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EU Energy Policy and Regional Co-operation in South-East Europe: managing energy security through diversification of supply?

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ABSTRACT

For decades after founding the ECSC (1951) the member states have relegated the issue of joint supranational energy policy development. The situation changed decisively in the early 1990s, with the dramatic shift in the geo-politics of the resource-rich Eurasia, following such developments as the collapse of the USSR and the Gulf War. In light of these developments, European states gradually consolidated their position in favour of supranational energy policy development. This paper presents an analysis of developments in EU energy policy given the ongoing realignment of strategic interest. It outlines the process of Europeanization, identifying caveats in the security of energy supply. It then proposes a solution to the main problematic of diversification of hydrocarbons supply through the fostering of regional co-operation amongst the states of South-East Europe (mainly Greece, Bulgaria and Turkey). The paper argues that this is the only viable and lasting solution to EU energy dependency away from Russia, at once showing the fundamental importance of pipeline 'mapping' in the area.

Keywords: Energy, Regional Co-operation, Europeanization, Transmission Pipelines.

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1. Introduction

Up until around 1990 the member states of the European Economic Community (EEC/EC) overwhelmingly considered decision-making in energy policy as best served by national governments. Then, the recession of the early 1990s led to a sea change. Observing this shift begs two fundamental questions: (1) what framework conditions influence the causality between economic growth and energy consumption, and (2) how can we control for them?

Distance, in the first instance, became the salient variable in the energy equation. Europe's geographic remoteness from proven reserves of fossil fuels has threatened the pricing system. It has burdened the consumer, breaking down consumption volumes.[1] Yet, distance is a strictly exogenous variable that cannot be mitigated by policy. Next, trade as an independent policy variable, was expected to allay both the increased conflict brought about by geographic proximity and the effects of distance in diminishing cooperation (Robst et al, 2006). The critical issue in respect of energy resources is that although trade may mitigate violent conflict since exporting and importing states are further a distance from one another, in actual fact it may also lead to an increase of non-

[1] Fossil fuels provide around 66% of world's total electrical power and 95% of world's total energy demands (including heating, transport, electricity generation, etc) (Conseil Mondial de l'Energie, 2008).

violent conflict due to trade agreement disputes. Recent examples abound: Turkey in 2003, Georgia in 2008, Ukraine in 2009.

Since the collapse of the Soviet Union and the Gulf War, both considerations of distance and trade have led European states to ponder anxiously on the sustainability of domestic economic growth. Exogenous considerations, too, such as foreign policy developments have weighted in significantly since 1990 towards supranational energy policy regulation. The production of oil, gas and coal is limited to today's reserves. On the one hand, that is the fraction of the resources that can be extracted at economic costs. On the other, it is an estimate of reserves that can be found in the future. Both market imperfections and technical limitations to production rates slow market adjustments to changes in expected prices or costs (Brown, 1989). The more production grows bound to off-shore exploration, the less realistic the estimate and the more costly the extraction. As a result major projects have already backfired with spectacular aplomb (Sakhalin II and the Caspian Basin). Technological investment as a policy variable has come to the fore in European Union (EU) energy policy-making (Pöttering, 2009).

In its subsequent sections this paper explores the varying degrees of success with which energy policy-making in the EU is carried out. It offers an analysis of recent developments by firstly identifying the main caveats in energy supply, demand, and security, establishing a crucial link to industrial production capabilities. Second, it discusses the merits of the process of Europeanization in

this arena. Finally, the paper proposes that a solution to the security of supply is to be found neither at the supranational, nor at the national level. A middling path between unilateral action and supranational authority emerges in the fostering of strong regional co-operation amongst neighbouring transmission countries. The contention stands where there is either no alternative to regional co-operation or any existing alternative would be so costly that it would become inefficient.

This perspective is exemplified in two geographic dimensions. First, the Northern dimension, namely the Yamal-Europe gas pipeline (Yamal I & II) versus Nord Stream. Second, the Southern dimension: Baku-Tbilisi-Erzerum, Turkey-Greece-Italy, and Nabucco versus Blue Stream (I & II) and South Stream. The Northern dimension has been subject to prior discourse (Hubert, 2007; Hubert and Ikonnikova, 2007). Applying co-operative game theory leads to the conclusion that Nord Stream will be more expensive than the Yamal pipeline. However, this is counterbalanced by the fact that the cost and security of supply is dramatically improved. Likewise, the Southern dimension has recently received heightened attention. It ties together Greece, Bulgaria and Turkey in a historically unlikely partnership as key European transmission states. However, the transmission routes have remained under-explored thus far due to the decades-long geographic isolation of the region. In addition, the number, complexity and potential of the projects are superior to anything else proposed on the continent to-date. A further obstacle is the geo-political constellations in its immediate vicinity. Energy policy is often wielded as an

instrument of foreign policy by resource-rich states. As a result, it often falls captive to issues pertaining to conflict resolution, minority rights, territorial integrity, and extremism. The probability of project completion diminishes as such instances grow pronounced.

By exploring the maze of endogenous considerations and exogenous interdependencies, this paper shows that regional co-operation amongst the states of South-East Europe (SEE) is the only viable and long-lasting solution to the overarching EU energy policy problematic of diversification of the origin of fossil fuel supply to the continent. Two central arguments support this statement. First, SEE lies in the immediate vicinity of more than 70% of the world's proven gas (and oil) reserves. This has a positive effect on transmission costs by reducing the negative effects of distance. Second, the location of Greece, Bulgaria and Turkey in relation to one another allows for the building up of different constellations of transmission coalitions. This provides for a diversification of the indigenous import locations. Bringing Turkey into the process both through regional co-operation and the EU integration process has led to an improvement in the security outlook of the transmission projects in the region. This is still conditioned on Turkey seeing itself as a potential 'insider' rather than an 'outsider' over the long term. In this sense, regional co-operation can be the key to balancing out the possibility that Turkey may use energy policy as a trumpet card in the accession process, disrupting resource supply to the EU area. Therefore, regional co-operation in SEE serves a dual purpose: political stabilization and economic prosperity for the continent.

2. Industrial production and energy demand in the European Union

Energy and economic growth are intrinsically linked. Sustainable development is dependent upon a secure and reliable energy supply. Physical theory dictates that energy is required for economic production and therefore growth. Yet, mainstream theory of economic growth often overlooks this critical juncture (Stern and Cleveland, 2004). Stern and Cleveland are not alone in this argument. More growth requires more energy and more energy allows for further growth according to recent research by Gales *et al.* (2007). The conclusion is sustained not only throughout the stage of industrialisation but also in the post-industrialisation period. Although it is said that energy intensity increases during industrialisation and declines thereafter, empirical research in economic history has shown that one needs to treat this assumption rather sceptically. The hypothesis stands in respect of the economies of the major developing countries, the BRICs. However, within the post-industrialised economies of the EU-27, the widening share of services has not necessarily brought about any significant relative decline in energy intensity. The empirical findings in Table 1 show that energy used per unit of economic output has declined. Yet, this is to a large extent due to a shift in the energy mix from direct use of mineral fuels, such as coal, to the use of higher quality fossil fuels, such as gas, and especially electricity. When theory and empirical results are taken into consideration the prospect for further large reductions in the energy intensity of economic activity seems limited.

Table 1: Energy Indicators, EU-27 aggregated

Year	Energy Intensity (toe/MEUR)	Carbon Intensity (tonne CO2/toe)	GIC per capita (kgoe/inh.)	CO2 emission per capita (kg/inh.)
1990	231.4	2.78	3498	9732
1991	227.5	2.73	3492	9541
1992	220.1	2.71	3409	9225
1993	215.4	2.66	3397	9039
1994	208.3	2.67	3376	9011
1995	207.9	2.63	3454	9094
1996	211.1	2.62	3566	9343
1997	203.7	2.60	3528	9166
1998	199.9	2.57	3560	9152
1999	192.6	2.55	3527	8988
2000	186.9	2.55	3548	9037
2001	187.3	2.54	3619	9185
2002	184.5	2.54	3597	9124
2003	186.8	2.54	3674	9319
2004	184.5	2.52	3702	9372
2005	181.6	2.51	3692	9259

Source: European Commission, Statistical yearbook 2007/8.

When the data from Table 1 is compared to the decomposition of energy intensity, it becomes clear that the exponential growth of the services sector as total share of the economy represents a very small fraction of total change in energy intensity. The change is in the region of 10-15% for the period 1970-2000. This is an outcome of the growth of services fractioned as the decline deriving from the change in GDP composition. Instead, the change in energy intensity is mostly accounted for by superior technological efficiency in industrial production. Thus, for the economies of the EU member states to sustain growth in the new millennium two prerequisites are essential: (1) investment in innovation and (2) security of energy supply.

These objectives are consistent with the findings of the Enterprise Directorate-General of the European Commission (Navarro, 2003). At the core is the promotion of European industrial competitiveness vis-à-vis third countries (Woolcock and Wallace, 1995). As a result a chapter on industry was written

into title XIII of the Maastricht Treaty. Its contents ask that the member states "ensure that the conditions necessary for the competitiveness of the Community's industry exist" (TEU, Title II).

At a conceptual level this approach can be summed up in the ideas of evolutionary economics, advanced most recently by Nelson and Winter (1982). They do away with the neo-classical approach of the state's pre-emptive role to market disruption that centres on strategic trade and infant-industry policies. Strategic trade policies refer to strategic industries' oligopolistic companies, which realize high profits, or 'national champions'. Central governments may take the 'strategic' view in favour of sustaining their dominant position in order to retain the profits of large companies within the national boundaries of the state. However, when competition takes place on an integrated EU-wide scale, national regulatory authorities can no longer effectively control the activities of domestic companies.

Notwithstanding, national champions are not above receiving support from their governments, even where they operate across the wider EU market. This calls for EC controls over and scrutiny of national subsidies to an extent far greater than ever before. Without significant degrees of discipline one-time national champions could well distort free market competition. This could bring pressure on national governments to provide them with further support by deflecting vital domestic investments from elsewhere (Woolcock and Wallace, 1995).

Related further to this problematic, infant-industry policies explain government interventionism in industries permeated by new companies, for which the governments would argue the high costs of setting up and learning justifies a protectionist approach in their early life. In such cases, the government strives to reduce negative externalities on these companies by subsidizing their national production.

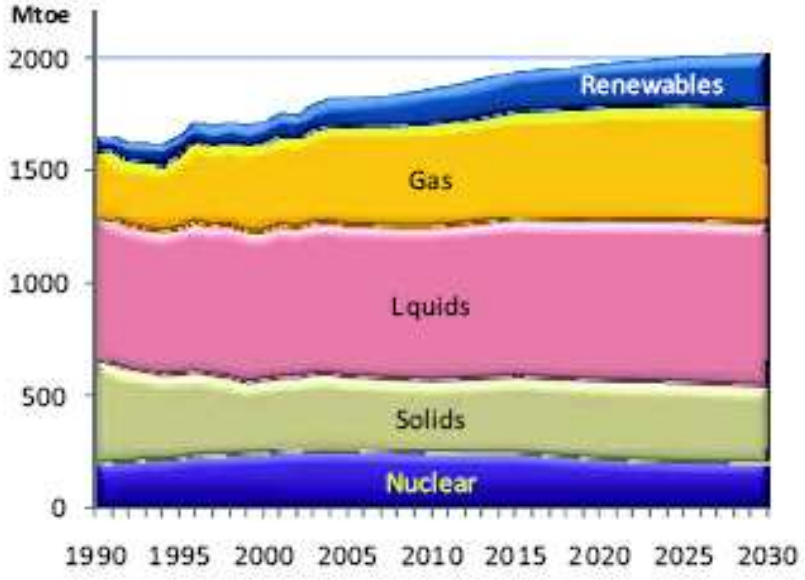
Since the 1990s, the Commission has sought to uproot both approaches. The maturity of the single market leads to a necessity for openness to stimulate competition and increase technological development and productivity. In turn, this should provide for more and continued prosperity in the EU. Inefficient supply allocation was a major issue with strategic trade policies that occurred in closed industries. Inputs and outputs were poorly managed (Ving and Boardman, 1992). Importantly, inefficient supply allocation led to non-viable industry interdependencies. This is the broad view of the situation in EC member states as they entered a downturn in the period 1987-1992.

The EC realised that industries had grown poorly equipped to face the competitive pressures emanating from the process of globalization. This necessitated the development of a new industrial approach. Its main threads centred on aiding in the accomplishment of technological efficiency and the reduction of energy intensity for industrial production. In reality, this approach was primarily manifested in large volumes of mergers and acquisitions Given the current exigencies on growth, it is clear that this approach is unsustainable

to render policy objectives complete in the long term. Therefore, a departure from entrenched views in respect of industrial growth and energy security becomes necessary.

Responding to such criticism the Directorate General for Energy and Transport commissioned an in-depth study into the long-term energy outlook of the EU-27. It estimated that energy requirements would continue to increase up to 2030 despite the decline in the energy intensity index hitherto (Table 1). Consumption is expected to stabilize after 2020 on account of two major factors: (1) lower projected economic growth in the EU-27 for the period, and (2) stagnating populations between 2020 and 2030. Total growth in energy consumption by 2030 is anticipated to reach 11%, which is much lower than expected total GDP growth over the same period (71%). Thus energy intensity is expected to continue to decline by 1.7% p.a. This is accounted for by a further structural reorientation of the EU economies towards the services sector and the light industry. Crucial for the analysis of this paper is the fact that the total projected increase in energy consumption by 2030 is to be bourn out entirely by a widening of the share of natural gas and renewables in the total energy consumption mix, which is shown in Graph 1. Import dependency on primary resources will also rise by 2030 to reach 67%, up 14% on current import levels. Amongst resources, oil import dependency will be the highest at 95% by 2030 and gas import dependency will grow from 58% today to 84% in twenty years' time.

Graph 1: Primary Energy Requirements by Fuel, 1990-2030, Mtoe



Source: DG Energy and Transport (04/2008).

By 2030 developing economies will be the dominant energy consumers as their total consumption would have more than trebled on levels measured in 2001. Conversely, data for Europe-OECD shows a much more modest growth in consumption, which as total share will be declining year-on-year till 2030. Energy efficiency is thought to increase progressively over the period for all states except for the CIS countries for which the current starting point of consumption is very modest. Total energy production will need to increase by at least 7,000 Mtoe by 2030 on 2001 levels to meet projected needs, which coupled with peaks in fields in the North Sea and the Russian Federation presents states with a profound challenge to secure supplies for the four major energy consumers: industry, transport, households, and services.

Considering the enormity of the outlook, EU member states need to grasp the much higher competition in the future for energy resources from developing

countries than has been the case hitherto. Determinants on EU energy policy should also be born in mind, namely that the EU has no choice but to import energy resources from the Russian Federation. However, the latter has a far greater choice where to export its reserves to. In addition to the EU market, the Russian Federation can trade with the large consumers of Asia, such as China and India. Even if the European market pays the highest prices per energy unit today, the geo-political situation presents OAO Gazprom with a choice that the EU importing companies simply do not have. Furthermore, the EU failed to class energy as strategic policy in the years since the collapse of the Soviet Union. This left investment projects without important backing. The private sector alone was unsuccessful in extending the transmission networks into Europe. Meanwhile, the Russian state was very successful in taking up where the EU left over. It secured long-term contracts for oil and gas imports from the Caspian littoral states. These are sold today at a significant premium on EU markets.

Thus, the EU lost twice over. First it forewent the possibility to build infrastructure to diversify away from OAO Gazprom towards the Caspian. Second, it perished by missing the chance to reduce energy costs by engineering greater competition in the origin of supply. By failing to invest in transmission networks, the EU let the initiative slip from its authority and lost political clout in Asia Minor. Not being able to speak with one voice in energy negotiations has left the EU member states each vying for its own interest with Germany, Italy and Austria at the fore from amongst the more affluent of the

members, and Greece, Bulgaria, and Turkey as the most eager each to project an image as an energy hub for Europe. Recent political developments have shown that time spent in the pursuit of diverging and to a significant extent self-sufficient national interests is all but time lost. Given this, how do we then conceptualize an energy policy for the EU? The following section offers some answers from a historical perspective.

3. What kind of energy policy for the European Union?

A comprehensive energy policy for the EU took a long time to emerge in earnest. Broadly five stages in the EU energy policy-making process can be discerned. First, in the period 1945-1957, although energy was perceived of as a major problem facing the founding six member states of the European Coal and Steel Community (ECSC), energy production was in fact mostly reliant on indigenous coal supplies. The establishment of the ECSC served to secure coal exploration for industrial purposes whereby supranational co-operation ensured development without warfare. This resulted in spill-over effects towards further economic and political integration but no major developments in supranational energy regulation.

Second, between 1957 and 1972, energy continued to be seen as an issue of lesser concern. Indigenous coal dependence was supplemented and gradually replaced by oil. The oil was imported at very cheap prices primarily from the Arab producing countries (OAPEC). Given the low costs, energy policy did not

climb up the policy-making agenda of the member states during this time either. As before, the advancement of European integration in this period did not lead to significant spill-over effects into supranational energy policy co-operation.

The status quo incurred a dramatic review following the Yom Kippur War and the ensuing oil embargo. The outbreak of warfare in the Middle East compounded the 1973-74 world stock market crush. As a result of the sudden dramatic upsurge in oil prices, energy policy-making re-entered the EC agenda for a lasting period up until 1985, marking the end of the third stage (Andersen, 2000). The collapse of the Soviet Union and the outbreak of warfare in the Middle East appeared to both engender new opportunities and revive old fears in the 1990s. The attempt of the European Commission to revitalize a common EU policy for energy marks the fourth stage in policy development. Here, there are overdue signs of a more comprehensive energy policy for the EU. A lasting impediment was finally overcome. The strong conflict amongst the member states concerning the substance of a common energy policy was mitigated. The process of liberalization and integration of national energy grids began, as did the unbundling of vertically integrated national companies. Come the new millennium, we can speak of the beginning of the fifth stage in EU energy policy-making. It is dominated by high oil and gas prices, as well as increasing demand for oil and gas imports globally sustained by rapid industrial growth in the developing countries. This means that member states more than ever before

need to overcome entrenched national security fears and work together to project a united front vis-à-vis exporting partner states.

Enacting legislation for the EU-wide energy market has been a complex and tedious task. One of the most difficult regulations occurred in the gas sector, in particular concerning transit rights (Stern, 1992). The proposal to fundamentally alter the relationship between suppliers, transmission operators, distributors, and consumers had to be significantly downgraded before it was passed. The crux of the issue centered around three matters in particular: (1) the abolition of exclusive rights in relation to the building of gas transmission lines; (2) the inscribing of an obligation for vertically integrated companies to unbundle their accounting and management systems; (3) the introduction of third-party access rights to a limited number of high volume gas consumers, so that they could chose suppliers from throughout the community (Lyons, 1994).

The major opponents to these proposals were in the first instance the larger of the EU member states with the exception of the United Kingdom. This was possible because energy was not covered by the Treaty of Rome (1958) and depending on definition it befits the ambit of both unanimity and majority voting rules of decision-making (Art. 100a). The squabble led to a deadlock in the Council. The process became precarious and a number of watered down proposals, as listed in Table 2, were accepted.

Table 2: Most Important EU Energy Legislation in Natural Gas

Legislation	Type	Field	Scope	Other
2003/55/EC	Directive, EP and Council	Natural Gas Production: from upstream to downstream activities	1. Subsidiarity; 2. Gas sector undertakings; 3. Consumer protection; 4. Social and economic cohesion and environmental protection; 5. Derogation; 6. Distribution and supply; 7. Right of access to accounts; 8. Third-party access; 9. Force Major;	Repeals Directive 98/30/EC; Deadline for opening of gas markets amongst EU MS: 01/01/2007
1775/2005	Regulation, EP and Council	Natural Gas Transmission Networks	1. Tariffs; 2. Third-part access; 3. Maximum capacity allocation mechanism; 4. Trading of capacity rights;	Applicable from 01/01/2007
2004/67/EC	Council Directive	Security of Natural Gas Supply	1. Disruption; 2. Monitoring; 3. National emergency measures; 4. Gas coordination group and the community mechanism	In force since 2004

Source: Own representation.

These legislative measures show that a gradual approach with long transition periods has settled in. More radical proposals from the European Commission were abandoned in a process that saw the proponent of the EU vision squared against the strong vested national interests of the individual member states. A coup for the Commission was a compromise whereby overarching decisions relating to the gas market were to be taken at EU level whilst member states stayed in charge of the speed and effectiveness of the implementation process. To this end two principal avenues for sectoral governance were established, namely the Florence Forum for Electricity (1998) and the Madrid Forum for Gas (1999), chaired by the Commission. The Commission further set its focus on two issues intrinsic to downstream energy policy: (1) the ratification of cross-border electricity and gas flows; and (2) the allocation and management of scarce interconnection capacities between national transmission systems. To

achieve these the Commission made use of five instruments: (1) antitrust law (Art. 81); (2) abuse of dominant position (Art. 82); (3) monopoly rights (Art. 86); (4) merger controls (Regulation No 139/2004); (5) state aid controls (Art. 87 and Art. 88). Through the creation of markets, that is liberalization, and through the integration of markets, that is Europeanization, the following objectives may be achieved in the future: (1) improvement of adequate energy supply in cases of system failure; (2) improvement of the load-base curve as electricity fluctuates on a seasonal basis; (3) decisions are taken in respect of the storage of electricity cheaply, the simultaneous consumption of electricity, and the trade of electricity; (4) questions of ownership, barriers to entry and exit, controls over tariffs, distribution and transmission, as well as scope and depth of planning can be discussed and resolved; (5) costs of leveling the field between old and new member states can be mitigated (Levi-Faur, 1999).

The process of EU energy policy development has revealed a number of caveats. First, it demonstrated the constraints on the powers of the Commission. Second, the process showed the sensitivity of supranational co-operation in energy. Third, it demonstrated the lack of concerted action amongst the EU member states for many decades. The sum of these failings has pointed out to a critical lesson for the EU. It is of fundamental importance to create a level-playing field between net energy importing states and net energy exporting countries for the security of energy supply and sustainable economic growth.

This can be achieved through a variety of policy instruments. First, by tying energy policy to the internal market programme, with competition playing a major role in the liberalization of national energy grids. Second, by relating energy policy to the attempts of the EU to establish a common environmental policy with fiscal measures as its key instrument. Third, by establishing the EU Energy Charter Treaty and the EU Energy Charter (1994) that supports reforms in the former Eastern Block in an attempt to secure the EU energy supply. Their aim is to create a controlled environment that mitigates risks associated with energy-related investments and trade.

The commitment of the Energy Charter Treaty is *de jure* impressive. Its credibility stems from the number and diversity of its signatories, which include fifty one states in addition to the EC and Euratom. It represents the EU-27 member states, other European states, as well as the states of the Caucasus in a legally binding multilateral arrangement. Yet, as a policy-making instrument it has proven largely ineffective in that the single key player in EU energy security, namely the Russian Federation, albeit a member of the Energy Charter Conference, has not ratified the treaty to-date. The treaty, therefore, has no legally binding force in respect of the Russian Federation. It is also highly unlikely that the Russian Federation would ever ratify it, for the following reasons.

Acceding to the Charter Treaty would bind the Russian Federation to an obligation to liberalize its energy market. A liberalization of the Russian energy

market would allow for domestic and foreign companies to compete with the state-controlled OAO Gazprom directly, in which the state controls 51% of all shares. This would lead to the loss of significant revenue. Current OAO Gazprom contribution to GDP stands at 8% and 20% of the federal budget. OAO Gazprom controls the most proven gas reserves world-wide, which is the equivalent to some 17% of world proven gas reserves.[2] It is Europe's largest supplier of gas. It accounts for 25% of total gas consumption in the EU and 45.1% of total gas imports into the EU-27. The EU-27 relies on gas imports for 57.6% of its total consumption needs, a figure set to rise to over 65% by 2030. After oil, which caters for 36.9% of the energy needs of the EU-27, gas is the second largest source of energy with 24.5% of total Gross Inland Consumption (DG Transport and Energy, 2008). The fact that the Russian Federation has not acceded to the European Energy Charter Treaty threatens the security of supply to EU markets. This is further compounded by the transport system that makes access to supplies possible.

Natural gas is carried through the major gas pipeline routes from West Siberian gas fields to West European gas markets that run through the Ukraine. Following the first dispute between the Russian Federation and Ukraine over price levels and transit rights in 2007, OAO Gazprom undertook a number of parallel projects in order to diversify and secure the access of Western

[2] Yet, this is only 60% of Russian proven gas reserves, discounting untapped reserves in the Sakhalin and Eastern Siberia.

European markets to gas, bypassing Ukraine.[3] While the study has produced clear outcomes, it is uncertain in the current economic climate where fuel prices are sliding how quickly construction of the proposed projects could begin. The viability of project construction to transmit gas to Europe has already benefited from some independent analysis (Hubert, 2007). It includes the projects at Yamal I and Yamal II, Blue Stream, Nord Stream and South Stream to carry gas from the Yamal-Nenets autonomous district and the Yamal Peninsula, Russia's largest known untapped gas reserves. These new routes and pipelines have been especially rendered necessary after the collapse of the former USSR when critical Soviet transmission pipelines found themselves in ownership of the newly independent republics. However, with so many costly projects under consideration, the Russian Federation needs to continue the exploration of new fields in order to ensure constant levels of gas supplied under its existing long-term trade contracts with the EU member states. Yet, if the Russian Federation acceded to the Energy Charter Treaty, it would have to conduct geological exploration with great attention to environmental conservation and the impact of such activities on indigenous populations and wild life. This would rack in exorbitant costs that are much higher than OAO Gazprom currently allocates to exploration undertakings. Thus, many of the profits that OAO Gazprom now reaps would have to be re-invested over a long period of time, necessarily reducing the size of its federal budgetary contribution. The reduction can be of a much more severe order if oil and

[3] Routes through the Ukraine supply ca. 80% of OAO Gazprom gas to the EU and ca. 40% of total EU gas supplies at the moment (Inogate).

following on these, gas prices too, fall further on the trading floors due to fears of deepening recession and a slow down in growth world-wide, prompting even speculation of depression. The Russian state stands to lose billions of rubles.

Even if price levels were to return to the record highs seen in early 2008, internal accruals from the activities of OAO Gazprom alone are unlikely to be sufficient to cover for the associated costs of exploration, given the very difficult terrains of the untapped fields, such as the Yamal and Sakhalin peninsulas. This will bring the Russian Federation under increased pressure to open up its energy markets and allow foreign multinationals access to its upstream energy market. Political considerations would have to play a much lesser role in energy co-operation given the extent of interdependencies. After the 2009 meeting of the World Economic Forum in Davos such a profound overhaul of stance does not appear likely in the immediate outlook. There China and Russia criticized the current global financial system, putting the blame squarely on the US for poor quality regulation, as well as excess dependency on what is fundamentally the only base reserve currency. Resource-rich states have further weighed in the debate by blaming the stalled economic growth for falling energy prices. In their view, prices below USD 60-80 make production unsustainable. The overall sense of the summit emerged as one of bitterness and blame. In turn this means that energy mapping will continue to be a strongly politicized issue.

Such realities dictate that the process of supranational energy co-operation can be facilitated only by rational actor-building coalitions. This is supported by Germany and Italy in the main, the EU's largest importers of gas from OAO Gazprom. The level of co-operation that the EU is seeking at present is comparable to the level of co-operation that the six founding members of the ECSC have sought in the immediate post-war period. Yet, given the fact that the majority of fossil fuel resources lay outside the geographic boundaries of the EU, the task at hand is far more complex and sophisticated. In the new millennium two exogenous factors will be the primary determinants on the EU energy policy over and above the individual interests of member states, namely: (1) the wider geo-politics and (2) state interdependence within a globalised world. In turn, this requires a re-focusing of the priorities of the Commission further afield towards upstream (exploration) and mid-stream (refineries) investment. This necessitates a significant budgetary contribution to be set aside for European energy projects that does not currently exist. It would allow the EU to become present where the Russian Federation and the USA already are, namely in the Caspian Basin and the Middle East where over 70% of total world proven oil and gas resources lie. The EU is already quite late on its involvement in the region. However, the possibility to build up transmission networks in SEE and to expand its use of Liquefied Natural Gas (LNG) from North Africa and Nigeria means that the EU is well placed to secure a significant measure of energy diversification in the short-to-medium term.

4. Diversification to the Caspian and beyond

The traditional method of energy planning focuses on finding the least-cost generating alternative or 'least cost versus portfolio-based approaches' (EIB, 2007). This stands justified only while technological progress occurs at low rates and energy prices are stable. Neither of these two preconditions is present today, which is why a shift away from the traditional view becomes necessary.

One solution in this respect was proposed by the European Investment Bank (EIB) that is to do away with emphasis on evaluating alternative technologies (e.g., for renewables), instead focusing on the evaluation of alternative electricity generating portfolios and strategies (i.e., improving the production and use of existing sources). Support for this argument is found in the fact that whilst increasing the share of renewables within the EU-27 total energy mix is imperative, they still account for only 7-8% of the final energy consumption needs of the member states. Projected growth shows a doubling of these levels by 2030 but this will be still insufficient to meet rising energy consumption needs. Therefore, a final solution in this respect is still a long way in the offing.

Instead, it is much more commensurate to use diversified generating portfolios with known (anticipated) risk levels that respond to objective energy generating costs. That includes techniques that can minimize a society's energy cost and the energy price risk it faces. Primarily, this is an approach that in addition to straightforward mathematical models, such as the Shapley Value, takes into account those factors that offset the security of energy supply, such as

geopolitics and state interdependence. The European Investment Bank qualifies the merit of this approach in the following way: “Energy security is reduced when countries (and individual firms) hold inefficient portfolios that are needlessly exposed to the volatile fossil fuel cost risk” (EIB, 2007). By factoring in geo-politics and state interdependence in this approach, the paper proposes two perspectives for energy security of supply: (1) the political viewpoint that endorses the position that stable supply is paramount to occur at affordable prices regardless of the particular circumstances; (2) the economic viewpoint, namely that the efficiency of providing energy to consumers is the leading perspective in energy security.

The two perspectives clearly cannot be combined as they are by their very nature conflicting. However, the solution to the discrepancy between the perspectives, as well as that contained in the main portfolio theory-based approach, is that diversification of the origin of supply is the only way to reduce the EU-27 predominant dependency on gas imports from OAO Gazprom. This diversification cannot occur through the northern dimension of the EU energy supply pipeline networks, as this can bring in gas only from Russian fields. However, the southern dimension of the gas pipeline networks is vital to the attainment of the overarching EU objective in energy policy, that diversification in the origin of supply, not least because over 70% of proven gas and oil reserves lie in Turkey’s immediate vicinity. A detailed examination of the pipeline networks in the region is especially relevant today where there exists a clear trend towards a widening of the share of natural gas consumption

within the EU-27 in the medium-to-long term. This can only increase dependency of the EU on gas imports from the Russian Federation at uncompetitive price levels. If the situation does not change, then it will sustain the lack of reciprocal obligation to OAO Gazprom that whilst it participates in the EU-27 energy market and benefits from access to its trading floor, EU companies ought to be entitled to similar access to the Russian market.

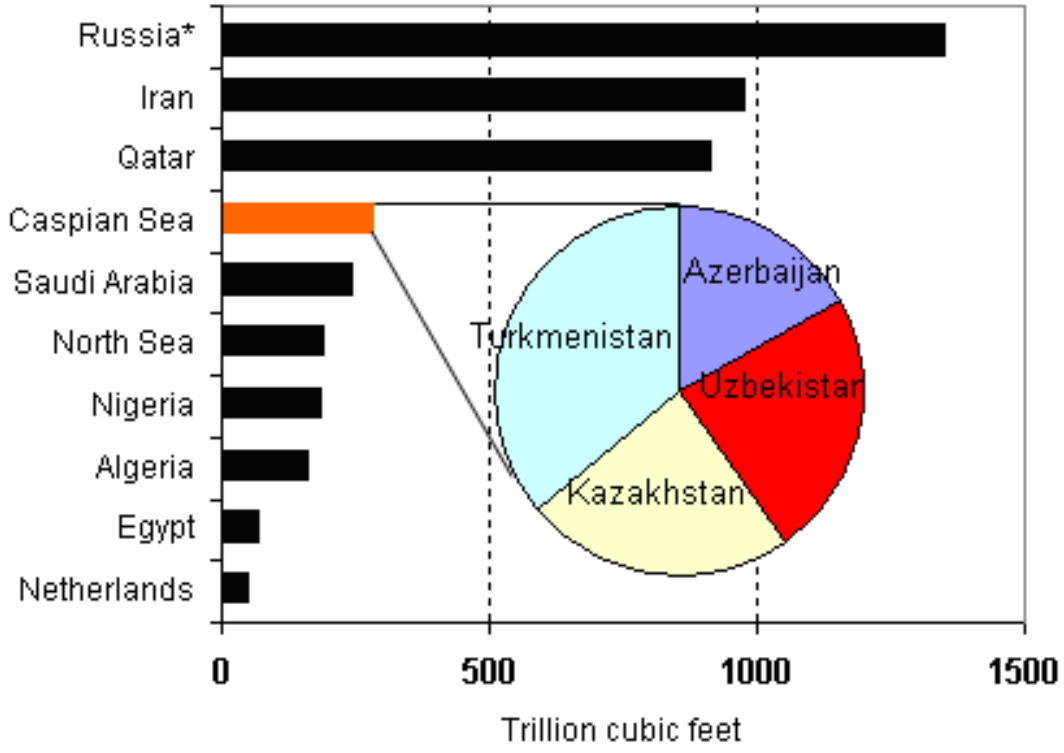
The southern dimension of gas pipeline networks is characterized by a series of existing pipelines, pipelines under construction, and proposed such. The coalitions of players are much more diverse than in the EU northern energy dimension. The key players amongst the transmission states are Greece, Bulgaria, and Turkey. In different coalitions they can potentially transmit Russian gas, gas from the Caspian Basin, Iran and Iraq. However, a number of obstacles to advance diversification already exist.

At present OAO Gazprom supplies the EU not only with its own indigenous resources but also with gas from Kazakhstan, Turkmenistan, and Azerbaijan. It has a contractual relationship with the state-controlled gas companies of these countries who lack the infrastructure to transmit gas to the EU market. Major developed fields in the littoral states of the Caspian Basin are known to be the Shah Deniz in Azerbaijan (the only in receipt of adequate foreign investments, too) and the Ustyurt region in Kazakhstan. Offshore exploration, as well as the use of the Caspian Basin for transnational projects is extremely problematic because of the disputed legal status of the Caspian (whether a sea or a lake). In

addition, it is only the Russian Federation and Iran that have a bilateral agreement dating back to the times of the Soviet Union that divides the below the sea bed resources and the surface area of the Caspian. A veto from any one of the two states sends a project in disarray, as seen in the case of the Trans-Caspian Gas Pipeline. Still today, the Caspian lacks a resolution on its legal regime between the five of its littoral states, some calling for a condominium (Iran), whist others prefer bi- and tri-lateral agreements (Russia, Azerbaijan and Kazakhstan), blocking many initiatives and advances to explore the Caspian resources for energy.

Notwithstanding, the gas reserves of the Caspian may in time become the subject of further revisions similar to the ones incurred in respect of its oil reserves, initially thought to be as abundant as the combined reserves of UAE and Kuwait but subsequently revised to 50-70 bn barrels “Yet to Find” (ytf), representing ca. 3% of global future oil supply. More sophisticated technology, as well as greater third-party access to the region can establish a more accurate picture of our understanding of potential recoverable reserves of fossil fuels. Natural gas supplies are thought to be more significant than oil reserves, standing at ca. 232 trillion cubic feet (IEA, 2006). Current estimates of proven gas reserves in the littoral states of the Caspian Basin place it in fourth position world-wide, which emphasizes the significance of the resource for the EU member states, as shown in Figure 1, as well as the influence they yield to the ‘Caspian five’ in diplomatic overtures on matters as wide-ranging as economics and security in the region and beyond.

Figure 1: Proven Gas Reserves in the Caspian Basin, Tcf



*Does not include Eastern Siberia, Sakhalin reserves
Source: Cedigaz (2006), World Gas Conference (Amsterdam, June 2006)

Source: IEA, 2006.

Table 3: Caspian Sea Region Gas Reserves, tcf

Country	Proven Gas Reserves	Possible Gas Reserves	Total Gas Reserves
Azerbaijan	11	35	46
Iran	0	11	11
Kazakhstan	53-83	88	141-171
Russia	NA	NA	NA
Turkmenistan	98-155	159	257-314
Uzbekistan	74-88	35	109-123
Total	236-337	328	564-665

Source: Energy Information Administration, Department of Energy, USA, 2000.

Azerbaijan, from which the EU currently receives gas along the Baku-Tbilisi-Erzerum pipeline that feeds supplies into the Turkey-Greece-Italy Interconnector, is believed to have the least amount of gas reserves from

amongst the littoral states of the Caspian Basin with the exception of Iran. The small amounts of gas found in Azerbaijan explains importantly why the EU has been unable to commence work on its strategic project, Nabucco, as the flow of the 31 bcma maximum gas capacity of this pipeline has not been secured yet. This is accounted for by a high degree of caution on the part of the Caspian states, which are mindful of upsetting their relationship with the Russian Federation given their dominant dependence on it for exports of oil and gas from the region. Furthermore, the lower the price of gas, the less justified the exorbitant cost of pipeline construction. The construction cost of Nabucco started at EUR 4.6 billion rising through to EUR 7.9 billion in the most recent estimates. Despite the dramatic decrease in metals prices, a downward revision from this latest cost projections has not occurred. The EU is mindful to operate a project as unviable as Blue Stream is for OAO Gazprom, since it cannot justify the sunken costs to the EU taxpayer. But whilst the Russian Federation may be willing to absorb the construction costs for South Stream (estimated at EUR 15 billion to share between OAO Gazprom and ENI spa), in the EU the bulk of the investment will come from the private sector's own accruals and therefore, it will have to be repaid over a reasonable period of time.

The sum of this is that given the expense accompanying the development of new fields and the time it takes for both investment to come in and exploration to reap fruits, any gas diverted from the littoral states of the Caspian Basin directly towards the EU markets is likely to harm the quantities supplied from those states to OAO Gazprom under existing long-term contracts. Therefore,

logic dictates that in a perspective to 2030 the EU is still likely to receive the same quantities of gas as today, regardless of any possible diversification of supply if it is to occur from currently existing capabilities in the Caspian Basin. The only way to overcome this is either for the EU to make a concrete substantial investment commitment towards upstream exploration in those states, as well as to the construction of gas pipelines in SEE, which it does not at present, or look further afield towards Iraq and Iran where to mediate an agreement to supply EU markets with significant quantities of oil and gas. In the current political climate with individual EU member states unable to agree on a common position, the fostering of such an agreement seems unlikely. A still further option is to partake in intensive efforts towards the development of natural gas fields in Kazakhstan, the resources of which are still underdeveloped. Likewise, this would have to be accompanied by a financial commitment by the EU towards the construction of gas pipelines that can connect the fields to the EU markets. Yet, this would be increasingly difficult as it would necessitate the EU coming onto a field already occupied by the Americans and the Russians in the wider context of geo-politics.

5. South-East Europe and regional co-operation

Potentially, any diversification through the Caspian and Asia Minor is possible with transmission only through SEE. Given the lack of viable options for the diversification of the EU energy supply resources, fostering regional co-

operation in the EU south-eastern dimension can provide a potential venue to open up the Union to unexplored but strategic opportunities to pursue its energy objectives. Projects in SEE decrease the negative effects of distance, as well as those of further externalities, such as transit costs. In this section we consider the cases of Greece, Bulgaria, and Turkey as the principal actors in this scenario.

5.1. Greece

The need for Greece to diversify its natural gas imports is in the first instance due to the widening share of gas consumption in the state, where gas was first introduced in the energy mix only in 1997. Since then, Greece has launched concrete projects to receive Azeri gas through the Turkey-Greece Interconnector (TGI), part of a wider project, ITGI, to be extended under the Adriatic Sea to Otranto in Italy in order to supply between 12 bcma and a maximum of 18 bcma of gas to the EU. Although still representing only a small quantity of total EU gas consumption, it is an important milestone in the EU policy of diversification as the pipeline bypasses Russian territory and does not carry OAO Gazprom gas.[4]

While Greece diversifies its energy supply, it is also keen to guarantee the security of supply. Soon after the inauguration of the TGI, Turkey tapped supplies to Greece in order to pressure Azerbaijan into delivering greater quantities of gas through the BTC pipeline. Therefore, dominant considerations

[4] Estimated at 19,710 peta joule (PJ), or 505 billion cubic metres (BCM), or 424 million tons of oil equivalent (MTOE) (Eurogas, 2008).

of security led Greece to join the OAO Gazprom/ENI spa-led South Stream project in the summer of 2008. It has a number of strategic underpinnings, amongst which the cementing of the focal position that the Russian Federation plays in the EU energy market. For Greece and the EU the role of this project counterbalances fears of Turkey's natural expansion as an energy transmission hub. One concern is Turkey's open desire to re-sell gas to EU markets, whereas the principle is that a buyer is prohibited from re-selling gas purchased under contract to buyers in a different country. Inter alias the execution of the EU strategic project of Nabucco has been delayed, amongst other reasons, also because Turkey continues to explore opportunities to trade gas from the share of its allocation of total pipeline flow capacity.

With a dense national gas transmission grid and key strategic gas projects spanning its territory, such as the BTC and Blue Stream, as well as connections to Tabriz (Iran) and Kirkuk (Iraq), the EU comes under increased pressure to acquiesce Turkey's EU membership ambitions in exchange for the advancement of diversification projects through its territory, such as the strongly US-backed Nabucco gas pipeline. Turkey's position is further strategically strengthened by its key port city of Ceyhan, through which Turkey has positioned itself for natural resources transit to Syria, Lebanon and Israel (Ceyhan-Haifa), as well as Northern Cyprus (a sea-bed pipeline). Finally, Turkey has undertaken significant efforts towards the construction of gas storage facilities, such as at the lake district of Tuz Golu, the largest of its kind in the region. This sends a strong signal that Turkey will continue to pile up

stocks and use those at stock peak times at a premium, increasing its diplomatic clout.

Therefore, Greece has come in this very competitive field at an important juncture for EU energy policy development to help level the playing field with strong investments and a strategic long-term outlook for the region. In addition to the proposed projects that Greece has joined in, there are also negotiations to increase current levels of gas imports from OAO Gazprom (received from Bulgaria at the Kulata) and intensified efforts to extend the national gas transmission grid, as well as transmission pipeline networks to the countries of the Western Balkans, thus propelling Greece into a position as a major leader in gas transmission in SEE.

5.2. Bulgaria

The Bulgarian gas market is controlled by the state-owned Bulgargaz company, part of the Bulgargaz Holding Company, which retains the only gas license for import and distribution of gas in the country. Historically, Bulgaria has been a net export country of Russian-supplied natural gas, primarily to its neighbours of Greece, Turkey, as well as the states of the Western Balkans. Whereas Greece has successfully began to diversify its gas import mix through the import of Algerian LNG, as well as Caspian gas through Turkey, Bulgaria still maintains 100% import dependency of natural gas from OAO Gazprom.

Since becoming a member of NATO in 2004 and of the European Union in 2007, Bulgaria has finally commenced a programme that when completed

would result in the diversification of the origin of the supply of natural gas in the country. As a result, Bulgaria has become a key transmission state both in the proposed Nabucco project and within South Stream (at least for the time being, given Russia's attempt to play the country's port of Varna up against the Romanian port of Constanza that decreases sea-bed pipeline length by some 100 km but critically pressures the countries to succumb to OAO Gazprom demands of ownership of the pipelines crossing what is now essentially EU territory). Bulgaria has also been instrumental in the increased amounts of gas flowing from the Trans-Balkan pipeline to Turkey and potentially also to Greece, through a meter upgrade at its border. Bulgaria had a competitive advantage in SEE for many years through its gas storage facility in the region of the Chiren gas field. Pressured by competition from Turkey and Greece, it is currently in undertakings to construct a second gas storage facility at the Galata gas field through a licensing agreement to Melrose Resources Plc of the UK. Bulgaria has, therefore, in the course of the past few years renewed attempts to become a key gas transmission state in SEE.

5.3. Turkey

Turkey posses the geographic advantage to lie in the immediate vicinity of over 70% of the world's proven gas and oil reserves.[5] Given that the transmission of the resources is as important as their exploration, Turkey's role as an energy bridge between Europe and the Middle East can never be understated. After

[5] 65.3% of proven oil reserves lie in the Middle East (BP Amoco Statistical Review of World Energy, June 2001, p. 4); Over 70% of proven gas reserves lie in Eurasia (Russia, the CIS and Middle East) (DG Energy and Transport, 2007/8).

Germany, Turkey is the second largest importer of gas from OAO Gazprom on par with Italy at over 23 bcma. Therefore, Turkey's vested interest in diversifying its dependency in order to decrease soaring energy prices and ensure further significant state revenues from transit payments. Table 4 presents a summary of all major gas transmission projects to span its territory (in operation and proposed). All of these are directly relevant to EU needs for diversification.

Table 4: Natural Gas Pipeline Projects in Turkey, Bcf/y

Project	Status	Length (miles)	Max. capacity (Bcf/y)
Blue Stream	In operation	750	565
Iran-Turkey Pipeline	In operation	750	495
South Caucasus Pipeline	Under construction	430	700
TGI	Under construction	186	407
Nabucco	Proposed	2,050	460-1,100
Egypt-Turkey Pipeline	Proposed	NA	NA
Trans-Caspian Pipeline	Suspended/Cancelled	1,050	565

Source: EIA/US, 2006.

Beyond the state-centric consideration, Turkey has become especially keen in the post-Cold War era to play the role of mediator amongst the littoral states of the Caspian Basin, thus expanding its diplomatic leverage in its immediate vicinity. This has led to substantial investments in Georgia, in large part to support what it considers a Turkish minority in the state. Most recently, an attempt at rapprochement has been made vis-à-vis Armenia too, paving the way for Turkey to mitigate any possible future resolution over the latent 1994 military conflict between Armenia and Azerbaijan in the autonomous region of

Nagorny Karabakh. The importance of these efforts cannot be downplayed given the insurgencies in 2008 in South Ossetia (and potentially Abhazia) in Georgia, closing off the sea ports of Poti and Batumi, jeopardizing the delivery of oil exports to the European markets. In light of such developments, Turkey has undertaken an ambitious investment and construction programme, headed by the state-controlled gas operator, Botaş.

6. Conclusion

Regional co-operation is defined as policy co-operation in different decision-making areas between geographically proximate neighbours. The goal is to manage linkages, as well as create new such by being pro-active. The major debate in regionalism within the EU is one of widening versus deepening of integration, or one of the benefits of variable geometry. Therefore, in respect of this research the question is whether EU energy policy would be better served if the states of SEE advance their co-operation in energy transmission to cater for EU policy deficiencies in upstream and midstream energy exploration.

The three main players of the region, Greece, Bulgaria, and Turkey already have a platform of rapidly growing trade relations on which to build up the process of energy co-operation. The undisputed regional leader in trade in SEE is Greece, having invested by 2003 already over EUR 3 billion in the transition states. Amongst the investors are Hellenic Petroleum, OTE, Alpha Bank, the National Bank of Greece, the Commercial Bank of Greece, EFG Eurobank,

Delta Dairy, Titan Cement, Leventis, and Viohalco, to mention but a few. So much so that Greek President Papoulias declared 2007 the ‘golden age’ in regional trade relations.

Major forums for regional co-operation amongst the states of SEE include the Inter-Balkan Cooperation, as well as the Black Sea Economic Cooperation (BSEC), amongst a number of others. These two, in particular, provide a platform for future energy co-operation amongst the states of SEE. The South-East European Cooperation Process (SEECP) was taken up by Greece and Bulgaria to revive regional cooperation at the summit meeting in Crete in November 1997. Given that the problems of the Balkans can be more effectively dealt with by the Balkan countries themselves and by the peoples of the region, the South-East European Cooperation Process (SEECP) is a useful tool for regional cooperation, which could be upgraded to become an organised institution for the Balkans. There is also close coordination between the three countries within the Black Sea Economic Cooperation Organisation. Greece attaches particular importance to this regional formation, which is crucial to promoting economic development and stability in the participating states and the wider region, more generally.

In 2008 Greece continued to be the third largest foreign investor in Bulgaria, closely following on Austria and Germany. Likewise, Greece is the fourth biggest investor in Turkey with FDI from Greece totalling over USD 2.8 billion for the period 2002-2006, which adds to a growth of 114% in total trade

volumes over the same period. Bulgaria-Turkey trade volumes have reached USD 4 billion in 2007, expected to rise to USD 10 billion in the short-to-medium term with exponential growth of USD 1 billion each year in the period 2005-2008. Needless to say, the EU enlargement policy in the region has made SEE one of the most dynamic and important developing markets in the EU. The importance that energy has assumed in the past decade for the EU member states and beyond means that instead of competing with each other, the states can benefit better from co-operating with one another. Both trade and energy transmission has an in-built logic of collaboration with neighbouring states in order to maximise profits from activities. Therefore, supporters of a multi-speed approach to European integration stand to acknowledge the greater benefits that can be reaped through regional co-operation in energy as opposed to from supranational EU energy policy-making alone.

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