

# Game of Pipelines: the Future of the Energy Sector in the Black Sea Region beyond the Pipeline Knot

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## Executive summary

In the grip of two clashing positions, states in the Black Sea region are struggling to develop resilient, competitive and sustainable energy sectors. Transit fees, rent seeking and discounted prices of natural gas have determined the course of energy policies in the region. Failure to understand the impeding effect of this on the efficiency and development of economies in the long term has resulted in political turmoil on both national and regional levels. In these conditions, market-based reforms along with policies promoting energy efficiency and regional energy cooperation could allow states in the Black Sea region to develop more independent and ultimately efficient energy sectors. Yet, the political, geopolitical, historical and economic factors in the region prevent decision makers from following through this uneasy political agenda.

## Introduction

For decades discussions on energy issues in the Black Sea region have revolved around natural gas pipelines transiting through

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the region. This limited view on the challenges faced by the energy sectors in the states bordering the Black Sea has impacted their ability to reform and evolve at the pace needed to guarantee economic competitiveness. Reducing the role of Black Sea states to transit states for cross-border natural gas pipelines has not only delayed their economic development but has limited their ability to pursue national interest-based policies and foreign relations. Instead, those states remained entrapped between two conflicting geopolitical agendas.

Over the course of a decade, the Black Sea region has been the forecourt for several strategic infrastructural energy projects aiming to change the routes of natural gas imports to Europe. On the surface these projects addressed specific economic needs - linking suppliers of natural gas with consumers and de-risking the delivery process for both groups. However, the resulting competition over a dominant position in Europe's Southern Gas Corridor was a reflection of the geopolitical interests and aspirations of the major players exerting their influence over the region, Russia and the EU. The two conflicting projects, namely South Stream and Nabucco, were the result of two differing visions on the Black Sea region's role in the strategies of these two actors.

To Russia, trans-border pipeline projects were a political leverage tool to block off potential competitors from access to the EU market and a geostrategic manoeuvre guaranteeing political influence over traditional areas of control, such as South East Europe. On the other hand, the EU viewed the Black Sea region as the road to its long-recognised need for both route and source diversification particularly of natural gas imports. The distance between these two conflicting viewpoints grew further apart as political turmoil divided Ukraine and revived the possibility of cuts of natural gas deliveries to Europe.

Yet, while the EU and Russia were attempting to align states around the Black Sea with either of their two competing views vis-à-vis the energy future of the region, both actors failed to recognize these states' strife for more self-centred and national interest driven energy strategies. By remaining focused on their rivalry, neither Russia nor the EU succeed in offering an attractive, coherent and systematic strategy to assist the Black Sea region states in tackling some of the fundamental challenges to their energy systems. As a result, the inherently malfunctioning energy sectors of these states generated system risks that challenged even the most basic level of political stability needed to secure investments in cross-border energy projects. To add to an already strained geopolitical environment, the development of the region's energy sectors is further hindered by its historical, economic and political heritage making much needed energy reforms an undesirable way forward for current political elites.

### **Opportunities and challenges to energy sectors in the Black Sea region**

All states in the Black Sea region apart from Turkey faced identical challenges to their national energy markets and systems in the early 1990s following the collapse of the Soviet Union. Electricity transmission lines and generation capacity were integrated in a regional arrangement and were managed through central planning in order to meet electricity demands for the entire Eastern bloc of the USSR as well as supply electricity and natural gas for energy intensive industries in the region<sup>2</sup>. Natural gas was distributed through fully integrated pipeline connec-

<sup>2</sup> International Energy Agency, *Eastern Europe, Caucasus and Central Asia. Highlights*, International Atomic Energy Agency, Paris, 2014, p. 8. Available at: [http://www.iea.org/publications/freepublications/publication/INOGATE\\_Summary\\_FINAL.pdf](http://www.iea.org/publications/freepublications/publication/INOGATE_Summary_FINAL.pdf)

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tions. This system was characterised by high levels of energy inefficiency, energy intensity and transmission losses. Moreover, as energy sectors were organised around a centrally planned economy, none of the electricity generating capacities or transmission infrastructures were based on market-supported capital investments. The transition to a market-based economy amplified these distortions and generated financial losses unbearable for the regulated, and to a large extent, publicly owned energy sectors<sup>3</sup>. In these cases, states were forced to subsidize the production of electricity by inefficient power plants and then distribute this electricity to consumers at a price lower than its actual cost to the public budget. This is still the case in Bulgaria, Romania, Ukraine and Turkey.

Twenty five years later, after a series of attempts to modernise their energy sectors, not much has changed. The post-Soviet states are still leaders in energy inefficiency and energy intensity among other European states. Furthermore, the crash of energy-intensive industries in many post-Soviet states has left them with economically inefficient, old and yet still operational generating capacity and hence an oversupply of either electricity or natural gas. The lack of effective strategies on decoupling and privatising in both the electricity and gas sectors has led to the development of sub-optimal markets and national energy systems unable to deliver cost-efficient energy for industries thus damaging their competitiveness. While de facto electricity generation prices have increased, prices were artificially depressed by national regulators in order to avoid politically unpopular moves (e.g. an increase in electricity prices). This naturally led to an exponential deficit level

<sup>3</sup> Rabindra Nepal and Tooraj Jamasb, *Reforming the Power Sector in Transition: Do Institutions Matter*, EPRG, University of Cambridge, 2011, pp. 1-48. Available at: <http://www.econ.cam.ac.uk/dae/repec/cam/pdf/cwpe1125.pdf>

increase in the budgets of national energy companies. Yet, what should be of even greater concern, is that despite being amongst the lowest electricity prices in Europe<sup>4</sup>, a large portion of the region's population is energy poor and unable to afford such commodities even at regulated prices<sup>5</sup>. Bulgaria is a strong example with nearly 60% of its population being energy poor<sup>6</sup>.

Moreover, these fragmented national energy systems become more exposed to external economic and political pressures. Corrupted national energy companies saw opportunities in diverting public funds through large scale but redundant energy infrastructure projects such as financially unviable pipeline developments, nuclear power stations as well as signing contracts with international investors for buy-out rates of generated electricity at marginal profits much higher than the costs of production. In addition to this, previously agreed energy deals were not discussed at the start of the new emerging economic and political realities and ambiguities led to inter-state conflicts and public funds losses.

Furthermore, any fruitful measures to reform energy sectors in the region are obstructed by the different tools of energy policies

<sup>4</sup> Eurostat, *Electricity prices for household consumers, first half 2013 (1) (EUR per kWh)*, European Commission, 2014. Available at: [http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Electricity\\_prices\\_for\\_household\\_consumers,\\_first\\_half\\_2013\\_\(1\)\\_EUR\\_per\\_kWh\\_YB14.png](http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Electricity_prices_for_household_consumers,_first_half_2013_(1)_EUR_per_kWh_YB14.png)

<sup>5</sup> Stefan Bouzarovski – Buzar, *Energy poverty in the EU: a review of the evidence*, University of Birmingham, 2011, pp. 1-7. Available at: [http://ec.europa.eu/regional\\_policy/archive/conferences/energy2011nov/doc/papers/bouzarovski\\_eu\\_energy\\_poverty\\_background%20paper.pdf](http://ec.europa.eu/regional_policy/archive/conferences/energy2011nov/doc/papers/bouzarovski_eu_energy_poverty_background%20paper.pdf)

<sup>6</sup> The World Bank, *Republic of Bulgaria. Power Sector Rapid Assessment*, The World Bank, 2013, pp.1-37. Available: <http://www.sofia.diplo.de/contentblob/4047992/Daten/3321522/WeltbankAnalyse.pdf>

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governance applied in these states according to their national legislation as well as inter-governmental agreements and participation in international organisations. Along these formal instruments, various tools of geopolitical influence exert pressure. Whereas Bulgaria and Romania can be seen to have similar long-term energy policy objectives as EU members, Turkey as an Energy Community observer is not bound to them and has other priorities dictated by its growing young population. Ukraine, on the other hand, has several crucial uncertainties to resolve before ensuring even short-term economic stability.

Nevertheless, energy is the sector that holds immense potential for states in the region to embark on a path of economic development and nurture a degree of resilience to external political and economic pressures. A stable, modernised and competitive energy sector is a prerequisite for competitive economies and sustainable development. However, as energy investments require a sound and stable investment climate, real developments in the energy sectors of Black Sea states are trapped in a vicious cycle. The way forward lies in finding modes of regional energy policy cooperation beyond natural gas projects and under the governance structure of existing bilateral agreements or regional cooperation frameworks.

The success of this regional approach depends on the dedication of governments across the Black Sea region to reform their energy sectors internally bringing them in line with the requirements of their contemporary demography and economies. This step, however, must not be taken in isolation from the main stakeholders in the region, Russia and the EU. Black Sea states should seek to align, both politically and practically, with an energy agenda which offers them group benefits instead of opting

to cooperate with major players based purely on national interest. The second step to sustainable energy sectors in the region is an ambitious approach to renewables, energy efficiency and de-carbonisation strategies going beyond mere compliance with international frameworks. The following state by state analysis, with a focus on Turkey and Ukraine, offers a brief overview of the opportunities and challenges faced by the energy markets and sectors of each of the states around the Black Sea region.

## *Turkey*

Of all those states, Turkey has a rapidly developing economy when compared to the rest, a scenario which puts a different type of pressure on its energy sector. The International Energy Agency (IEA) in its country report on Turkey from 2009 underlines some of the issues faced by the then looming Turkish economy. The report projected that Turkey's growth rate in demand for primary energy and electricity will be amongst the highest within IEA member states and will be doubled in the forthcoming decade. Consequently, it has been concluded that Turkey's future security of energy supply is a matter of primary political concern.

At this time, Turkish authorities are seen to be responding to the need for affordable energy by unfolding an ambitious renewable energy deployment agenda. The reason to focus on renewable energy is its potential to address the growing concern over Turkey's ability to guarantee a security of electricity supply. Its young demographic has increasing energy demands due primarily to income growth which puts a significant pressure on a country that is already highly dependent on fossil fuels to produce the required amounts of electricity. Turkey has placed special attention to develop its vast hydro power, wind, solar and

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geothermal potential. Among countries in South East Europe, Turkey has the highest realisable potential (30 GWh) to develop by 2030 its large hydro power sector with an even higher potential for small hydro<sup>7</sup>. Its renewables agenda focuses on fully tapping hydro power potential by 2023<sup>8</sup>. Until then, Turkey relies on fuelling its renewables potential through natural gas. In 2009, Turkey imported 98% of its gas with 52% coming from Russia and Azerbaijan while Iran and Algeria exported to Turkey nearly 15% each<sup>9</sup>. The imported natural gas was used primarily for power generation (some 50%) and the produced electricity was then consumed mostly by the residential sector<sup>10</sup>.

In 2014, Turkey's dependence on natural gas imported from Russia grew to 58% while Turkey's overall demand for natural gas, as projected in 2009, also kept growing making Turkey's energy dependence on Russia ever more pronounced. Both the power generation sector and the residential sector remained the key consumers of natural gas, both directly and indirectly. Turkey's realized energy dependency on natural gas and its expected

<sup>7</sup> André Ortner, Gustav Resch, Andreas Tuerk, Christoph Zehetner, *Policy Brief: Indigenous energy resources of South East Europe – Feasibility of enhanced RES-E deployment*, Vienna University of Technology, Institute of Energy systems and Electric Drives, Energy Economics Group (EEG), November 2014.

<sup>8</sup> Salih Burak Akat, *Renewable Energy in Turkey*, Ministry of Energy and Natural Resources, Turkey. Available at:

[http://better-project.net/sites/default/files/Renewable%20Energy%20in%20Turkey\\_Directorate%20General%20for%20Renewable%20Energy.pdf](http://better-project.net/sites/default/files/Renewable%20Energy%20in%20Turkey_Directorate%20General%20for%20Renewable%20Energy.pdf)

<sup>9</sup> International Energy Agency, *Energy Policies of IEA Countries: Turkey 2009 Review*, International Energy Agency, Paris, 2009, pp.7-157. Available at: <https://www.iea.org/publications/freepublications/publication/turkey2009.pdf>

<sup>10</sup> *Ibid.*

growth in demand has led the country to improve its energy security development strategy. While still having significant contractual responsibilities based on long-term arrangements with its top importers such as Russia, Turkey has put a significant stress on diversifying its energy supply in terms of importers. Also, it is trying to limit the importance of natural gas by diversifying its power generation sector through nuclear and renewable energy. In doing so, however, it has chosen cooperation with Russia over the construction of several nuclear power plants. Turkey's government has stressed on several occasions its determination to foster Turkey's participation in its region's energy trade by investing in and facilitating the construction of the required energy infrastructure needed to achieve this. Turkey is seen as a potential energy hub, serving as the centre of a regional energy market, providing financial services related to energy trading and serving as an infrastructure interconnector for gas deliveries from the Caspian Sea and the Middle East to Europe as well as becoming an LNG trading hub in the future<sup>11</sup>.

Up until recently, Turkey's aim to diversify its "contractual portfolio" has fully coincided with the EU's quest to guarantee its own energy dependency by diversifying away from Russian imports ever since the 2009 Russia-Ukraine gas dispute and the pressing concerns following the EU-Russia standoff over Ukraine. Turkey was seen as a key strategic partner in guaranteeing energy stability for the EU as it would introduce the ever more needed supply competition especially for countries in Eastern Europe, six of which still depend almost entirely on Russia for their gas exports:

<sup>11</sup> International Energy Agency, *Oil and Gas Emergency Policy: Turkey 2013 Update*, International Energy Agency, Paris, 2013, pp. 2-17. Available at: [http://www.iea.org/publications/freepublications/publication/2013\\_Turkey\\_Country\\_Chapterfinal\\_with\\_last\\_page.pdf](http://www.iea.org/publications/freepublications/publication/2013_Turkey_Country_Chapterfinal_with_last_page.pdf)

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Bulgaria, Lithuania, Latvia, Estonia, Finland and Sweden while another six import over 50% of their gas supplies from Russia. Having access to a reliable alternative southern route would allow all of these states to negotiate better prices on natural gas supplies using spot pricing (market driven price formation) as opposed to long-term, fixed quantity and oil-indexed gas deliveries from Russia<sup>12</sup>. Yet, the attempt to limit Gazprom's presence in the region or at least subdue it to European regulations on natural gas trade, part of the Third European Energy Liberalization Package, failed when the company decided to resort to a partnership with Turkey.

The above aides in understanding Turkey's future aspirations to become a regional hub for natural gas. The first step undertaken by Turkey in the direction of achieving this objective is participating in Gazprom's decision to reroute the South Stream project through a new pipeline, already referred to as Turkish Stream and announced at a governmental meeting between then Turkish Prime Minister and now President Recep Tayyip Erdoğan and Russian President Vladimir Putin in December 2014. Even if this is a momentous bluff on Russia's part aimed at pushing the European Union towards constructing the South Stream project void of any EU regulations, it is a move that helps Turkey advance its energy objectives.

This endeavour will increase Turkey's dependence on Russia's natural gas deliveries, albeit reduce the risk of deliveries to Turkey transiting through Ukraine, affecting Turkey's position vis-à-vis its European partners in geopolitical terms. Yet, the po-

<sup>12</sup> Vanessa Mock, "EU Puts Brakes on Russia Natural Gas Pipelines", *The Wall Street Journal*, 12 March 2014. Available at: <http://www.wsj.com/news/articles/SB10001424052702304914904579435402008140372>

tential rent income that could be realised through allowing Russian natural gas transit and the foreseen economic benefits from the planned construction works are a lucrative offer. In the case of Turkish Stream being constructed, Turkey will become a physical and potentially rewarding crossroad of natural gas deliveries destined for the European market. To add to this, the upcoming TANAP project and potential future infrastructural projects with other regional suppliers such as Iran and Iraq offer further opportunities for the Turkish economy to benefit from access to abundant supplies of natural gas at competitive prices.

A detailed understanding of Turkey's current energy challenges along with its objectives in terms of regional energy cooperation as a source of political leverage in dealing with the EU, as well as an opportunity to secure the competitiveness of its economy through access to cheap energy resources, is the context through which to understand the challenges faced by other states in the Black Sea region. Moreover, this is an opportunity for Turkey to materialise its vision of becoming a gas hub, a vision it has promoted both on regional and European levels. In terms of energy, Turkey has a unique role in the region as it is a market with an expected increase in demand at a time when all other states exhibit stagnating levels of demand while also having a large import dependency on another state in the region. Turkey also has a sizeable political leverage power in terms of its key position for any large scale cross-border pipelines aiming to supply the European market with natural gas. An additional geopolitical objective in favour of Turkey's partnership with Russia is that of avoiding a potential request from the EU for Turkey to compromise over its position on Cyprus as a key to the energy chapter of its accession negotiations. Russia is further attracted to the possibility of partnering with Turkey as the latter is only an observer to the Energy

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Community and as such has not move forward in ratifying any agreements with the EU leading to an implementation of the Third European Energy Liberalization Package, the main source of disputes between the EU and Russia over South Stream.

### *Ukraine*

The effects of Turkey's actions across the energy sectors of other states in the Black Sea region are best observed by looking at Ukraine. Apart from the obvious interrelation of both the Russian and Ukrainian energy sectors, one of the greatest challenges in the region is manifested in the way Turkey's decision to partner with Russia will resonate on the future of Ukraine's energy sector. This situation reflects the lack of cooperative arrangements on a regional level in the field of energy policies that would motivate states to seek a mutually beneficial strategy to develop their energy sectors as opposed to opting for solutions which serve national interests alone. The lack of a sense of belonging and community between Black Sea states is fuelled by both their diverging and sometimes competing roles in terms of energy supplies (consumers – Bulgaria, Moldova, Transnistria<sup>13</sup>, Georgia, Armenia; transit states – Ukraine, Turkey; exporting states – Russia, Romania, Azerbaijan) as well as their various affiliations (EU member states and candidates, Energy Community members and observers, and numerous bilateral governmental agreements on energy trade).

<sup>13</sup> Here Transnistria has to be mentioned separately from Moldova as it has a very peculiar energy sector fuelled by corruption practices and de facto operating independently from Moldavian energy policies. Consult Nicu Popescu and Leonid Litra (2012) for more information on this topic. Nicu Popescu and Leonid Litra, *Transnistria: A Bottom-Up Solution*, European Council on Foreign Relations, 2014, pp. 1-16. Available at: [http://www.ecfr.eu/page/-/ECFR63\\_TRANSNISTRIA\\_BRIEF\\_AW.pdf](http://www.ecfr.eu/page/-/ECFR63_TRANSNISTRIA_BRIEF_AW.pdf)

Although national governments are largely to blame for the lack of regional cooperation mechanisms on energy issues, there are two forces leading to this outcome in the region: centripetal and centrifugal. The EU seeks to apply a centripetal force and converge states in the region around EU energy policy objectives through legal (*acquis communautaire*) and governance structures (Energy Community). Simultaneously, Russia exerts a centrifugal force aiming to achieve its objectives through fostering disunity in the region. This was the case when it attempted to push Bulgarian legislative institutions to disregard the state's commitment to the Third Energy Package in order to allow Gazprom to retain full control of South Stream. This force was also at the bottom of preventing the EU-Ukraine Trade Association and creating the Eurasian Union. Lastly, it was this force that brought Turkey into Russia's new geostrategic project.

Turkey's decision to partner with Russia on Turkish Stream puts Ukraine's role as a transit state and the country's short to long-term energy security at direct risk. Currently nearly 83 bcm of natural gas deliveries destined for Europe transit through Ukraine. In 2014 Europe, including Turkey, imported 163 bcm of Russian gas meaning that 50% of total Russian imports passed through Ukraine. With an annual gas demand of 45 bcm and reverse flow capacity through Slovakia of just 10 bcm, Ukraine has very limited alternatives to Russian natural gas imports (just over 25 bcm)<sup>14</sup>. If Gazprom is indeed planning to reroute any natural gas transiting through Ukraine, the state will lose any income based on transit fees. In addition, if Ukraine's importance as a transit state is destroyed as a result of this

<sup>14</sup> BP, *BP Statistical Review of World Energy*, BP, London, 2014, pp. 1-47. Available at: <http://www.bp.com/content/dam/bp/pdf/Energy-economics/statistical-review-2014/BP-statistical-review-of-world-energy-2014-full-report.pdf>

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rerouting, Gazprom would have the opportunity to seize deliveries of natural gas for domestic use thus compromising the security and stability of Ukraine's energy system as a whole. In that case, the only alternatives to Russian gas could be supplied through Europe. Yet this would result in far greater costs and would require the construction of additional infrastructure. In a series of press releases, Gazprom has identified this course of action as a potential solution to the company's unreliable commercial relations with the Ukrainian Naftogaz. The latest of these statements emphasises that commercial relations between Naftogaz and Gazprom officially terminate in 2019 with the current discounted Winter Package expiring in the end of March 2015. As outlined by Aleksey Miller, head of Gazprom, potential rerouting of deliveries to Europe through Turkish Stream could take place gradually from the moment the new project is completed in 2019.

However, this rather bleak scenario for Ukraine may prove to be both a technically and financially unfeasible venture for Gazprom. Technically, Ukraine has 32 bcm of underground storage facilities allowing Gazprom to balance and monitor its deliveries of natural gas markets and successfully respond to demand peaks<sup>15</sup>. Yet Turkey has just under 2 bcm (with a plan to increase that to 5.3 bcm<sup>16</sup>) making it impossible to secure and balance natural gas transit the way Ukrainian storage allowed. Constructing the required infrastructure by the ambitious dead-

<sup>15</sup> Energy Charter Secretariat, *The Role of Underground Gas Storage for Security of Supply and Gas Markets*, Energy Charter Secretariat, 2010, pp. 4-305. Available at: [http://www.encharter.org/fileadmin/user\\_upload/Publications/Gas\\_Storage\\_ENG.pdf](http://www.encharter.org/fileadmin/user_upload/Publications/Gas_Storage_ENG.pdf)

<sup>16</sup> International Energy Agency, *Oil and Gas Emergency Policy - Turkey 2013 Update*, pp. 2-17.

line of 2019 might be technically and financially challenging. In addition to this, South East Europe currently does not have the infrastructure capacity to distribute 50 bcm of Russian natural gas imports delivered to the Turkish border up to Northern and Western Europe. Whereas the inability to distribute bought gas might be an issue for Europe and Ukraine to solve, it is also a challenge for Gazprom as it would lose access to the European market as a result of infrastructural inefficiency. In this case, continuing cooperation with Ukraine as a transit state could be a potential solution. Lastly, Gazprom's change in its business model from delivering goods directly to consumers to delivering them to a set point outside of the EU may result in a breach of existing Gazprom contracts with its European clients, some of which run until the 2030s.

Regardless of Gazprom's decision on how to continue its deliveries to Europe, Ukraine faces a historic opportunity to revitalise and reform its energy market in order to improve the competitiveness of its energy-intensive economy and decrease its reliance on energy imports. A socially painful price deregulation reform must be performed to ensure only competitive and efficient energy generators are operating and to stimulate consumers to be more energy efficient. While this challenge is faced by both Bulgaria and Romania (EU member states), the current military and political crisis in Ukraine opens a window of opportunity to justify any previously socially unpopular reforms as a solution to external threats. There are several ways for Ukraine to ensure a stable future for its energy system. The first and foremost is ensuring the energy it consumes is not wasted and both industries and households have high levels of energy efficiency. This would be partly achieved through an end to subsidising prices on electricity and natural gas, which in turn would lead to a more con-

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scious and conservative use of these resources<sup>17</sup>. Furthermore, the energy-intensive industries in the east have to be modernised in order for them to secure their competitiveness through innovation and not through publicly funded cheap energy prices.

The role of the EU in stabilising Ukraine's future energy sector is crucial. Offering institutional support and requiring Ukraine to become a full member of the Energy Community by ratifying EU's acquis on electricity and gas markets will create stability for investments in the energy sector<sup>18</sup>. Apart from energy efficiency improvements, this will also result in the development of Ukraine's conventional and unconventional natural gas reserves. Ukraine's electricity sector, today largely dependent on nuclear power and coal, could also be transformed by applying EU decarbonisation strategies and allowing a greater share of renewables in the state's energy mix<sup>19</sup>. It has been estimated that the complete modernization of Ukraine's energy system may cost as much as \$4 billion<sup>20</sup>. The European Investment Bank and the European Reconstruction and Development Bank have expressed willingness to cooperate with Ukrainian authorities on a project that addressing the most pressing issues. The success of these efforts will largely rest on the ability of the Ukrainian government

<sup>17</sup> International Energy Agency, *Ukraine 2012. Executive Summary, Key Recommendations, Introductory Chapter*, International Energy Agency, Paris, 2012, pp 3-32. Available at: [http://www.iea.org/publications/freepublications/publication/UK\\_Summaryplus.pdf](http://www.iea.org/publications/freepublications/publication/UK_Summaryplus.pdf)

<sup>18</sup> Chi Kong Chyong, *Why Europe Should Support Reform of the Ukrainian Gas Market- or Risk a Cut*, European Council on Foreign Relations, 2012, pp. 1-12. Available at: [http://www.ecfr.eu/page/-/ECFR113\\_UKRAINE\\_BRIEF\\_131014\\_SinglePages.pdf](http://www.ecfr.eu/page/-/ECFR113_UKRAINE_BRIEF_131014_SinglePages.pdf)

<sup>19</sup> Energy Information Administration, *Ukraine. Country Analysis Note*, EIA, 2014. Available at: <http://www.eia.gov/countries/country-data.cfm?fips=up>

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to execute the necessary measures without any suspicion of corruption and/or lack of transparency. This would also determine the ability of the state to attract other foreign investments in this sector. As a result, the impact of Russian energy imports in the form of nuclear fuel, natural gas and cheap coal will be further reduced.

## **Moldova**

The case of Moldova offers similar examples of development in the energy sector. With energy efficiency figures almost triple compared to the EU average, the country relies on old and under-invested energy infrastructure with consumers paying both electricity and gas prices well under the actual market value<sup>21</sup>. While its electricity prices are fully deregulated, its natural gas demand of 1.2 bcm is met exclusively through Russian imports<sup>22</sup>. Thus, any potential disruptions of deliveries to Ukraine will lead to an excess of gas in Moldova and the region of Transnistria. Moreover, 77% of the electricity consumed in Moldova is imported from Ukraine and Transnistria, making this state even more vulnerable to crises in neighbouring Ukraine<sup>23</sup>. While Moldova's energy sector is a good example of the degree of integration of the

<sup>20</sup> Andriy Berehovi, "Ukraine prepares for major gas sector reforms", *South East Times*, 2014. Available at: <http://www.unpan.org/Library/MajorPublications/UNEGovernmentSurvey/PublicEGovernanceSurveyintheNews/tabid/651/mctl/ArticleView/ModuleId/1555/articleId/45595/Ukraine-Launches-eGovernment-Project.aspx>

<sup>21</sup> Reegle, *Moldova* (2012), Reegle, 2014. Available at:

<http://www.reegle.info/policy-and-regulatory-overviews/MD>

<sup>22</sup> Energy Regulators Regional Association, *Moldova. National Energy Regulatory Agency*, Energy Regulators Regional Association, 2014. Available at: <http://www.erranet.org/AboutUs/Members/Profiles/Moldova>

<sup>23</sup> *Ibid.*

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region's energy markets, it is also an example of the complex challenges that would arise as the EU attempts to converge the energy regulations of these states with its own. Drastic reforms have to be undertaken to ensure the independence of Ukraine's energy sector and consequently that of Moldova from Russian energy imports. Failing to do so, the challenges currently faced by Ukraine (coal shortages and electricity black outs) will spread across its neighbourhood. Therefore, any measures offered by the EU should take into consideration the particularities of existing regional arrangements.

### **Romania**

The next in line to be affected by energy dis-balances in Ukraine as well as by Russia's decision to stop transiting its natural gas deliveries through Ukraine, is Romania. High energy efficiency and energy intensity coupled with regulated electricity prices are two characteristics of its energy sector. Despite Romania's primary reliance on domestic production (11 bcm) to satisfy its 12.5 bcm annual natural gas demand, the state is vulnerable to cuts in Russian natural gas deliveries as Gazprom is its only current supplier and as a consequence is also its only source of revenue vis-à-vis transit fees<sup>24</sup>. High hopes of abundant oil and natural gas deposits in Romania's territorial waters of the Black Sea are a source of opportunity for both the state and the region but also for the EU at large<sup>25</sup>. However, this potential could remain untapped due to the increase of investment risks in the region as a result of the Ukrainian crisis.

<sup>24</sup> BP, *BP Statistical Review of World Energy*, pp. 1-47.

<sup>25</sup> Hans von der Brelie, "Crude awakening: Romania's Black Sea oil and gas finds fuel Europe's energy hopes", *Euro News*, 5 December 2014. Available at: <http://www.euronews.com/2014/12/05/crude-awakening-romania-s-black-sea-oil-and-gas-finds-fuel-europe-s-energy-hopes/>

Furthermore, in order to be able to become a net exporter of either natural gas or oil to the EU, Romania will have to improve its interconnections with neighbouring states and modernise its extractive industry. Without investments in either of these, Romania risks a deterioration of the stability of its domestic energy system as well as a decline in its domestic extraction of fossil fuels, thus increasing the need for energy imports. Romania's national gas company, Romgaz, is also a member of an ambitious energy consortium planning to deliver Azeri liquefied natural gas through a liquefying terminal in Georgia and regasification terminal in Romania<sup>26</sup>.

Romania is one of the states in the Black Sea region that could significantly consider its potential for a renewables fuelled energy sector as a way to mitigate and decrease its dependency on fossil fuels and energy imports. Home to Europe's largest onshore wind farm, Romania has further untapped potential currently unrealisable primarily due to non-economic barriers such as inefficient support schemes and unpredictable political commitment to the deployment of renewable energy<sup>27</sup>.

## ***Bulgaria***

In the case of Bulgaria, little has changed in terms of improving the country's resilience to natural gas delivery cuts similar to the one experienced in 2009. Interconnectors with Romania, Greece and Turkey are still in their planning stages. Unlike Romania, Bulgaria has a negligible percentage of domestic production,

<sup>26</sup> AGRI, *The First LNG Project to be Developed in the Black Sea. Converting Ideas into Reality*, AGRI, 2014. Available at:

<http://www.agrilng.com/agrilng/Home/DescriereProiect>

<sup>27</sup> Ortner, Resch, Tuerk and Zehetner, *Indigenous energy resources of South East Europe – Feasibility of enhanced RES-E deployment*.

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hence its annual demand of 2.8 bcm is supplied by Gazprom through Ukraine. With an enacted moratorium on shale gas exploration and extraction and little prospects to develop any such resources due to the specific underground water network, Bulgaria has little hopes to sustain its demand through domestic production. It has purchased 1 bcm of natural gas to be delivered by TANAP when it becomes operational in 2019 thus cutting its energy dependency by 33%. Despite Bulgaria importing its gas from Russia, its overall energy mix is dependent on gas for only 13%<sup>28</sup>. Yet Russia is also Bulgaria's main supplier of oil and nuclear fuel making Russian resources responsible for a sizeable share of Bulgaria's energy.

Unlike other Black Sea states, Bulgaria and Romania have an obligation to bring their energy markets in line with EU regulations and the Third Energy package in particular. While this will introduce much needed market competition to Bulgaria's energy system, the resulting increase in energy prices as a consequence of price regulations, will have a shocking effect on the public budget or in the case of price liberalisation reforms, unbearable for consumers. In 2013, while electricity prices in Bulgaria were among the lowest, nearly 60% of consumers were assessed as being energy poor (spending more than 10% of their monthly income on energy). Any future reforms in the energy sector will have to aim at optimising the production of electricity and use of natural gas (primarily by district heating companies) while simultaneously ensuring that the price rise is bearable for consumers. Failure to achieve this could lead to political instability as was the case in early 2013.

<sup>28</sup> Michael Ratner, Paul Belkin, Jim Nichol and Steven Woehrel, *Europe's Energy Security: Options and Challenges to Natural Gas Supply Diversification*, Congressional Research Service, p. 10. Available at: <https://www.fas.org/sgp/crs/row/R42405.pdf>

Bulgaria's energy sector potential lies in an ambitious deployment of renewables and cross-border electricity trade in order to optimise the use of its current overcapacity. Yet, as is the case in Romania and other post-socialist states, energy efficiency improvements and renewables offer an alternative to the energy mix. However, this potential is only realisable through committed and predictable renewables policies<sup>29</sup>. The country's position vis-à-vis Russia's plan to deliver its natural gas supply to Europe at the Turkish-Greek border, opens an opportunity to participate in the construction of the infrastructure required to deliver this gas to Central and Western Europe. Bulgaria could also aim to improve its stand on energy issues in the region by initiating a regional energy policy cooperation union that would create the political and legal framework for creating a physical natural gas hub most logically in Turkey, where several pipelines will cross.

### ***Georgia and Armenia***

Georgia and Armenia share similar characteristics in terms of energy profiles: high energy intensity and energy inefficiency as well as import dependency on Azerbaijan for natural gas deliveries in the case of Georgia<sup>30</sup> and on Iran and Russia in the case of Armenia<sup>31</sup>. Georgia, however, exports electricity to Russia and produces most of it through hydro power plants. As mentioned above, Georgia could play a role in alternative pipeline and LNG projects bringing Azeri natural gas to Europe.

<sup>29</sup> Ortner, Resch, Tuerk and Zehetner, *op. cit.*

<sup>30</sup> Molly Corso, "Georgia: No Plans To Import More Russian Gas", *Natural Gas Europe*, 21 May 2013. Available at:

<http://www.naturalgaseurope.com/georgia-russian-gas-imports>

<sup>31</sup> Marianna Grigoryan, "Why Is Russia Silent on Iran's Gas Courtship of Armenia?", *Eurasia net*, 2 April 2014. Available at:

<http://www.eurasianet.org/node/68226>

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To a large extent these could be viable projects if the state proves to be a reliable investment partner, political risk is low and none of them significantly undermine Russia's political or financial interests in the region. Meanwhile, military activity in conflict zones such as Abkhazia, South Ossetia and Nagorno-Karabakh could significantly hamper any progress even in considering such projects.

Both states have well integrated electricity networks with their neighbours, allowing them to export electricity regionally and benefit from energy cooperation with Turkey, Iran and Azerbaijan. Georgia and Armenia are also members of the EU INOGATE programme providing them with access to funds and policy instruments to foster renewable energy deployment and energy efficiency measures<sup>32</sup>. The greatest challenge for these two states as elsewhere across the region remains the timely execution of necessary price reforms and the modernization of key energy infrastructure. While Georgia has taken more resolute actions to decrease its dependency on Russian energy imports, Armenia is still a consumer of Russian natural gas and depends on Russian nuclear fuel for its nuclear power plant, key to the state's security of electricity supply. The cases of Georgia and Armenia offer an example of the polar variations in the energy sectors of states across the region, one of the key reasons leading to a difficulty in the convergence of energy policies, practices and interests amongst those states.

<sup>32</sup> Inogate, *EU-Eastern European Partners Cooperation in Energy Security: Achievements, Barriers and Prospects*, Inogate. Available at: [http://www.euronest.europarl.europa.eu/euronest/webdav/site/mySite/shared/Committees/Energy\\_Committee/energy\\_seminar/the\\_inogate\\_programme\\_mccann.pdf](http://www.euronest.europarl.europa.eu/euronest/webdav/site/mySite/shared/Committees/Energy_Committee/energy_seminar/the_inogate_programme_mccann.pdf)

## **Azerbaijan**

Azerbaijan's role amongst other states in the Black Sea region is peculiar as it is the only one with natural gas deposits allowing it to be a net exporter to the European market. The Trans Anatolian pipeline with a capacity of 30 bcm will slowly bring Azeri gas to Europe by delivering around 10 bcm in 2019. The successful completion of the project and future developments of deposits in Azerbaijan could lead to an increase of imports via this route. The Shah Deniz II gas field is the most promising development allowing Azerbaijan to export nearly 6 bcm in 2013<sup>33</sup>. The country's other major source of income comes from oil exports through the BTC pipeline at a rate of nearly 850 barrels a day, placing Azerbaijan amongst the twenty largest oil exporters in the world<sup>34</sup>. Yet, economic expansion and the increase of the country's middle class, also increases its electricity demand posing challenges to the energy sector similar to those in Turkey.

Azerbaijan is 100% energy independent, but this comes at a higher cost in terms of its energy efficiency and climate impact as it uses primarily its domestic fossil fuel deposits to meet its demands<sup>35</sup>. While hopes for the future expansion of fossil fuels exports are high, Azerbaijan faces the demanding challenge to modernise its economy and ensure through energy efficiency that it would be able to use its domestic deposits as a source of revenue instead of fuel for an inefficient economy<sup>36</sup>. Falling prices on crude oil globally also pose a threat to the financial vi-

<sup>33</sup> BP, *BP Statistical Review of World Energy*, pp. 1-47.

<sup>34</sup> Energy Information Administration, *Azerbaijan. Country Analysis Brief Overview*, EIA, 2014. Available at: <http://www.eia.gov/countries/country-data.cfm?fips=aj>

<sup>35</sup> Energy Information Administration, *Azerbaijan. Overview*, EIA, 2014. Available at: <http://www.eia.gov/countries/cab.cfm?fips=aj>

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ability of further extraction projects in the country potentially failing Azerbaijan's prospects of a major exporter.

## Conclusion

As the above state-by-state analysis has shown, energy issues across states in the Black Sea region differ but share a common cause – the inability of these states to assume independent energy related decisions is mainly due to their dependency on Russian energy imports. While some states have implemented the EU's soft political measures to converge the region's energy policies and objectives, others feel attracted or pressured into cooperating with Russia on energy related issues. This disunity can be addressed by tackling the flaws in the states' energy systems by ensuring that the latter are operated on market principles while energy consumption is optimised through measures improving energy efficiency and energy intensity. Cross-border regional cooperation, both in infrastructural projects and policy coordination, could also lead to a more optimal distribution of the energy resources produced in the region across it. In light of Russia being the region's main importer of natural gas while the majority of other states are consumers, energy security must be regarded not as a national priority but a regional one. Changing the region's perception of a mere transit route for natural gas deliveries to an electricity producing and gas extracting region able to deliver an alternative to Russian imports depends on the degree of regional energy policy cooperation Black Sea states are willing to implement in their energy agendas.

<sup>36</sup> Energy Charter Secretariat, *In-Depth Review of the Energy Efficiency Policy of Azerbaijan*, Energy Charter Secretariat, Brussels, 2013. Available at: [http://www.encharter.org/fileadmin/user\\_upload/Publications/Azerbaijan\\_EE\\_2013\\_ENG.pdf](http://www.encharter.org/fileadmin/user_upload/Publications/Azerbaijan_EE_2013_ENG.pdf)

Building up resilience to energy security threats as a result of high dependency on energy imports would be thus achieved by following one of two paths: regional energy cooperation or regional energy cooperation under the newly announced Energy Union. Whereas the first is more open to embracing regional differences whilst focusing on endogenous solutions, the latter recommends for Black Sea states to align their energy policies with EU energy objectives. The attractiveness of the second option relies particularly on the ability of the EU to offer Black Sea region states an active role in the Energy Union besides being mere passive recipients of EU energy legislation, thus recognising the specificity of the challenges faced in the region and the importance of all actors beyond member states. Failing to offer these solutions to the region may lead to further alienation from the EU's energy objectives and an increase in the political and economic leverage of Russia vis-à-vis energy supply. The final decision will result in successful actions only if it is reached through mutual understanding and trust, which in turn depend on the ability of states in the Black Sea region to engage and commit to practical political discussions in the first place.