainment x.0 to boost broadband deployment*, ISBN: 978-92-823-4760-7.

08 MIGRATION

1. This memo is written to a European Commissioner responsible for EU mobility, international migration, border management and asylum. In the past, these competences were divided between DG Home, DG Justice and DG Employment. A few points raised in this memo cut across other portfolios (European External Action Service, DG Development and Cooperation). The author would like to thank Elizabeth Collett, Robert Holzmann, Khalid Koser and André Sapir for their helpful comments.

09 TRADE

1. Global trade in goods fell by 12.2 percent in 2009, by far the largest decline since 1950.

2. The direction of trade and ordering of trade partners varies for exports and imports. In 2013, the EU28's top three import sources were (in descending order) China, Russia and the US, while the top three export destinations were the US, Switzerland and China. All the data in this Memo excludes intra-EU trade.

3. As of 31 January 2014, 435 physical RTAs (counting goods, services and accessions together) were notified to the GATT/WTO, of which 248 are currently in force. The overall number of RTAs in force has increased steadily since the 1990s, a trend likely to be buttressed by the many RTAs currently under negotiation.

4. US domestic law permits targeted energy exports only to countries with which the US has free-trade agreements.

10 ENERGY

1. That is, it should discuss the schemes to remunerate electricity, the roll-out of renewables, networks, demand response, capacity, system services, etc, and assign the responsibility for the development and operation of networks, renewables, etc.

2. There is some legal issue with delegating powers from the Council and the Commission to community agencies ('Meroni Doctrine') that has been widely discussed in the context of the institutions of the 'banking union'.