

The discussion so far demonstrates that security is the operative term in the EU's energy portfolio. The term is ubiquitous throughout the EU's energy-related legislation, from its directives and regulations on gas and electricity supply and distribution to the Commission's Communications on diversification, the increased use of renewables, or climate change. For most energy consumers, energy security translates into the stable supply and price of energy services required on a daily basis, specifically fuel for transportation and electricity and heat for homes, businesses, and industrial facilities. Energy is vital to economic and political stability, a fact that politicians ignore at their political peril. In Europe, where most states need to import primary resources such as oil and gas, failure to deliver such stability can risk government legitimacy in the eyes of their citizens and, either through unrest or electoral politics, endanger their hold on power. The security of supply and stability of price are thus central components of domestic politics and, as a logical extension, a central point of contention and concern for EU member states. Likewise, governments and businesses in supplier countries that are rich in energy resources, such as Russia, Norway, Algeria, and Qatar, require access to consumer markets, upstream investments, and price stability in order to secure and plan their deliveries.

### The nuclear portfolio

Looking at the EU's three-pillar approach, one can easily identify key policy areas that are implicitly included or, for political expediency and Community organization, excluded. As the discussion above illustrates, for example, there is little mention of nuclear power, despite its continued important role. Nuclear power is a special case in the EU energy policy (Nuttall 2010), one that places it partially outside the box of the EU's broader energy portfolio while concurrently focusing the Commission's activities and efforts on issues of safety and non-proliferation. In principle, 'It is for each member state to decide whether to use nuclear power' (European Commission 2010c) and, according to the Commission (2006), decisions relating to nuclear energy 'can have very significant consequences on other member states' as relates to EU climate goals and dependence on imported energy. Thus, while the member states 'are neither obliged nor prevented from using nuclear energy' (Koranyi 2011: 195), the Commission tacitly backs member states in their

choice to use nuclear energy; it just simply cannot afford to promote it, irrespective of how relevant it may be in meeting emissions' targets, maintaining reliable supplies of electricity, or balancing the EU's overall energy mix.

According to Eurostat's regularly updated online *Energy Trends* (2014), nuclear 'accounted for the highest share in primary energy production in EU-28 in 2012 (29 %) well ahead of renewables (22 %), solid fuels (21 %), and gas (17 %). Given the obvious importance of nuclear power in its energy mix, one would expect a fairly high level of interest, even focus, on nuclear power as an alternative to fossil fuels for electricity generation. However, the Commission does not distinguish between nuclear and other sources in applying its regulatory framework for the single market in electricity (Nuttall and Newberry 2010). The difference is where completion and environmental sustainability play essential roles in shaping EU energy policy: in the nuclear domain the equivalent instruments were safety regulations on working conditions, hazardous materials, and non-proliferation (Housiadas and Dimitriou 2013).

The quiet and rather cautious position of the Commission on the nuclear portfolio is understandable. Nuclear energy is controversial: divisions – legal, practical, and most importantly political – prevent unity between the member states. Some member states, such as Ireland and Austria, adamantly avoid its use, while others, such as France and the UK, remain fully committed. Also, because the salience of electricity security varies across the EU, some member states, particularly the Central and Eastern European ones that are highly dependent on Russian energy imports, see greater benefit in adding nuclear power to their energy mixes than do others (Nuttall and Newberry 2010). Many of the states that oppose nuclear do so on political grounds (Helm 2012), or are already sufficiently diversified in their electricity generation sources as not to need it.

Nevertheless, the member states do agree on the need for extremely tight safety standards and the security of radioactive supplies. That has been and remains the focus of the Commission's attention. EU rules governing nuclear safety integration, harmonization, and use for energy production exist within the framework of the European Atomic Energy Community (Euratom), founded in 1957 as one of the two Rome Treaties (Chapter 3). The history of nuclear governance in Europe followed a parallel but separate path to the rest of the integration process. According to the Euratom

safety (European Commission 2013h). In October 2013, the Commission moved to change the existing EU framework on nuclear safety by proposing a *New Nuclear Security Directive*. Their proposal included enhancing the regulations to the latest technical standards, giving national authorities greater independence from their governments, allowing for the setting of EU-wide safety objectives, and establishing a system of peer reviews to verify compliance (run through the Commission). Two additional measures included opening up the industry to public scrutiny and requiring public disclosures by licence holders and regulators (i.e. creating the opportunity for citizens to participate in the licensing process) (European Commission 2004, 2013i).

The EU formally amended its *Nuclear Safety Directive* (Council 2014a) in July 2014, and full implementation (transposed into national legislation) should occur by 2017. The final consolidated version of the new directive included most of the Commission's proposals, specifically: strengthening the independence of national regulatory authorities from their national governments; implementing the Commission's proposal for a system of peer reviews of national safety assessments, the findings of which will be made public; requiring safety re-evaluations of all nuclear power plants no less than once every 10 years; and formalized requirements that operators release information to the public (both in normal and crisis times).

The Commission also collects data on the member states' nuclear installations and practices as part of its oversight role. For example, a 2009 Commission recommendation (European Commission 2009d) impels users and holders of nuclear materials to keep records on the flow, processes, and stocks of their materials, and declare them to the Commission. Inspectors under the employ of the Commission travel to all operating reactors, collect data, and publish annual safety reports. On the external front, DG Energy communicates regularly with nuclear authorities around the world, promotes global standards, and participates in related forums, such as the European Nuclear Energy Forum (ENEF), a platform for discussions between stakeholders in the nuclear field. Yet, almost all of these activities, internal and external, revolve around safety issues. For the EU, the nuclear portfolio is a matter of how to go about it rather than whether to do so. This is quite explicitly revealed in the Commission's Communications on nuclear policy. Officially, the EU supports a framework for nuclear energy in those member

treaty, the Community is supposed to 'Establish uniform safety standards to protect the health of workers and of the general public; Building upon earlier secondary legislation on informing the public in the event of emergencies (Council 1989) and protecting outside workers who could be exposed to radiation (Council 1990d, 1997), several additional directives have been passed since the late 1990s, including: ones on safety standards and radiological protection of workers (Council 1996) and safety at nuclear installations (Council 2009a), which have strengthened the rules laid out in Article 30 of the Euratom treaty; the *Waste Directive* (EP/Council 2008a), obliging member states to deliver national plans to the Commission (the first by August 2015); and the more general transportation of spent fuels and waste and other dangerous goods (Council 2006). The two latter directives followed the passing in 2003 of a related directive on the management of waste (Council 2003) and a Commission recommendation on nuclear plant safety (European Commission 2004a; see also Council 2003a), which stemmed from a 2002 Commission Communication (European Commission 2002). The most important of these is by far the *Nuclear Safety Directive*, which for the first time established European-wide requirements and made IAEA safety fundamentals binding on the member states, but most importantly left the implementation to the member states, which at least in part explains the limits of EU nuclear policy. Several directives were repealed and replaced in 2013 when the Council issued a new directive on safety standards that established 'uniform basic safety standards for the protection of the health of individuals subject to occupational, medical and public exposures against the dangers arising from ionising radiation' (Council 2013a).

In practice, responsibility for the safety of nuclear installations, as well as the systems of licensing and supervision, lie with the member states, and nuclear plant operators (i.e. licence holders) bear responsibility for disasters. Member-state reporting on implementation only began in 2014 and should continue every three years hence (Housiadas and Dimitriou 2013). In the wake of the 2011 Fukushima nuclear accident in Japan, the Commission cooperated with the European Nuclear Safety Regulators' Group (ENSREG), an independent body of senior officials from related nuclear and energy regulatory bodies, to carry out voluntary stress tests. Those tests revealed that there was room for improvement and that there were 'significant differences in the national approaches' to nuclear

dealing with nuclear installation safety' (de Esteban 2002). By the time safety became an issue (following the Three Mile Island incident in the US and later the Chernobyl disaster), Europe's nuclear industries were prospering economically, but following very different paths with different set-ups and regulation schemes in the respective member states. Since then, harmonization was made easier merely by the fact that the treaty basis (Euratom) for such cooperation had long been in place, if unused. Nevertheless, the nuclear industry in Europe faced, and continues to face, serious obstacles, the most important of which being the combined effect of public concern and national politics.

There simply is no consensus on the use or future of nuclear power in Europe by the member states, and certainly not by the population. As Dieter Helm (2012: 124) observed, opposition to nuclear power is 'an ideological position for most; a matter of faith rather than a question open to debate and discussion'. What is more, the member states themselves have changed their positions on nuclear power over time. In Sweden, for example, a 1980 referendum called for a phase-out of nuclear power, a decision which, though never fully implemented, was reversed 30 years later. In Germany, Chancellor Gerhard Schröder's government, which included the Green Party, decided in 2001 to forgo all new construction and close all of its nuclear power plants by 2020. Although Angela Merkel's government later took a less harsh line at first, it moved swiftly after the Fukushima disaster to close eight power plants, promising the decommissioning of its nuclear facilities within a decade (Helm 2012). Meanwhile, Finland and France are expanding their use of nuclear energy, while the Netherlands, Poland, Sweden, the Czech Republic, Lithuania, Estonia, Latvia, Slovakia, the UK, Bulgaria, and Romania are each actively debating their respective nuclear energy policies. Even if the Commission were to fully engage itself and take sides in the nuclear debate, it would have to overcome not only the opposition of some of the member states but also face off against a public that is extremely sceptical about nuclear power (European Commission 2010c).

Finally, as climate change became more pressing of an issue, hopes for a nuclear renaissance rose. Indeed, Europe's growing concerns about climate change should have been 'heaven-sent for the nuclear industry' (Helm 2012: 121): after all, nuclear energy generates low-carbon electricity without producing much CO<sub>2</sub> and,

states that choose to use it, as long as they do so 'in conformity with the highest standards of safety, security and non-proliferation as required by the Euratom Treaty' (European Commission 2007b). Nevertheless, it is clear that there is support for nuclear energy as part of the EU's overall energy mix, particularly in light of the climate change issue. It is particularly telling that in the Commission's 2007 Communication, *An Energy Policy for Europe*, it dedicated less than 600 words to the nuclear question and chose to describe nuclear in a rather positive light as 'one of the cheapest sources of low carbon energy', 'less vulnerable to fuel price changes than coal or gas', and 'one of the ways of limiting CO<sub>2</sub> emissions' (European Commission 2007). Still, recognizing nuclear energy's benefits for the larger goal of building a low-carbon economy is a far cry from actually placing a stamp of approval on the matter or accounting for its economic sustainability, which as Helm (2012) points out, is questionable. Even the most visible EU-backed project in the nuclear field, the International Thermonuclear Experimental Reactor (ITER) is a distant possibility. Given its costs to the EU (over €1 billion between 2012 and 2013) and its very long timeline, it is reasonable to ask whether or not EU funds could be better spent on infrastructure for its fledgling internal energy market.

In addition to all these points, nuclear has clear military (France and the UK operate nuclear weapons programmes) and profoundly serious health implications, which separate it policy-wise from other primary energy fuels. The military dimension is clearly a subject and prerogative of the two member states involved, an unquestioned core of the defence postures of both France and the United Kingdom' (Jasper and Portela 2010), and there is no serious discussions at the EU level of integrating member-state nuclear forces in any future plans for coordinated or common defence forces under the rubric of the EU's evolving *Common Security and Defence Policy* (CSDP). In the area of health and safety, on the other hand, there has been a significant amount of cooperation between the member states for many years, particularly in the area of safety and emergency response. Thus, in addition to the legal framework in place, 'there is a "non-binding acquis" that is built on fundamental common principles' (de Esteban 2002). This was not always the case. Nuclear installation safety and waste disposal were not particularly important to the original signatories of Euratom, and for much of the history of the EU well into the 1970s, there was virtually 'no Community activity directly

approach meets the requirements to transform Europe into a less carbon-intensive economy, it also flies in the face of decades of liberalization, privatization, and efforts to eliminate subsidies and other unfair market practices. This policy set, as one can see, is complex and fits all three rubrics of our energy policy typology. Third, the EU is using diplomacy and rule export to incorporate bordering regions into a standardized set of operating rules and direct investments in the energy sectors of its supplier states. This clearly falls under the external dimension of EU energy policy.

These approaches cannot be understood merely as separate pillars as such because each operates concurrently with varying effects on the other. On the demand side, the EU has set some mighty goals, some of which are binding. Its plans to raise the share of renewables in its total primary energy supply, including raising the share of renewable energy (use of biofuels, hydrogen, etc.) in the transport sector by 2020 (EP/Council 2009d), and its ever-increasing emission reduction targets point to an active approach to fundamentally change how energy is consumed in the EU. In January 2014, the Commission added new objectives for 2030, including reducing emissions to 40% below 1990 levels, increasing the share of renewables in overall consumption to 27% (up from 13% in 2012), and strengthening the EU-ETS market. For the latter, it proposed adding a market stability reserve in 2021 that would adjust the supply of auctioned allowances downwards or upwards based on a pre-defined set of rules and would improve resilience to market shocks and enhance market stability' (European Commission 2014: 8).

Yet the Commission backtracked between 2003 and 2009 on biofuels as it became clear that some fuel products could have substantial negative impacts on biodiversity and land use, leaving many investors and supporters of alternative fuels in the lurch. Similar retreats occurred in the German biodiesel market when the German government pulled the plug on subsidies, and when the

historically, was relatively cheap in comparison to early wind and solar power. However, the Fukushima disaster brought back old fears, and the US shale gas revolution in the mid-2010s pulled the economic rug from under nuclear's feet' (Helm: 21). Therefore, although there were 132 nuclear power plants operating in 14 member states in June 2013, nuclear power was as controversial as ever in January 2014.

### Parallels and paradoxes

There is yet another, more critical way to understand the EU's approach to comprehensive energy security and, thus, the components of its energy portfolio. Whereas the three-pillars approach aptly describes the EU's energy portfolio as the Commission frames it, one can also observe the EU taking three parallel, and sometimes contradictory, approaches to achieve energy security (Pollak et al. 2010) that focus on reducing demand internally, expanding its supply options, and exporting rules externally. First, it is actively pursuing the reduction of overall energy demand by increasing efficiency (also known as reducing energy intensity) and the share of renewable fuels in its energy mix. Demand reduction, in turn, serves at least two other purposes. Hypothetically, this should reduce the need to import fossil fuels from outside the Union, hence mitigating the negative geopolitical consequences of external dependence by shrinking the security-of-supply issue to the internal matter of the (un)reliability of renewable sources of electricity. The end result of this approach is that it also reduces greenhouse gas emissions and, thus, enhances environmental sustainability. The focus of these actions matches elements of the internal and multidimensional rubrics of our energy policy typology. Second, the EU is supporting private commercial projects to build new pipelines and LNG terminals that increase natural gas-import capacity, diversify import routes, and expand the roster of natural gas suppliers. Combined with a reduction in demand, new sources of traditional fossil fuels enhance the stability of supplies flowing to Europe. The downside of that approach, however, is that it may also reduce the impetus to invest in alternative or substitute fuels, by keeping fossil fuel prices low enough to prevent alternatives from becoming competitive. The only way to overcome this dilemma is to support the price of alternative fuels until the scale of their production is such that they can compete with oil, gas, and coal. Unfortunately, while such an