Chapter 7

External Energy Politics

The establishment of the ECSC and Euratom in 1957 marked the first modern example of a collaborative 'external' energy policy in peacetime by any state, let alone six historically warring parties. Yet despite growing to include 28 countries in little over half a century and subsequently integrating energy matters between them, developing and sticking to a common position on energy relations with states outside the EU remains one of the most divisive issues in European politics. As two observers of European politics noted, energy is both 'an issue of integration and disintegration' and one that may 'turn out to be the ultimate litmus test of [the EU's] political and economic unity' (de Jong and van der Linde 2008).

This chapter examines Europe's external energy policy in a global context and explains how it is using diplomacy and specifically rule export to ensure security of supplies from abroad with marked, but mixed success. Most work on the EU's external energy policy places emphasis on EU–Russian energy relations, the Energy Community, the role of the EU in international organizations, the building of a southern energy corridor, or the increasing role of supranational institutions (see e.g. Beyli 2012 Konstatyan 2012, Youngs 2011). Our approach differs slightly, in that we look at the EU and its energy needs and relations as a subset of the global competition for energy resources. Although the EU is not a consolidated unitary actor in the area of external energy relations, its external energy goals should 'be pursued in a spirit of solidarity among Member States' (Art. 194 TFEU), and therefore, it is helpful to understand when, where, and how this solidarity either does or does not function, and how the EU approaches trying to mitigate the latter. In so doing, we close the loop between the three dimensions of energy policy identified in Chapter 1 and show how essential, and yet distracting, the external dimension is to achieving comprehensive energy security.

The time frames required for member states to reach a consensus and implement common external policies rarely keep pace with the

rapid political and market developments that occur within and between external suppliers (Schubert 2006). This is a chronic problem for the EU, whose effects manifested across multiple gas delivery shortages resulting, among others, from: disputes between Russia and Ukraine; from shortfalls in LNG deliveries due to a spike in demand from Japan following the Fukushima disaster (Japan relies on LNG imports for virtually all of its natural gas supply and pays a premium, e.g. 35–50% above average EU prices over the first quarter of 2013); or as cheap coal flows to Europe from a US surplus due to the latter's internal success in producing unconventional natural gas. The fact is that the EU faces stiff competition from other large consumer countries on the one hand and is subject to market forces beyond its control on the other, both of which affect the availability and pricing of key fossil fuel resources.

At the core of the EU's external energy strategy is the need to secure the stable inflow of the resources it needs. In an international context, those needs translate into long-term reliable access to oil, natural gas, coal, and uranium. Of the four, it is the struggle to secure reliable access to and transport of oil and natural gas that have the most substantial effect on Europe's long-term energy security. A *Public Consultation Document* from the Commission notes that the 'EU energy system is not isolated' and '[f]or the next decades, access to hydrocarbon resources will remain of strategic importance' (European Commission 2011h). The EU imported over €400 billion in oil and gas in 2012, which is more than double the average annual import cost between 1990 and 2011 (European Commission 2014) and indicative of its vulnerability to supply and price shocks.

In its 2011 Communication, *The EU Energy Policy: Engaging with Partners Beyond Our Borders*, the Commission identified four objectives to ensure its energy supply (European Commission 2011g). First, it wanted to improve internal coordination by establishing an information exchange mechanism on agreements between member states and their suppliers. The Commission argued that this would strengthen the external dimension of the EU's internal energy market and allow it to make agreements with third-party countries, including Russia, at the EU level. Second, the Commission wanted to strengthen its external energy supplier partnerships by establishing standardized rules for EU relations with suppliers and transit countries, including legally binding nuclear safety standards – what may also be called rule export. Third, it wanted to mainstream energy in its development policy. Fourth, it wanted to rank its energy partners, and thus treat them accordingly with appropriate instruments, by proposing to set up a Strategic Group for International Energy Cooperation in order to centralize discussions and help foster solidarity. The first two of these four objectives are real policies with measurable outcomes that could affect EU energy supply security. It is difficult to identify an immediate impact of the latter two, however. The fact is that EU external energy policy is best explained in terms of its dependence on and relationships with foreign suppliers, and particularly, the need to reduce or dissipate the former and improve the latter.

This chapter begins with a brief overview that sets the context within which the external dimension for energy operates, including the core issues and obstacles it faces. Most notable among them is the need to achieve supply diversity and reliability and put solidarity into practice in light of an incomplete internal energy market. We then look a little closer at the relationship between sovereignty, solidarity, and energy resources before describing the EU's most important external partners, venues, and engagements, in particular the Energy Community and the EU's special bilateral energy relationships. We then turn to the thorny politics of pipelines and the maturing LNG options, examining the infrastructure in place and its consequences for policy. We round off the chapter with an examination of four geopolitical challenges that will affect, if not shape, the continued evolution of EU external energy policy.

Setting the context

The following subsection sets the context for understanding the EU's external energy policy and, based on the premise that there is a need to acquire additional resources from abroad, explains why the Union's external energy dimension is fraught with economic, geopolitical, and even ethical risks.

The international energy market is imperfect. It is subject to speculation, political interests, and machinations, which add volatility to prices and, on occasion, disrupt the smooth flow of supply to consumers. Therefore, Europe's common external energy policy needs to be understood in geopolitical terms. International coal, uranium, and oil markets are relatively stable and globalized. Oil prices tend to be more volatile, but oil has not been subject to major

supply disruptions since the late 1970s. Although natural gas is increasingly being sold and transported via ship (31% of all traded gas worldwide and 26% of EU imports in 2012), the EU still receives the vast majority (76%) via pipeline (BP 2013, Ferrier 2013). Even if the LNG market matures such that supplies are sufficient to decouple the price of gas from oil – a circumstance that the EU is trying to help bring about by liberalizing its gas market using regional hubs – the sheer volume of gas consumed in Europe predicates that the EU will continue to depend on pipelines, and the suppliers and transit states connected to them, for the foreseeable future.

Acquiring energy resources of any type entails complications. Renewables such as wind and solar energy are widely distributed, but costs and capabilities vary widely based on geography and climate. Fossil fuels are geographically concentrated, environmentally messy, but they also are fixed and reliable. Coal and uranium, both used for electricity generation, can easily be transported in large quantities by ship or rail. Oil is shipped by tanker or, when geographic proximity permits, by pipeline. As there are many different suppliers of petroleum, the international market for oil is highly competitive and prices are market driven.

Until the recent advent of technologies allowing gas to be liquefied and shipped from distant locations, natural gas was subject to regional politics. Shipping gas via pipeline from source to destination inexorably links specific suppliers to specific markets based on long-term contracts and fixed prices. Consequently, countries heavily dependent on imported natural gas tend to be geographically and politically limited in their options to find alternative suppliers. Nowhere is this more evident than in Europe.

Indigenous reserves, the geographic distribution of external sources of gas and oil, technology, and the willingness of the EU's competitors to cooperate are all factors that affect the EU's ability to secure its foreign fossil fuel resources. Geography colours the EU's strategic energy interests and options. While EU members Denmark, the Netherlands, Germany, and the United Kingdom together sit upon around 2.2 trillion cubic meters (tcm) of proven natural gas reserves (BP 2013), those reserves amount to only 4% of the world's total. At current production and consumption ratios, if the four were required to provide the Union with all its needs, they would exhaust those reserves in less than a decade. Europe simply has no choice. It must look outside its borders for natural gas. Three factors determine Europe's ability to import those resources: the international reach of its pipeline network, the quantity and capacity of its LNG import terminals, and the competition it faces for the sources to feed those pipelines and ships.

To meet these needs the EU looks to Russia, the Middle East, the Mediterranean Basin, and places as distant as Central Asia and as difficult to operate in as the Arctic. Europe's nearest gas suppliers are aligned along its frontiers: Norway is to the north-west, Algeria across the Mediterranean, and Russia to the east. Plans are afoot to create a fourth corridor to the south-east to acquire Caspian and eventually Iraqi, and even Iranian, resources, both of which are constrained by political rather than technical issues. Deposits in the Arctic are still undeveloped and their dimensions remain largely uncertain, as the very territory itself and resources it holds are in dispute. The world's remaining natural gas reserves are distributed across the globe, in some cases in large quantities, and slowly becoming available as LNG.

The EU is a unique energy importer because it oscillates between decades-old attempts to agree on a common external energy policy on one hand and national interests and egoism on the other, the result of which is a series of overlapping arrangements to import supplies. That redundancy actually acts as a positive factor for EU security of supply. However, the lack of unity hinders the realization of a single internal energy market and creates economic advantages and disadvantages, diminishing Union-wide returns on any oversupply. It also shapes the external relations of individual member states. Austria, for example, imports natural gas from Russia via Ukraine (4.7 billion cubic meters in 2012), and then exports the vast majority westward, for a profit, benefiting its neighbours, but at the same time tying its economic fortunes to its relationship with Russia. Austria started importing Russian gas in 1968, long before it joined the EU, yet its case is emblematic of the energy divide found within Europe, one shaped by geographic proximity to land-based suppliers or maritime access. Coordinated and used for mutual benefit, these internal divisions can actually enhance the EU's security of supply, but left unused or, worse, misused, it can also be the source of internal disputes over both external policy and internal solidarity.

The EU's internal divisions demonstrate the importance of geography in understanding the larger international energy game. The resources Europe requires are not evenly distributed around the

globe. Australia and Canada are the world's primary suppliers of uranium ore. Coal is available in large quantities in the US, the EU, Russia, India, Indonesia, and China. Most of the world's proven oil reserves, however, are located in the Middle East (with vast reserves of unconventional oil found in the US, Canada, and Russia); and most of the planet's natural gas comes from Russia, Qatar, and Iran, and increasingly from the US, with vast, but yet untapped, quantities in China.

Europe is highly dependent on foreign suppliers for each of the primary resources. Uranium ore and coal, both used for power generation, do not pose nearly as many problems as oil and gas, because the suppliers of these resources are stable and reliable, as are the means to ship the minerals to and within the EU market. Nevertheless, the EU's commitment to reduce greenhouse gas emissions, and its earlier shift away from oil for use in power generation in response to the 1973 Arab oil embargo, only increased its dependence on its less environmentally damaging substitute, natural gas. Oil, meanwhile, remains essential for the transport industry. EU dependence on foreign-supplied oil and natural gas in 2012 was a staggering 87.4% and 65.3%, respectively, in 2013 (Eurostat 2015). It was also concentrated. Russia alone accounted for more than a third of the EU's oil imports, and Russia, Norway, and Algeria combined to supply 71% of its gas imports. According to ENTSOG, while 'no Zone had a supply dependency on Norwegian, Algerian, Libyan or Azeri supplies over 20% [...] a range of Zones [were] reliant on Russian gas with 10 Zones having a supply dependency of 60% or more in 2013' (ENTSOG 2013a: 9).

Yet as bleak as this picture may appear when it comes to oil, the EU has actually diversified its gas suppliers since 2006, when the same three suppliers accounted for almost 85% of EU gas imports. This is in part due to the economic downturn that began in 2007 and growth in LNG deliveries to EU terminals, which in 2011 accounted for 19% of its gas imports (Ratner et al. 2013). Also, because the international market to buy and ship oil is dynamic and globalized, sudden and extreme oil shortages are few and far between. Price volatility is part of the market, but as long as global production capacity exceeds demand, short- and medium-term access to supplies remains relatively secure. To hedge the risks of significant or prolonged supply disruptions, member states also maintain a minimal amount of strategic oil reserves that, in theory, should cover up to 100 days' worth of missing imports. Although

no similar arrangement formally exists with natural gas, gas hubs and storage facilities do exist, and in early 2014, national inventories of gas equalled between 60 and 90 days' worth of demand (Gloystein and Kahn 2014; European Commission (2009e)).

Awareness of the risks to its gas supplies inspired the member states to increase their cooperation, and there has been good progress since 2004. For example, the EU established a new legal framework (Directive 2004/67/EC) to safeguard gas supplies (EP/Council 2004a) and created two new high-level bodies, the EU Network of Energy Security Correspondents (energy experts from the member states) and the Gas Coordination Group. Following the gas supply crises of 2006 and 2009, the EU passed another regulation (994/2010) on the security of gas supplies (EP/Council 2010a), which aimed at harmonizing standards and setting out rules for crisis planning, as well as a coordinated response, in the event of future supply disruptions. Building upon the general principle that member states should diversify routes and sources of supply, the regulation called upon the member states to ensure that 'transmission system operators shall enable permanent bi-directional capacity on all cross-border interconnections' between the member states unless they request an exemption or make an alternative proposal for bi-directional capacity concerning the reverse direction (European Parliament and Council 2010a: Articles 6.5 and 7). It set a 3 December 2013 deadline to 'adapt the functioning of the transmission systems in part or as a whole' in order to enable those reverse flows. To meet these new requirements, the regulation also stipulates that the member states at least have to consider increasing their storage capacities. However, it was not made a requirement as in the case of oil. As of early 2014, EU law still did not require member states to maintain strategic reserves of natural gas. Thus, during emergency shortages, existing or ad-hoc arrangements have to be quickly implemented, making use of the member states' autonomous potential to store and move gas between them.

Complicating matters, Russia delivers most of its gas supplies to Europe via a pipeline network built in the days of the Soviet Union. Designed originally to interlink the now defunct COMECON economic block, with the added value some years later of getting hard currency from Western Europe through exports, those pipelines cross independent states to reach the borders of the EU, adding another type of player to the calculation, the energy-transit state. Disputes between Russia and Ukraine, the latter being the primary

export corridor to Europe, have led to significant disruptions to EU supply and complicate solidarity-based responses to Russian intransigence in multilateral organizations or its security activities in the Caucusus. The most significant crisis occurred in 2009 when, between 7 and 20 January, Russian gas supplies to Europe were completely shut off. While some EU member states could rely on other sources as well as reroute some of their own surpluses eastward, Slovakia, Poland, Hungary, and Romania were suddenly cut off in the cold of winter, a circumstance which Europe has endeavoured to avoid in the future (European Commission 2009).

The recurrent Russia–Ukraine energy dilemma is indicative of the risks of energy interdependence, and in particular the politically sensitive issue of pipeline politics. Pipeline politics revolve around the routes pipelines take from source to destination. It is not merely a matter of supply. Since pipelines cross borders, national sovereignty is affected, and construction requires large amounts of money and long-term planning. While suppliers and consumers both want to maximize direct access, minimizing costs for consumers and maximizing profits for suppliers, transit states through which the pipelines flow take cash fees or i- kind supplies, raising costs and reducing profits. When disruptions occur along a transit route, everyone loses. The choice of routes affects national incomes and consumer supply security. As a result, international competition over which lines to build, which routes to follow, and which volumes of supplies to deliver are often the source of heated negotiations (at both the government and commercial levels), and have provided the basis for bilateral cooperation and competition. Such was the case when Russia and Germany agreed to jointly build Nord Stream, a project that, despite original opposition, has proven to be a positive addition to Germany's security of supply.

In addition to physical pipelines and their routes, the EU also needs to consider a complex set of economic, technological, and political issues that directly or indirectly affect its security of supply of gas and oil. Any external energy strategy involves investments in new energy technologies, the construction of deep-water ports, upstream exploration and production, downstream distribution, environmental considerations, competition for supplies, and common regulatory frameworks. Equally important is the economic and political conditions of its major suppliers. Many of them (Algeria, Norway, and Russia in particular) rely on energy exports to the EU for substantial shares of their GDP and, with the notable

exception of Norway, they tend to lack transparency, and suffer from corruption, domestic inequality, and political instability (Schubert 2006). Consequently, the EU not only faces material risks associated with geographical access, it also faces legal and ethical dilemmas over governance standards, transparency, and economic development in each choice of supplier. For the EU and its energy companies that means guaranteeing the security of its foreign direct investments in the upstream sectors of key energy partners such as Russia and prospective ones like Azerbaijan. To that end, the EU employs traditional economic statecraft at the bilateral and multilateral level. Through the former it has secured supplies from Azerbaijan and established better communications and information exchanges with Russia; through the latter it has worked to export its internal energy market rules, primarily through the Energy Community.

Energy geopolitics also includes struggles for regional domination and spheres of influence. The EU's struggle to diversify its sources and suppliers place it right in the middle of the some of the world's longest running and thorniest venues of international competition. For example, not only does the Caspian region possess oil and natural gas in abundance, its position sandwiched between powerful neighbours Russia, Iran, and China makes it the perennial target of political manoeuvring. The US is no less involved, as it sees Central Asian independence as a bulwark against Russian expansion and Iranian influence. Early twenty-first century activity in the region is strikingly similar to The Great Game of the nineteenth century, when the UK and Russia drew up the region's borders. Access to African energy resources is no different, as Chinese, Russian, American, Indian, and European companies compete fiercely to secure deliveries to their respective domestic markets, generate revenues, and control physical access to resources headed to other markets. Moreover, because many of Europe's competitors operate state-owned energy conglomerates, the quest for energy resources is not a mere matter of market economics, but rather a geopolitical game of Monopoly.

One of the large global players, the United States, broadly shares the EU's international energy goals, particularly as pertains to establishing universal norms and laws, and soon may develop into a natural gas supplier (EIA 2014, IEA 2013). China is a powerful competitive consumer also actively seeking to secure resources abroad. It is doing so by integrating its state-owned companies into

the global supply chain, of which the likely outcome is an addition to rather than a drawdown of supplies in the market, because the distance between mainland China and its companies' remote activities makes exclusive deliveries too expensive. However, Russian investments appear to be less oriented towards adding supplies to the global market than at maximizing Moscow's share of existing global trade, an approach that meshes with Vladimir Putin's notion of a Russian renaissance.

What is particularly troubling for the EU is that both Russia and China prefer a multipolar rather than non-polar world, where regionalization trumps multilateralism and energy is a central component of their respective strategies (Die Welt 2008, Isachenkov 2003). A multipolar world without a commensurate increase in global norms and rules would not bode well for advocates of global governance, and could easily endanger institutions such as the Energy Community. Russia's hard-handed tactics in Georgia and Ukraine may be an indication of what is to come. Meanwhile, China singled out energy as a fundamental component of its security environment (PRC 2006, 2009: 4).

Instability and uncertainty about North Africa's regimes also plays a role in shaping the EU's external energy planning. Political unrest is prevalent across the Maghreb. If and when violence erupts, key components of national energy infrastructures could be disrupted or destroyed. In Algeria, this could affect gas supplies to Spain and France. In Egypt it could reduce or even halt shipping traffic through the Suez Canal, a waterway of tremendous value to European energy security. Post-war Libyan unrest has already led to a several month-long halt in gas exports to Italy in 2013. Added to the political uncertainty is the economic one, brought on by the region's future domestic demand, which is expected to eat into energy exports (Westphal 2011).

Prior to the oil crises of the 1970s, privately owned international oil companies (IOC) controlled most of the world's oil reserves. Today, private, commercial energy companies control very little of the world's physical oil and natural gas resources and have to compete with state-owned energy companies from Russia, China, and India, among others, for access to resources, ownership of pipelines, ports, refineries, and distribution facilities. It is almost impossible to separate the actions of Russia's Gazprom or China's CNOOC from the foreign policies of their respective governments. All of these factors, from political instability to the increased role of

quasi-state commercial enterprises, from the potential for new discoveries to structural changes in the international energy market, means that the EU must diligently pursue a multilateral legal framework for the exploration and delivery of fossil fuel resources.

Finally, similar underlying motivations drive both the EU's external energy policy and those of its suppliers. Whereas the EU focuses on security of supply – reliable delivery from multiple suppliers with 'transparent and non-discriminatory security of supply policies' (Council 2004) – its suppliers, seek security of sales – reliable, long-term commitments by multiple customers purchasing on long-term contracts, and investing in upstream exploration and infrastructure with as little market regulation and meddling as possible. Thus, security and diversity are equally important to planning for both parties. They simply come with different priorities. On the price side, exporters want prices just high enough to stabilize their income and, often, their national budgets, but low enough to offset downward pressure in demand. Buyer diversity translates into greater consumer competition for resources, adds upward pressure on demand, and increases revenues, which in turn drives a deep wedge between EU member states as well as between the EU and its primary competitors.

In summary, the global energy game is one of long-term investments and strategic positioning. Poor planning or a lack of commitment can leave countries vulnerable and dependent upon the vagaries of international politics. Consequently, every EU energy initiative on the global stage is under relentless stress. These conditions help explain why the EU focuses its external energy policy on integrating suppliers, consumers, national interests, and geopolitical forces in regional, and ultimately global, multilateral legal frameworks designed to mitigate political obstacles and maximize the market benefits for its participants.

Sovereignty, solidarity, and energy resources

Centrifugal forces hamper the EU's pursuit of a common external energy policy. Issues such as sovereignty, trade relations, foreign dependency levels, the absence of a global legal framework for the exploration and trade of energy resources, and the anarchic nature of the international political system all combine to weaken European solidarity. Consequently, the EU's outward approach towards energy more often resembles a set of independent islands than it

does a unified block. Of all the forces that test EU solidarity, national sovereignty is the most powerful, and energy is one of the issues at its core. Vital to economic growth and national security, governments loath relinquishing such powers as the control of mining rights, transit permissions, customs and border controls, protection of critical infrastructure, and even market regulation. The member states have transferred some energy competences to the EU's supranational institutions, particularly as pertains to market oversight. However, because the member states retain full autonomy over their respective national energy mixes, each state also maintains independent relationships with foreign suppliers in the form of bilateral agreements, in many cases taking the form of long-term supply contracts. These competing foreign relations exacerbate existing internal divisions over external policies and hamper the Commission's efforts to formulate a unified external approach to energy.

Member states vary significantly in size and level of dependence on particular energy supplies (see also Chapter 1 on the EU's energy portfolio). Natural gas provides a case in point. The EU's largest energy markets are located in Western Europe. France and Italy import large amounts of natural gas from multiple external sources, largely because of LNG and proximity to North Africa. In both cases, however, natural gas does not constitute the largest share of their primary energy needs. The same is true of Germany, which imports from Norway, Russia, and the Netherlands (to a lesser extent also Denmark and the UK). The opposite is the case in many of the Eastern and Baltic member states where the economies are significantly smaller, but foreign dependence on a single supplier is dangerously high (in some cases approaching 100%). Moreover, some states are more dependent on natural gas for their electricity generation than others. Those that currently rely on coal to generate their electricity are under pressure to increase their power-generating share of natural gas or renewables to meet emissions targets. Variances in Europe's domestic energy mixes and the incomplete nature of the internal energy market all but guarantee fundamentally different priorities for each member state. Thus, the very forces that should unite the member states actually divide them.

While matters of sovereignty and trade dependence pull member states away from each other, changes in the international energy environment over the last four decades considerably complicated matters. In 1972, one year before an Arab oil embargo sent

European countries dashing for alternatives, OECD Europe generated more than a quarter of its electricity with oil (IEA 1997). Following the embargo, Western European states and the US moved to remedy their dangerous dependency, banding together to establish the International Energy Agency in an attempt to coordinate the demand side of the market, and began switching fuels and building emergency stocks. Most increased their use of coal and some turned permanently towards nuclear power. One example of the latter was France, where oil accounted for as much as 49.3% of electricity generation in 1972 (Daintith and Hanch 1986), whereas by 2006, oil accounted for a mere 1% of French electricity generation. Yet, France's shift to nuclear was not uniform across the EU.

The risks associated with oil dependency, combined with the existential danger of nuclear accidents, impelled many EU countries, including those that would join later, to turn to natural gas. This had the positive effect of diminishing the European electricity market's dependence on Middle East oil. However, most EU members ended up exchanging foreign dependence on one source for another. Large discoveries in the North Sea provided a reliable alternative at first, but as production peaked and demand increased, Russian exports grew in importance. The EU's slide into external dependence for natural gas accelerated in the late twentieth century, as environmental concerns and fears of global warming pushed Europe to increase its share of natural gas in power generation as a means to reduce harmful emissions. By 2011, oil's share of EU electricity generation had declined to almost 2%, while natural gas had risen above 22% and constituted 35% of gross inland consumption (European Commission 2013b). Still, it would be difficult to argue that the EU is substantially more secure today than in the past, and its energy crises keep returning like clockwork. If the 1970s was defined by Europe's dependence on Middle Eastern oil, the early twenty-first century is defined by its dependence on Russian gas.

Much focus is placed on the security of supply, but it is actually the insecurity about existing supplies and specific suppliers from abroad that is the driving force behind the pursuit of a common energy policy. Although gas and oil are very different products in terms of their downstream delivery and consumption, past experiences involving oil are useful in understanding the importance of gas. The history of oil teaches us that international security conditions can change rapidly, and more often than not, the EU will have little to no ability to prevent serious disruptions. This was true

in 1956 during the Suez Crisis, the 1970s with the Arab oil embargo, the 1980s' tanker wars in the Persian Gulf, and more recently with Russia over Ukraine (gas) and sanctions on Iran have kept vast gas resources that could flow to Europe buried underground.

The EU must diversify not only the mix of fuels it uses but also the suppliers and transit routes in order to maximize the security of its external energy supplies. While integration of member state networks is moving forward, the task remains incomplete. This all but forces individual states to coordinate their own imports bilaterally with the nearest or most accessible suppliers. Along its eastern frontier, this translates into relations with Russia. Along its southwestern stretch, this means Algeria, and to the northwest, Norway. Therefore, competing EU energy interests divide along geographic lines according to respective dependence, another fact that divides Europe rather than unites it.

Europe's past energy crises demonstrate the need for emergency planning. Maintaining multiple suppliers and routes, a large domestic storage capacity, fuel-switching plans, a high-capacity infrastructure, and being part of an internal market are each essential elements of such planning. The first two (suppliers and routes) are external in nature. The remaining four (stockpiles, fuel-switching plans, infrastructure, and the creation of a fully unified internal energy market) are matters of internal EU politics. None of these issues exist in a vacuum. For Europe to formulate and execute a coherent external energy policy, it needs to resolve its internal issues.

Externally, the EU is expanding the outer boundaries of its internal market through diplomacy and rule export. It uses multilateral agreements and programmes such as the Energy Charter, Black Sea Synergy, and Euro-Mediterranean Cooperation, as well as institutions such as the Energy Community, the WTO, and the International Energy Agency to pursue a common set of standards for protecting investments and deliveries. It is trying to integrate the national energy grids and economies of its neighbours and suppliers directly into the European system of governance. This is particularly germane in the context of pipelines, where transit agreements, fee structures, ownership rights, and transparency issues all play a vital role in Europe's energy security.

The EU's strategy has been largely successful along its periphery, but it is not free of obstacles. While EU influence is strongest along its borders, it is uneven. For example, European companies and

politics dominate North African energy production, but do not do so in Russia, the Caucasus, or Caspian Littoral. Algeria criticizes Europe's strategy of demanding transparency, open access, full ownership, and market liberalization in exchange for aid as amounting to unacceptable meddling (Schubert 2007). Pushing Turkey to accept a role as transit state (as opposed to importer/exporter) challenges Ankara's cherished role as arbitrator between East and West, not to mention cutting away the country's profits. Russia sees the Caucusus within its sphere of influence and considers control of its own mineral resources as a matter of national pride and security and, thus, objects to EU efforts to push for open access into its domestic energy market or make independent energy agreements with Ukraine. The EU has had some success in Central Eurasia, but its efforts also inspired Russia to propose an alternative (first the South Stream pipeline, and when that failed, then the Turkish Stream) in order to secure its primary role as the EU's premier supplier of natural gas.

The circumstances with Russia are special and unique along the EU's periphery. Neither Norway nor the countries of North Africa are dominated by one foreign power, as is the case of those countries that were part of the former Soviet Union. EU attempts to influence affairs in the Caucasus were set back in 2008 when Russia invaded Georgia, and again in 2014 when unrest in Ukraine led to a not-so subtle military intervention and annexation of the Crimea by Moscow. Disruptions along Russia's East European gas and oil supply routes through Ukraine and Belarus demonstrate Europe's weakness in responding to Russia's drive for regional hegemony.

Each of these examples illustrates a poignant problem for the EU, namely that pursuant to its external energy needs, the EU finds itself marching into geopolitical challenges rife with troubles, four examples of which we provide towards the end of this chapter.

External actions: Europeanization, diplomacy, and rule export

EU external energy policy matured substantially in the early twenty-first century. Supranational institutions are increasingly taking the initiative in the field of energy, particularly as pertains to setting targets. The EU is even supplanting the member states as the principal initiator of external energy policies (Beyli 2012). For example, in 2011 the Commission published a Communication on security of

energy supply and international cooperation – *The EU Energy Policy: Engaging with Partners Beyond Our Borders* – where it laid out four main priorities 'to further develop an external energy policy' (European Commission 2011g), and in November 2011, the Council approved a similar set of priorities (Council 2011). In brief, the common priorities suggested by the Commission and set by the Council were to: (1) strengthen internal coordination of external energy policy, (2) strengthen EU cooperation with third-party countries, (3) deepen energy partnerships, and (4) support developing economies.

To strengthen coordination, the Commission and Council set out to institutionalize an information exchange of bilateral agreements that member states either already have or negotiate with third-party countries, and to create the possibility for the EU to directly negotiate with third parties, particularly in the area of strategic infrastructure projects. They also proposed to increase both the number and quality of meetings of the Energy Council in order to prepare a consistent and coordinated message for all high-level meetings of international organizations. To strengthen EU cooperation with third-party countries, they agreed to utilize multilateral instruments to extend the application of the EU's regulatory framework by enlarging the 'the Energy Community Treaty to neighbouring countries' (Council 2011: 4), including Turkey and 'faster integrating Ukraine into the Energy Community' (European Commission 2011g: 5). They also identified the Southern Corridor, the Eastern Corridor, and the Mediterranean Basin as 'priority areas for energy projects', and recognized the dual needs to extend the existing early warning mechanisms (EWM) for possible disruptions or dips in supply, and to expand cooperation in research and development of future-oriented energy technologies. To strengthen its energy partnerships, the member states agreed to expand where possible and establish where necessary energy partnerships with North Africa, the Middle East, the Caspian, and the Black Sea; and committed to resolve outstanding issues with Russia under the framework of its Partnership and Cooperation Agreement (PCA), including access to energy resources and infrastructure, investment protection, and non-discriminatory pricing of energy resources. Finally, both the Commission and the Council documents promote the idea of supporting developing economies through a basic set of principles such as reciprocity, transparency, investment protection, and sustainable development of third-party energy sectors. They argue

that doing so will diversify suppliers in the market and, by tying EU cooperation in the energy sector to institutional and legal reform, help contain the negative environmental consequences that the requisite increase in exploration and production will generate. Together, these actions represent the bulwark of contemporary EU external energy policy.

The Commission spearheads most external energy policy actions with heads of government playing their part as well. Although its role remains quite limited, the EU's External Action Service is increasingly getting involved in some of the second-level discussions and dialogues (Van Vooren 2012). In May 2013, the European Council instructed the Council to review developments regarding EU external energy policy, and in December, the Council issued a follow-up report that reaffirmed the 2011 Council conclusion as constituting the first comprehensive EU external energy policy (Council 2013).

As a result, the Commission and the member states increased both the quantity and quality of cooperation on subjects relating to external energy matters. Energy became a regular topic of the Strategic Group for International Energy Cooperation (SGIEC), which had already put on its agenda energy relations with China, Ukraine, North Africa, the US, and Russia. The SGIEC, established in 2012 on the recommendation of the Commission in its Communication on security of energy supply and international cooperation (European Commission 2011g), brings together representatives from the member states and 'relevant EU services' to ensure better coordination of the EU external policy issues and strengthen the negotiating position of the EU in international fora by developing a common message on EU cooperation with third-party countries. Commission representatives now raise energy issues at virtually every international forum and integrate the topic into more Council formations, including those not related to energy. As a result, there appears to be a better understanding of common principles and priorities among the member states.

In fact, since 2011, the Commission has made significant progress on several external energy fronts. It signed Association Agreements with Moldova and Georgia, both of which contain key energy provisions. It progressed in negotiating an agreement on electricity networks and market interfaces between the Baltic member states and Russia and Belarus (Council 2013). It initiated adding a Protocol on electricity to the EU–Switzerland Free Trade Agreement,

and negotiated a legal framework for a trans-Caspian natural gas pipeline system with Turkmenistan and Azerbaijan. It also concluded a Memorandum of Understanding on energy cooperation with Algeria, and, in December 2013, initiated talks on forming an Energy Community with the members of the Union for the Mediterranean (UfM). In terms of key partnerships, the Commission solidified its working relationships with the US, China, and OPEC, and engaged Russia through the EU–Russia Permanent Partnership Council (PPC) on Energy and the EU-Russia Energy Dialogue. An outgrowth of the latter was the March 2013 'EU–Russia 2050 Roadmap', in which the Commission set itself the lofty goal to bring Russia and the EU together in 'a common, subcontinent wide, energy market' by 2050. The Roadmap is, however, non-binding. Given that it will 'require the gradual approximation of rules, standards and markets in the field of energy', such goals may prove overly optimistic (see European Commission and Russian Federation 2013).

Perhaps the most visible sign of progress towards a common external energy policy was getting approval for the controversial proposal to set up the exchange mechanism on intergovernmental energy agreements. When initially proposed in 2011, member states were sceptical. It seemed like a direct challenge to their sovereignty, a matter of competence reserved for the member states. However, as a sign of the growing solidarity – at least in terms of coordinating external supplies – the Council and Parliament passed Decision 994/2012/EU obliging member states to submit their already existing legally binding agreements that have 'an impact on the operation or the functioning of the internal energy market or on the security of energy supply and their new agreements, once ratified' (European Commission 2013g). The Commission now plays an oversight role in the bilateral energy relations of the member states, controlling whether their agreements adhere to internal market rules. It can now not only provide assistance during bilateral negotiations but also order ex ante revisions. By the conclusion of 2013, the Commission had already evaluated more than a hundred separate agreements.

All of these developments point to clear progress in the external energy domain. The EU in 2014 is much closer to speaking with one voice than it was in 2010. However, solidarity is a goal and a process, not an irreversible fact or irrevocable principle. The fact

remains that there is much more still to do than has already been done. For example, in terms of speaking with one voice, the EU needs to increase the consistency and coordination of the messages its representatives deliver and the outcomes its negotiators pursue in dealings with international organizations. In its review of the Commission's progress, the Council argued that this can be achieved by preparing what it calls 'lines to take' (Council 2013). Still, establishing a common voice is not a replacement for shared interests or principles. Coordinating, and even consolidating the latter two, requires significantly enhanced interaction at the EU level between the relevant authorities and representatives of the member states. To an extent this has already been achieved, but it is incomplete. The Strategic Group for International Energy Cooperation, for example, met only six times in total between 2012 and 2013, and although the Transport, Telecommunications and Energy Council (TTE) meets on average six times a year, external energy issues are not always on the agenda, which is an easy opportunity lost.

Despite progress on the Caspian front, there is an urgent need to further develop strategic energy corridors and, in particular, to fund key projects of common interest (PCI), such as the Trans-Anatolian Pipeline (TANAP), that open new access routes to gas and oil. This latter point takes on special meaning when one considers the effort and political weight thrown behind Nabucco, a project that, despite Brussels' support, ultimately had to be truncated to a line entirely within the boundaries of the EU. Equally important, the EU needs to find ways to capitalize on new discoveries, such as those in the Levant Basin and the Black Sea, either through financing, expanding the Energy Community southward, or creating a Mediterranean Energy Community. The latter option is problematic because Israel and Lebanon have no official relations and disagree over who has rights to develop newly discovered offshore fields. On the broader regional scale, the EU needs to continue to expand the Energy Community's reach and depth, use its Neighbourhood Policy in general, and the Eastern Partnership (EaP) (European Council 2009) and the Union for the Mediterranean specifically, to extend the coverage of the EU's energy acquis, as well as make certain that any final arrangement it reaches with the US on transatlantic trade, the so-called Transatlantic Trade and Investment Partnership (TTIP), includes an energy chapter.

Main partners, venues, and engagements

Diplomacy and economic statecraft are the primary tools through which the EU secures its external energy interests. Those interests translate into actively trying either to export or extend the coverage of its internal energy rules through bilateral agreements, multilateral institutions, and international fora, such as the Eastern Partnership and the Union for the Mediterranean. The same is true with its 'energy dialogues', which it maintains with Russia (since 2000), Brazil (since 2007), China (2005), Japan (2007) and OPEC (since 2004), and through its bilateral relations with important energy partners such as Algeria, Iraq, Turkey, Ukraine, and the US, the latter of which established a ministerial-level Energy Council in 2009. The Presidents of the European Council and the Commission, as well as the DG Energy, frequently take part in bilateral summits. Furthermore, EU representatives of various levels work regularly with counterparts in major international venues including the IEA, IAEA, the International Renewable Energy Agency (IRENA), the ECT, G8 and G20 summits, the International Energy Forum (IEF), IPEEC, and the UN; they even attend ministerial meetings at OPEC, and regularly communicate with representatives of the Gulf Cooperation Council (GCC) through the EU–GCC Energy Experts Group. In 2013, such efforts with the IAEA led to a Memorandum of Understanding on nuclear safety that created a framework for cooperation in areas such as emergency preparedness. Yet, of all the different venues in which the EU operates to secure its energy interests, one stands out: the Energy Community.

The Energy Community

The European Council identifies the Energy Community as one of the EU's most successful foreign policy frameworks (Council 2013). Its entry into force in 2006 was the culmination of years of EU effort to strengthen the rule of law on energy issues among the EU's main energy-supplying partners, particularly as pertains to trade and investments. It is an agreement between the EU and its south-eastern neighbours, several of which were slated to become member states (2006/500/EC). The idea behind it began in 1991 when Dutch Prime Minister Ruud Lubbers proposed establishing a European Energy Community. It took its first form with the 1994 signing of

the Energy Charter Treaty (ECT) and the Protocol on Energy Efficiency and Related Environmental Aspects (PEEREA). The EU approved the treaty and protocol in 1997 (Council 1998) and both entered into force in 1998. Since then, the treaty was amended once (2010) to include some trade aspects and, in 2012, its secretariat approved a plan for consolidation, expansion, and outreach (CONEXO) with the objectives of, inter alia, expanding its geographic reach by convincing states with observer status (such as China) to accede to the treaty. As of early 2014, the ECT had 54 signatories, including the EU and Euratom. On the basis of the working relationships established through the ECT, the EU agreed with nine parties (Albania, Bulgaria, Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, Romania, Serbia, and Kosovo) in 2005 to create the Energy Community. Romania, Bulgaria, and Croatia have since joined the EU, while Moldova and Ukraine became full members in 2010 and 2011, respectively.

The Energy Community is a diplomatic success story for the EU, a model example of both what the EU wants to achieve in its external policy as well as how it goes about pursuing its interests. The purpose of the community is twofold. First, it aims to 'organize the relations between the Parties and create a legal and economic framework in relation to Network Energy', which it defines as 'the electricity and gas sectors falling within the scope of the European Community Directives 2003/54/EC and 2003/55/EC1' (Council 2006c: 19; see 2006b for the related Council decision). Second, it should guarantee stable markets and a common regulatory framework to deliver continuous energy supplies to and between its participants. In essence, the Energy Community extends the EU's *acquis communautaire* on energy, environment, competition, and renewables to its south-eastern neighbours, a perfect example of rule export. It establishes the principle of mutual assistance in times of stress and through key governing institutions, coordinates policies between them. It is in many regards a legal extension of the EU, and a necessary prerequisite for further enlargement.

Energy Community decisions are made by its Ministerial Council and Permanent High Level Group (PHLG), which prepares materials for the ministers, and each consists of two EU representatives. It has a secretariat, which reviews the implementation of community decisions, and an Energy Community Regulatory Board (ECRB) consisting of regulators from the contracting parties and officials from the European Commission who coordinate an

exchange of information (and in some cases establishes regulations) on regional gas and electricity markets.

The Energy Community has tallied several achievements since coming into existence. Beyond its geographical extension to include countries outside the Balkan region (Moldova and Ukraine), national legislation of its participants are now largely in line with EU law. The treaty was also strengthened to include EU legislation on security of supply, energy efficiency, energy labelling, and renewable energy, and its participants began implementing the EU's third package on the internal energy market and the EU's 2009 directive to maintain emergency oil stocks. Most important of all, however, was the October 2013 decision by the Ministerial Council to extend the duration of the treaty for a further ten years (Energy Community 2013).

Additional bilateral and multilateral efforts

The EU's diplomatic activities in relation to energy also include efforts to form coordination groups among countries along its periphery. These are often, but not exclusively, made through the auspices of the EU's Neighbourhood Policy, which it launched in 2003 in order to smooth relations with its neighbours in light of the 2004 enlargement. Among the most relevant to energy are the Euro-Mediterranean Energy Partnership and the various energy aspects of its partnerships and cooperation agreements (PCAs). As of March 2014, the EU maintained PCAs with Russia, the countries of Eastern Europe, the Southern Caucasus, and Central Asia (Council/Commission 1997, 1998a–b, 1999, 1999a–e, 2009). PCAs cover a broad range of political and economic reforms that aid in the transition to a market economy. To varying degrees they also contain energy chapters.

Through the Euro-Mediterranean Energy Partnership, (EUROMED; now known as the Union for the Mediterranean, or UFM), the EU promoted the Mediterranean Solar Plan (20 GW of regional solar power generation capacities by 2020) providing access to over €5 million through its Neighbourhood Investment Facility (European Commission 2009f), adding a technical assistance programme in 2010, and approving an additional €5 million in 2012 (European Commission 2012g). The EU's ongoing efforts to support 'the gradual establishment of a Mediterranean electricity regional market' constitute an essential component of its efforts to

diversify its energy supply (European Commission 2014c). The EU likewise supports projects between the EU and the Littoral states of the Black and Caspian Seas, particularly via the Interstate Oil and Gas Transport to Europe platform (INOGATE), which it funds via the European Neighbourhood and Partnership Instrument (ENPI). Working within the frameworks of the Baku Initiative (which was finalized in 2006 and seeks, among other things, to harmonize regional energy markets and spur investments) and the Eastern Partnership (a venue for trade discussions and travel agreements), INOGATE provides a framework for cooperation in the areas of oil and gas, electricity, renewable energy, and energy efficiency between regional partners. Since its inception in 1996, INOGATE has completed some 70 projects, including ones closely related to EU energy security, such as promoting best practices and technologies used to detect, measure, and reduce gas losses from pipelines (European Commission 2006d). On the oil front, the EU helped set up the Joint Oil Data Initiative (JODI), a database of oil market players and transactions, as a method to bring transparency to one of the least transparent markets in the world. JODI is now a permanent reporting mechanism with 90 member economies, representing 90% of global oil supply and demand, that is, a platform that substantially enhances stability in the international oil market, particularly for investors.

As the EU shares a number of common principles with the US (open, transparent, and competitive global energy markets), and because it is not dependent on the US for oil or gas, its energy cooperation with Washington is a great deal simpler than it is with its immediate neighbours. In 2009, Washington proposed and Brussels agreed to establish the EU–US Energy Council to coordinate efforts on energy security, policy, and research and development in new technologies, including the sustainable development of biofuels and biomass, new materials, and Smart Grids (EEAS 2009, 2009a). They also agreed to cooperate on building up the Euro-Mediterranean Gas and Electricity Ring, as well as help create a new Southern energy corridor to the EU. Its meetings include the US Secretaries of State and Energy and the EU Commissioners for External Relations, Energy, and Science and Research, as well as the acting Commission President and High Representative. Although the number of specific energy-related agreements are so far few (e.g. energy appliance labelling), energy cooperation between the EU and the US led to the early development of discussion on raw

materials and energy as part of their bilateral TTIP talks. The true measure of EU–US energy relations, however, stands to change in the coming decades as the US continues to press forward with the development and export of liquefied natural gas, which, if it comes to fruition, could substantially enhance the EU's long-term energy prospects.

The EU's most important bilateral diplomatic efforts focus on Russia through the EU–Russia Energy Dialogue. Its success has been limited. Launched in 2000, the Dialogue focuses on improving the investment climate in the Russian energy sector, and to secure and expand infrastructure in order to ensure continued production and delivery of sufficient supplies to the European energy market. Despite the relatively high-level communication and quantity of interactions, however, the process resembles what one expert called 'travelling without moving' (Talseh 2012).

As part of the Dialogue, the EU and Russia established bilateral fora (e.g. the EU–Russia Partnership for Modernisation (2010), Council (of the European Union) (2010)), a shared agenda for economic reform, and building a sustainable low-carbon economy. The EU and Russia also cooperate in the Gas Advisory Council and regularly exchange vital energy-related data through an early warning mechanism (see below). The Gas Advisory Council, which held its first meeting in November 2011, brings EU and Russian gas companies and experts together to assess and make recommendations for the long-term cooperation in the area of gas supplies. At their 8th meeting in November 2013, the two parties concluded, inter alia, that in order for the EU to 'meet its 20-20-20 targets', Russian gas supplies 'may not decline in any scenario' (GAC 2013). Meanwhile, following the 2009 gas disruptions resulting from a pricing dispute between Moscow and Kiev, the EU and Russia established an early warning mechanism to identify risks before they occur and ensure rapid responses in the event of emergencies (European Commission 2009g). The degree to which the arrangement works, however, remains untested. In February 2011, the two updated their agreement to provide for joint actions to be taken in the event of an emergency, including setting up special monitoring groups and notification procedures. Like its predecessor, however, the agreement is not binding and 'does not constitute an international agreement or other legally binding document', an emblematic and recurrent problem in the energy relationship between the EU and its most important supplier (European Commission 2011l).

Pipelines and their politics

Pipelines delivering natural gas and oil to the EU constitute its most important economic lifeline. The politics and economics of routes, distances, and capacities are some of the most complex and important features of an energy policy's external dimension. Unlike shipped commodities, pipelines create long-term, semi-permanent relationships between suppliers and consumers that lock them, de facto, into a marriage of convenience. Indeed, as one energy observer astutely noted, 'control of pipeline routes is almost as important as the control over the resources that flow through them' (Karbuz 2010). Once a pipeline route is up and running, it quickly becomes a lifeline that is difficult and risky to cut, and there are always winners and losers in the game. For example, by building the Nord Stream pipeline, Germany secured a reliable supply of up to 55 bcm (eventually) of Russian gas per annum for half a century, but in the process reduced the relevance of Ukraine, bypassed Poland, and added considerable constraints on German foreign policy, and thus that of the EU, vis-à-vis its relations with Moscow. The most important factor in determining a pipeline's economic and political value is its maximum capacity, because upgrading reception terminals or adding storage facilities is far less expensive and complicated than laying new lines.

Used to maximum capacity every day of the year, the EU's existing infrastructure of natural gas import pipelines could deliver approximately 13,400 GWh per day (or circa 405 bcm of natural gas every year) (ENTSOG 2013; see Table 7.1). Existing LNG terminals can add another 192 bcm of natural gas to that calculation, for a grand total of circa 597 bcm per annum (see Table 7.2), more than enough to meet all of the EU's 2012 annual gas consumption needs (circa 435 bcm). These maximum capacities obviously are never fully realized. Gas demand rises and falls with the weather and the competitive price of alternatives, such as cheap coal. Pipelines regularly close down for maintenance. In its Ten-Year Network Development Plan (TYNDP), ENTSOG notes that it evaluates pipelines and related projects on the basis of the adaptability and resilience of the European gas system, the dependency of the EU's gas zones on specific supply sources, and the capability of the network to enable supply diversification (ENTSOG 2013a).

At issue, then, is not so much import capacity, but rather the distribution of delivery capacities, which creates political and economic

Table 7.1 *EU gas import infrastructure (2013)*

Country of Origin [via transit state] (popular names)	*Technical, physical capacity (GWh/d) (ENTSOG)*	*Capacity (bcm/y)*
From NORWAY (Vesterled, Flags NLGP, Fuka & Sage, Europipe I & I, Norpipe System, Zeepipe, Franpipe, and Langeled South)	4,234.4	128.44
From NORTH AFRICA (Maghreb–Europe, Medgaz, Transmed, and Green Stream)	2,155.0	65.36
From RUSSIA [Direct] (Multipile Offshoots of Northern Lights and Yamal–Europe I, Nord Stream)	1,601.1	48.56
From RUSSIA [via BELARUS] (Yamal–Europe I and Northern Lights)	1,410.8	39.53
From RUSSIA [via UKRAINE]	4,022.2	122.00
From TURKEY	60.5	1.83
Grand Total	13,484.0	405.72

Notes: Conversion from GWh/d to bcm = GWh/d * 0.0831/1,000*365 based on IGU (2012) *Natural Gas Conversion Pocketbook*.

Figures exclude gas capacity for incoming lines designed solely to transit gas elsewhere, such as Turkey.

Source: ENTSOG (2013)

risk. Simply stated, EU pipeline politics is more about who delivers how much at which price, rather than the urgent need to get more.

Europe's pipeline infrastructure is characterized by the geographic location of the reserves to which it connects. These include the North Sea gas and oil fields, various Russian fields, Caspian and Central Asian fields, and the reserves of North Africa and the Middle East. The resources in these regions are accessed via three large corridors. One that runs southward from the Norwegian and North Seas to the UK, Scandinavia, and the continent. A second

Table 7.2 *EU LNG import infrastructure (2013)*

	Import terminals				Import capacity (bm^3 (N)/year)				Actual imports (bcm, 2012)***	2012 EU gas imports (%)°
	Exist.	Const.	Plan*	Tot.	Exist.	Const.	Plan**	Total		
March 2014 European LNG Import Capacity										
Belgium	1			1	9.0			9.0	4.28	1.2%
France	3	1	1	5	23.8	13.0	8.0	44.8	8.73	2.5%
Greece	1		2	3	5.3		5.6	10.9	1.45	0.4%
Italy	2	1	7	10	11.0	3.8	53.0	67.7	7.09	2.0%
Netherlands	1				12.0			12.0	2.18	0.6%
Portugal	1			1	7.9			7.9	2.33	0.7%
Spain	6	3		9	60.1	9.6		69.7	21.12	6.0%
Sweden	1		2	3	0.5		0.8	1.3		0.0%
Turkey	2		2	4	12.2		11.3	23.5	7.8	2.2%

(*Continued*)

Table 7.2 *EU LNG import infrastructure (2013) (Continued)*

	Import terminals				Import capacity (bm^3 (N)/year)				Actual imports (bcm, 2012)***	2012 EU gas imports (%)°
	Exist.	Const.	Plan*	Tot.	Exist.	Const.	Plan**	Total		
UK	4		2	6	51.1		18.0	69.1	14.23	4.1%
	22	**5**	**16**	**42**	**192.81**	**26.35**	**96.7**	**315.86**	**69.21**	**19.8%**
Plus planned newcomers: Future European LNG Import Capacity										
Albania			1	1			8	8		
Croatia			2	2			12	12		
Cyprus			1	1			0.7	0.7		
Denmark			1	1			::	::		
Estonia			2	2			5.5	5.5		
Finland			1	1			2.9	2.9		
Germany			1	1			10	10		
Ireland			1	1			3	3		
Latvia			1	1			5	5		
Lithuania			1	1			4	4		
Malta			1	1			2	2		
Poland			1	1			5	5		
Romania			1	1			2	2		
Ukraine			1	1			5	5		
Totals										
			32	**58**			**161.8**	**380.96**		

Source: Belkin et al. (2013): 3; ECS (2008): 103; ENTSOG (2013); GLE (2015): LNG MAP; IGas (2013): 11, 13.

Notes: *LNG import terminals under study or proposed; **Planned sources (under consideration) taken from ECS (2008), Table 4, p. 103 (Germany and Cyprus) and from GLE (2015): LNG MAP; ***Data from IGU (2013): 11; ° In 2012, the EU imported circa 350 bcm in total according to Belkin (2013).

running northward from North Africa to Spain and Italy. A third running eastward from, or through, Russia and the former USSR, and is best divided into two sub-corridors. The northern sub-corridor carries oil and gas from Russia directly to Germany and the Baltic States, or transits through either Belarus or Ukraine. The southern one brings those resources from the Caspian, Black Sea, Lower Central Asia, and the north-western Middle East to south-east Europe, via Turkey or Russia. Efforts are underway to build a fourth corridor connecting to the same south-eastern regions, but bypassing Russia. The EU repeatedly identifies such efforts as priority projects and, as of early 2014, there were two projects: TANAP (the non-Russian plan) that was approved and is moving towards construction; and South Stream (the Russian-controlled alternative) that was indefinitely suspended in December 2014 due to increasing tension between Russia and the EU.

The pipeline strategy and its controversies

By accessing enough suppliers as directly as possible, the EU is hoping that increased supplier competition will keep supplies flowing and prices low. The problem begins with the prioritization between direct access and diversity. The fact is that the EU needs both to enhance its security of supply. Yet that does not stop debate. For example, the Nabucco project, originally a favourite in Brussels and designed to bring Caspian, Central Eurasian, and Middle Eastern gas to Central Europe without Russian intervention, ultimately had to be truncated (now it is Nabucco West), as neither suppliers nor routes could be secured in a timely and cost-effective manner. Meanwhile, Russia implemented plans to increase Russian supplies and bypass Ukraine through bilateral arrangements between Moscow and individual EU member states. It successfully built the Nord Stream to Germany and, in early 2014, was promoting its proposed South Stream project to secure a role in the Southern energy corridor. Despite the rhetoric, the choice of lines is generally not a zero-sum game. For example, South Stream was eventually superseded by Turkish Stream. Every project offers advantages and disadvantages, and if every planned pipeline were built, Europe would significantly enhance both its import capacity as well as reliability of those supplies.

Most existing or planned pipelines, such as Turkish Stream and Nord Stream, are upstream-driven, where specific supplier companies or countries such as Russia propose, finance, and build pipelines to provide outlets for their own resources. Russia's plans, first for South Stream and subsequently Turkish Stream, complicate Europe's plans to diversify away from Russian resources. Part of that complication is the fact that there are a lot of Western companies driving and/or participating in the projects, which in turn informs us that such projects are inevitably as much about money as they are about politics. Still, given Russia's pursuit of available resources and its active plans to bypass transit states to deliver gas to Europe, it is understandable that many saw the South Stream project as a Russian power-grab.

The downside of South Stream was that it was not at all clear that the pipeline actually would have brought any new supplies to the EU, but rather just serve as a detour for existing Russian supplies currently flowing through Ukraine. Indeed, South Stream would have strengthened, not diminished, Russia's strategic position vis-à-vis the EU. Nevertheless, the addition of new routes directly from Russia into the EU offers distinct advantages over the current network configuration, the most important being the reduction of transit bottlenecks and the direct supply of gas to Europe. According to Russia's then Prime Minister Vladimir Putin, Russia has enough gas to supply Europe 'for practically a century' (Stratfor 2009). The failure of the South Stream project was a major political defeat for Moscow and a regulatory victory for the EU. The message was clear: you want to play in our backyard, then play by our rules. However, Russia's subsequent project, Turkish Stream, opens up a whole new can of worms for Europe. For example, if Russian gas previously transiting Ukraine ends up in a Turkish hub to be resold, then Europe could end up paying more for the same gas. Likewise, any new Turkish–Russian gas deal brings gas to a location where Europe cannot properly access it because the necessary infrastructure is not yet in place.

Russia made a powerful statement about its long-term reliability and plans by building the Nord Stream, a joint Russian–German project to deliver up to 55 bcm of Russian gas per year directly to Germany via two pipelines spanning the Baltic Sea. The construction costs of the line (from Vyborg to Greifswald) outstripped estimates for upgrading pipelines running through Belarus and Poland, revealing that both Russia and Germany think that Belarus and Ukraine negatively affect the reliability of Russian supplies. Nord Stream mitigated some of that problem, but the bulk of Russian gas supplies continue to flow through Ukraine. The project also inspired

strong opposition in Europe. For example, Poland's Defence Minister, Radek Sikorski, compared the Russian–German plan to deliberately route around Poland and the Baltic countries to the pact between Hitler and Stalin (Spiegel 2009).

Europe's energy-corridor map is changing. From the north, new sources from the Arctic and from the south new sources from the Caspian and Middle East will make their way to Europe. Much of it will arrive via Russia, some directly and some indirectly. Yet, as the Nord Stream project demonstrated, more gas and new routes are always in the Union's interest. Indeed, now built, it is hard to argue that Nord Stream did not enhance EU energy security.

The North-Western Corridor from Norway

The Northern route supplies circa one-third of the EU's current gas imports and includes the gas and oil fields of the North Sea, Norwegian Sea, and, in the near future, the Arctic Sea. Norway is the most important Northern route operator. North Sea gas and oil deposits were known to exist in the late nineteenth century (Pratt 2007), but large-scale production only began in the 1960s, when the North Sea coastal states (UK, Sweden, Germany, Belgium, Denmark, and the Netherlands) agreed to the seabed's dividing lines. The Norwegian sector contains the largest reserves.

Norwegian energy exports are essential to EU energy-supply security. They flow through a pipeline network operated by the country's state-owned monopoly Gassco, which took over as the operator of Norway's natural gas transportation system in 2001 from Statoil, the national energy company. According to BP (2013, 2014), Norway provided 28% of EU gas imports in 2012 (up from 24% in 2006) and 12% of its oil imports (down from 16% in 2006). Most importantly, Norway's deliveries to the EU have been consistent for decades, making it Europe's most reliable supplier. It operates 22 different pipelines delivering gas and oil via thousands of kilometres of pipeline to the UK, Germany, Belgium, France, and Denmark (Gassco 2014). It delivered around 106 bcm of natural gas to the EU in 2012 (BP 2013, 2014), but its complex undersea pipeline network could move as much as 120 bcm per year. Moreover, its production should remain steady in the coming years, as new discoveries and investments are extending production in existing fields.

Gassco's complex pipeline network connects various offshore fields to riser platforms in the North Sea; the company provides an interactive map on its website (Gassco 2014). Two major lines (Langeled and Vesterled) deliver gas to the UK, three (Norpipe, Europipe, and Europipe II) deliver gas to Germany, and two (Zeepipe and Franpipe) deliver to Belgium and France, respectively. Norway suspended plans to build a pipeline (Skanled) to bring circa 20 bcm/y to Denmark, Sweden, and Finland in 2009 due to concerns over long-term demand, a by-product of Europe's economic recession.

North Sea production plateaued in the 1990s and has declined annually since 2001. In response to North Sea declines, Norway has been exploring options further north in the Norwegian, southern Barents, and Arctic Seas. According to the Norwegian Petroleum Directorate (2013: 28), the Norwegian Sea may contain as much as 680 bcm of natural gas (plus an additional 445 bcm yet undiscovered) and 147 mcm of oil (plus another 300 mcm yet undiscovered). Unlike the exhaustively developed North Sea, Norwegian Sea resources are still under development. The first field came online in 1993 and a conglomerate led by BP started pumping from the Skarv field in December 2012, which is believed to hold 100 million barrels of oil and over 48 bcm of rich gas. Development of the Arctic's oil and gas resources is a key component of Norway's strategy and fits well into Europe's strategic energy vision. Norway believes that there may be as much as 550 bcm of undiscovered natural gas reserves and 2.6 billion barrels of undiscovered oil in their part of the Arctic region (Norwegian Petroleum Directorate 2008, 2012, 2013, 2014). As in the case of the Norwegian Sea resources, tankers, not pipelines, will deliver almost all resources extracted from beneath the Arctic's icy waters. This is an important point, since Europe's tanker and refinery network is well established, so no special actions will have to be taken to incorporate any new oil deliveries. In order to profit from any new gas production, however, the EU will have to significantly expand its LNG import facilities.

Norway is not alone in the development of Barents Sea resources. Its main competitor, Russia, controls the largest share of resources in the region of the South Barents Sea, as well as the Siberian Basin underneath the Kara Sea. While it is conceivable that Russia might consider future pipelines from the region to its north-western pipeline network, and thus on to Europe, the more likely scenario is their establishment of large-scale LNG-processing facilities dotted across the region.

The South-Western Corridor from North Africa

The EU's South-Western energy corridor is small, simple, and transparent. Europe's pipeline interests in the south are exclusively dedicated to natural gas. Algeria is the EU's third largest natural gas supplier delivering circa 50 bcm in 2012, or 11% of EU gas imports (BP 2013). Most Algerian gas is exported via pipeline (70%) of which two-thirds go to Italy, another third flows to Spain. The remaining 30% travels almost exclusively to the EU and Turkey, and does so in the form of LNG. North Africa's other gas suppliers, Libya and Egypt, delivered less in recent years, as both underwent political turmoil. Nonetheless, Libya was able to deliver 6.5 bcm to Italy in 2012. The relatively small share of North African gas in EU consumption is a positive sign for the short to medium term, because the region's gas (8 tcm of gas, 4.3% of the world's proven reserves) remains largely untapped (BP 2013). Given its proximity, North Africa could become a reliable long-term source of natural gas. Some believe that Algeria alone could eventually export as much as 130 bcm/y by 2020 (Poynter 2007), although such figures seem overly optimistic given past and current trends.

There are four operating pipeline links from North Africa to the EU with a maximum annual capacity to deliver just over 57 bcm. They all traverse the Mediterranean Sea and include: the oldest and largest, Transmed, now called the Enrico Mattei Gasline (Algeria to Italy via Tunisia); the Maghreb–Europe (MEG; Algeria to Spain via Morocco); Green Stream (Libya to Sicily and onwards to the Italian mainland); and the Medgaz (Algeria to Spain). However, Green Stream was closed for several months during 2011, and for a month in 2013, due to unrest in Libya. The European Union identified another pipeline, the Galsi, to run from Algeria to Italy over Sardinia, as a priority project in its Trans-European Energy Network, and even allocated €120 million to finance its construction. However, the project was stalled in early 2014 as 'weak demand' combined with 'environmental concerns, economic issues, and anticipated supplies from the southern corridor projects' undermined its viability (Smith 2014).

Completion of the Arab Gas Pipeline, linking together Egypt, Jordan, Syria, Turkey, and Iraq, eventually may allow some additional North African gas to find its way into Europe via the Southern Corridor. Given the political turmoil in the area, however, prospects for such developments seem slim anytime soon. Indeed, although Libya's natural gas exports picked up again in 2012, its only LNG export facility remained offline at the time of this writing (2014), and most Egyptian natural gas remained bottled up at home for the country's thriving domestic market, where gas is subsidized and widely used for cooking, heating, and public transportation. Nevertheless, Egypt is making substantial investments in LNG export facilities and, while neither Egypt nor Libya will be able to match Algerian production, together they could add significant quantities to the region's exports in the not-too-distant future, easing pressure on Algeria and providing the EU with additional options.

The North-Eastern Corridor from Russia and the FSU (oil)

Russia is the EU's main supplier of oil and gas coming from the east, delivering both via a complex network of pipelines that, with the notable exceptions of the new Nord Stream and currently planned Turkish Stream lines, is ageing and in need of both repairs and upgrades, worsening the risks of EU dependence. Also, the network transits Ukraine and Belarus, leaving Russia and the EU at the mercy of disruptions and contract disputes. Although upgrades to the lines might resolve some of the maintenance issues, investments in repairing the network will not resolve the instability derived from the transit issue. Russia's dependence on transit countries plays an important role in driving Russian desires to establish independently managed, direct links to the EU gas and oil markets.

Many of the gas lines converge in Ukraine, and then travel westward. Most of the older Soviet lines originate in the Urengoy, Yamburg, and Medvezhye super-giant gas fields, the more recently developed Orenburg field, or along the Yamal peninsula. The pipeline that runs from Orenburg to Uzhgorod is also referred to by some as the Brotherhood-Union line, which is confusing, because the Soyuz (which in Russian broadly translates into unity) starts in Orenburg, and the Brotherhood or Friendship line (Druzba) starts in Urengoy, far to the north. The Soyuz line follows an entirely different route, although they do both come together as export links to Europe via Ukraine. The Druzba dates back to Soviet times. It was constructed to be a domestic line that carried Soviet–Ukrainian gas from the 'Carpathian fields south of Lvov' to Czechoslovakia (Kamm 1968).

An average of about 482,000 tonnes of oil a day flowed westward into the EU in 2011, based on annual figures (Eurostat 2013). Russia's oil is exported via pipelines, exclusively operated by the Russian state-controlled oil transport company Transneft, converging

in Belarus and branching off into north and south branches. The north branch runs from Belarus into Poland and onto Germany, which received, respectively, circa 97 and 60 thousand tonnes a day in 2011. The south branch runs through Ukraine and splits further into two lines, one running through Slovakia to the Czech Republic, and the other through Hungary, connecting to the Adria pipeline, which brings oil to EU neighbours Serbia and Croatia. Another offshoot connects Latvia and Lithuania. An accident along that line led to a stoppage in 2006; one that intriguingly coincided with the sale of refineries in both countries to non-Russian parties.

Three additional oil pipelines, the Baltic Pipeline System (BPS), the Odessa–Brody (OB), and the Caspian Pipeline Consortium (CPC), also bear mentioning. The BPS delivers over 1.4 million barrels of oil per day, via two lines from the western Siberian, Ural, and Timan–Pechora regions to Primorsk in the Russian Gulf of Finland. Tankers then take supplies from Primorsk to markets worldwide, the closest being the Nordic European states. The domestic route frees Russia from transit costs across the Baltic States, lowering oil transportation costs by as much as a billion dollars a year (Ibrahimov 2007), and is part of Russia's strategy to free itself from problems associated with transit states that have hurt the country's reputation as a reliable supplier. Odessa–Brody is a Ukrainian domestic line designed to carry oil from the Ukrainian port city of Odessa to Brody near the border of Poland. Built in 2002, the original idea was to bring Caspian oil from Kazakhstan to the Polish Baltic Sea port of Gdansk. However, a lack of supply and Ukraine's failure to find shippers left the pipeline empty for two years following its completion. Odessa–Brody now ships Russian oil south, instead of Kazakh oil north, demonstrating how a failure to feed a line literally can reverse the winner–loser calculation. The CPC runs from western Kazakhstan to the Russian Black Sea port of Novorossiysk, and from there, oil is shipped to Europe and other markets. Until the opening of the CPC, Druzba was Kazakhstan's main oil export route to Europe.

A few smaller, but nonetheless important oil pipelines, traverse or bypass Russia altogether, the most famous being the Baku–Tbilisi–Ceyhan (BTC) Crude Oil Pipeline. The BTC can carry as much as a million barrels a day of Azeri oil to Ceyhan, Turkey, traversing Georgia. The BTC is, however, an anomaly. Most oil pipelines from the Caspian region still flow to Russia, including the Northern Early (Northern Route Export Pipeline), flowing from

Baku to Novorossiysk, and the Western Early (Western Route Export Pipeline), flowing from Azerbaijan to Georgia's Black Sea port of Supsa, which together carry another 800 thousand barrels a day. Some projects, such as Burgas–Alexandroupolis Crude Oil Pipeline (BAP) – a Russian, Greek, and Bulgarian initiative designed to bypass Turkey's Bosporus and Dardanelle Straits – failed to take off, while others, such as the 900-barrel-a-day Albanian–Macedonian–Bulgarian Oil Corporation (AMBO) line and the Pan-European Oil Pipeline (PEOP) seem to be moving forward despite occasional political obstacles.

Ceyhan, Turkey currently serves as the terminal for both the BTC Pipeline and another pipeline from Iraq called the Kirkuk–Ceyhan, or Iraq–Turkey Pipeline (ITP). The ITP served as the main conduit of Iraqi oil throughout the Iran–Iraq war, when shipments by tanker out of the Persian Gulf were in danger, and is the main export link for Iraq's northern oil fields. The ITP plays an important role in Turkey's plans to become a link between the Middle East and Europe, and strongly figures in Turkey's plans to make Ceyhan an international energy-export hub. In the future, a parallel line could carry northern Iraqi gas to Ceyhan, further increasing the importance of the port and strengthening Turkey's hands in its relations with the EU.

The North-Eastern Corridor from Russia and the FSU (natural gas)

Russian natural gas is pumped into its vast gas pipeline network called the Unified Gas Supply System of Russia (UGSS). The most important links of concern to Europe are the Soviet-era Brotherhood and the recently constructed Yamal–Europe pipelines. These two pipelines, together with a network of over a hundred smaller lines, meet in either western Ukraine or Belarus where they then connect onwards to Europe. Several Russian domestic links are essential to the country's export capacity. These include the Northern Lights line (western Siberia to Ukraine); the Soyuz (Urengoy to Uzhgorod), after heading south to Orenburg to pick up gas from fields near the Kazhak border; and the Progress, which is another westward-flowing interconnection that ties into the Soyuz–Brotherhood feed. Russia is planning to extend the Yamal–Europe Pipeline to run from the Yamal peninsula in Russia's Arctic north to Frankfurt (Oder) near the Polish–German border, but as of 2013, it was still in the feasibility study stage.

In 2013, 4.8 million terajoules (circa 126 bcm) of Russian gas flowed westward into the EU (Eurostat 2015d). Still, Russia's dependence on transit countries is a latent problem for the Northern East–West gas corridor. Of the primary gas arteries, the Brotherhood–Europe interconnection, the first line to deliver Soviet gas to Western Europe, following its extension from Czechoslovakia in 1967, to Austria in 1968, is the oldest (Gazprom 2014: 51). From Ukraine, Russian gas flows into Slovakia and Hungary. From Slovakia, the route continues into the Czech Republic and on to Germany and France. Additional branches shoot off to southern and south-eastern Europe, one route taking gas through Austria to southern Germany and Italy. Other Brotherhood branches supply Romania, Bulgaria, Greece, Serbia, Bosnia, Macedonia, and Turkey. The most important part of the Soyuz export pipeline, commissioned in the late 1970s, runs from Orenburg in the southern Ural region to Ukraine, where it hooks up with the Brotherhood lines to Europe. The Yamal–Europe Pipeline, also known as Yamal-I, has been operational since the late 1990s and brings Russian gas from the Urengoy fields in western Siberia, across Belarus, into Poland, and on to Germany. The interconnection is located in Torzhok, north-west of Moscow, and together, the north-central Russian links are known as the Urengoy–Nadym–Peregrebnoye–Ukhta–Torzhok transmission system. It is entirely domestic, and vital to reliable Russian exports to Europe.

Although its network is complex, there are only four routes over which Russia currently provides gas to Europe or Turkey. The first, and largest, goes through Ukraine. The second traverses Belarus. The third crosses the Black Sea to Turkey, and the fourth, and newest, route travels under the Baltic Sea directly to Germany (Nord Stream). Transit is the main bottleneck in Russia's gas export network to the EU. Some 80% of Russian gas, bound for Europe, travels through one country, Ukraine, which leaves little margin for error. When problems do occur between Russia and either Ukraine or Belarus, irrespective of the cause, Russia looks like an unreliable supplier. While EU members such as Germany and Poland could theoretically receive gas through the Yamal–Europe Pipeline that crosses Belarus, the latter has a limited throughput capacity of about 30 bcm compared to the more than 140 which could flow westward through Ukraine. Pricing disputes, maintenance problems, and the interdependence between the EU and Russia on transit states translates into instability in the EU–Russia energy relationship.

Recognizing this fundamental problem, the EU is actively pursuing alternative suppliers, while Russia is scrambling to establish alternative routes. Until either succeeds, neither will be content.

While Europe and Russia struggle to balance their specific needs, transit states Georgia and Ukraine have been pushing for a new pipeline to be built that would allow both countries to become direct transit states for Caspian gas, bypassing Russia altogether. Known as the White Stream Gas Pipeline, the project would carry at first 8 bcm, and ultimately 32 bcm, of natural gas northward from Azerbaijan and Turkmenistan via a submarine gas pipeline, across the Black Sea directly to Romania, or first through Ukraine. If the route flows through Ukraine, the country would be able to reduce its reliance on Russia as its only source of Turkmen gas supplies. If, instead, the undersea line flows all the way from Georgia's Black Sea coast to Romania, the EU would have only one transit state (Georgia) between itself and vital Caspian gas resources. The White Stream project illustrates the importance of transit states in Europe's East–West corridor, but it also highlights the importance of the southern plane of that corridor.

The South-Eastern Corridor (old and new)

The difference between the transit problems of the north and those of the south are not only the sources tapped but also the countries traversed. In the north, gas from Russia's Arctic, west Siberian, and Ural regions all transit Ukraine and Belarus before coming to Europe. In the south, gas flowing westward to Europe from the Caspian and Central Asia traverse either Russia or Turkey. Central Asia's largest gas network is the Russian-controlled Central Asia-Center (CAC) Pipeline. Turkmenistan, Kazakhstan, and Uzbekistan, all of which are rich in energy resources, send most of their gas through the CAC's five-line network, which constitute an important gas supply route for the EU. The eastern branch (CAC-1, 2, 4, and 5) starts in Turkmenistan, picks up more gas in Uzbekistan, and then heads north-west, via Kazakhstan, to Alexandrov Gay on the Russian side of the Kazakh border, where it connects to the Soyuz and Orenburg–Novopskov pipelines that run north-west to Moscow. The CAC's western branch (CAC-3) begins near Turkmenbashi, runs north to Ekarem, and then along the Turkmenistan–Iranian border to Uzen in Kazakhstan, where it connects to the eastern branch (IEA 1998). In 2007, Russia agreed with

Turkmenistan and Kazakhstan to build another 20-bcm pipeline parallel to the northern part of the CAC-3 line, but progress has been slow and erratic, and for some at the time (MEES 2008), was viewed as a move by Russia to secure natural gas supplies from Turkmenistan, thus preventing alternative trans-Caspian solutions that exclude Russia. Because of the Caspian region's geographic position and history, Russia's role as a transit state is similar to the role played by Ukraine and Belarus, with two important distinctions: Russia is both a massive consumer and the region's undisputed suzerain. Thus, bypassing it might make economic sense for Central Asian suppliers, but it could also worsen relations with Moscow.

The Baku–Tbilisi–Erzurum (BTE) Pipeline bypasses Russia altogether and can deliver up to 9 bcm annually to Turkey, via Georgia. The line has been plagued by troubles from its inception, though, including supply problems from Azerbaijan and a two-day suspension in 2008 following Russia's invasion of Georgia. Importantly, the same source of the BTE, the Shah Deniz gas field, is also expected to feed the proposed TANAP gas pipeline across Turkey and connect to, inter alia, the EU's Nabucco West. Turkey, meanwhile, is increasingly becoming an important transit player in Europe's quest for natural gas. Since 2002, Turkey has been receiving additional supplies directly from Russia via the Blue Stream pipeline, which crosses under the Black Sea and bypasses the older transit routes of Moldova, Bulgaria, and Romania. An extension of the Blue Stream line is currently under consideration.

Gas started flowing (11.5 bcm in 2011) from Turkey to Greece via the Interconnector Turkey–Greece (TGI) in 2007. It is a foundational component of the EU's plans to create a new Southern energy corridor. The plan for these networks is to deliver gas from Azerbaijan's Shah Deniz gas field across Turkey and Greece into Italy and Bulgaria. Additional supplies will have to come from other Caspian sources. Another pipeline, called the Trans-Adriatic Pipeline (TAP), will branch off the TGI in northern Greece and carry gas through Albania, on route to Italy, via a submarine line through the Adriatic Sea. In June 2013, the Shah Deniz Consortium selected TAP as their preferred transportation route to deliver Caspian gas to Europe.

The development of the Southern Corridor positions Turkey as a major player in Europe's future energy security. Turkey also offers an important, if not controversial, link to Iran. The East Anatolian

Natural Gas Pipeline (EANGP) has been moving gas from Tabriz in Iran to Erzurum since December 2001. Although the two countries regularly disagree over price, volume, and reliability (Iran halted shipments in order to meet domestic demand over three consecutive winters), Tehran sends as much as 8 bcm to Turkey annually (MEES 2008). Iran is vastly rich in gas reserves, but needs large investments to increase its exports, and first has to resolve its political disputes over its nuclear programme before it can become a regular supplier of gas to the EU. If and when it does, Turkey will play a central role.

The maturing LNG option

Pipelines are only part of the EU's security of supply network. Europe's natural gas is increasingly arriving by ship in the form of Liquefied Natural Gas (LNG). Liquefied Natural Gas (LNG) is the technical term for super-cooled natural gas transported by ship and delivered to storage and regasification terminals at distant ports. As of 2014, there were 22 functioning LNG terminals in the nine member states and Turkey that were capable of importing 192 billion cubic meters and storing 8.6 bcm on any given day (see Table 7.2). Taking into account five more terminals under construction, and plans to build another 32 in 13 additional member states plus Ukraine, those figures are expected to explode to 380 and 16.5 bcm by 2022 (Groenendijk 2014). Still, it was not fully clear in early 2014 whether an expected boom in US LNG exports (Belkin et al. 2013) could overcome domestic economic and political obstacles and, thus, add enough supply to the market to significantly lower prices (EIA 2012). In fact, US LNG exports in 2012 were a negligible 0.6 bcm (BP 2013, 2014), and EU imports actually declined to 45 bcm in 2013, almost half the figure (86.3) in 2010 (Groenendijk 2014). The decline in LNG imports was largely due to a decline in EU demand, resulting from an economic slowdown and higher import prices, as well as demand in Asia. Despite the decline, however, LNG still accounted for 10% of all EU gas consumed in 2012, and the EU is actively and materially supporting the growth of LNG in its energy market by approving and supporting new import terminals and backing a demonstration project to set up a chain of refuelling stations for heavy-duty, LNG-fuelled vehicles across four major European trucking routes (LNG Blue Corridors 2015).

LNG changes Europe's energy-dependence paradigm in two important ways. First, ship-delivered gas is free from overland

transit politics, a factor that has so far played a largely negative role in supply pricing, diversification, and reliability. It also eliminates the need for eminent domain (forced seizure and compensation of land), adding competition to an otherwise narrow and oligopolistic market. Second, LNG deliveries open a new seaborne delivery corridor and expand the roster of available suppliers, thus enhancing diversity, while increasing supplies, and reliability. The most important advantage of LNG is its flexibility. Unlike pipelines, ships are more compliant to market needs, able to deliver gas from any origin to any coastal termination point. For exporters and shippers, LNG allows the matching of deliveries with market needs and profitability margins, which in turn enhances competition and establishes the foundation for active international spot and future markets. In short, LNG increases the options to diversify suppliers in ways that pipelines cannot. Also, because storage is an essential component of the process, LNG leads not only to increased diversity but also enhances emergency response capabilities.

The EU's LNG infrastructure can be divided between its northern and southern flanks. Five north-western member states import LNG (UK, Belgium, France, Sweden, and the Netherlands) and three more (Germany, Denmark, and Ireland) plan to do so, as do five north-eastern members (Estonia, Finland, Latvia, Lithuania, and Poland). Portugal, Spain, Greece, and Italy make up the four western importing members, and in the south-east another five member states (Albania, Croatia, Cyprus, Malta, and Romania) have plans in the works. Europe has been importing LNG since the mid-1960s, even before it began receiving externally supplied gas via pipeline. Algeria began delivering LNG to France and the United Kingdom in 1964, while the Netherlands only began exporting gas via pipeline in 1967. Since Spain and Portugal are located on the furthest end of the Norwegian and Russian pipeline networks, they began to invest heavily in LNG in the late 1990s, increasing Algerian imports and adding Nigerian LNG to their portfolios. In 2001, Spain surpassed France in imports and remains Europe's largest LNG importer, followed by the UK, France, Turkey, and Italy (IGU 2013).

Europe's LNG comes from a variety of sources. As distance from market affects price upwards, location of suppliers is important, meaning that the EU will tap resources generally found in the Atlantic and Middle Eastern markets. In 2012, the US, Trinidad & Tobago, Peru, Norway, Qatar, Algeria, Egypt, Equatorial Guinea, and Nigeria each delivered LNG to the European gas market. The largest supplier is Qatar. Since beginning to export the fuel in 1996, Qatar grew into the world's largest single exporter (77.4 million tonnes or 108 bcm) in 2012 (IGU 2013). The wealth of LNG in the Middle East provides opportunities for European energy security, but they are by no means a panacea. Despite its enormous resources, supplies from the region face serious obstacles, including growing domestic demand, subvention programs that hinder exports, and enormous buyer competition (Weems and Midani 2009). African suppliers are important partners too, but, unlike Qatar, whose exports continue to expand, theirs have remained stable. The global balance is likely to change further as new fields in the Arctic come online and US export terminals receive approval. Russia tried to develop its Arctic production options in the Barents Sea, but its Shtokman project, which it initiated in 1992, still does not produce LNG. Even if Arctic LNG does become a viable option in the near future, shipping will remain a problem, because developers will need new LNG carriers with ice-strengthened hulls and international cooperation to monitor sea ice.

Matched with increased liquefaction and an overcapacity to receive LNG, new flexibility is coming to the market. However, the capital-intensive nature of the industry, and the complications associated with gaining access to terminals, makes it difficult for new parties to join the fray; and since most LNG trade remains locked in fixed delivery contracts, most shippers are cautious to take their vessels out of permanent rotation, a development necessary for spot trading to work. Spot markets are being aided by the appearance of European gas hubs, adding further price competition and regionalization to the market. Belgium, France, the United Kingdom, and Austria each initiated their own hubs, creating greater opportunities and laying the foundation for a well-supplied future internal market. If such a market emerges, Europe will greatly enhance its energy security by seizing the upper hand in price-setting of a resource considered central to its plans for energy diversity and reliability. The LNG market is also becoming more transparent in Europe. Following the EU's increasing requirements, for example, GLE Europe voluntarily publishes weekly updates on daily LNG storage and imports at EU terminals (Gas LNG Europe 2015).

Finally, although domestic sales still account for most of the world's annual natural gas production, with pipelines accounting for most of the international trade, LNG is emerging as a vibrant

and growing market. Global liquefaction capacity is increasing, as are the number of importers, terminals, and carriers. LNG plays a major role in Europe's attempts to achieve energy security and diversity. In the short term, the EU will continue to maintain its import overcapacity. That is a good thing if and when current sources of natural gas are interrupted; the EU can turn to LNG to make up for the shortfall.

Concluding remarks

EU external energy policy in the early twenty-first century is not what it was prior to the Lisbon Treaty. The Commission is increasingly taking the initiative, leading the member states under the flag of market-building. Although it certainly does not always work to the Commission's satisfaction, the EU increasingly looks and behaves like a more cohesive body in the area of its external energy relations, at least relative to what it was just a decade ago. Diplomacy is the primary tool of the external dimension, where interests are secured through multilateral frameworks, the most important being the Energy Community. EU efforts to expand the reach of the energy acquis through such regional institutions as well as bilateral dialogues and partnerships are helpful. However, without a healthy, diversified surplus of energy resources flowing into a functioning internal energy market, those multilateral efforts will continue to suffer under the strains of national interest.

The EU faces external energy problems rooted in the historical development of the member states' energy-import infrastructures and the long-term relationships they established with their suppliers. While this problem is not going to disappear anytime soon, the member states seem to agree that the single most important problem is the unbalanced dependence on Russian gas delivered by Russian-controlled pipelines. Import capacity is not the issue, but rather who delivers what to whom at which price; and that is what makes the external dimension so politically volatile. The EU is trying to both change Russian behaviour through partnerships and interaction as well as find new ways to get gas to Europe. It has been somewhat successful with the latter; not so much with the former. Diplomacy is helpful, but in an increasingly regionalizing world, it may be no match for market power and political ambition.