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Energy Security or Energy Governance? Legal and Political Aspects of Sustainable Exploration of Shale Gas in Poland

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by S. Raszewski and J. Górski

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Energy security or energy governance? Legal and political aspects of sustainable exploration of shale gas in Poland.

Slawomir Raszewski¹ and Jedrzej Gorski²

Abstract

This paper analyses prospects for an institutional structure to govern and ensure environmentally sustainable exploration of unconventional (shale) gas in Poland. Shale gas developments in the United States (US) ignited a widespread policy and law debate in Europe about the prospects of emerging fuel. In Poland, the debate has developed particularly high expectations on both the Government and the Public’s side, ascribed to future exploration and production of unconventional gas from shale formations. To ensure a balance between energy security prerogatives and resource governance responsibilities, Warsaw has sought to organise a top-down approach to shale gas exploration in Poland with an enhanced role-playing of the Government and its respective Ministries, particularly the Ministry of Environment in absence of an Energy Ministry proper. What can be referred to as a state-centric model toward exploration of shale gas, the Polish case study evidences opportunities as well as challenges in replicating the US’s revolutionary gas production developments and it continues to have an impact on embryonic structure of energy governance in Poland. Utilising theories of politicisation and governance, the paper argues that the state-centric approach to the emerging resource may be inadequate to initiate a large-scale energy security change the country longs for. The state-centric approach and lack of a robust legal framework may have been the key challenges to the rise of shale gas momentum which peaked in early 2010s. Exodus of key commercial actors from the Polish market in the last couple of years may harbinger inevitable decline of future shale gas exploration and production as much needed financial and technological stimulus may be lacking.

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INTRODUCTION

Over the last half a decade shale gas policy and law developments in Poland created enormous and largely unmanaged expectations among political elites and ordinary citizens alike. The Politicisation of future shale gas exploration and production reached its peak in early 2010s creating a strong policy paradigm within Europe. Yet, while commercialisation of the unconventional fuel is yet to be determined by future exploratory drillings, the Polish shale gas momentum is markedly witnessing a slow-down. Uncertainty over the extent of recoverable resources since inception of the shale gas debate; departures of key commercial players from Poland in the recent two years; unclear direction of the country’s policy; and growing role of state and the national energy champion in delivering on the expectations; all these challenges seem to inevitably turn the shale gas future commercialisation in a downturn. Drawing on empirical analysis of existing primary and secondary sources available in the Polish and English languages the paper identifies the root causes of the downturn while assessing the shale gas policy so far with existing and emerging legal basis.

1. Facts

1.1. Geological Surveys

1.1.1. US Department of Energy study of 2011

The shale rush in Poland began in mid-2011 after the US Department of Energy, the Office of Energy Analysis had revealed some extremely optimistic data in April 2011. The study titled the ‘World Shale Gas Resources: An Initial Assessment of 14 Regions Outside the United States’ prepared by the subcontractor, the Advanced Resources International Inc. covered 7 Western-European countries (France, Germany, Netherlands, Sweden, Norway, Denmark, and United Kingdom), Poland and three other Eastern-European countries/regions (Lithuania, Kaliningrad/Russia, Ukraine). Eleven basins in twelve analysed European countries were reported to have 73.25 trillion cubic meters (tcm) of risked gas in-place and 17.67 tcm of risked technically recoverable resources against 32 basins in all 48 analysed countries over the world showing in total 623.42 tcm of risked gas in-place and 163.10 tcm of risked technically recoverable resources. The analysed European resourced constituted 11.75

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percent and 10.84 percent of the analysed world’s total of respectively risked gas in place and risked technically recoverable gas.⁴

According to that study, Poland had the largest shale gas deposits among analysed European countries. It was reported to have 22.43 tcm of risked gas in-place, of which 5.29 tcm were technically recoverable. For comparison, all 7 Western-European countries showed respectively 42.61 tcm and 10.53 tcm, and all Eastern-European countries including Poland showed 30.64 tcm and 7.13 tcm. Polish resources were to constitute - of respectively risked gas in place and risked technically recoverable gas - 73.2 and 74.19 percent of the Eastern Europe’s total and 30.62 and 29.93 percent of the Europe’s total.

Suppose that the future domestic consumption of natural gas in Poland were 15.8 billion cubic meters (bcm) as it was in 2012, the 5.29 tcm would be an equivalent of almost 335 years of cumulative gas consumption in the Polish market. Together with the conventional recoverable fields estimated at about 145 bcm, it would be an equivalent of about 344 years. Had those large numbers been accurate, it would have caused a revolution for the domestic and regional natural gas market. Had those large numbers been accurate, Poland - currently being 60-70 percent dependant on gas imports - would have turned to a natural gas exporter to other Central-European countries. The Polish economy would have been earning on energy carriers instead of spending money on imports.

However, the study suggested itself that its findings could be far from reality. The authors of the study admitted with a disarming frankness that “The study investigators would have, if allowed, devoted the entire study budget to just one of the 14 regions and would have judged this more in-depth time and budget investment “well spent”. Alas, that was not possible.”⁵ Therefore the authors warned that the findings “should be viewed as initial steps toward future, more comprehensive assessments of shale gas resources”⁶ and that “As additional exploration data are gathered, evaluated and incorporated, the assessment of shale gas resources will become more rigorous.”⁷

1.1.2. Polish Geological Institute study of 2012

Indeed, the subsequent homemade estimates showed lower numbers. The ‘Assessment of shale gas and shale oil resources of the lower Palaeozoic Baltic-Podlasie-Lublin basin in Poland’ published by the Polish Geological Institute in March 2012 assessed the Polish shale resources at a maximum of

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⁴ See: note 3, calculations have been made base on Table 1-1 at 1-2, Table 1-2 a 1-3 and Table 1-3 at 1-5, all numbers/units have been converted from trillion cubic feet [tcf] to trillion cubic meter [tcm]
⁵ See: note 3 at 1-1
⁶ See: ibid
⁷ See: ibid
1.92 tcm of technically recoverable shale gas.\(^8\) That is 36.29 percent of the 5.29 tcm initially revealed in the US study. What is more, the Polish study assessed that the higher-probability range of recoverable shale gas resources could be between 346 and 768 bcm.\(^9\) That would be only between 6.54 and 14.52 percent of the US study.

If the maximum numbers were accurate, the 1.92 tcm would still be the equivalent of about 121 years of the country’s cumulative consumption (about 131 years together with recoverable conventional resources). This could still be the regional and geopolitical game changer. Were the ‘more realistic’ numbers accurate, those would mostly be a domestic game changer. In the latter case, recoverable shale gas resources would be only 2.5 to 5.5 times higher than documented conventional gas fields in the country (145 bcm).\(^10\) Based on a hypothetical annual consumption of 14.5 bcm, the authors of the Polish report assessed that the ‘more realistic’ reserves could be an equivalent of only 35-65 years of the country’s cumulative gas consumption, or of only 120–200 years of gas production in Poland at its current level with no changes in current proportion between domestic production and import.\(^11\) These numbers do not imply any Europe-wide revolution and still can be overstated. In fact, the study has been based only on archive data collected for 39 key wells throughout years 1950-1990. According to the study itself, new reports shall be issued every 2 years as a data from new exploration wells drilled since 2010 will become available.\(^12\)

### 1.1.3. USGS study of 2012

Interestingly, the Polish Geological Institute being the country’s official geological survey admitted co-operating ‘in the field of training and data evaluation’ since 2010 with the US Geological Survey (‘USGS’) subjected to the US Department of the Interior.\(^13\) The USGS was conducting a ‘project to evaluate the potential for unconventional oil and gas resources in priority geological provinces worldwide.’\(^14\) It issued a brief factsheet on Poland in June 2012 claiming that the country’s recoverable resources might range from zero to merely 115.70 bcm which is a shocking 2.19 percent of the

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\(^9\) See: ibid
\(^10\) See: ibid
\(^11\) See: ibid
\(^12\) See: note 8 at 4
\(^13\) See: ibid.
assessment of recoverable resources provided by the US Department of Energy and 33.44 percent of the lowest number offered by the Polish Geological Institute. 115.70 bcm is even less than 145 that Poland has in recoverable conventional gas fields. Again, suppose that the average yearly gas consumption is constant at 15.8 bcm, then that low number is an equivalent of a bit more than 7 years of the country’s cumulative consumption. If that is accurate, the Polish shale gas is not worth any trouble.

1.1.4. Source of discrepancies

Why is there such a chasm between the two American studies? Why did the US and the Polish authorities who were allegedly working together and using common methodology end up with results varying by three times? Why did different US agencies who were subjected to different departments work on the same issue, one of which out-sourced the whole job while the other made it in-house? And why did the sub-contractor of the US Department of Energy err by so much (see SCHEDULE A)?

An embarrassing explanation was delivered by a very respectable politician, Dr Włodzimierz Cimoszewicz (among others, the Prime Minister between 1996 and 1997, and the Minister of Foreign Affairs between 2001-2005,) in the radio interview in October 2012. Namely, Dr Cimoszewicz had allegedly been told by the distinguished Polish geologist, Prof Krzysztof Szamałek that there was almost no shale gas in Poland and that the outsourced study sponsored by the US Department of Energy had been based on some Polish miscalculated studies. Specifically, one crucial number in one of the Polish studies had been allegedly miscalculated by one decimal place and was used as the basis for further American calculations.

We are not aware of any Professor Szamałek’s publication or official statements confirming these revelations. Admittedly however, Professor Szamałek emphasised in his papers that all prognoses as to the size of Polish deposits were so far purely speculative, and in that sense there was no documented shale gas in Poland.\(^{15}\) He assessed that if there had been 500 bcm (more or less the averaged number of the range between 346 and 768 bcm proposed by the Polish Geological Institute) of shale gas in recoverable resources, then decades rather than years would be necessary to reshape Polish energy market.\(^{16}\) It only remains for us to believe that the 500 bcm being circa one tenth of the whooping 5.29 tcm is not the implied confirmation of the story with the misplaced comma.

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\(^{16}\) See: ibid.
An alternative explanation was offered by the leading Polish energy markets expert, Mr Andrzej Szczęśniak who drew attention of the public toward the Caspian region in late 1990s. He suggested that, what is happening now about the shale gas in Central Europe/Poland, is a direct repeat of the scenario of the Caspian region in that period.\textsuperscript{17} The oil rush launched in the Caspian region when the US Department of State published a report addressed to the Congress in the 1997 estimating that the region might hold up to 200 billion barrels of oil reserves\textsuperscript{18} compared with 600 billion barrels of well proven reserves of the Persian Gulf.\textsuperscript{19} Emotions were being incited by the US politicians and by influential media all over the world frequently quoting those numbers and claiming that the Caspian region could save the US from the absolute dependence on the Middle East oil.\textsuperscript{20}

It was a pipe dream for many reasons. The Caspian region had then only 30 billion barrels of document oil reserves constituting 3 percent of world’s proven reserves compared with the Middle East holding world’s two thirds.\textsuperscript{21} Mostly because the Caspian region is landlocked, oil could have then been produced there about US$13 a barrel (with transportation) compared with the Middle East then producing under US$3 a barrel etc.\textsuperscript{22} Altogether, the Caspian oil could have never become a global game changer. The actual political goals of the US administration encouraging American business to intensify their presence in the Caspian region were then quite clear. Enhancing diplomatic relations with newly independent former Soviet republics, sending numerous political advisors and trying to bring Western-like democracy and values to the region were all obviously targeted at weakening Russia’s (and in the future China’s) influences on the region and at further isolating Iran.\textsuperscript{23}

However, even if the Polish scenario looks pretty much alike, it is far from being clear what goals the US administration could have achieved in Central Europe by making up statistics in 2011. Poland, for two decades has been economically and politically dominated by the European Union (EU) and the US. Western business plays predominant role in the Polish economy, and the Polish government’s policy toward buffer countries between the EU and Russia is to weaken Russia’s position in the region and to tighten relations between the EU and these countries (e.g. Ukraine, Georgia, Moldova). Polish authorities constantly strive to increase the presence of the US military forces and weaponry in the country and used to support missions both in Iraq and Afghanistan by sending large military contingents there etc. That is all to say that a real change to the politics and economics of the region

\textsuperscript{17} The Caspian black gold rush (\emph{Kaspijska gorączka czarnego złota}) 4 January 2014 available at \url{http://szczesniak.pl/2550}
\textsuperscript{18} Robert A. Manning \emph{The Myth of the Caspian Great Game and the New Persian Gulf} 7 Brown J. World Aff. 15 (2000) at 17
\textsuperscript{19} See: note 18 at 18
\textsuperscript{20} See: note 18 at 16-17
\textsuperscript{21} See: note 18 at 18
\textsuperscript{22} See: note 18 at 18,19
\textsuperscript{23} See: note 18 at 17
could have only been brought if the gigantic exploitable shale gas reserves had really been in place allowing diminishing the actual region’s dependency on Russian gas exports. Therefore, our view is that the making up of statistics of the US administration did not make much sense.

The other way to explain glaringly exaggerated preliminary statistics (and to support Mr. Szczęśniak’s suggestion that those statistics were made up) is to look at the private actors allegedly responsible for the claimed shale bubble in the US instead of accusing the US administration. The US shale gas reserves have also been overestimated by 100-500 percent depending on state. For instance, the independent American financial market expert Deborah Rogers blamed Wall Street for that phenomenon. She explained that, in order to grow extensively, publicly traded gas companies needed to be attractive to financial analysts and investors so that the access to the capital markets was assured. She made a claim that ‘With the help of Wall Street analysts acting as primary proponents for shale gas and oil, the markets were frothed into a frenzy.’ Therefore, suppose that the preliminary statistic on Poland have been deliberately manipulated, this could have been just a part of a larger game that could have been unrelated to the politics of Central Europe. Good news from Europe could matter for the US capital markets.

1.2. Exploration works

1.2.1. Who is looking for Polish shale gas?

First exploration licences for unconventional gas were granted to two domestic firms that is Lotos (oil, mostly downstream), and Polish Petroleum and Gas Mining (PGNiG) (conventional gas and oil, mostly upstream) as early as in 2001 but those did not have a technology to commence exploration works at that time. More licences have been gradually granted since 2007 to reach the total number of about 100 at the turn of 2013/2014.

Some limited exploration works were initiated and a few wells were drilled as early as in 2010 so there had been some interest in Polish shale deposits even prior to the publication of the optimistic report by the US Department of Energy. Since then, exploration works have been booming all over the country (see SCHEDULE B, areas covered with licences granted for prospection of unconventional gas marked in red, areas with regard to which motions for exploration licences have been filed marked in light-red, areas covered with licences granted for prospection of conventional gas marked in grey). As for December 2013, of 223 licences granted for the exploration of hydrocarbons (no separate data for gas and oil is easily accessible) 85 allowed the exploration of both conventional and unconventional

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25 See: note 24 at 6,7
hydrocarbons (shale, tight) and 14 allowed the prospection of unconventional deposits only (see SCHEDULE C).

Among foreign firms that directly or indirectly held licences as for December 2013 were, for instance, BNK Petroleum (California), Chevron (California), Cuadrilla (UK), ENI (Italy), Exxon Mobil (Texas), Marathon Oil (Texas), San Leon Energy (Ireland), Talisman Energy (Alberta). However, the largest American players actually withdrew from prospection works even though they still held some exploration licences as for December 2013. Some tried to explain the withdrawal of Exxon Mobil in June 2012 with its new investments in Russia and suggested that discontinuation of the prospection in Poland might have been traded for more favourable treatment by the Russian government. However, in May 2013 Talisman and Marathon Oil withdrew from Poland too. The former vaguely justified it with strategic focus on North America and Asia while the latter openly admitted that it had not found commercially viable shale gas deposits. September 2013 brought speculations that Chevron would have left Poland by the end of that calendar year but as by mid-January 2014 it did not.

Domestic, mostly state-influenced large companies (partially traded at the Warsaw Stock Exchange with significant shares in their equity still held by the government) with no expertise whatsoever in the field of fracking joined the shale rush too. Some, as for December 2013, held exploration licences like Lotos, Orlen (oil, mostly downstream), or the PGNiG. Some wanted to be involved in the business indirectly like by sharing a technology or an infrastructure and by undertaking common efforts in the field of shale gas whatever it meant.

A number of low-significance soft agreements/letters of intent have been concluded. For instance a framework agreement on co-operation in the field of prospection and future exploitation between the PGNiG, KGHM (exploitation of copper, silver), PGE (electricity generation), Tauron (electricity generation) and Enea (electricity generation) was signed in July 2012 but it expired in December 2013. Also, a scientific consortium of PGNiG, Orlen, Lotos, the AGH University of Science and Technology, the Warsaw University of Technology, and the Gdańsk University of Technology focusing on new methods of exploitation of shale rocks was established in November 2012. Immediately after the first-mentioned agreement between domestic firms had expired, the PGNiG announced signing a new memorandum of co-operation – this time with Chevron. Assuming that the co-operation between all those domestic state-influenced players was informally dictated by the government, all efforts to develop a kind of Polish shale cluster without the US capital and know-how actually turned out to be a complete fiasco.

Since the outbreak of the shale rush there have been many shifts as to who has held exploration licences. First, in September 2011, the press clamoured that one in five exploration licences had been purchased by the Russian investors. In a similar vein, in September 2013, the press lamented that one in each four or even one in each three exploration licences was held by companies partially owned
through chains of legal entities) by one man, that is George Soros (San Leon, BNK Petroleum, 3Legs Resources). In fact, equity in companies holding licences can, in principle, be freely transferred from and to both domestic and foreign mother companies. The government has neither the right to control that (subject to very narrow exceptions) nor has it the actual knowledge about who is at the end of the chain.

Admittedly though, there seems to have been many share deals effectively pertaining to the ownership of prospection licences. In the American context, somewhat similar large shifts in equity structure of the shale business (US transactions were estimated by KPMG to be worth US$46.5 billion in 201126) have even seen some conspiracy theories, again, related to the made-up statistics and the role of financial sector. Deborah Rogers made a claim that Wall Street had actually played a double game attracting the attention of the public to excessively optimistic statistics. Not only did Wall Street want to attract investments into gas oil and oil companies to let these grow and expand but also it secured its enormous profits from mergers and acquisitions and other transactional fees by encouraging gas overproduction resulting in prices plunging below exploitation cost and forcing troubled smaller shale companies to sell off to larger players.27 We cannot assess whether such diagnosis is accurate or whether it is applicable to the Polish market. However, indeed, a huge disappointment against great expectations could have been the significant driver for selling Polish exploration licences by some early investors to the others.

1.2.2. When exploitation?

To state it clearly, as for December 2013, no exploitation licences for unconventional hydrocarbons had been issued in Poland. The good news was that San Leon announced favourable results at its well close to Lewino, a village located 30 kilometres south of the Baltic Sea in November 2013 where the trial fracking had provided the continuous gas flow. Commercial exploitation is said to launch there in late 2014.

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27 See: note 24 at 1
POLITICAL FRAMEWORK

2. Energy Security Prerogatives and Resource Governance Responsibilities

2.1. The origin of Poland’s energy security prerogatives

Non-traditional security concerns have been prominent in international relations for over two decades now. Owing to its strategic importance and leaning it has on economic and socio-political realms, energy has been of particular importance for developed and developing nations alike. Growing demand for energy resources has been a particularly pressing issue for governments and trade blocks, in particularly those in the ‘West’. Energy consumption is set to grow by 56 percent between 2010 and 2040 with most of the incremental growth to come from countries outside of the ‘West’ defined through the OECD membership.28

Depending on the levels of their institutionalisation and policy orientation, the energy policy prerogatives of most countries focus on long term and short term energy security understood as the uninterrupted supply of competitively priced, and sustainably sourced energy.

Since the energy shocks of the 1970s and the establishment of the IEA in 1974, short term and long term energy security of oil supplies has become a priority for the Western/OECD countries. Poland’s energy policy officially acquired the ‘Western’ orientation in 1996 upon joining and fully acquiring the OECD membership. Nevertheless, opening up membership accession negotiations with the European Union and joining the block in 2004 marked the beginning of Poland’s energy policy reorientation. Finally, upon its request to join the International Energy Agency (IEA), which was accepted during the agency’s Council of Directors meeting in Paris in 2007, Poland subsequently become the 28th member country of the group in 2008.

Short and long term supply security plays an important role in every country’s energy policy. Short term supply security has a more adverse direct impact on a country’s economy and, as such, is subject to obligatory measures through the IEA’s institutional framework. Each member country is obliged to hold 90 days storage levels in cases of supply interruption. As demonstrated in table 1 the most important indicator of supply security underpinning energy policy of an IEA member country is net import dependence. Being a net importer, Poland’s crude imports and natural gas total, respectively,

24.6 mt and 11.6 as demonstrated in table 2. Based on the data, Poland’s import dependence for oil and gas constitutes 97.6 percent and 71.2 bcm, respectively (Table 3).

Table 1: Model of Short-Term Energy Security – risk and resilience indicators and external risk for crude oil and natural gas.

<table>
<thead>
<tr>
<th>Energy Source</th>
<th>Dimension</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crude Oil (CO), Natural Gas (NG)</td>
<td>External</td>
<td>Risk</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Resilience</td>
</tr>
<tr>
<td></td>
<td>Domestic</td>
<td>Risk</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Resilience</td>
</tr>
</tbody>
</table>

**External risk – import dependence percentage**

| Low: ≤ 15% | Medium: ≤ 40%-65% | High: ≥ 80% |

Source: Jewell (2011) with modifications by the authors

Table 2: Domestic oil and natural gas production and imports

<table>
<thead>
<tr>
<th></th>
<th>Crude Oil</th>
<th>Natural Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic production</td>
<td>0.6 mt</td>
<td>4.7 bcm</td>
</tr>
<tr>
<td>Imports</td>
<td>24.6 mt</td>
<td>11.6 bcm</td>
</tr>
</tbody>
</table>

Source: Kublik (2014) with modifications by the authors

See: Kublik, A. (2012) Bruksela nie ograniczy poszukiwań gazu łupkowego w UE. Gazeta Wyborcza, 28 January 2012. http://wyborcza.biz/biznes/1,101562,11046926,Bruksela_nie_ogranicz_poszukiwan_gazu_lupkowego_w.html#ixzz30iTStGtL (with modifications by the authors)


Table 3: Import dependence share percentage

<table>
<thead>
<tr>
<th>External dependence on imported crude oil</th>
<th>97.6%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Russian Federation</strong></td>
<td>93.3%</td>
</tr>
<tr>
<td><strong>Norway</strong></td>
<td>3.2%</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>1.2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependence on imported natural gas</th>
<th>71.2%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Russian Federation</strong></td>
<td>57.1%</td>
</tr>
<tr>
<td><strong>Germany (re-export)</strong></td>
<td>11.0%</td>
</tr>
<tr>
<td><strong>Czech Republic (re-export)</strong></td>
<td>3.7%</td>
</tr>
</tbody>
</table>

Source: Kublik (2014) with modifications and recalculations by the authors

Based on the data and table 1 external risk section indicators, Poland’s import dependence is ‘high’ under the IEA guidelines. Poland’s energy policies are legally tied with those of international organisations such as OECD, EIA and the EU. The obligations stemming from the Poland’s membership in the organisations have direct ramifications on the country’s energy insecurity perceptions. Having a ‘high’ risk energy supply security impacts energy security of Poland and necessitates policies tailored to reduce the dependence. Domestic coal has played and still continues to play an important role in the county’s power generation (see also section 5 at 22 on how it adversely affected regulatory environment for the mining business). Holding the largest coal resources in Europe, Poland is the world’s ninth-largest coal producer and a leading hard coal producer in Europe. Lacking investment and facing rising costs of coal mining coupled with the government’s ambition to comply with the EU carbon dioxide emissions agenda aimed at curbing 20 percent of the gas’s emission by 2020 is directly impacting Warsaw’s energy policy (see also section 7.3.2 at 44 on potential EU-wide ban on fracking). Natural gas is increasingly viewed as a substitute for coal in the power sector and a lower-carbon dioxide-emitting fuel. Domestic resilience is low as the country’s sole liquefied natural gas (LNG) port remains under construction. When constructed, the Swinoujscie

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LNG port will have full capacity of 5 bcm or less than a third of the country’s current natural gas demand.

Poland recently announced that it expects to commence operations at its first nuclear power plant by 2025.\textsuperscript{34} However, with Warsaw’s EU focus and strategic outreach to Germany, it may be difficult to justify the project’s feasibility politically. The post-Fukushima Daiichi nuclear power plant disaster has diametrically changed Berlin’s energy policy while slowing down the sector’s developments across the community. Nuclear power can be also difficult to justify economically as investment costs are very high. Finally, the lead time to commission the plant is at least a decade from final construction approval.

The country’s energy security prerogatives necessitate alternative sources of energy. Since the late 2000s unconventional natural gas (shale gas) has been championed as an important substitution to the existing energy mix.

2.2. The Shale Gas momentum

Interest in commercialising shale gas in Poland emerged after publishing of US Energy Information Agency’s report in 2011 estimating Poland’s shale gas reserves at about 5.3 tcm, the largest in Europe (the first chapter of this article provides a lengthy factual data pertaining to the accounting of the Polish gas reserve base). With the US shale gas revolution in full swing from late 2008, Poland has embraced the idea of commercialising its shale gas reserves in a bid to replicate the US experience. Major international oil companies, including Exxon Mobil, Marathon Oil Corporation, Talisman Energy Inc., Chevron and Conoco Phillips have moved in to Poland enticed by seemingly abundant reserves and a government keen to kick-start production.\textsuperscript{35}

The shale gas euphoria was shared among political, business and civil communities adding to staggeringliy growing expectations of future production rates. Owing to the high energy import dependence, shale gas was viewed as a blessing and a viable option to explore. Shale gas has been popularly embraced as a source of national pride and euphoria. With media sources quoting the US EIA report’s estimated shale reserves data when setting out the benefits of shale gas exploration and production, most of the attention has centred on energy independence from the hydrocarbons imported from the Russian Federation.\textsuperscript{36}

\textsuperscript{34} See: note 33 at 100
Ensuring the shale gas momentum going was more complex and, owing to environmental concerns that have been raised across the EU, the European Commission stepped into the energy governance debate (see section 7.3 discussing it in detail). The EU is a leading international organisation in regional energy governance institutionalism. Since the inception of the Coal and Steel Community, through to the Energy Charter Process (with a focus on investment facilitation into Former Soviet Union energy sector), the Energy Community Treaty Process (with a scope on exportation of EU energy law *acquis* to its immediate neighbourhood in the South-Eastern Europe) as well as ‘institutionalised’ diplomatic relations with the key energy suppliers (such as EU-Russia Energy Dialogue to name just one), the EU block has been constantly present as a diffuser of multi-level energy/environmental policy and law. Regional energy governance of the EU, comprising multi-level stakeholders in its decision-making process has a direct leaning on policy options and decisions made at the member state level. With legal harmonisation between the EU and its member states, the EU soft energy and environmental law has become the realm to reckon with by individual member states (see section 7.37.3.2 discussing on the delimitation of competences between the EU and member states).

Since its inception, the energy governance debate on shale gas in Europe has tended to favour those who are concerned about the environmental impact of unconventional exploration and production. With an increasingly strong voice of environmental groups and non-governmental organisations, the Polish debate on shale gas in Brussels tended to fall under the sustainability and environment conference agendas. With little or no divide over shale gas exploration in the Poland among Polish Members of European Parliament (MEP), the shale debate was facilitated with a focus on energy supply security potential the emerging fuel had to offer. With strong lobbying activities involving the Polish Government, the MEPs from Poland as well as other EU member countries, the EU shale gas governance policy has been laid out in the form of Recommendation rather than a Directive. The institution of Recommendation ‘*lays down minimum principles that support Member States in the exploration and production of natural gas from shale formations and ensure that the climate and environment are safeguarded, resources are used efficiently and the public is informed*’ (see also section 7.3.3 covering the Recommendation in detail).\(^\text{37}\)

Avoiding drafting an EU Directive and instead, resorting to Recommendation has been commented on as a very important development in Poland, strengthening the country’s bid for future shale gas

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management away from the EU. Indeed, the country’s bid for energy security would be difficult with a
directive.

Energy policy prerogatives of Poland have been accommodated by the EU institutions at this stage and
have allowed the shale gas momentum to build. From the start, the momentum was embraced in public
relations terms as a way to execute the very energy policy prerogatives Poland has sought to achieve
against the backdrop of its import dependence on the Russian Federation. The shale gas euphoria
pertaining to future exploration and production activities Poland is yet to profit from has been truly
popular. Almost unconditional support has been stretched by Polish politicians boldly envisaging
Poland’s inevitable if revolutionary turn to become a Norway-like energy producer in Europe. In
elite circles shale gas developments have received equally prominent space. In what became an annual
event bringing together policy, academic and media communities, the Warsaw Shale Gas Conference
organised by the US Embassy in Warsaw together with the Polish Ministry of Foreign Affairs, became
the key debating space propagating future shale gas developments in Poland. With the popular and
political support across the board prospects of future exploration and production of shale gas in Poland
have been effectively politicised and presented as a win or lose bargain in the country’s energy sector.

3. Top-Down Approach to Shale Gas Exploration

3.1. Politicisation of shale gas

With shale gas becoming a visible part of the Poland’s future energy policy strategy, the issue of
exploration of the resource has witnessed increased politicisation. Politicisation refers to ‘an act of
politicians or politicising actors which makes an alleged security issue public and “political” within a
community’. Defined by ‘high’ energy dependence, Poland’s energy security constitutes the alleged security issue.
Due to its critical importance and the existing high external risk the energy security issue can no
longer be confined to the state and, instead, becomes “political”, available to the wider audience. By
bringing the issue to the realm of the political, the state agency (the Government) presents the issue to
the audience in search for sanctioning special measures to tackle the issue and secure a solution that
would solve the problem.

Politicising of shale gas is considered vitally important and the Polish politicians present it as such to the public for consideration. The solution to the alleged lack of energy security is achieved by seeking public support for a more top-down approach to shale gas exploration and retention of the state’s (along with state-owned energy companies) dominant role in the process of ensuring the energy security for it is considered too important an issue to be left to market forces nor the management of EU institutions. In addition, through the ‘political’ process the state seeks validation for its actions (dominant position of the state and state companies in exploration) through the process of politicisation.

Showcasing the role of the state and state owned companies in delivering result from shale gas prospects has been a part of the top-down strategy of the Polish Government in the process of energy (shale) politicisation. The Lubocino shale gas drilling site operated by the State-controlled PGNiG witnessed an important message delivered by the Prime Minister. As reported by Natural Gas Europe portal: ‘[t]he evening television news showed a gas flare and the white-and-red flag on top of the derrick in the background and the PM announcing that “moderate optimism allows to expect the commercial production of shale gas to start in 2014.”’

Successful politicisation depends on the success of measures delivered to aid the issue at stake. In case of the Lubocino well, the Polish Government’s assessment of future success may have been premature. In April 2013 Polish media reported absence of gas flow in the well which may have been caused by the geological structure or technical error. The departure of a number of international oil companies from Poland described above is yet another crack in the bigger shale gas picture in Poland.

3.2. State as the project manager

Prominence of shale gas in Poland’s energy policy debate has been unprecedented. The yet-to-be-found fuel became a source of widespread pride and euphoria concerning potential future benefits stemming from commercial, full-scale shale gas production. A number of high level conferences hosted in Poland, including the annual Shale Gas Conference organised by the American Embassy in Warsaw together with the Polish Ministry of Foreign Affairs, have brought Poland to the forefront of EU-wide attention. Conferencing and showcasing shale developments the Polish experience with shale gas allowed to decouple the then ongoing EU debate on delimitation of competences in exploration and production of the emerging resource within the EU. European Commission’s ‘Report on

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Unconventional Gas in Europe\(^{43}\) has cemented the Polish Government’s policy objective to ensure the shale gas exploration competence stays with the member state rather than the EU level at that moment.\(^{44}\)

Institutionalisation of the competence and ensuring no EU-level legislation impacts shale exploration and production in the future became key objective of the Polish Government in 2012. The Polish Government believed it was important to have a legal environment which investors would perceive as encouraging rather than discouraging from extraction of shale gas. Establishing an institution that would be present in ‘ownership supervision’ through shares in extraction operations was essential for the Polish Government (but see section 1.2.1 at 10 on the problem with tracking indirect ownership of entities holding licences).\(^{45}\) The institution, National Operator of Energy Fossil Fuels, known by its Polish acronym – NOKE (Narodowy Operator Kopalń Energetycznych) was championed by the Ministry of Environment, the key agency responsible for licensing of shale gas exploration in Poland. Drawing on the Danish, Dutch and Norwegian institutional frameworks for hydrocarbon production management, NOKE was to be wholly-owned by the state and with a strategic status that would allow it to own shares and participate in management of extraction consortia while transferring profits from its operations to the State budget and to the Hydrocarbons Generations Fund.\(^{46}\) The then Minister of Environment justified the Operating Company’s rationale by stressing strategic importance of natural gas for Poland in the context of short term supply security.\(^{47}\) Inception of the idea of setting up NOKE came as a surprise to energy companies, including the Warsaw Stock Exchange Listed state-owned companies, including PGNiG.\(^{48}\)

The suggested changes to the way shale exploration and production industry would have to be confined to the new Mining Law (elaborated on in detail below), have changed the Polish shale gas momentum. The energy industry viewed the announced changes to the regulatory and mining activities management as going against the market logic. Coming mostly from the US shale


\(^{44}\) See: Kublik, A. (2012) Bruksela nie ograniczy poszukiwań gazu łąpkowego w UE. Gazeta Wyborcza, 28 January 2012. http://wyborcza.biz/biznes/1,101562,11046926,Bruksela_nie_ogranicz_poszukiwan_gazu_1upkowego_w.html#ixzz30iTStGL


\(^{46}\) See: ibid.


exploration and production environment, with less stringent regulation and a mature energy market the shale industry viewed the proposed changes negatively as likely obstructing elements in the their operations in Poland. The departure of ExxonMobil from Poland after completion of two exploratory well drillings has raised questions about the then ongoing regulatory changes and added to more confusion as to the direction the Polish shale gas developments are going to.49

4. Challenges of the Shale Gas Politics Ahead

Replicating the US shale gas revolution has been an uneasy task the Polish Government has committed to. The political process undertaken by the Polish Government to make a case for shale gas exploration and production is still in the making and subject to polarised critique. The State-centric approach taken by the Polish Government made it difficult to look into the most pressing stumbling blocks on the way to successful and environmentally sound shale exploration and production in Poland. These stumbling blocks include institutional inefficiencies and unclear division of powers in the policy-making. Legally, Poland has sought to be in compliance with the policies of international organisations, such as IEA and the EU, it is a member of, in operationalising shale gas. Nevertheless, internalising the very policies and their functional dimension has been lagging behind challenging the whole process and slowing down the shale gas momentum. Lack of transparency and insufficient institutional framework to deal with licensing process within the Ministry of Environment created enormous back-log of processed licence applications from the interested industry players (see also section 7.1.4 on legal problems potentially blocking the issuance of exploitation licences in the future). The bottleneck of licence requests processing with, reportedly, only three members of staff being employed to deal with the task, has been recently overshadowed by the alleged corruption scandal with seven of the Ministry’s staff detained by the Internal Security Agency.50

The departure of key industry players, including ExxonMobil, Marathon Oil Corporation, Talisman Energy Inc., Total and Eni, only further deteriorated the shale gas politics momentum in Poland. With only about 50 drillings done so far, it the politics of shale gas in Poland is on the rise with the current crisis in Ukraine. Ensuring gas exploration and production in Poland’s shale formations continues being presented as the key objective for the government to achieve. In the eve of the Ukraine crisis, the Polish Government is considering to attract investments in its shale gas exploration by offering preferential treatment to the market entrants (see section 7.2 on the Government’s up-to-date idleness


The high energy import dependence currently generating the total value of oil and gas imports of Poland at US$6434 million may have a detrimental impact on the country’s politics and economy. While the NOKE project has been abandoned and the Government is now stepping in to regain the industry’s confidence in shale exploration and production in the county, it remains to be seen whether reversal of events is possible.

LEGAL FRAMEWORK

5. Need for changes in legal environment

At the first glance, the legal framework for the mining sector in Poland has been much like elsewhere. As to the basics, the underground deposits belong to the state treasury. Both domestic and foreign entrepreneurs can apply for separate licences for the exploration and for the exploitation that are granted for a determined period of time ranging from three to fifty years by the Ministry of the Environment (Minister Środowska). The mining operations must be conducted in conformity with the provisions on zoning, environmental impact assessment of planned exploration or exploitation works, on remedying damage incurred by local landowners, on expropriating landowners and, of course, in conformity with rules based on which licensees are selected and based on which licences are granted (especially royalties). However, the devil is in the detail.

When mostly US upstream companies first came to Poland about 2011 in search of shale gas, not only did they faced with institutional inefficiencies and unclear division of powers in the policy-making process (as elaborated on above) but also found the legal environment of doing mining business straight out of another era. The previous mining and geological law was passed in 1994 and brought many institutional changes to the public administration supervising the mining industry in the general ambit of the country’s profound administrative reforms. However, the law also kept some substantial solutions dating back to the communist mining Decree of 1953 unchanged.


54 State Council’s Decree of 6 May – Mining Law (Dekret z dnia 6 maja 1953 r. Prawo Górnicze).Official Journal [1953] no. 29 item. 113
This might have been because, before the shale rush broke out, mining was believed by many to be a declining sector in Poland. The fact that the domestic exploitation of conventional gas deposits covers one third of the domestic demand was overlooked in the public debate. The mining sector used to be commonly associated with Silesia region (South West of the country) and the state-owned underground coal mines located there (that cannot be competitive against opencast coal mines from elsewhere in the world). The bankruptcies of or just winding-up numerous unprofitable mines and miners striking against the deprivation of their long-stating social privileges (that other tax-payers have been contributing to) were the problems to solve instead of looking in the future of the country’s mining sectors. Nobody could see a bright future for the mining sector and therefore there was no pressure on the legislator to modernise mining regulations.

Nonetheless, after the estimates had been published by the US Department of Energy, the enthusiasm for shale gas and the simultaneous general deregulatory approach of the Government has brought significant changes. The new Geological and Mining Law of 9 June, 2011⁵⁵ put into place on the 1st January 2012 and to some extent, improved the regulatory environment for mining and particularly for shale business.

We first discuss areas where the law-maker was pretty successful that is making zoning procedures faster (see section 6.1), redefining rights to mineral deposits (see section 6.2), adjoining rules of remedying landowners for the mining damage (see section 6.3), enabling landowners’ compulsory buy-outs (6.4). After that, we discuss issues which remained unresolved that is non-compliance of the successful explorers’ priority right to exploitation with the EU’s laws (see section 7.1), taxation of shale business (see section 7.2) and exorbitant environmental standards that might be imposed by the EU in the medium term (see section 7.3).

6. What has already been done?

6.1. Zoning

The new law has relaxed the zoning regime. By doing so, it has also strengthened the powers of the central government/the Ministry of the Environment (which is responsible for granting licences) at the expense of powers of local councils (which are responsible for zoning).

In terms of zoning, all the territory of Poland is covered by non-binding ‘zoning studies’ that are internal planning documents and, in principle are not binding upon investors. Zoning studies can, but as a general rule do not need to be accompanied by derivative more detailed and binding zoning plans.

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For planned investments on areas not covered by plans, individual land use permits are issued. Land use permits do not need to conform to studies, and usually they do not. The coverage of plans is very poor and it may take up to two years to adopt one.

In turn, in terms of licences, areas of exploration cannot exceed 1,200 square kilometres each and are delineated in the licences for exploration.\textsuperscript{56} Granting such licences requires obtaining opinions of local mayors that are non-binding upon the Ministry of Environment.\textsuperscript{57} Border of mining areas (\textit{obszary górnicze}) where the exploitation is conducted and borders of their impact areas (\textit{tereny górnicze}) are delineated in the licences for the exploitation\textsuperscript{58} Granting such licences requires obtaining approvals from local mayors who can prevent the Ministry of the Environment from granting licences by refusing approvals.\textsuperscript{59}

Until the New Mining Law was passed, in principle, local zoning plans had had to be in place in all areas where exploitation was carried out or was planned to be carried out.\textsuperscript{60} Zoning studies were not sufficient unless local councils decided otherwise (possible only if environmental impact was predicted to be insignificant).\textsuperscript{61} For mining companies it was one more burdensome procedure to go through. Moreover, in the absence of a local zoning plan or if a plan was inadequate, mining companies had to reimburse the local council for all costs related with the adoption of those plans.\textsuperscript{62} The New Mining Law allowed the mining activity in areas not covered by plans, if such activity does not contravene the zoning studies (or in areas covered with plans if such activity does not contravene plans that are in place). A mining company and a local council may still wish to cover the mining area with a plan, but they do not need to.

The New Mining Law also clearly limited the criterion based on which local mayors do or do not grant approvals for exploitation licences. It was limited to whether exploitation permitted by the licence contravenes the study or the plan in place\textsuperscript{63} while the previous law had vaguely required local mayors to grant or to refuse approvals just ‘based on provisions of the study or the plan’.\textsuperscript{64} The bill’s justification clearly stated that a mining activity should now only be deemed in contradiction with the

\textsuperscript{56} See: article 31 of the New Mining Law
\textsuperscript{57} See: article 23 section 2 of the New Mining Law
\textsuperscript{58} See: article 32 section 1 of the New Mining Law
\textsuperscript{59} See: article 23 section.2 point 2 of the New Mining Law
\textsuperscript{60} See: article 53 section 1 of the Old Mining Law
\textsuperscript{61} See: article 53 section 6 of the Old Mining Law
\textsuperscript{62} See: article 104 section 6 and article 53 section 4 of the Old Mining Law.
\textsuperscript{63} See: article 7 of the New Mining Law
\textsuperscript{64}See: article 15 section 15 of the Old Mining Law
local zoning if the study or the plan firmly banned a specific mining activity. It also emphasised that underground mining would rarely or never contradict the land-surface-zoning.\textsuperscript{65}

As a result, local zoning documents will only block issuing exploitation licences if local councils – which still have the final say on that - firmly and deliberately oppose to mining activities within their territories. To encourage cooperative approach of local council, the New Mining Law allotted a 60 percent share of the exploitation royalties for budgets of local councils that previously received nothing (although the New Mining Law did not decide how the exploitation of unconventional hydrocarbons should be taxed, see point 7.2).\textsuperscript{66}

6.2. Mineral rights

The New Mining Law determined much more precisely how the line is drawn between the rights of the Treasury and of landowners. It also provided that the general rules of land parcels delimitation apply accordingly to any disputes about such rights between landowners and the Treasury whereas previously no specific provisions regulated how such disputes should be settled. Under the New Mining Law it is now clear that all strategic minerals (hydrocarbons, bituminous coal, methane and accompanying mineral, lignite and metal ores except for surface iron ores, native metals, radioactive element ores, native sulphur, halite, sylvinites, gypsum, anhydrite, and precious stones) come under the ‘mining ownership’ of the Treasury regardless of how deep they lie while the other deposits belong to landowners.\textsuperscript{67}

In contrast, the Old Mining Law vaguely stated that mineral deposits belonged to the state treasury if the deposits did not constitute so called ‘component part’ of the land property.\textsuperscript{68} A component of the property is a civil (Roman) law concept and determines things permanently attached to the property that cannot be removed without substantial damage to themselves or to the main thing to which they are attached.\textsuperscript{69} So, for instance, deposits exploited with opencast methods logically should have belonged to landowners and underground deposits should have belonged to the Treasury. However, the courts used to favour the Treasury by saying that the line of ownership should be drawn by the so-called socio-economic purpose of the property and that the relatively small areas of particular plots did not allow running opencast mines of minerals (cases pertained to lignite).\textsuperscript{70} Admittedly, that change

\textsuperscript{65} See: Parliamentary Files of the sixth term (\textit{Druki Sejmowe VI kadencji}) no 1696 available at: http://orka.sejm.gov.pl/Druki6ka.nsf/wgdruku/1696;
\textsuperscript{66} See: article 141 section 1 of the New Mining Law
\textsuperscript{67} See: article 10 of the New Mining Law
\textsuperscript{68} See: article 7 of the Old Mining Law
\textsuperscript{69} This is a universal concept in Poland codified in he article 47 section 2 of the Polish Civil Code.
\textsuperscript{70} See judgments: II SA 742/00; I OSK 79/07
was not very relevant for the shale business because public ownership of hydrocarbons had been undisputable but it is good that discrepancies in this regard were removed.

More importantly, the New Mining Law did not, by any means, change the general principle that mineral deposits belong to the Treasury. The law-maker ignored all calls for granting the landowners a title to mineral deposits situated below their properties or to some portion of royalties. It decided that the most profitable mineral resources should remain in the public domain, and landowners will not be entitled to any special portion of profits. The press briefly reported individual attempts by members of the Government to change this. However, their efforts seem to have been rejected and any discussion on the ownership of deposits is unlikely to be re-opened. Such a position of the law-maker assured companies considering future exploitation that, at least, they would not have lock horns with landowners as to profit sharing.

6.3. Expropriation

The New Mining Law not only seized landowners’ dreams of becoming ‘shaleionaires’ but also brought the fear that shale boom would deprive many landowners of their property. Because mineral resources in Poland remained in the public domain, landowners could only have hoped to benefit from favourable land sales or long-term tenancy agreements concluded with mining companies. Indeed, so far, in the course of exploration phase, all arrangements between mining enterprises and land-owners have been made on the voluntary, contractual basis. However, it is obvious that, at some point in the future, a land necessary for exploitation phase will need to be acquired under compulsory ‘buy-out’ provisions that have been strengthened in the New Mining Law just as the response to the needs of the private shale business. Generally, there is nothing inappropriate about such form of de facto expropriation in favour of private business. However, the Polish legal system poorly protects against unfair expropriation, especially in terms of just compensation and that is why economic concerns expressed by individuals living in areas with shale gas reserves seem to be justified.

New, more intrusive provisions mostly pertain to the exploration and exploitation of hydrocarbons and to the carbon dioxide storage. As a general principle, in the case of all minerals, mining companies can only demand a limitation, but not a transfer, of landowners’ titles. Firstly, landowners’ titles can be limited by private law instruments like compulsorily concluded leases/tenancies or compulsorily established easements.\footnote{See: article 17 and 18 of the New Mining Law and article 88 of the Old Mining Law} In that case, these are landowners to have a reverse-buy-out right to their land or its part if the imposed limitations hinder the use of land or of its part as before.\footnote{See: ibid.} Secondly, mining companies can append to counties’ governors (\textit{starosta}) for issuing administrative decisions limiting
landowners’ right to use their land\textsuperscript{73} for up to one year but, in that case, landowners cannot demand a reverse buy-out.

New, hydrocarbon-specific provisions, grant private mining companies in addition a direct buy-out right to land necessary for exploration or exploitation within areas zoned for mining.\textsuperscript{74} New general provisions on administrative restrictions of land use also extend the time for which such restriction can be imposed up to the whole period for which licences are granted (up to fifty years). However, if such restrictions are imposed for a period exceeding one year, or if the imposed limitations hinder the use of land or of its part as before, then landowners have now a reverse-buy-out right to their land or its part like in the case private law instruments.\textsuperscript{75}

New solutions do not significantly worsen the landowner’s negotiation position. Regardless of whether a buy-out or limitation of title is imposed by the court, some kind of expropriation takes place anyway. The new solution just abridges the procedure of acquiring land where mining companies need the freehold of the surface. In the case of disputes, courts still have the competence to determine the fair price and whether a buy-out or its territorial scope is justified. If no agreement on the terms and conditions of the leases, easements or a reverse buy-out is reached, they are decided by the courts, which seek the most appropriate type of encumbrance and fair price for it. The same rules would apply to direct buy-outs. But the new law is not clear on whether the courts have competence to decide that only a lease or easement is justified instead of freehold if a mining enterprise claims a buy-out. This controversy will likely be dispelled by the higher courts soon.

6.4. Mining Damage

Both the Old Mining Law and the New Mining law provided for a separate regime of the tort liability of mining companies for damage caused in the course to exploitation (prospection works are covered by general tort law rules) referred to as ‘mining damage’. Because mining operations imply that some harm would be done to landowners’ property, landowners cannot prevent such operations because of the mere risk of damage (for example by seeking a writ from a court banning or suspending mining operations etc.).\textsuperscript{76} On the other hand, however, landowners are protected against mining damage by the presumption that the damage has been caused by mining company currently holding an


\textsuperscript{74} See: article 19 section 1 of the New Mining Law

\textsuperscript{75} See: note 73, ibid.

\textsuperscript{76} See: article 144 the New Mining Law
exploitation licences for a given mining area and by the joint and subsidiary responsibility of the Treasury which triggers in when mining company ceased its operations.\footnote{77}

Under the New Mining Law, remedies to those who have suffered mining damage caused have become more flexible and were adjusted to general principles of Polish tort law. Any person or entity that incurred such damage can now claim either a pecuniary compensation or restitution from the mining company (subsidiarily from the Treasury).\footnote{78} Previously, the compensation was admissible only if restitution was not possible.\footnote{79} This solution, which dated back to the 1950s, was no longer workable, and could not keep up with current challenges. The new law has also extended the time limit to bring mining damage claims to five years after the claimant gains knowledge of the damage regardless of when the cause of the damage occurred (formerly, under the general rules, the claimant had, respectively, three years from learning of the damage and 10 years from the cause of the damage in which to make a claim).\footnote{80}

7. Unresolved issues

7.1. Priority rights of successful explorers to exploit/produce hydrocarbons

The major flaw of the New Mining law is that it did not cure the non-compliance with the EU legislation on the non-discriminatory and competitive access to licences for the prospection and exploitation of hydrocarbons. The most significant dispute between Brussels and Warsaw pertains to the priority right of those who had exploration licences and successfully explored and documented deposits to be granted licences for exploitation with priority over other parties. The defeat of the Polish government on that matter before the European Court of Justice (‘ECJ’) called into question a kind guarantee of the exploitation rights that the shale companies were first promised when commenced exploration in Poland. The outcome of the case - that we will discuss below - is simply disgraceful for the Government that was responsible for the bill of the New Mining Law and for Parliament that adopted it.

7.1.1. National versus European legislation

Specifically, Polish statutory regulations need to be in line with the Directive 94/22/EC on the conditions for granting and using authorisations for the prospection, exploration and production of

\footnotesize{77 See: article 146 section 4 the New Mining Law
78 See: article 147 section the New Mining Law
79 See: article 94 the Old Mining Law
80 See: article 149 the New Mining Law}
hydrocarbons, the ratio legis of which is to secure “the non-discriminatory access to and pursuit of activities relating to the prospection, exploration and production of hydrocarbons under conditions which encourage greater competition in this sector and thereby to favour the best prospection, exploration and production of resources in Member States and to reinforce the integration of the internal energy market.”

The Directive 94/22/EC imposes, among others, the following requirements that have to be implemented into laws of Members States:

- Article 1 section 3 defines the ‘authorisation’ as being ‘any law, regulation, administrative or contractual provision or instrument issued thereunder by which the competent authorities of a Member State entitle an entity to exercise, on its own behalf and at its own risk, the exclusive right to prospect or explore for or produce hydrocarbons in a geographical area. An authorisation may be granted for each activity separately or for several activities at a time’

- Article 3 section 5 sets forth that ‘The following shall not be considered as the grant of an authorisation within the meaning of paragraph 1: (…) (b) the grant of an authorization to an entity having another form of authorization where the possession of the latter authorization implies a right to the grant of the former authorization’

- Article 3 section 1 provides that ‘1. Member States shall take the necessary measures to ensure that authorisations are granted following a procedure in which all interested entities may submit applications in accordance either with paragraph 2 or 3’, and that ‘2. This procedure shall be initiated: (a) either at the initiative of the competent authorities by means of a notice inviting applications, to be published in the Official Journal of the European Communities at least 90 days before the closing date for applications; (b) or by means of a notice inviting applications, to be published in the Official Journal of the European Communities following submission of an application by an entity without prejudice to Article 2(1). Other interested entities shall have a period of at least 90 days after the date of publication in which to submit an application.’

- Article 5 section 1 also specifies that: ‘authorisations are granted on the basis of criteria concerning, in all cases: (a) the technical and financial capability of the entities; and (b) the way in which they propose to prospect, to explore and/or to bring into production the geographical area in question; and, where applicable: (c) if the authorisation is put up for sale, the price which the entity is prepared to pay in order to obtain the authorisations; (d) if, following evaluation under the criteria (a), (b) and, where applicable, (c), two or more

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81 See: EU Official Journal L 164, 30/06/1994 p 3-8
82 See: note 81, preamble
applications have equal merit, other relevant objective and non-discriminatory criteria, in order to make a final choice among these applications’

In short, the Directive 94/22/EC comes down to the requirement that the Ministry of Environment should, in principle, grant licences for both exploration and exploitation in tendering procedures. How has it been implemented in Poland? Foremost, it has always been a premise of the Polish law-maker that successful explorers should benefit from their efforts by mechanisms that assure that no other entity than the successful explorer will be granted exploitation licence on ‘its’ explored and documented territory within some period of time. 83 This needs to be explained in detail.

A mining company cannot be granted a joint licence allowing both exploration and exploitation. Separate types of licences are issued for the (i) exploration of deposits, (ii) prospection of underground carbon dioxide storage spaces (iii) exploitation of deposits, (iv) underground no-tank storage of substances, (v) underground storage of waste, and (iv) underground storage of carbon dioxide. 84 Subject to special provisions on hydrocarbons discussed further below, procedures of selecting licensees are pretty non-transparent and especially the licences for exploration can be granted based on completely discretionary judgments of the Ministry of the Environment.

Each licence must be accompanied by the so-called ‘mining usufruct’. The institution of the mining usufruct agreements between a mining company and the Treasury may be seen as unique to Poland but it is strictly linked to licences. Licences are issued by the Ministry of Environment in the form of administrative decisions while rights of the mining usufruct are established on the contractual basis between the mining company (licensee) and the Treasury represented by the Ministry of Environment acting in its capacity as the owner of hydrocarbon deposits. The mining usufruct agreement, among others, determines the compensation for mining activities that will be paid to the Treasury. Under the Old Mining Law the execution of such agreements could have preceded or could have followed the issuance of licences but, in any case, such agreements became enforceable not earlier than upon the issuance of licence. 85 Although it is not clearly stated under the New Mining Law, such agreements now seem to be only executable after the issuance of licences.

The selection of a mining company that would get the exploitation licence and would conclude a mining usufruct agreement linked to the licence might but does not need to be done in tendering procedure. 86 Usually it cannot because who ‘has explored and documented mineral deposits belonging to the Treasury and has prepared geological documentation to the level of accuracy required for the

83 See: Wojciech Bagiński, Shale as in Poland - the legal framework for granting concessions for prospecting and exploration of hydrocarbons, 32 Energy L.J. 145 2011 at 146,150
84 See: article 21 of the New Minig Law
85 See: article 10 section 1 of the Old Mining Law
86 See: article 14 of the New Mining Law
grant of a concession [licence] for extraction may apply for the grant of mining usufruct rights and shall have in that regard priority over other entities.\textsuperscript{87} The New Mining Law extended this right from two to five years after receipt of written notice by which the competent authority in geological matters accepted the documentation.\textsuperscript{88} Moreover, under both the New and the Old Mining Law, ‘The entity who has borne the cost of geological work carried out on the basis of decisions made under this Law shall have the exclusive right to use, free of charge, the geological information obtained from that work for exploration and scientific purposes and to carry out activities regulated hereunder. This right shall expire five years after the date on which the decision authorising the work from which the information was derived or authorising another activity regulated hereunder or under other provisions ceases to have effect. Unless otherwise provided for in the concession [licence] or decision approving a programme of geological works, the entity having the right to use the geological information thus acquired may make it available to other parties.\textsuperscript{89} Because, the proof of title to use the geological information must be attached to the application for the issuance of the exploitation licence,\textsuperscript{90} the concurrent applicant, if any, would have to present what it does not/cannot have\textsuperscript{91} unless it buys the right to use the documentation from the successful explorer.

Polish law-maker made its first attempt to duly implement the Directive 94/22/EC as soon as in mid-2005\textsuperscript{92} but it did not want to remove the protection of successful explorers by providing that ‘\textit{Without prejudice to Article 12(1) (cited above – granting successful explorers a priority right), the creation of mining usufruct rights covering the prospection, exploration and extraction of natural gas, oil and its natural derivatives and coal bed methane shall be preceded by a competitive tendering procedure.}\textsuperscript{93} The New Law provided that granting a licence (instead of a conclusion of a mining usufruct agreement) should be preceded with open tenders.\textsuperscript{94} However, similarly to previous regulation, it allowed granting exploitation licences without tenders ‘if the area of the future licence is covered with the pre-emption right to the establishment of the mining usufruct.\textsuperscript{95}

One may like or not like, crediting successful explorers of deposits for their efforts, innovative technologies, knowhow etc. In our view this might be a very reasonable solution and the only means

\textsuperscript{87} See: article 15 section 1 of the New Mining Law and article 12 section 1 of the Old Mining Law
\textsuperscript{88} See: article 15 section 3 of the New Mining Law and article 12 section 3 of the Old Mining Law
\textsuperscript{89} See: article 99 section 2 and 3 of the New Mining Law and article 47 section 3 of the Old Mining Law
\textsuperscript{90} See: article 22 section 2 point 1 of the New Mining Law and article 20 section 2 point 1 of the Old Mining Law
\textsuperscript{91} See: note 83 at 150
\textsuperscript{92} The amending statute has been published in Official Journal [2005] no. 90 item 758. The text of the Mining Law modified as of June 2005 has been published in the Official Journal [2005] no. 228 item 1947
\textsuperscript{93} See: Article 11 section 2a of the Old Mining Law
\textsuperscript{94} See: Article 43 section 1 of the New Mining Law
\textsuperscript{95} See: article 47 section 1 point 4 of the New Mining Law
of attracting foreign shale businesses to invest in prospection in Poland. Nonetheless, the European Commission first objected to this form of priority right prevailing over the tendering procedures required under the Directive 94/22/EC in May 2007. As later summarised by the ECJ, the European Commission argued, among a number of other objections against the Old Mining law, that that ‘the exclusive right of an entity which has carried out geological work on the basis of a concession[licence] to explore hydrocarbon deposits to use geological information free of charge, as provided for in Article 47(3) of the Geological and Mining Law, combined with the requirement to demonstrate, in the application for an extraction concession [licence], the applicant’s right to use the geological documentation, as provided for in Article 20(2)(1) of that same law, is contrary to the principle of non-discriminatory access to activities relating to the extraction of hydrocarbons. An entity which has obtained a concession [licence] for the exploration of hydrocarbon deposits previously will be in a more favourable position than other entities interested in the grant of an extraction concession [licence].’

After over three years of the Polish Government’s and Parliament’s idleness, the European Commission brought a claim against Poland in December 2010.

7.1.2. Case C-569/10

Such longstanding nonchalance of the Government and Parliament is shocking given the outcome of the case was not difficult to predict. Yet in June 2012, the member Parliament, Krystyna Pawłowiec filed a formal interpellation addressed to the Government regarding the determination of remuneration for the establishment for the exploitation mining usufruct without tenders in the case of the companies that have the priority rights (see also the section 7.2 on royalties below) suggesting the non-compliance of the priority rights with the Directive 94/22/EC. In response prepared by the Ministry of Environment, the issue of the EU-compliance was totally ignored.

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97 Parliamentary interpellation no. 5858 of 27 June 2012 on the mechanism and criteria of the determination of the price for the establishment, in favour of the entrepreneurs, of the mining usufruct for the exploitation of the deposits in the light of the hydrocarbon directive (94/22/WE) and in he context of the article 15 of the Mining and Geological Law stature (Interpelacja nr 5858 w sprawie sposobu i kryteriów ustalania wysokości opłaty za ustanowienie na rzecz przedsiębiorców prawa użytkowania górniczego za wydobywanie kopalń w świetle tzw. dyrektywy węglowodorowej (94/22/WE) oraz w kontekście art. 15 ustawy Prawo geologiczne i górnicze) available at: http://www.sejm.gov.pl/sejm7.nsf/InterpelacjaTresc.xsp?key=1522966B

The case was eventually decided in June 2013 and the non-compliance of the Old Mining Law was declared at several points despite the Old Mining Law had meanwhile been superseded by the new statute (the New Mining Law was not mentioned in the judgment at all). The court correctly noticed that ‘the scheme in question, given the advantageous position that it confers for a five-year period on the entity which has previously pursued prospection and exploration activities, makes it in any event more difficult, if not impossible, for an entity which has not pursued either prospection or exploration of the deposits in question to obtain permission to extract hydrocarbons’99 The Polish Government had argued, among others, that ‘all entities have the opportunity to document a mineral deposit by drawing up the relevant geological documentation and, consequently, to obtain an exclusive right to use that geological information’100, and that ‘[t]he applicable rules in Poland concerning the right to use geological information, which confer the right to use that information on entities which themselves have borne the costs necessary to obtain that information are based on one of the fundamental principles of Polish law and European Union law, namely observance of the right of property and other property-related rights.’101 The court rejected these embarrassing arguments and ruled that ‘although the Member States are free to guarantee some compensation for entities which have incurred expenditure in drawing up geological documentation in the course of their prospection and exploration activities, that compensation may not be in the form provided for in the Geological and Mining Law without infringing the rule of non-discriminatory access for all entities to activities such as the extraction of hydrocarbons’102 The court’s ruling was also in line with the opinion of advocate General Cruz Villalón contending that ‘Much as it may seem fair that the person who has borne the costs involved in preparing the geological documentation should be remunerated, that investment may in no circumstances be rewarded in such a way as to distort the authorisation procedure to the point of rendering illusory the tendering procedures required under Directive 94/22.’103 Such outcome implies that the almost identical provisions on the priority right included in the new Mining Law are obviously non-compliant with the EU’s secondary legislation.

Two questions arise following the judgment. First, could the Polish law-maker have done any better with guaranteeing exploitation rights for explorers and, second, what should the Government and/or Parliament do now?

99 See: note 96 para 60
100 See: note 96 para 56
101 See: note 96 para 67
102 See: note 96 para 63
103 See: note 96, The opinion of advocate General Cruz Villalón Case C-569/10, para 84
7.1.3. Could Poland have won?

As to the first issue, the answer is, of course, positive. Even the Advocate General in his opinion was pondering on how to credit explorers in compliance with the Directive by speculating that ‘It would be a different matter if the ‘priority’ were taken to mean that the investment in the preparation of the geological documentation constitutes a positive factor to be taken into account in the tendering procedure; a positive factor for evaluation, perhaps, but certainly not to the extent of determining the outcome of the tendering procedure. Giving this factor its proper weight may constitute reasonable remuneration for the investment, without going as far as the case put by the Polish Government.’\textsuperscript{104}

That was just one option.

The second option could have been to make to make a proper use of the directive’s provision - that ‘the grant of an authorization to an entity having another form of authorization where the possession of the latter authorization implies a right to the grant of the former authorization’ shall not be considered as granting an authorisation - meaning that requirements imposed by the Directive do not apply to such situation (see the excerpt from the directive above, article 3, section 5, point b). The proper argument of the Polish Government should have been that:

- to grant the authorisation to explore hydrocarbons (composed of both exploration licence and the related mining usufruct right) implies granting the authorisation to produce hydrocarbons (composed of both exploitation licence and related mining usufruct right) – put in another way, the holder of the exploration authorisation has a legitimate expectation of being granted the exploitation authorisation, on further condition that that

- the holder of exploration authorisation explored and documented mineral deposits belonging to the Treasury and has prepared geological documentation to the level of accuracy required for the grant of a licence for exploitation, whereby

- the exploration authorisation holder’s legitimate expectation partially expires two years after after receipt of written notice by which the competent authority in geological matters accepted the documentation – after which the exploration licence holder has no priority over other entities in applying for exploitation licence any more, and

- the exploration authorisation holder’s legitimate expectation fully expires five years after the date on which the decision authorising the work from which the information was derived (exploration licence) ceases to have effect – after which the holder of exploration authorisation does not have the exclusive right to use, free of charge, the geological information to carry out

\textsuperscript{104} See: note 103, para 86
exploitation any more - so other entities applying for the exploitation authorisation do not have to buy such right from it any more.

Our actual knowledge, as to what the - especially oral - argument of the Government was, is limited to the para 58 of the judgment, according to which the Government - with regard to the problem of the exclusive right to the geological documentation - offered pretty unclear argument that the provision on granting explorers the right to the exclusive use of documentation prepared by those explorers fell within and implemented article 3, section 5, point b of the Directive.\textsuperscript{105}

Such an argument seems to have been entirely misconceived especially by the Advocate General in the course of the proceedings. Namely, the applicability of the article 3, section 5, point b was also discussed with regard to absolutely unrelated issue disputed in the case. The European Commission also claimed that ‘the requirement in Article 3 of Directive 94/22 to hold a tendering procedure before an authorisation is granted is met only as regards the first stage (creation of ‘mining usufruct rights’) but not in relation to the second, since the concession [licence] is granted under an ‘entitlement-based’ procedure’.\textsuperscript{106} The European Commission lost on that point because the court correctly asserted that a licence and linked to mining usufruct altogether form one authorisation within the meaning of the Directive by stating that ‘However, the fact that only the grant of the mining usufruct rights is done through a tendering procedure, whilst the grant of the concession [licence] to the successful applicant for those rights is subject only to compliance with certain formal requirements is not in itself incompatible with Article 3(1) of Directive 94/22. The possibility cannot be ruled out presumptively that such a system may guarantee that ‘authorisations are granted following a procedure in which all interested entities may submit applications’ within the meaning of Article 3(1). That would be so inter alia in a situation where all interested entities were able to submit applications for the grant of usufruct rights under non-discriminatory conditions and the grant of the concession [licence] to the successful applicant for those rights was subject only to requirements not involving an assessment of the applications on their merits for the purposes of Article 5(1)(d) of Directive 94/22’.\textsuperscript{107}

Surprisingly, the Advocate General saw some overlaps between two issues\textsuperscript{108} and merged the discussion on them as if the argument of the Polish side had been that the priority right to the mining usufruct linked to the exploitation licence and the exclusive right to use the documentation were justified because the selection of the mining usufructuary must have been preceded with a tendering procedure\textsuperscript{109} - not because the authorisation for exploration (the exploration licence plus linked mining

\textsuperscript{105} See: note 96, para 57 and note 103 para 75

\textsuperscript{106} See: note 103, para 72

\textsuperscript{107} See: note 96, para 74

\textsuperscript{108} See: note 103, para 72

\textsuperscript{109} See: note 103, paras 69-89
usufruct) must have been preceded with a tendering procedure. Only the letter argument could have been actually made by the Polish side while the former argument would have been just absurd.

But, indeed, the Advocate General got it all wrong by contending that “However that may be, I do not think that Article 3(5)(b) of the Directive is applicable in this case, inasmuch as the twofold priority provided for in the legislation means, as we shall see, that even in respect of the first stage in the process there is no certainty that a tendering procedure will take place.\textsuperscript{110a} and that ‘the Polish system of ‘authorisation’ within the meaning of Directive 94/22 comprises two stages (the creation of the mining usufruct rights and the concession [licence] itself), the outcome of which may be dictated entirely by the exercise of exclusive rights to the geological documentation that is needed in order to obtain the actual authorisation to exploit the mineral resources. Those exclusive rights are granted to the undertaking that has obtained geological documentation through exploration and investigation which, in accordance with Article 33(1) of the Geological and Mining Law, do not always require a concession [licence] and would therefore not be the result of a tendering procedure.”\textsuperscript{111}

The Advocate General misunderstood the article 33 section 1 of the Old Mining Law which merely stated that projects of geological works that did not require obtaining licences (e.g. works ordered by the geological survey) needed to be approved in the form of ordinary administrative decision. Because exploration of hydrocarbons always requires obtaining a licence, this provision was completely irrelevant for that particular case. He also misunderstood that, as far the issue of priority right to the exploitation mining usufruct and the exclusive right to the mining documentation are concerned, the whole mechanism embraces two authorisations comprising four stages in total (not two), and the first authorisation, contrary to what he saw in the article 33 section of the Old Mining Law always requires open tendering.

The court seems to have been at least partly, misled by the erroneous statements provided in the Advocate’s General opinion. On the one hand, in contrast to the Advocate’s General opinion, the court ruled that one tendering procedure for both exploitation licence and the mining usufruct right was in compliance with the directive.\textsuperscript{112} On the other hand however, in line to the Advocate’s General opinion the court did not discuss the article 3 section 5 point b in the proper context at all and ‘overlooked’ how exploration authorisation were/are granted in Poland. One can only guess to what extent the erroneous approach of the Advocate General was a result of a poor argumentation offered by the Government’s lawyers, or by the grave unreadability and conceptual complexity of the Old New Mining Law (that made it impossible to make the argument clear before the court and before the

\textsuperscript{110} See: note 103, para 75
\textsuperscript{111} See: note 103, para 88
\textsuperscript{112} See: note 107
Advocate General) or the poor translation of the Polish legislation or whatever combination of those factors.

However, even if the only reasonable defence line of the Polish side had been properly laid out, that might still not have sufficed to convince the Court that the article 3 section 5 point b should protect the priority right to the exploitation mining usufruct and the exclusive right to the mining documentation provided for in the Old Mining law. It can be indirectly inferred - from how the court the Court justified allowing one tendering procedure for both exploitation licence and related mining usufruct - that solely one tendering procedure for the both exploration and the exploitation stage would be allowed under the Directive if all interested parties, at the pre-exploration stage, were assessed based on criteria relating to both exploration phase and the distant-future exploitation phase\(^{113}\) (see also the excerpt from the directive above, article 5 section 1).

This brings us to the third option which would have been to take advantage of the fact that the Directive allows the authorisation to be separately granted for each activity (to explore and produce) or cover several activities at a time (see the excerpt from the Directive above, article 1 section 3). Yes, the law-maker, could have done all it much better by developing the institution of one authorisation for both exploration and exploitation granted in a competitive and open and non-discriminatory tendering procedure. Adoption of such a simple solution would have required, however, a complete metamorphosis of the out-dated royalties system already back in 2010/2011 when the Ministry of Environment commenced granting exploration licences in a large scale - which we will yet discuss in details in section 7.2. In short, such ‘one-stop’ licence (regardless of whether merged with or still accompanied by the mining usufruct right) cannot work in the fiscal environment in which mining companies pay for using deposits mostly through one-off fee for the mining usufruct. Obviously, mining companies have no information on how much to bid for deposits at the pre-exploration stage. However, the ‘one-stop’ system could work if fiscal burdens were imposed on mining enterprises mostly through fees strictly liked to levels of production.

7.1.4. What’s next?

It has been more discussed as to what could have been done rather than what could be done because there is no horse in the barn any more. Although administrative proceedings were delayed (as addressed in section 4), virtually all promising areas have already been covered with exploration licences. Following the judgment, it would be madness, though, if the Ministry of Environment commenced granting exploitation licences without tenders because of priority/exclusive rights questioned by the judgment. Thus it became an urgent task of the Ministry of Environment to propose

\(^{113}\) See: ibid.
amendments to the new Mining Law and of the Parliament to adopt it as soon as possible. However, as of early 2014, nothing has been done in the case for over half a year.

If successful explorers are now deprived of their priority rights to exploitation licences, they need to be offered some other solutions so that they do not file tort claims against the Treasury. The answer partly lies in the already mentioned solution proposed by Advocate General - that is to take the preparation of the geological documentation into account as the positive factor in a tendering procedure for exploitation licences. However, in contrast to the Advocate’s General opinion that proper weight of such factor ‘may constitute reasonable remuneration for the investment’, we believe that the successful explorers need to be fully reimbursed for all incurred expenses if some other party is granted the exploitation licences in a tendering procedure.

Successful explorers need to be reimbursed by either by the Treasury that would later ‘charge’ the successful tenderer or directly by successful tenderer. All shale companies should be asked to duly document their expenses incurred from now on plus *ex post*. If the reimbursement mechanism were to be any close to the priority right to exploitation and to the exclusive right to the documentation, the successful explorers should be allowed to report possibly high expenses significantly affecting the cost-and-benefit situation of other tendering parties. The reimbursement right of the successful explorers should also be unlimited time in order to be a ‘fair’ substitute of current right. Although the exclusive right to use the geological documentation has been limited to five years from the expiration of the decision authorising exploration works, successful explorers have been allowed by the priority right to force the grant of mining usufruct right and linked licences within five years (two under the Old Mining Law) after the approval of geological documentation showing deposits. So if the priority right were now quashed and if the reimbursement right (replacing the priority right) were limited in time, then tenders for exploitation licences could be called after this period and the sense of the reimbursement right would undermined.

Regardless of what the substitute solutions would be, exploration works are likely to be restrained until some new solutions compliant with the Directive are adopted.

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Most recently, as of May 2015 the Government eventually sent the bill potentially amending the New Mining Law to the Parliament. For hydrocarbons only, the bill introduces a new type of licence

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114 See: note 104
115 See: ibid.
covering both the exploration and exploitation stage at a time.\textsuperscript{117} It completely quashes the exploration licenses from the New Mining Law.\textsuperscript{118} Exploration licences could be granted on condition that relevant applications are filed no later than three months before the bill’s entry into force.\textsuperscript{119} However, the bill keeps the licences for the mere exploitation in place so that exploitation licences can be granted to the entities that have already been issued exploration licences. Alternatively, the holders of already issued exploration licences could also convert such licenses into new joint licence within two years after the bill’s entry into force.\textsuperscript{120} The Government has chosen a pretty simple above-discussed third option on how to credit successful explorer upfront. Nevertheless, the new approach (the joint licence) could only be applicable - from the very beginning of exploration process - to the very area which has not been covered with exploration licences yet. The Government has also chosen a pretty rough cure (the conversion right) to the non-compliance of both the old and the new mining laws with the Hydrocarbon Directive (the priority right to the exploitation mining usufruct). The conversion right by no means resolves discussed problems arising of the outcome of the case C-569/10 (the risk of further intervention of the European Commission and of lawsuits potentially filed by other mining enterprises that cannot compete for exploitation licences). The real solutions are yet come before current explorers can apply for exploitation licences risk-free.

\section*{7.2. Royalties}

Exploration works seem to have been restrained also because the New Mining Law did not determine the final amount of royalties to be paid to the State Treasury for shale gas exploitation. The fiscal model for the shale business in Poland in terms of both the one-off initial fee and subsequent exploitation royalties remained a great unknown as of February 2014. In the previous system, the Treasury collected revenues from mining in the country mostly via dividends paid by state owned enterprises. Given the ongoing privatisation process, and given the shale sector in Poland was in private hands from the very beginning, it has been obvious for quite some time that a new revenue collection system needs to be created from scratch.

Investors in the Polish shale business might have also been discouraged from intensifying exploration because of high-profile political statements suggesting that the Treasury should ‘skin’ the shale business. For example, during his second exposé on 18 November 2011, Donald Tusk announced that higher exploitation royalties would be imposed, firstly on copper and silver (traditionally exploited in Poland in huge volumes), and then on shale gas. He also proposed that revenue generated on shale gas

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{117} See: note 116 article 1 section 9) point a) adding the New Mining Law article 21section 1 point 2a)
\item \textsuperscript{118} See: note 116 article 1 section 9) point a) amending the New Mining Law article 21section 1 point
\item \textsuperscript{119} See: note 116 article11 section 2
\item \textsuperscript{120} See: note 116 article 9 section 1
\end{itemize}
\end{footnotesize}
could be designated for the nation’s pension fund following the Norwegian example. Put simply, the Government’s and politicians’ appetite for easy shale money in the context of massively growing public debt significantly undermined the investment climate.

As to details, the New Mining Law only provides for insignificant one-off licence fees, one-off payments for the establishment of ‘mining usufructs’ and subsequent royalties for both prospecting and exploitation. Royalties have been fixed therein at the following rates subject to yearly indexation;\textsuperscript{121} exploration - one-off fee of PLN 111.72 per square kilometre for any deposit except for a coal, uranium ore and lignite, exploitation - PLN 5.18 (PLN 6.23 methane-rich) per thousand cubic metres of natural gas. No specific rates have been set for the unconventional gas, and the rates set for conventional gas are very low.

Furthermore, there are no rules, or at least guidelines, as to how the price for a mining usufruct should be determined. Where tenders are called, that is not a problem because market will decide. The price should be proposed by mining companies during tenders for licences and taken into consideration as one of the award criteria.\textsuperscript{122} However, there are no rules when exploration licences can be granted (and related mining usufructs can be established) without a tender.

Companies that intend to exercise their priority rights to establish a mining usufruct for gas exploitation will face this situation. The price expectations of mining companies and the Treasury are very unlikely to meet, and an objective standard of what constitutes a fair price does not yet exist. Furthermore, if agreement on price cannot be reached, it is not clear whether the Treasury will have the right to call an open tender for exploitation despite existing priority rights. Since competition between private mining enterprises is a complete novelty in Poland, virtually no judiciary has provided a solution to the problem so far. Hence it seems possible that those controversies might need to be decided by the courts. The already mentioned parliamentary interpellation by Mrs Pawłowicz was primarily aimed at making the Ministry of Environment aware of this problem.\textsuperscript{123} But similar to the non-compliance of the priority right with the Directive 94/22/EC, the Ministry of Environment disregarded the problem in its response.\textsuperscript{124}

The new system of taxation, set up for copper and silver was adopted in March and effective from April 2012, is a pretty dark preview of how the fiscal environment for shale could look like.\textsuperscript{125} The general idea was that the fiscal model will depart from fixed rates per unit in favour of a percentage of

\textsuperscript{121} The last indexation provided

\textsuperscript{122} See: article 14 section 3 of the New Mining Law

\textsuperscript{123} See: note 97

\textsuperscript{124} See: note 98

\textsuperscript{125} See: Statute of 2 March 2012 on the Taxation of Exploitation of some Natural Deposits (\textit{Ustawa z dnia 2 marca 2012 r. o podatku od wydobycia niektórych kopalin}), Official Journal [2012] item 362
income from sales whereby the percentage would be variable and dependent upon the floating market price of a given mineral. Complicated formulas have been adopted, which take into consideration the London Metal Exchange Daily Official and Settlement Price for copper\textsuperscript{126} and the London Silver Fixing published by the London Bullion Market Association.\textsuperscript{127} While the previous total effective taxation of copper rate exploitation had been about 20 percent of profits including 19 percent paid through the corporate income tax (‘CIT’),\textsuperscript{128} compared with 57 percent in Chile, 55 percent in Botswana or 45 percent in Indonesia,\textsuperscript{129} the new rate was set up a from 0.5 percent to even 35 percent of current market prices, due upon exploitation on a monthly basis, plus 19 percent of CIT (new tax is not CIT-deductible!\textsuperscript{130}). The structure of fiscal burdens that does not take the cost of exploitation into consideration (mere reference to market prices in case of exploitation fee) probably makes it the highest copper exploitation tax in the world. Herbert Wirth, president of KGHM Polska Miedź S.A (mostly stricken by the new system as one the largest copper producers and the largest silver producer in the world) complained to press on October 2013 that the new tax then meant PLN 6.5 million of new burdens a day (about US$2 million). Significant declines in copper prices in 2013 intensified calls for the reduction of this tax but the Government remained averse to any tax cuts at the turn of 2013/2014.

As of February 2014, since late 2011, because of discussed significant adjustments to prognoses of shale gas deposits, politicians, the Ministry of Finance and the Ministry of Environment must have cooled down and must realised that the shale ‘Eldorado’ would not happen in Poland, and that the copper/silver-like taxes would not flow into budget from shale industry. Even so, no alternative more realistic solution was shown until then to the mining companies, without which large scale exploration is delayed all over the country and exploitation is out of the question.

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The mentioned most recent bill of May 2014 (potentially amending the New Mining Law)\textsuperscript{131} has not sent any clear message to the investors in the Polish shale business on how the issue will eventually be resolved. The bill keeps the current system unchanged in place. If adopted, it will moderately raise

\textsuperscript{126} See: note 125, article 1 section 1 point 1

\textsuperscript{127} See: note 125, article 1 section 1 point 2

\textsuperscript{128} See: Justification to the Statute on the Taxation of Exploitation of some Natural Deposits (see: note 125), See: Parliamentary Files of the sixth term (\textit{Druki Sejmowe VI kadencji}) no 144, page 7 available at http://www.sejm.gov.pl/sejm7.nsf/druk.xsp?nr=144

\textsuperscript{129} See: \textit{The taxation of petroleum and minerals: principles, problems and practice}, (red.) P. Daniel, M. Keen, Ch. McPherson, Nowy Jork 2010, p 272

\textsuperscript{130} See: note 125 article 19

\textsuperscript{131} See: note 116
exploitation fess (up to about 3 percent of the value of the produced gas) commencing from 2016.  
However, surprisingly the Government did not give up on hopes of having an ‘easy’ source of revenue in the future. At the same time the Government also eventually submitted long-awaited bill on the special hydrocarbon tax. The new tax – if adopted- would not be imposed until 2020 which has been presented to press as tax breaks for shale business. It is now also clear that the hydrocarbon tax will not be as burdensome as the one imposed on the exploitation of copper and silver. Like the copper/silver tax it would be a special income tax paid in addition to CIT proportionate to proceeds from sales of hydrocarbons relative to other proceeds. The proceeds from sold gas or oil – regardless of actual transaction price - will be deemed not lower than 90 percent of the price fixed by the Commodities Energy Exchange Company (Towarowa Giełda Energii S.A) for gas and by the OPEC Daily Basket Price for oil. The rate of the new tax would vary from 0 to 25 percent depending on the ratio of income and expenses (in total up to 40-45 percent of income with CIT and all other taxes/fees). Unlike the copper/silver tax, the hydrocarbon tax would be due upon receiving proceeds (not upon production). Expenses incurred for exploration and exploitation will be income-deductible. The losses incurred in early years of investment (mostly exploration phase, development of exploitation infrastructure etc.) could then be deducted from income in years when the investment brings returns (exploitation phase). However, the catalogue of deductible expenses will be limited compared with ordinary CIT.

7.3. Protection of Environment and the EU

7.3.1. EU’s reluctance to fracking

To some point in time the success or the failure of shale rush on Poland was believed to depend more on the EU’s legislation shaping Poland’s internal regulatory environment rather than on what the Government and/or the Parliament would do. The chance that the EU law-maker would literally ban or

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132 See: note 116, article 1 section 65 point a) amending the table-annex to the New Mining Law
134 See: note 51 above
135 See; note 133 article 11 sections 5-7
136 See; note 133 article 8 section 6
137 See; note 133 article 14
138 See; note 133 article 8 section 2
139 See; note 133 article 11
140 See; note 133 article 13 section 2
141 See; note 133 article 12
would significantly hinder the development of Polish sector under the guise of the environmental protection was considered to constitute the major risk to the success.

Almost directly after the very optimistic data had been published by the US Department of Energy, some informal legislative initiatives were raised against fracking mainly in the European Parliament. The highest profile proposal in respect of fracking was raised by Jo Leinen, a member the Group of the Progressive Alliance of Socialists and Democrats in the European Parliament and the chair of the Committee on the Environment, Public Health and Food Safety. As one of the most influential deputies, he called European institutions to adopt a directive that would penalise or even ban the exploitation of shale gas.\textsuperscript{142} By doing so he proposed that the solution then adopted in France – where a total ban on fracking and the annulment of previously granted exploration licences\textsuperscript{143} was passed – should be copied at the European level.

7.3.2. Could the EU impose the EU-wide ban on fracking?

Although it would have been very controversial, adopting the EU-wide ban on fracking might have been seriously considered especially prior to the adoption of the Treaty of Lisbon\textsuperscript{144} that amended the Treaty on the Functioning of the European Union (TFEU).\textsuperscript{145} Under the TFEU, the protection of the environment falls within so-called shared competence of the EU and Member states\textsuperscript{146} in theory meaning that Member States may adopt legislation in this area and exercise their competence to the extent that the EU has not exercised its competence\textsuperscript{147} and that - pursuant to the subsidiarity principle - the EU may act only if and in so far as the objectives of the proposed action cannot be sufficiently achieved by the Member States.\textsuperscript{148} In theory, this line is also drawn by the overlapping principles of

\textsuperscript{142} See: summary of Leinen’s comment given to Guardian was published on guardian.co.uk at 12.27 BST on Thursday 30 June 2011, available at http://www.guardian.co.uk/environment/2011/jun/30/shale-gas-europe-leinen, accessed 5 February 2014
\textsuperscript{143} See: Act no. 2011-835 of 13 July 2011 to prohibit exploration and mining of oil and gas by hydraulic fracturing and to repeal the exclusive licences covering projects using this technique (LOI n° 2011-835 du 13 juillet 2011 visant à interdire l'exploitation et l'exploitation des mines d'hydrocarbures liquides ou gazeux par fracturation hydraulique et à abroger les permis exclusifs de recherches comportant des projets ayant recours à cette technique (1)), official journal no. NOR: DEVX1109929L, consolidated version of 15 July 2011,
\textsuperscript{144} Treaty of Lisbon amending the Treaty on European Union and the Treaty establishing the European Community, Official Journal C 306 of 17 December 2007,
\textsuperscript{145} Previously the ‘Treaty of Rome’ or the ‘Treaty establishing the European Economic Community’ See: Consolidated version of the Treaty on the Functioning of the European Union, Official Journal C 83 of 30.3.2010, p. 47,
\textsuperscript{146} See: TFEU article 4 section 2 point e
\textsuperscript{147} See: TFEU article 2 section 2
\textsuperscript{148} See: art. 5, section 3, of the Treat on the European Union (’TEU’), Consolidated versions of the Treaty on European Union, OJ [2010] C 83, p. 13,
proportionality and precaution. The test on proportionality encumbers all European legislation and basically means that the content and form of EU’s legislative action may not exceed what is necessary to achieve the objectives of the treaties.\(^{149}\) In fields like protection of human health or protection of environment, the precautionary principle also kicks in meaning that ‘where, following an assessment of available scientific information, there are reasonable grounds for concern for the possibility of adverse effects but scientific uncertainty persists, provisional risk management measures based on a broad cost/benefit analysis whereby priority will be given to human health and the environment, necessary to ensure the chosen high level of protection in the Community and proportionate to this level of protection, may be adopted, pending further scientific information for a more comprehensive risk assessment, without having to wait until the reality and seriousness of those adverse effects become fully apparent’ according the definition proposed by Schomberg.\(^{150}\)

In practice, however, the competence of Member States in terms of environmental protection is currently very limited regardless of whether subsidiarity requires actions of the EU law-maker or not. Opinions overtly opposed to such course of events have been expressed, indicating for example that the EU has a competence to take legislative actions in the environmental area only if either cross-border pollution or common market distortions are under consideration.\(^{151}\) Bernholz, for example, when the draft Treaty of Lisbon was discussed, expressed the view that the subsidiarity principle was blatantly violated in the fields of transportation, energy, social policies, environment, research, technological development and space exploration, and the Treaty of Lisbon would only validate such practice.\(^{152}\) Such views have not stood the test of time since the Treaty of Lisbon entered into force.

Nonetheless, while generally enhancing the legislative competences of the EU at the expense of Member states, the Treaty of Lisbon paradoxically also prevented further curbing Member States’ autonomy in the field of energy and environment. The TFEU’s article 192 section 2 point c provides that ‘measures significantly affecting a Member State's choice between different energy sources and

\(^{149}\) See: TEU article 5 section 4


the general structure of its energy supply’ require unanimity in the Council. Similarly, the energy context, the TFEU’s article 194 section 2 para 2 stipulates that measures adopted in the field of energy ‘shall not affect a Member State’s right to determine the conditions for exploiting its energy resources, its choice between different energy sources and the general structure of its energy supply, without prejudice to Article 192(2)(c).’ So, it means a contrario that Member States could unilaterally veto such measures in the Council.

On the one hand, it might be argued the EU-wide ban on fracking obviously falls within the scope of the article 192 section 2 point c which is a sufficient safeguard for a ‘pro-shale’ Member State against the EU law-maker. On the other hand, it might also be argued that this provision would not suffice.

Firstly, this is because it is not clear what ‘significantly affecting’ means under the TFEU. The choices of the Members States have already been ‘affected’ under legislation pre-dating the Treaty of Lisbon that might have had fallen within the scope of the article 192 section 2 point c if it had then been in place. The Directive 2009/28/EC of 23 April 2009 on the promotion of the use of energy from renewable sources\footnote{OJ [2009] L 140 p. 16-62} set up minimum green content requirements for each Member State in order to reach the EU-wide target of 20% renewable energy production by 2020. This act sets mandatory national targets and requires Members States to prepare and establish national action plans to reach their respective targets. The Polish target is 15% (from a 2005 level of 7.2%) while, for example, Latvia has a target of 40% (from a 2005 level of 32.6%) and Sweden has a target of 49% (from a 2005 level of 39.8%). Germany’s target is 18% (from a 2005 level of 5.8%) and the Spanish target is 20% (from a 2005 level of 8.7%). The higher these numbers, the more a particular Member State is restricted in the right to decide on its energy mix. In the most extreme cases of Sweden and Latvia these numbers mean that half or nearly half the electricity production should be from renewable sources instead of conventional ones. In common sense, at least these two Member States are not free to choose between different sources of energy supply any more anyway. In the case of Member States with lower targets, it is, in turn, unclear whether significance of the measure’s interference with the energy mix should be assessed against up-to-date situation or against hopes for future development of shale business etc.

Secondly, one could construe article 192 section 2 point c of the TFEU in a way that shale gas is merely an unconventional type of natural gas whereas the Member State is free to choose between conventional natural gas, LPG, oil, coal, nuclear power, bio-fuels and other renewables as its energy sources – both from national resources and production as well as imports. It could be even argued that a ban on fracking could be interpreted merely as a ban of some technical method that is potentially

\footnote{under Article 175(1) EC (now 192(1) TFEU) except for the biofuels-related requirements which were adopted under the internal market Article 95 EC (now 114 TFEU)}
harmful to the environment. Thus, if a more environmentally-friendly method is found, a Member State would be free to exploit shale gas deposits. Consequently, the ban would affect the method – not the Member State’s choices – and therefore would not fall within the scope of article 192 section 2 point c. That would be unusual argumentation, but it might be used.  

7.3.3. The Commission’ recommendation of January 2014

Because of all these controversies, as expected, instead of an express ban, the work in the European Parliament went towards imposing exorbitant environmental standards on fracking method that could have made this method commercially nonviable. Indeed, over two years after Mr Leinen’s statement, in October 2013 the European Parliament narrowly voted (by 332 votes to 311 with 14 abstentions) for amending the so-called Environmental Impact Assessment (‘EIA Directive’) in a way that not only exploitation but also prospection/exploration of non-conventional hydrocarbons should be subject to full environmental impact assessment which can take up to two years and is costly. The European Parliament authorised Andrea Zanoni, a member of the Group of the Alliance of Liberals and Democrats for Europe to negotiate a first-reading agreement with EU ministers, according to whom “Hydraulic fracturing raises concerns” and “revising this key legislation to align it with Europe's new priorities, such as soils, resource use and protecting biodiversity.”

Surprisingly, the European Commission conclusively – for the time being – halted this and other similar anti-fracking legislative initiatives in January 2014 by issuing two complementary documents that is (i) the Communication on the exploration and production of hydrocarbons (such as shale gas) using high volume hydraulic fracturing in the EU, and (ii) the Recommendation on minimum principles for the exploration and production of hydrocarbons (such as shale gas) using high volume hydraulic fracturing.

155 See more in: Jędrzej Górski, Could the EU Impose a Ban on Shale-Gas Extraction and Would This Prevent Exploitation of the Fossil Fuel in Poland? Unconventional Oil and Gas, OGEL 5 (2012)
158 See: note 157 ibid.
159 See: note 157 ibid.
160 See: Communication from the Commission to the Council and the European Parliament on the exploration and production of hydrocarbons (such as shale gas) using high volume hydraulic fracturing in the EU, COM(2014) 23 final
161 OJ [2014] L 39 p. 72-78
The European Commission explained in the Communication that it had “adopted a Recommendation which outlines minimum principles which, if fully applied, would contribute to enabling shale gas activities while ensuring that climate and environmental safeguards are in place. This Recommendation is complementary to the existing EU acquis and builds on previous work conducted by the Commission services. It neither implies that Member States are under any obligation to pursue the exploration or exploitation of shale gas activities if they choose not to nor that Member States are prevented from maintaining or introducing more detailed measures matching the specific national, regional or local conditions.”

As a result – because recommendations are non-binding legal measures under article 288 of the TFEU – the European Commission, for the time being confined itself to adopting a kind of soft-law reminder which listed currently binding EU’s secondary legislation applicable to shale business and fracking, and ‘invited’ Member states to ensure that:

- a strategic environmental assessment is carried out prior to granting licenses for hydrocarbon exploration and/or production which are expected to lead to operations involving high-volume hydraulic fracturing in order to analyse and plan how to prevent, manage and mitigate cumulative impacts, possible conflicts with other uses of natural resources or the underground;

- a site specific risk characterisation and assessment is carried out, related to both the underground and the surface, to determine whether an area is suitable for safe and secure exploration or production of hydrocarbons involving high volume hydraulic fracturing. It would inter alia identify risks of underground exposure pathways such as induced fractures, existing faults or abandoned wells;

- baseline reporting (e.g. of water, air, seismicity) takes place, in order to provide a reference for subsequent monitoring or in case of an incident;

- the public is informed of the composition of the fluid used for hydraulic fracturing on a well by well basis as well as on waste water composition, baseline data and monitoring results. This is needed to ensure that the authorities and the general public have factual information on potential risks and their sources. Improved transparency should also facilitate public acceptance;

- the well is properly insulated from the surrounding geological formations, in particular to avoid contamination of groundwater;

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162 See: note 160 at 8
163 See: note 161, point 7 of preamble at 3
venting (release of gases into the atmosphere) is limited to most exceptional operational safety cases, flaring (controlled burning of gases) is minimised, and gas is captured for its subsequent use (e.g. on-site or through pipelines). This is needed to mitigate negative effects of emissions on the climate, as well as on local air quality.\textsuperscript{164}

Such an outcome does not imply however that more stringent and binding measures would not be adopted in the longer term, or at least that some legislative actions in the European Parliament and/or European Commission would not be taken with a view to adopting such measures. The European Communications itself warned in the Communication that it ‘\textit{The Commission will review the extent to which this approach is effective in implementing the principles set out in the Recommendation and in providing predictability and clarity to citizens, operators and public authorities. It will report to the Parliament and the Council within 18 months after publication in the Official Journal. It will decide whether it is necessary to put forward legislative proposals.}’\textsuperscript{165}

Such an outcome does imply that the Parliament, Government and local authorities must ensure full-compliance of domestic legislation and its practical application with the existing EU’s legislation, especially in the 18 months’ ‘vigilance’ period.

On the one hand, it is obvious that Poland would be in the cross hair of Brussels. On the other hand, there might be no reason for concerns. Poland’s compliance with the EU’s was already scrutinised by the European Commission in 2011 in the report analysing the regulatory framework of shale gas industries in selected member states (France, Germany, Poland and Sweden) stating that, in principle, neither the European level and on the national level there are significant gaps in the current legislative framework, as regards regulating the current level of shale gas activities.\textsuperscript{166} Despite some subsequent studies ordered by the European Commission identified gaps or possible inadequacies in EU legislation, those objections mostly concerned the EU’s legislation.\textsuperscript{167}

\textsuperscript{164} See: note 160 at 9
\textsuperscript{165} See: note 160 at 10, and note 161 point 16.3,
\textsuperscript{167} In the later complex study of 2012, these inadequacies were classified into (i) inadequacies in EU legislation that could lead to risks to the environment or human health not being sufficiently addressed. (ii) potential inadequacies – uncertainties in the applicability of EU legislation: the potential for risks to be insufficiently addressed by EU legislation, where uncertainty arises because a lack of information regarding the characteristics of high volume hydraulic fracturing projects, (iii) potential inadequacies – uncertainties in the existence of appropriate requirements at national level: aspects relying on a high degree of Member State decision-making for which it is not possible to conclude whether or not at EU level the risks are adequately addressed. See: Mark Broomfield, Support to the identification of potential risks for the environment and human health arising from hydrocarbons operations involving hydraulic fracturing in Europe, report prepared by AEA Technology plc, 10 August 2012 available at:
CONCLUSION

The Polish experience of shale gas exploration has been rather mixed. Uncertainty over the extent of economically recoverable resources has been coupled with a sustained political campaign aimed at the industry players. Nevertheless, with energy security as the policy objective of the Government in Warsaw, the shale gas debate has been lacking expectation management. Unconditional political and popular support for the emerging resource has largely put aside a broader discussion about other key sources of polish energy mix, in particular coal. Politicisation of shale gas has become an important currency of politics. Numerous politicians, including the Government officials, have presented bright prospects of the future shale gas exploration and production leaving little space for critical reflections dictated by the reality of existing legal basis underpinning mining sector in Poland. Prolonged reform of the mining law in Poland coupled with lack of institutional breadth at the ministerial level created a series of policy pitfalls. Culmination of those developments widely covered by national and international media has been departure of some key commercial players leaving the bulk of future shale exploration in the hands of state-owned industry, largely inexperienced in the unconventional gas sector. The Polish shale gas momentum now passed its zenith and it may be difficult to regain the international oil companies’ attention to the Polish resource. Nevertheless, shale gas politics continues to play a role domestically while it remains to be seen what commercial viability the shale resource will offer if explored and produced at industrial scale.

SCHEDULE A. Tabulated comparison of statistics

<table>
<thead>
<tr>
<th></th>
<th>US Department of Energy</th>
<th>Polish Geological Institute</th>
<th>USGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas in-place [tcm]</td>
<td>5,290</td>
<td>768</td>
<td>115.7</td>
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<tr>
<td>Gas in-place [bcm]</td>
<td>187</td>
<td>27,122</td>
<td>4,086</td>
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<tr>
<td>Percentage of the study by the US Department of Energy [%]</td>
<td>100</td>
<td>6.54</td>
<td>2.19</td>
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<tr>
<td></td>
<td></td>
<td>6.54</td>
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SCHEDULE B. Map of shale gas prospection works (31 November 2013)

Source: Polish Ministry of Environment (2013) ¹⁶₈

## SCHEDULE C. List of holders of prospection/exploration licences of unconventional hydrocarbons

<table>
<thead>
<tr>
<th>Controlling entity (if applicable)</th>
<th>Licence holder</th>
<th>conventional and unconventional</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> 3Legs Resources Plc</td>
<td>Lane Energy Poland Sp. z o.o.</td>
<td>3</td>
</tr>
<tr>
<td><strong>2</strong> BNK Petroleum</td>
<td>Indiana Investmetns Sp. z o.o.</td>
<td>3</td>
</tr>
<tr>
<td><strong>3</strong> Saponis Investments Sp. z o.o.</td>
<td>3</td>
<td></td>
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<tr>
<td><strong>4</strong> PETROLINVEST S.A</td>
<td>Silurian Sp. z o.o.</td>
<td>5</td>
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<tr>
<td><strong>5</strong> PKN Orlen S. A.</td>
<td>Orlen Upstream Sp. z o.o.</td>
<td>9</td>
</tr>
<tr>
<td><strong>6</strong> Realm Energy International Co.</td>
<td>Helland Investments Sp. z o.o.</td>
<td>1</td>
</tr>
<tr>
<td><strong>7</strong> Joyce Investments Sp. z o.o.</td>
<td>1</td>
<td></td>
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<tr>
<td><strong>8</strong> Maryani Investments Sp. z o.o.</td>
<td>1</td>
<td></td>
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<tr>
<td><strong>9</strong> San Leon Energy BV</td>
<td>San Leon Czersk Sp. z o.o.</td>
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<tr>
<td><strong>10</strong> San Leon Praszka Sp. z o.o.</td>
<td>San Leon Rawicz Sp. z o.o.</td>
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<tr>
<td><strong>11</strong> San Leon Wschowa Sp. z o.o.</td>
<td>San Leon Wschowa Sp. z o.o.</td>
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<tr>
<td><strong>12</strong> San Leon Energy Plc</td>
<td>Liesa Energy Sp. z o.o.</td>
<td>1</td>
</tr>
<tr>
<td><strong>13</strong> Talisman Energy Polska Sp. z o.o.)</td>
<td>Gora Energy Sp. z o.o.</td>
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<td><strong>14</strong> Aurelian Oil &amp; Gas Poland Sp. z o.o.</td>
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<tr>
<td><strong>15</strong> Baltic Energy Rescources Sp. z o.o.</td>
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<td><strong>16</strong> Baltic Gas Sp. z o.o. i wspólncy spółka komandytowa.</td>
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<td><strong>17</strong> Canadian International Oil Poland Spółka z ograniczoną odpowiedzialnością</td>
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<td><strong>18</strong> Chevron Polska Energy Resources Sp. z o.o.</td>
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<td><strong>19</strong> Cuadrilla Poland Sp. z o.o.</td>
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<td><strong>20</strong> DPV Service Sp. z o.o.</td>
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<td><strong>21</strong> ECO ENERGY 2010 Sp.z o.o.</td>
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<tr>
<td></td>
<td>Company Name</td>
<td>Quantity</td>
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<td>23</td>
<td>Energia Zachód Sp. z o.o.</td>
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<td>Energia Chełm spółka jawna</td>
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<td>26</td>
<td>Lane Energy Exploration Poland Sp. z o.o.</td>
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<td>27</td>
<td>LOTOS Petrobaltic S.A.</td>
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<td>28</td>
<td>Mac Oil (Poland) Sp.z o.o.</td>
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<td>29</td>
<td>Marathon Oil Poland Sp. z o.o.</td>
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<td>Olesnica LLP Spółka osobowa z o.o.</td>
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<td>31</td>
<td>PGNiG S.A.</td>
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<td>South Prabuty LLP Spółka osobowa z ograniczoną odpowiedzialności</td>
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<td>34</td>
<td>Strzelecki Energia Sp. z o.o.</td>
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<td>Wisent Oil &amp; Gas Sp.z o.o.</td>
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<td>Wielun LLP Spółka osobowa z o.o.</td>
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<tr>
<td>TOTAL</td>
<td></td>
<td>85</td>
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</tbody>
</table>

Source: Polish Ministry of Environment (2013) with modifications by the authors. \(^{169}\)

\(^{169}\) Polish Ministry of Environment, List of concession for he prospection and exploitation of carbohydrates as for 1 December 2013, available at: [http://www.mos.gov.pl/g2/big/2013_12/0f8321a600cafd1a056e31174a7ebfd4.pdf](http://www.mos.gov.pl/g2/big/2013_12/0f8321a600cafd1a056e31174a7ebfd4.pdf)