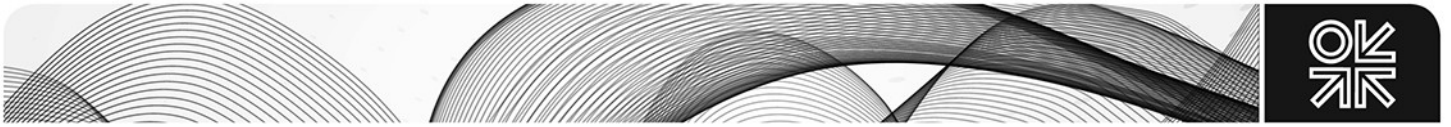


March 2014

# What the Ukraine crisis means for gas markets



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## Introduction

The change of government in Kyiv, the Russian military action in Crimea, the diplomatic reaction by the western powers, and the perceived danger of war, clearly have implications for all economic relations between Russia, Ukraine and Europe, especially in the energy sphere. Because Russia supplies about 30% of Europe's natural gas, and – notwithstanding some transit diversification in recent years – more than half of these volumes are still transported via Ukraine, issues of European gas security are raised. In Ukraine, itself one of the largest importers of Russian gas, supply issues are combined with the economic upheavals aggravated by political crisis. This comment, written by researchers on the OIES Natural Gas Research Programme, considers the potential causes of supply disruptions in Europe, and the potential impacts; the impacts on Russia and Gazprom, the main supplier; and the situation in the Ukrainian gas market and with respect to gas production and trading. It concludes by considering some longer-term issues with respect to transit, and issues of supply diversification and transit diversification being discussed in Europe<sup>2</sup>

## Possible Ukrainian triggers for supply disruptions in Europe

There is no evidence, from the statements by Russian authorities, that they would at this stage of this crisis explicitly cut off gas supplies to Ukraine, still less supplies to Europe, as a means of pursuing their strategic aims in respect of Ukraine. Neither is there any evidence that the Ukrainian government has any intention of disrupting supplies in pursuit of military or political objectives, or of intent by European governments to impose sanctions in the gas sector to express their opposition to Russian action in Crimea. (This could of course change in the event of a serious escalation of the military and political crisis.) On the other hand, there is a very real possibility, referred to by Alexei Miller, CEO of Gazprom, on 7 March, that non-payment by Ukraine for its own imports could trigger a crisis in which European supplies are interrupted.

To date (10 March) there has been no supply interruption, and indeed reports from the Russian energy ministry's central dispatching unit suggest that, if anything, the flow of overall Russian gas exports to Europe has increased, despite the mild weather in Europe. Gas exports from Russia were 476.5 thousand cubic metres (mcm) on 1 March, compared to an average of 438mcm per day in the last ten days of February. Furthermore Ukrtransgaz, the gas transit division of Naftogaz Ukrainy, the Ukrainian state oil and gas company, reported on 4 March that imports and transit of Russian gas are proceeding as normal, with the levels of 45mcm of imports and 200mcm of gas transit for 1 March being comparable with previous years.

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<sup>1</sup>The authors acknowledge the help of our colleague Professor Jonathan Stern at the OIES, who commented on the text. We thank Olga Pogarska, Chief Economist at Sigma Bleyzer, Kyiv, for her advice with regard to the section on Naftogaz Ukrainy's financial difficulties.

<sup>2</sup> The paper is an outcome of the programme's ongoing research on Russian gas and its role in the European and FSU markets. A major publication on these issues is due in the summer of this year: James Henderson and Simon Pirani (eds.), *The Russian Gas Matrix: How Markets are Driving Change* (OUP, 2014, forthcoming).

Map Showing Russian Gas Transit Pipelines to Europe



Source: J Stern, Chapter 3, in J. Henderson and S. Pirani (eds.), *The Russian Gas Matrix* (forthcoming 2014)

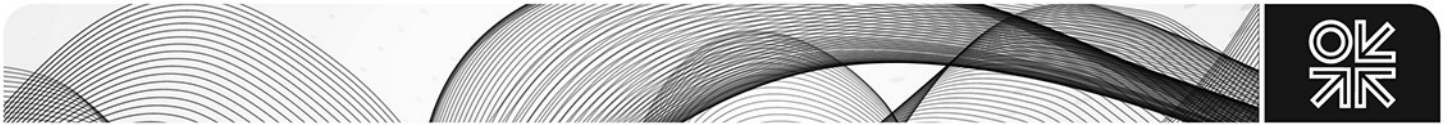
Sales revenues from gas delivered via Ukraine to Europe, and gas delivered to Ukraine itself, comprise a very substantial portion of Gazprom's income, and this is undoubtedly part of Russia's motivation to continue deliveries. (See *The potential impact on Gazprom and Russia*, below.) Since the change of government in Kyiv on 22 February, Gazprom has been at pains to emphasise that it will continue deliveries, and even offered to help arrange loans to Naftogaz to ensure payment and forestall a dispute. On the other hand it has acknowledged that continued Ukrainian non-payment could result in supply interruptions.

### *Naftogaz's financial difficulties*

The difficulties that Naftogaz Ukrainy is having, and will have, in paying for Russian gas imports, combined with the difficulties of negotiating a solution due to the political and military crisis, is the most likely potential cause of supply interruptions. The scale of the problem may be described as follows:

Gazprom delivered up to \$10 billion worth of gas to Ukraine in 2013,<sup>3</sup> lower than the peak years of 2011-12 when imports were valued at around \$14 billion, but still a big burden for the Ukrainian state finances. Some imported gas is sold to district heating companies at below the import prices, and

<sup>3</sup> Total imports were valued at about \$12 billion. About \$1 billion worth of this was delivered via "reverse flow". While the molecules of gas almost certainly originated in Russia, these deliveries were made by trading companies in central Europe who acquired the gas and flowed it back to Ukraine at a lower price than Russian imports.



some is not paid for; these factors, in addition to poor management and alleged corruption, have led to Naftogaz Ukrainy running up debts of \$3.3 billion to Gazprom in 2013.

On 17 December, an agreement was made between the now deposed president of Ukraine Viktor Yanukovich and Russian president Vladimir Putin, under which Russia was to buy Ukrainian government bonds worth \$15 billion, and the price of gas for the first quarter of 2014 was reduced to \$268.50/mcm, from around \$405/mcm. The first \$3 billion of treasury bonds purchases has already been paid. This arrangement may be expected to be cancelled as a result of the change of government. Russia has said that it will not disburse further amounts under this arrangement, and that the gas price discount will not be continued into the second quarter of 2014. President Putin stated on 4 March, i.e. after the troop movements in Crimea, that the Russian offer of a loan programme had been conditional on Ukraine's promise to use this money for full repayment of gas debt and payment for current deliveries; he hinted at possible continuation of the loan should it be used strictly for gas payments.<sup>4</sup>

On 14 February, Naftogaz paid \$1.28 billion of the \$3.3 billion it owed to Gazprom, and asked for a postponement of payment on the remaining sum to 15 April. On 4 March the debt stood at \$1.59 billion, of which around \$1.45 billion appears to relate to sales in 2013 and the remainder for January this year. On 7 March, another \$400 million fell due, for gas delivered in February, bringing the total to around \$2 billion.

On 4 March, when Gazprom CEO Alexei Miller stated that the discount in gas prices for Ukraine negotiated between Putin and Yanukovich would be withdrawn, he at the same time offered to support the arrangement of a loan of \$2-3 billion to Ukraine to pay for the gas. The possibility of such a loan was also mentioned by Putin (see above), and by Russian prime minister Dmitry Medvedev.<sup>5</sup> (Such a loan would be in addition to a prepayment made previously by Gazprom for the transit of gas through Ukraine to the end of 2015, to help clear a previous debt owed by Naftogaz.<sup>6</sup>)

At the time of writing, there was no indication as to whether Ukraine and Naftogaz would request such a loan, or how it might be structured. But the offer by Miller and Medvedev indicates the level of concern in Russian government, and at Gazprom, about the effect of the crisis on its business.

On 7 March, Miller suggested there were limits to Gazprom's conciliatory approach. He warned of "the risk of a return to the situation of [January] 2009" – a reference to the crisis when shipments of Russian gas to both Ukraine and European destinations were halted for two weeks.<sup>7</sup>

Ukraine's gas imports, and their estimated value, are summarised in table 1.

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<sup>4</sup> Vladimir Putin press conference, 4 March 2014. <http://www.kremlin.ru/news/20366>

<sup>5</sup> "Decision taken to discontinue gas price discount", Gazprom press release, 4 March 2014; "Gazprom s apreliia otmeniaet skidku na gaz dlia Ukrainy", *Vedomosti*, 4 March 2014

<sup>6</sup> "Naftogaz pays Gazprom \$1.28 bn for 2013, \$191 mn for Jan gas", *Interfax CIS Oil & Gas Weekly*, 13-19 February, 2014

<sup>7</sup> "Miller predupredil o vozmozhnosti prekrashcheniia postavok gaza na Ukrainu", Prime Tass news agency, 7 March 2014.

|   | 2007  | 2008  | 2009   | 2010  | 2011  | 2012  | 2013 |
|---|-------|-------|--------|-------|-------|-------|------|
| Volume imported (bcm)   | 50.59 | 54.6  | 26.95  | 36.47 | 44.8  | 32.94 | 27.9 |
| <i>incl:</i>  |       |       |        |       |       |       |      |
| <i>Naftogaz Ukrainy (Russian gas)*</i>  | 50.59 | 54.6  | 26.95  | 36.47 | 40    | 24.89 | 12.9 |
| <i>Naftogaz U and traders ("reverse flow")</i>  | 0     | 0     | 0      | 0     | 0     | 0.05  | 2.1  |
| <i>Ostchem Holding</i>  | 0     | 0     | 0      | 0     | 4.8   | 8     | 12.9 |
| Import price (\$/mcm)**   | 130   | 179.5 | 232.54 | 257   | 315.5 | 424   | 414  |
| Estimated value of imports, \$ billion  | 6.58  | 9.8   | 6.27   | 9.37  | 14.1  | 13.97 | 12   |
| Total gas consumption (bcm)   | 71.1  | 67.5  | 53.1   | 59    | 61.9  | 54.8  | 50.3 |
| * 2007-09, includes Central Asian volumes. ** 2007-12, prices reported by Naftogaz or derived from its reports; Ostchem Holding purchases excluded. 2013, average price derived from state statistics committee information, including all purchasers |       |       |        |       |       |       |      |
| Source. Volumes: <i>Energobiznes</i> /energy ministry. Prices: press reports/ Naftogaz Ukrainy. Estimated values: author's estimates  |       |       |        |       |       |       |      |

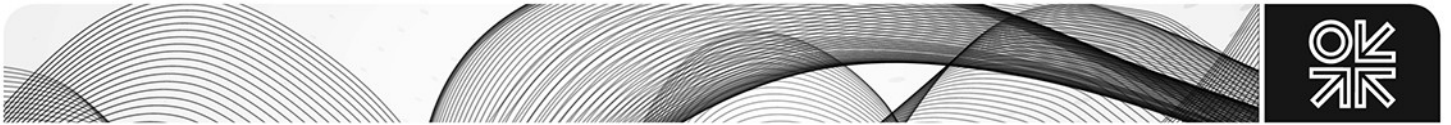
Naftogaz's level of indebtedness seems likely to continue to rise. This is a long-standing problem: non-payments of debts accumulated for imported gas were the triggers for the gas disputes of January 2006 and January 2009, when supplies to Europe were disrupted;<sup>8</sup> and the IMF, in its Article IV reports on Ukraine, has estimated Naftogaz's operational deficit rising to around 30 billion hryvna/year in recent years (from an estimated 19.76 billion hryvna in 2011 to 29.46 billion hryvna in 2012).<sup>9</sup>

This long-standing problem has been exacerbated by the political crisis: firstly, because Naftogaz's ability to collect payment from customers has deteriorated during the crisis in Ukraine (see below, Supply to Ukrainian customers); and, secondly, because its indebtedness is part of a wider financial crisis for the state, that began in 2008 and has also been exacerbated. At the end of February, Ukraine's foreign exchange reserves stood at about \$15 billion, i.e. less than the value of two months' imports (the standard international minimum is three months' imports); its public debt (including publicly-guaranteed debt, including that of Naftogaz) stood at \$37.5 billion and its domestic debt (i.e. mostly domestic securities issued to finance the budget deficit, held by the National Bank of Ukraine and commercial banks) at \$35.5 billion as of the beginning of 2014. (Significantly, in February Ukraine repaid some debt to the IMF).

Of the \$37.5 billion, around \$8 billion is due in the short term, including \$3.7 billion to the IMF, \$1 billion in sovereign eurobonds and \$1.6 billion in Naftogaz eurobonds. While economists consider that this is a liquidity problem rather than a solvency problem, it is quite a substantial one and rapidly deteriorating. Moreover, the \$8 billion of short-term debt can be easily rise to \$11 billion, as around \$3 billion of sovereign eurobonds purchased by Russia at the end of 2013 may be called in for

<sup>8</sup> See, for example, J. Stern, *The Russian-Ukrainian Gas Crisis of 2006* (OIES working paper, 2006); S. Pirani, J. Stern and K. Yafimava, *The Russo-Ukrainian gas dispute of January 2009: a comprehensive assessment* (OIES working paper, 2009) and *The April 2010 Russo-Ukrainian gas agreement and its implications for Europe* (OIES working paper, 2010)

<sup>9</sup> IMF, 2012 *Article IV report on Ukraine* (Washington, 2012), p. 24 and p. 47. The hryvna exchange rate was 9.4 hryvna = \$US1 on 7 March 2014.



payment in 2014. Naftogaz's debt of around \$1.7 billion for natural gas consumed in 2013 is in addition to the \$8 billion.<sup>10</sup>

Naftogaz's substantial debt to Gazprom will essentially have to be cleared in one of two ways (or a combination of them). Either the government will decide to include requirements for Naftogaz in any loan package that it negotiates with western powers and international financial institutions; and/or Naftogaz will borrow money from Russia, along the lines suggested by Putin and others (which at present seems unlikely).

The new Ukrainian government has said that it intends to open negotiations with the IMF. Christine Lagarde, the IMF managing director, has said that any discussions about the volume of potential aid are "premature" until the IMF mission, now in Kyiv, has analysed the situation. Arseniy Yatseniuk, the interim prime minister, has stated that Ukraine will agree to all IMF conditions (including gas price increases for the residential sector – the IMF loan condition rejected by the previous government of Nikolai Azarov).<sup>11</sup>

Clearly, however, the likelihood of such arrangements being made depends on the broader strategic and political relationships between parties, which are volatile. The danger of supply interruptions arises more from the difficulty of negotiating such major loan packages in the midst of a political and military crisis, rather than from any strong desire by any of the parties for supplies to be interrupted. A supply interruption might take place in spite of the general desire of both Gazprom and Naftogaz to continue deliveries and transit.

### *The contractual position*

The Eurasian gas network includes a wide set of actors (the EU, EU and non-EU European countries, Russia, Ukraine, Belarus, Moldova, Central Asian/Caspian countries, and their gas exporting/importing/transiting companies) involved in relationships of interdependence characterised by various degrees of asymmetry. These relationships form a circuitry of gas and cash flows (a 'space' of flows), which is underpinned by commercial contracts (a contractual space) and bilateral (intergovernmental agreements) and multilateral (EU law, the Energy Community Treaty (EnCT), the Energy Charter Treaty (ECT)) frameworks (a legal/regulatory space), and political relations between countries (a space of places). As argued elsewhere by one of the authors, the Eurasian space of gas flows is prone to interruption if an interruption occurs either in the contractual space or in the legal/regulatory space or in the space of places.<sup>12</sup>

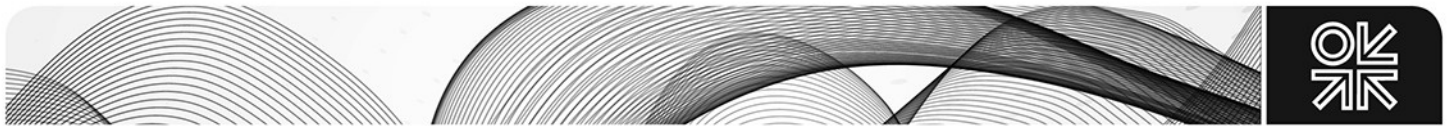
The pattern observed in Ukraine, during both the January 2006 and 2009 crises, was that a breakdown in the space of places (worsening political relationship between Ukraine and Russia as a result of the Orange revolution) led to a breakdown in their bilateral legal/regulatory and in contractual spaces, in turn causing a breakdown in the space of flows, when no gas flowed to Europe for two weeks. Another (and much more significant) breakdown in the Ukraine-Russia political relationship has taken place over the last four months, culminating in the increased Russian military presence in Crimea. It cannot be ruled out that this latest breakdown might lead towards a breakdown in the

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<sup>10</sup> Estimates by Olga Pogarska, Chief Economist, Sigma Bleyzer, Kyiv.

<sup>11</sup> "Yatsenyuk: Ukraine will accept all IMF loan conditions", *Vedomosti*, 3 March 2014, available at <https://www.vedomosti.ru/finance/news/2014/03/03/23505611>

<sup>12</sup> K. Yafimava, *The Transit Dimension of EU Energy Security: Russian gas transit across Ukraine, Belarus and Moldova* (Oxford University Press, 2012).



contractual and legal/regulatory spaces and, as a result, a breakdown in the space of gas flows. Importantly, following Russia's decision to stop provisional application of the ECT, the only energy-specific legal framework which included Russia, there is no overarching multilateral legal/regulatory framework in place, which could serve as an extra layer of (transit) security in case all the above-mentioned frameworks break down.

The contractual space is currently constituted by the January 2009 Gazprom-Naftogaz supply and transit contracts (with many amendments) which do not expire until the end of 2019.<sup>13</sup> The legal/regulatory space is constituted by the April 2010 Black Sea fleet intergovernmental agreement, which does not expire until 2042.<sup>14</sup> The January 2009 supply contract contains a take-or-pay clause (obliging Naftogaz to take or pay for 80% of annual contractual quantity (ACQ)) and includes strict payment terms, stipulating that a single missed payment would result in the imposition of pre-payment. (This clause could have been triggered at any time since Naftogaz began again to accumulate debts in mid 2013, but has not been.) The transit contract does not include a ship-or-pay clause (thus Gazprom is under no obligation to ship certain volumes across Ukraine); also Gazprom has made an advance payment to Naftogaz for transit services until the end of 2015.<sup>15</sup>

Ukraine has always called the contracts negotiated in January 2009 unfair. Its attempts to renegotiate them were unsuccessful, until April 2010, when a 30% price discount was granted (as Russian export duty relief in exchange for prolonging the Russian Black Sea naval base lease).<sup>16</sup> In November 2013 a further discount was arranged; Gazprom agreed to reduce the price to \$268.50/mcm (down from \$406/mcm in December 2013<sup>17</sup>), reportedly (at least) for the duration of 2014 and subject to quarterly revision.

Should Naftogaz find itself in a situation where it does not receive sufficient loans either from the IMF or from Russia, it might not be able to pay its debts; then Gazprom could in turn decide to stop supplies to Ukraine. (In so doing, Gazprom would be acting in line with the existing contract.) Ukraine could then decide to take gas from transit volumes bound for Europe, to which Gazprom could respond by cutting all flows across Ukraine. This would be a repetition of the chain of events in the January 2009 crisis.<sup>18</sup> In these circumstances, Ukraine could decide to reconfigure its network to take gas out of storage facilities, as it did in January 2009. Interim prime minister Yatseniuk has said that if Russia cuts supplies to Ukraine, Ukraine "will turn the tap in the opposite direction". The potential impact on Europe is discussed in the next section.

### **Potential escalation of the military conflict**

At the time of writing, an escalation of military conflict between Russia and Ukraine beyond the Crimean peninsula seems very unlikely. Were such an escalation to take place, it would of course bring a whole set of other dangers. The main gas transit pipelines through Ukraine, which run along a route 400-500 km north of Crimea, could be subject to closures, attacks, etc. The implication of this would be prolonged disruption of gas flows to Europe. Since such drastic outcomes appear so

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<sup>13</sup> Pirani, Stern and Yafimava, *The Russo-Ukrainian Gas Dispute*.

<sup>14</sup> Yafimava, *The Transit Dimension*.

<sup>15</sup> "Naftogaz pays Gazprom \$ 1.28 bn for 2013, \$191 mn for Jan gas", *Interfax CIS Oil & Gas Weekly*, 13-19 February, 2014

<sup>16</sup> Pirani, Stern and Yafimava, *The April 2010 Russo-Ukrainian gas agreement*.

<sup>17</sup> "Kak Rossiia pomozhet Ukraine", *Vedomosti*, 18 December 2013.

<sup>18</sup> Pirani, Stern and Yafimava, *The Russo-Ukrainian Gas Dispute*.

unlikely at this point, we have not discussed them here, and would return to them in a further paper if the situation changes.

## The potential impact on Europe

Russian imports comprise some 30% of European gas needs,<sup>19</sup> but Europe is in a better position to handle a potential disruption than it was on previous occasions (2006 and 2009).<sup>20</sup> Following the completion of the Nord Stream pipeline in 2012, only about 50% of the Russian gas to Europe transits via Ukraine, down from 80% previously.

Russian gas to Northwest and Central Europe is largely supplied through the Nord Stream pipeline (from Russia to Germany via the Baltic Sea) and the Yamal-Europe pipeline (from Russia via Belarus and Poland to Germany). Much of the gas transiting through Ukraine is destined for Italy, with supplies also going to countries such as Austria, Hungary, Bulgaria, Greece, former Yugoslavia and Turkey. See Table 2.

**Table 2: Russian Gas transit through Ukraine to European countries, bcm**

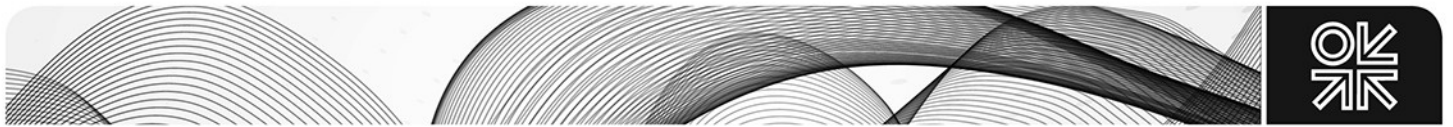
|                    | 2013        | 2012        |
|--------------------|-------------|-------------|
| Italy              | 25.33       | 15.08       |
| Turkey             | 13          | 14.02       |
| Germany            | 11.71       | 21          |
| Czech Republic     | 7.32        | 7.28        |
| Hungary            | 6           | 5.29        |
| Slovakia           | 5.42        | 4.19        |
| Austria            | 5.23        | 5.22        |
| France             | 3.21        | 3.04        |
| Bulgaria           | 2.76        | 2.53        |
| Greece             | 2.63        | 2.5         |
| Romania            | 1.19        | 2.17        |
| Serbia             | 1.16        | 0.74        |
| Slovenia           | 0.54        | 0.5         |
| Switzerland        | 0.37        | 0.3         |
| Bosnia-Herzegovina | 0.19        | 0.26        |
| Macedonia          | 0.04        | 0.08        |
| <b>Total</b>       | <b>86.1</b> | <b>84.2</b> |

Sources: Gazpromexport, Ukrtransgaz, Argus estimates in Argus FSU, 27 February 2014, Defensive measures, p.3

<sup>19</sup> In 2013, Russian gas imports as a proportion of European gas demand were 31%, substantially higher than its level in recent years (26% in 2009, 22% in 2010, 26% in 2011 and 25% in 2012). The increase in Russia's share was due in part to a shift in pricing policy that enabled Gazprom to reverse a decline in the volume of its sales since the 2008-09 economic crisis.

<sup>20</sup> See papers mentioned in note 8 above.





As a result, the European region countries most exposed to a cessation of Russian supply through Ukraine are those of South Eastern Europe which rely on Russian gas for essentially all import requirements in a 'business as usual' mode. On the other hand, these countries are in a somewhat better position compared to previous crises due to investments in new interconnectors and the adaptation of existing pipelines able to work in a reverse-flow mode,<sup>21</sup> typically from the Nord Stream pipeline in Germany down to Eastern Europe.

Nord Stream deliveries can be increased and if gas is shipped via Czech Republic and Slovakia to the Baumgarten hub in Austria, it could at least partly offset any cuts in supply from Ukraine and with other links to the South, potentially provide additional supply down to Hungary and the former Yugoslavian countries.<sup>22</sup>

Italy, the third largest gas market in Europe, has additional import options and Russian gas only accounted for 20% of its supply in 2012 (see Table 3 below): it could increase its imports from North West Europe via the Transiting pipeline, which has been running below full capacity, and could transport an additional 50 mcm/day (mcm/d) of gas (as of the second half of February). It could also import additional LNG volumes at its three terminals and/or increase the volumes of pipeline gas from North Africa (especially from Algeria as Transmed levels were much lower than maximum capacity in the second half of February, although this option would depend on its contractual and delivery flexibility and on additional volumes being available for exports).<sup>23</sup>

Turkey, especially the western part, could be affected if the flow of Russian gas through Ukraine were disrupted given the tight supply of the market and the limited ability of the transmission network to cope with imbalances.<sup>24</sup> Again this could be at least partially mitigated by increased LNG imports.

The level of gas demand in Europe remains low compared with the mid 2000s – in 2012, 8% below levels prior to the economic crisis of 2008-09, and in 2013, an estimated 10% lower – as a consequence of continuing economic stagnation, an increased renewables presence in power generation and the relative unattractive economics of gas-fired generation compared to coal in existing generation portfolios. This winter has been the mildest in Europe since 2007, which has further reduced the level of demand for both power generation and heating. With the peak winter

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<sup>21</sup> The number of interconnectors under construction or planned has increased more rapidly after the 2009 crisis, in order to improve security via better regional integration and diversification of supply options and routes. The North-South Interconnections in Central and South Eastern Europe ("North-South East") have been identified among the 12 priority corridors of the EU Energy Infrastructure Package [Regulation no.347/2013 of the European Parliament and of the Council on 17 April 2013] Security of supply and promote market integration through diversification of sources and routes to connect gas supply sources of the Baltic, Adriatic and Black Seas.

<sup>22</sup> Opal was operating at less than 50% of capacity on the week before the situation escalated in the Crimea on 1-2 March, and was still at this level by Monday 3 March. As a result, the pipeline could transport an additional 50 mcm/day of gas, although this would break arrangements under the EU's third package of energy reforms. There appears to be limited capacity at the end point of OPAL near Brandov (Czech republic) on the German-Czech border, but flows could be redirected through Czech Republic, Slovakia and Austria then down to Italy. Sources: "Ukrainian gas transit continues despite crisis", *Argus FSU*, 25 February 2014, and OPAL website: <http://www.opal-gastransport.de/home.html?&L=1>

<sup>23</sup> "Ukrainian gas transit continues despite crisis", *Argus FSU*, 25 February 2014. On the Italian gas market, see A. Honore, *The Italian Gas Market: challenges and opportunities* (OIES, June 2013).

<sup>24</sup> "Turkey not expecting Ukrainian supply issues", *Platts European Gas Daily*, 5 March 2014, p.3.

demand essentially over,<sup>25</sup> there was a high level of gas storage inventory at the beginning of March across Europe,<sup>26</sup> with the notable exception of Baumgarten.

Table 3 shows annual gas demand<sup>27</sup> for selected countries for which data is available, the gas supplied from Russia via pipeline, demand for March 2012<sup>28</sup> and their storage inventories (for countries which have storage and report data to Gas Infrastructure Europe (GIE)) on 3 March 2014.

**Table 3: South East Europe, Demand, Russian Supply, Storage Inventory and Cover**

|                  | 2012 Demand (mcm) | 2012 Russia Supply (mcm) | March 2012 Demand (mcm) |  | Storage at 3/03/2014 | Days cover (estimate) |
|------------------|-------------------|--------------------------|-------------------------|--|----------------------|-----------------------|
| Bulgaria         | 2724              | 2700                     | 279                     |  | 391                  | 44                    |
| Czech Republic   | 8188              | 6588                     | 818                     |  | 1006                 | 47                    |
| Greece           | 4190              | 2262                     | 433                     |  | -                    | -                     |
| Hungary          | 9746              | 4787                     | 1007                    |  | 1339                 | 84                    |
| Romania          | 13481             | 6000                     | 1319                    |  | -                    | -                     |
| Slovakia         | 5984              | 3792                     | 644                     |  | 1185                 | 90                    |
| <b>Aggregate</b> | <b>44313</b>      | <b>26129</b>             | <b>4500</b>             |  | <b>3921</b>          | <b>46</b>             |
| Italy            | 68680             | 13647                    | 6553                    |  | 8474                 | 202                   |

Sources: BP Statistical review of World Energy, IEA, GIE

Greece and Romania are exposed in that they have no reported storage (although Greece could alleviate its situation via increased LNG supply, albeit at prices comparable with Asian spot price levels). Bulgaria and the Czech Republic each have in excess of 40 days cover (i.e. using remaining storage inventory in lieu of Russian gas imports). Hungary and Slovakia have in excess of 80 days cover. If these countries were to pool their storage buffer in aggregate they would have some 46 days of cover. With storage inventories of 6.6 billion cubic metres (bcm), Italy's cover would see it easily into the summer season.<sup>29</sup> However, in 2009, the most severe consequences of the interruption were in non-EU countries such as Serbia and Bosnia-Herzegovina.

As of 4 March, there has been no reduction in Russian gas flow via Ukraine, but in the event of a disruption, it would seem that Europe would be able to balance its needs from additional imports, use of storage and interconnections and with Russia able to use alternative routes to offset at least part of the volumes lost. Nonetheless, the market can still react to perceived threats of limited supply, as

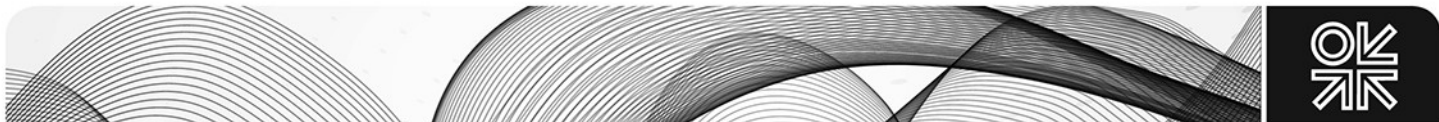
<sup>25</sup> Europe is forecast to experience higher than average temperatures in March-May in most countries (except maybe on the Iberian peninsula, where no Russian gas is consumed) according to Weather Services International. See "Above normal temperatures for spring: WSI", *Platts European Gas Daily*, 27 February 2014, p.7

<sup>26</sup> UK storage is 55% full (21% last year), Germany 60% (41% last year), Italy 51% (48% last year).

<sup>27</sup> The most recent annual demand figures available are those for 2012.

<sup>28</sup> March 2013 was abnormally cold.

<sup>29</sup> The potential restriction on the maximum withdrawal could be removed by the regulator, in order to not put too much pressure on the market with tight supplies.



seen on Monday 3 March following the escalation of the situation in Crimea at the weekend (1-2 March). Hub prices rose despite no specific supply problems, congestion problems, mild weather and high levels in storage. The psychological reaction led to a sharp surge in gas prices all over Europe – even in countries that would not be directly affected by a supply cut – as traders pondered the impact of a reduction of Russian gas transits through Ukraine to Europe.<sup>30</sup> The overreaction was corrected on 4 March (more than 5% decline in the NBP and TTF<sup>31</sup>).

In the event of a prolonged interruption, gas storage withdrawals would be used, but gas prices could also rise for a longer period in countries needing to attract additional LNG imports (e.g. Italy) if pipeline interconnection bottlenecks restricted flows from the more liquid and well supplied North Western European continental hubs.

In the power sector, albeit with renewables already running at maximum availability and relative fuel prices favouring coal over gas, there may be some ability to further to reduce power sector gas consumption by increasing coal fired generation load factors. Even in countries experiencing high gas prices as a result of supply restrictions it is questionable whether significant oil-fired generation still exists in a reliable “stand-by” state of readiness.

Even if, as is to be hoped, the political tensions in Ukraine do not lead to a physical restriction of European gas supply, once again, through semi-informed media commentary, the perception of gas as an “unreliable” energy source has already been heightened. Such a perception will persist until significant alternative supplies (especially US LNG exports, starting in 2016 but only at scale from 2018 onwards<sup>32</sup>) begin to change Europe’s gas supply dynamic. However the long term reliance of Europe on Russia for a significant portion (between 20% and 30%) of its requirements will not change for the foreseeable future.

## The potential impact on Gazprom and Russia

Gazprom exported 86.1bcm of gas through Ukraine in 2013, at an average price in Europe of \$387/mcm,<sup>33</sup> implying an exposure to export revenues of \$33.3bn. As Gazprom exported a total of 162.7 bcm in 2013, this means that 53% of sales to Europe went through Ukraine. Sberbank estimates that Gazprom generated \$162 billion of total revenues in 2013,<sup>34</sup> meaning that gas exports to Europe as a whole accounted for 39% of this and exports through Ukraine for around 20%. Gazprom’s overall reliance on gas exports has been reduced over the past decade as the company has diversified into oil (via GazpromNeft), power generation and other related businesses. Nevertheless, the company would clearly be hit very hard by any interruption to its European exports

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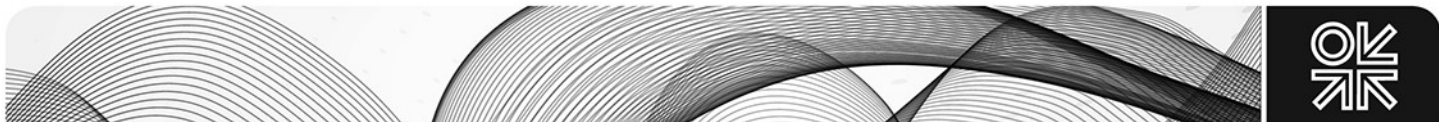
<sup>30</sup> On Monday 3 March, UK NBP day-ahead gas rose to 61.20 pence/therm (p/th) (+4.65 p/th from Friday), Belgium’s Zeebrugge to 59.70 p/th (+4.5p/th), Dutch TTF to 24.50 €/MWh (+€1.80/MWh), German NetConnect to €24.75/MWh (+€1.75MWh) and GASPOOL to €24.60/MWh (+€1.80/MWh), French PEG Nord to €25/MWh (+Eur2.2/MWh), Italian PSV €25.60/MWh (+€1.60/MWh). *Platts European Gas Daily*, 4 March 2014, pp.8-10

<sup>31</sup> “European gas falls most in 11 months as Russia halts drills”, Bloomberg, 4 March 2014.

<sup>32</sup> US LNG exports will not necessarily come directly to Europe but, along with other new LNG projects, they will add to global LNG supply thus allowing Europe to increase its imports.

<sup>33</sup> Gazprom presentation to investors, 3 March 2014, slide 22.

<sup>34</sup> Sberbank, *Russian Oil and Gas: Two Weddings and a Funeral* (February 2014), p. 66.



via Ukraine, in particular in the long term if European customers decide to redouble efforts to diversify away from Russian gas to alternative sources of supply or alternative fuels.

Gazprom's revenues could also be impacted by a cessation or decrease in gas sales direct to Ukraine, one of its largest export markets. Russian gas revenues from sales to Ukraine in 2013 are estimated at \$10.7 billion (assuming a volume of 25.8 bcm and a price of \$414/mcm). In 2014, had the Putin-Yanukovich deal of December remained in place, Russia could have anticipated sales of 35 bcm at a price of \$268.50/mcm, implying revenues of \$9.4 billion.<sup>35</sup> As the price is now set to rise, these revenues should increase, but it remains to be seen how volumes will react. They will probably fall back to 2013 levels, due to the price increase and renewed efforts by Ukraine to diversify its sources of supply. In any case, revenues of approximately \$10 billion from Ukraine account for approximately 6% of Gazprom's total revenues. These would clearly be at short-term risk if the pipeline became inoperative; they are also now likely to be at long-term risk of significant decline, as Ukraine rekindles the concept of buying gas via "reverse flow" from Europe.

The impact on the Russian budget of a cut in gas flows, or of any sanctions regarding gas, would be more limited than the impact on Gazprom. In the hydrocarbon sector, oil is a far more important revenue generator for the country. The gas export tax accounts for only 2% of budget revenues (RR434 billion in the first nine months of 2012 and RR342 billion in the first nine months of 2013).<sup>36</sup> Nevertheless, given the precarious state of the Russian economy, and the fact that the budget only balances at an oil price of \$115/bbl (although this may now have fallen, due to the rouble devaluation), any loss of budget revenues is serious. Russia's balance of payments would also suffer as gas accounts for around 14% of the country's gross export sales (although again this is relatively small compared to more than 50% of the total contributed by oil and oil products). The Russian state finances would also certainly lose out due to lower receipts of profit tax from Gazprom in the event of an interruption to export sales, and could also be expected to receive lower dividends on the assumption that profits would be reduced. However, the exact extent of these potential losses are unquantifiable until the extent of any possible interruption is known.

One small financial benefit of an interruption would be a reduction in the cost of Ukrainian gas transit fees. The fee was around \$3.05/mcm/100km in 2013; and with a volume of 86 bcm and a distance of 1160 km Ukrainian transit fees may be estimated at \$3.0-3.1 billion in 2013.<sup>37</sup> However as a result of a previous agreement with Naftogaz, Gazprom has prepaid transit fees up until the end of 2015, and would clearly be unlikely to recover any of this money in the event of a continuing political dispute. Furthermore, the gain on any reduction of transit fees would clearly be dwarfed by the loss of export revenues, underlining again the lack of incentive for Russia to instigate any pipeline interruption.

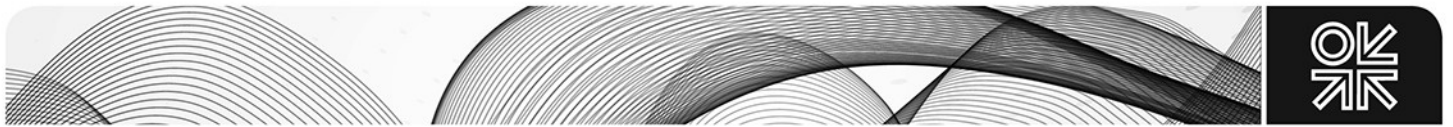
In a worst case scenario in which the pipeline through Ukraine did become unavailable, Gazprom has a strategy to divert gas, as spelled out by Alexander Medvedev, CEO of Gazprom Export, on 3 March at a Gazprom Investor meeting. Essentially 55 bcm could go through Nord Stream, 33 bcm through Yamal Europe and 16 bcm through the Blue Stream pipeline (from Russia to Turkey southwards across the Black Sea), for a total of 104 bcm of capacity. Obviously this is not sufficient to remove

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<sup>35</sup> "Gazprom slashes gas price for Ukraine by third, looks for new model of relations", *Interfax*, 18 December 2013.

<sup>36</sup> T. Mitrova, Chapter 1, in J. Henderson and S. Pirani (eds.), *The Russian Gas Matrix* (forthcoming 2014)

<sup>37</sup> In the first half of 2013 the transit tariff was \$3.08/mcm/100km, in the third quarter of 2013 – \$3.04, and in the fourth quarter – \$3.03. "Naftogaz pays Gazprom \$1.28 bn for 2013, \$191 mn for Jan gas", *Interfax CIS Oil & Gas Weekly*, 13-19 February, 2014



Ukraine from the equation completely, as, on the assumption that Russian gas sales to Europe in 2014 could be 155 bcm (the most recent Gazprom estimate), this would leave 51 bcm to flow along the Ukrainian gas corridor.<sup>38</sup>

Gazprom was in any case planning to adopt a similar diversification strategy in 2014, with the aim of increasing flows through Nord Stream and reducing the flow through Ukraine from 86 bcm to around 60 bcm, but it is clear that Ukraine cannot be replaced completely in the event of any pipeline interruption in 2014. However, it is also obvious that the construction of South Stream at its full 63 bcm capacity would be sufficient to divert all Russian exports to Europe away from Ukraine, although not until 2020 (see The longer term: potential impact on European transit security, below).

**A note on oil exports.** Ukraine transited 15.58 million tonnes (mt) of Russian crude through the Druzhba pipeline in 2013 (approximately 313 thousand barrels per day (kbpd)), but this only accounted for 8% of Russia's total crude exports last year.<sup>39</sup> In 2014 the plan is to transit 15mt of crude and to supply 4.1mt to Ukrainian refineries, although the latter figure must be in doubt due to political and commercial uncertainty. However, most of Ukraine's oil imports come in the form of petroleum products, and they arrive from a variety of sources.<sup>40</sup> Argus Media has reported that supplies of products from Russia into Ukraine are continuing as normal in March 2014, both for supply to Ukrainian refineries and also for onward export via Ukrainian ports, including Sevastopol, and again it would seem clear that Russia has little current incentive to catalyse any interruption to these commercial activities.

**Wider economic impact.** In addition to the specific impacts on the gas sector, and on oil exports, mentioned, Russia is also feeling a broader economic effect of the Ukraine crisis that could ultimately feed back into the oil and gas sectors. The RTS stock market index fell 7% in the first week of March, and 11% over 2014 as a whole. The rouble is now at a record low level against the dollar.<sup>41</sup> In the face of the currency devaluation the Central Bank has been forced to raise interest rates by 150 basis points, and is also estimated to have spent more than \$10 billion defending the level of the rouble in the aftermath of the crisis. All of these effects will have a further dampening impact on a Russian economy that has slowed dramatically in the past 12 months and is now widely expected to go into recession during 2014. Lower, or even declining, economic growth will impact energy demand and therefore Gazprom's ability to generate domestic gas sales, and although a weaker rouble should help the company in the short term as most of its revenues are in dollars while its costs are largely in roubles, over the long term this benefit could well be undermined by higher interest rates and rising inflation.

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<sup>38</sup> The figures presented do not appear to take account of 5 bcm/year of gas that is exported to Finland. If they do not, then the amount that would be left to flow through Ukraine would be 46 bcm, not 51 bcm.

<sup>39</sup> "Ukraine increases oil transit to Europe by 7% in 2013", Interfax, 29 January 2014.

<sup>40</sup> Oil imports were 54mt in 2013, with \$2.7bn worth coming from Belarus, \$1.9bn from Russia, \$0.8bn from Lithuania and \$1.5bn from other sources. "Ukraine cuts petroleum product imports by 14% in 2013", Interfax, 28 January 2014.

<sup>41</sup> "Russia paying price for Ukraine crisis", CNN, 6 March 2014.

## Supply to the Ukrainian market: what has changed

In addition to transporting Russian gas to Europe, Ukraine consumes substantial quantities of Russian gas itself. It is highly dependent on gas and until 2011 it was Russia's largest export market. Although Ukraine also has nuclear power and coal, which both make a larger contribution to producing electricity than gas does, industry and municipal infrastructure are highly dependent on gas. While efforts to diversify away from gas have begun, and gas consumption has fallen in recent years, further reductions will not be made easily or quickly.

Given the rapid deterioration of Ukraine's relationship with Russia, the indebtedness of Naftogaz, and the long history of disputes over gas between the two sides, supply interruptions to Ukrainian customers are much more likely than interruptions to customers elsewhere.

Broadly speaking, it may be assumed that Ukraine's consumption requirement in 2014 will be around 50 bcm, and its own production of gas will be about 20 bcm. With an import requirement of about 30 bcm, the potential of alternative sources of supply, alternative trading arrangements and the use of gas from storage are as follows.

**Alternative sources of supply.** In 2012-13 Ukraine opened up an alternative source of gas imports for the first time: "reverse flow" deliveries from Poland and Hungary. (So called because gas flows in the opposite direction to the large volumes flowing from Russia westwards to European markets.) A total of 2.1 bcm of gas was delivered via these routes in 2013, mostly sold by RWE Supply & Trading either to Naftogaz or to Ukrainian gas traders. While "reverse flow" deliveries could not be expanded substantially along these routes because there is no pipeline capacity to do so, much larger volumes could be delivered to Ukraine either (i) via Slovakia, using large-diameter pipes that are no longer fully utilised due to the reduction in the volumes of transit of Russian gas westwards; or (ii) by means of "virtual reverse flow", where the gas is purchased from Gazprom by European offtakers not at the usual delivery points on the European border but within Ukraine. (Neither of these options would work if physical flows of Russian gas were halted, of course.)

The expansion of "reverse flow", by opening up a Slovakian route, was under discussion by the European Commission, the Slovakian gas transport company Eustream, and Naftogaz, during 2013. The pipeline capacity between Slovakia and Ukraine could make possible 10 bcm/year of "reverse flow" deliveries, i.e. about one third of Ukraine's total import requirement. A memorandum of understanding between Eustream and Ukrtransgaz providing for "reverse flow" arrangements had been drafted and prepared in December 2013.<sup>42</sup> But discussions on the subject were effectively halted by the 17 December Putin-Yanukovich agreement. The substantial discount on import prices undercut the "reverse flow" trade, and deliveries from Poland and Hungary halted on 31 December.

It is this discount that Gazprom is now set to withdraw in the second quarter (see Possible Ukrainian triggers for supply disruptions, above). This action will presumably again make "reverse flow" economically logical from Naftogaz's point of view, and has acted as a catalyst for a resumption of negotiations with Slovakia.

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<sup>42</sup> "Eduard Stavitskii: platezhi za gaz so storony TKE pochni ostanovleny", *Kommersant-Ukrainy*, 25 February 2014.

The EC is pressing the issue. On 5 March, EC president Jose Manuel Barroso said that the commission sought to “operationalise” “reverse flow” via Slovakia as soon as possible, and that it was ready to “facilitate” the deal between Eustream and Ukrtransgaz.<sup>43</sup> However, political and commercial logic may be at odds: while politically the EC is anxious to support Ukraine, gas trading companies will need to be found who are prepared to take Ukrainian payment risk previously borne by Gazprom.

**Alternative trading arrangements.** Assuming that Russia hopes to continue exporting gas to Ukraine, it may be that the problem of Naftogaz’s indebtedness could be solved, or avoided, by developing alternative trading arrangements. Naftogaz’s import monopoly has been eroded in recent years, and its legal import monopoly abolished. In 2013 half of the gas imported from Russia (12.9 bcm of 25.8 bcm) was bought by Ostchem Holding, a private trader. New arrangements involving private traders could emerge following the change of government.

**Gas from storage.** As of 20 February, the energy ministry reported that there was 11.5 bcm of gas in storage in Ukraine. This is lower than average for this time of year, but not substantially so.<sup>44</sup> This gas would only be considered as available for consumption in the coming months in a case of extreme need. In the past, storage levels have reached their minima in March, and gas is then pumped into storage in preparation for the next heating season. During discussions of this issue last year, Gazprom CEO Alexei Miller said that storage levels need to be brought to at least 19 bcm by mid October. In recent years the level of storage in mid October has fallen (from 31 bcm in 2008 to 20 bcm in 2012, according to an analyst’s estimates). The implication of Miller’s statement, confirmed in broad outlines by industry sources, is that it cannot practically fall much further.<sup>45</sup>

**Consumption and payment issues.** Ukraine’s gas consumption has fallen steeply in recent years, from 65-75 bcm/year in the mid 2000s to 54.8 bcm in 2012 and 50.3 bcm in 2013. There are, broadly speaking, four types of consumers: (i) industry and power sector consumers (23.8 bcm in 2012) who buy gas at import prices plus traders’ margins; (ii) residential and public sector consumers (19.2 bcm in 2012), who buy Ukrainian gas, produced by Naftogaz’s upstream subsidiaries, at comparatively low regulated prices; (iii) district heating companies (8.8 bcm in 2012), who buy imported gas sold to them by Naftogaz at low regulated prices, i.e. at a loss; and (iv) technical use and other (4 bcm). Naftogaz’s losses have been concentrated in the district heating sector for many years, and this problem has been exacerbated during the recent political crisis. Local governments, which own most of the district heating companies, have failed to remit payments to Kyiv. On 17 February Naftogaz stated its debts outstanding from district heating companies as 23.5 billion hryvna.<sup>46</sup> This is a direct means by which the political crisis impacts on gas sector cash flows.

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<sup>43</sup> “EC to help Ukraine received gas from EU”, *Platts European Gas Daily*, 6 March 2014.

<sup>44</sup> “Zapasy gaza v PKhG Ukrainy sostavliaiut 11.5 mlrd kub m”, *Interfax Ukraina*, 21 February 2014. An OIES study estimated that February storage levels were 9.9 bcm in 2006, 14.7 bcm in 2007, 16.4 bcm in 2008, 15.1 bcm in 2009 and 11.2 bcm in 2010. Pirani, Stern and Yafimava, *The April 2010 Russo-Ukrainian gas agreement*, op. cit.

<sup>45</sup> “Ukraine sees nothing illegal in gas supplies from EU”, *Interfax Russia & CIS Oil and Gas Weekly*, 3 July 2013; Dmitrii Marunich, “Dvoe v lodke, ne schitaia Evropy”, *Ekspert*, 8 July 2013

<sup>46</sup> \$2.5 billion at exchange rate of 7 March, 9.4 hryvna to the dollar.

## Implications for gas production and trading in Ukraine

There are four discernible impacts on the corporate make-up of the energy sector that are resulting, or may result, from the change of government in Kyiv and Russia's military action in Crimea.

1. Along with the appointment of a new energy minister, Yuri Prodan, it seems inevitable that the management of Naftogaz will be changed. A more significant issue is whether Naftogaz will now be broken up in accounting terms (as the IMF has long recommended), and/or whether parts of it will be privatised, as the interim prime minister, Arseniy Yatseniuk, has publicly suggested.

2. The crisis in Crimea is causing problems for IOCs looking to develop gas prospects in Ukraine. In the first week of March, ExxonMobil said that it is putting its plans to develop the Skifske field in the Black Sea – where it is operator of a consortium with Royal Dutch Shell and others that has negotiated, but not yet signed, a PSA – on hold due to the events in Crimea.<sup>47</sup> The change of government may also impact negatively on IOCs' plans to develop onshore shale resources. The new minister of environment and natural resources, Andriy Mokhnik of Svoboda, the right-wing populist party, has been a consistent campaigner against shale gas development. It is possible that political challenges may be made to Shell's Yuzivska project, where it is exploring for shale gas and tight gas, and to Chevron, which has signed a PSA for shale gas exploration in western Ukraine.

3. Businesses controlled by close associates of the deposed president Yanukovich have exited the gas sector. The notable example is Vetek, controlled by Sergei Kurchenko, which was trading 1-2 bcm of gas and was a key player in the LPG market.

4. The situation in Crimea directly affects Chernomorneftegaz, Naftogaz Ukrainy's wholly-owned offshore production subsidiary, which produces about 1 bcm/year of gas. Following the change of government in Kyiv, and the change of local government in Crimea, both sides have laid claim to Chernomorneftegaz. On 3 March interim Ukrainian prime minister Yatseniuk said that the government hoped to privatise it, along with other Naftogaz assets. On 4 March, it was reported that the Crimean prime minister Sergei Aksyonov had dismissed Chernomorneftegaz CEO Sergei Golovin and appointed Andrei Ilyin, formerly a manager at the Crimean energy generation company, in his place.<sup>48</sup> Naftogaz in Kyiv stated that this was an illegal appointment, since Chernomorneftegaz is its 100% owned subsidiary.

## The longer term: potential impact on European transit security

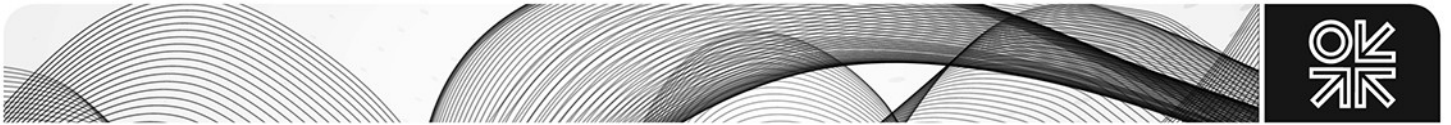
It has been shown above that the impact of (even total) cessation of gas flows across Ukraine on European countries will be limited, due to the end of winter, the re-routing of supplies and the use of interconnections. However, unless a lasting solution is found to Ukraine's own supply problems, and

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<sup>47</sup> Reuters, "Ukraine's Black Sea gas ambitions seen at risk over Crimea", 7 March 2014

<sup>48</sup> "Kabmin rassmatrivaet privatizatsiiu Naftogaza Ukrainy", Interfax Ukraine, 3 March 2014; "V Krimu naznacheni novyi rukovoditel' Chernomorneftegaza", *Den'*, 4 March 2014.





Ukraine's storage facilities are filled in time for the winter of 2014-15, consequences for many European countries could be much more significant.

In terms of supplies of Russian gas to Europe, the current situation strengthens the rationale for the South Stream pipeline, which would bring Russian gas across the Black Sea to Bulgaria. It would serve the same region, south east Europe, which currently receives all/most of its Russian gas imports via the Ukraine/Moldova corridor and hence stands to be most affected should any potential loss of flows occur. The total planned capacity of South Stream is 63 bcm, to be built in four strings of 16 bcm each; the first string scheduled to become operational in late 2015. Should all four lines be built, Gazprom would be able to stop transporting any gas across Ukraine by 2020 (assuming that its exports to Europe remain at 2013 levels).

It is worth referring to how the various actors responded to the January 2009 gas dispute between Russia and Ukraine, when gas supplies to Europe were suspended for two weeks. In terms of the legal framework for the gas trade, although the 2009 crisis was an unprecedented gas security event, which demonstrated the ultimate failure of all existing (bilateral and multilateral) instruments to ensure European transit security, no new instrument was put in place to ensure that a similar crisis would not happen again.<sup>49</sup> Neither the independent flows monitoring mission nor the consortium to own and operate the Ukrainian network have materialised. The 2009 crisis effectively spelled an end to the very concept of transit and made Gazprom redouble its efforts in construction of new transit avoidance infrastructure – the Nord Stream pipeline, and, potentially, South Stream.

This infrastructure has made Europe more resilient to potential interruptions to gas transit across Ukraine, as Alexander Medvedev's statement on how flows could be re-routed emphasised (see The potential impact on Gazprom and Russia, above). However, the Ukrainian corridor could not be replaced completely, and some 50 bcm would be required to flow through Ukraine in 2014.

A regulatory problem remains, however. Gazprom might not be able to book and utilise full capacity in the onshore extensions of both Nord Stream and South Stream, as the EU Third Package for Gas requires *inter alia* regulated third party access (TPA), unless an exemption is granted.<sup>50</sup> For example, transportation of the aforementioned 55 bcm through Nord Stream would only be possible if the European Commission (EC) were to uphold the German regulator's (BNetzA) exemption decision for the OPAL pipeline (one of Nord Stream onshore extensions) made in late 2013, effectively allowing Gazprom to use 100% of its 36 bcm capacity unless wanted by any third party.<sup>51</sup>

This is an amended exemption decision by BNetzA, as the EC had capped the original one at 50%. This led to a situation where Gazprom has only been able to use one half of OPAL capacity, despite the lack of interest in the remaining capacity from third parties. The EC was expected to decide on the approval of the amended exemption decision in late January-early February 2014 but has not done so at the time of writing.<sup>52</sup> However, given the uncertainty around Ukraine, it would be difficult for the EC

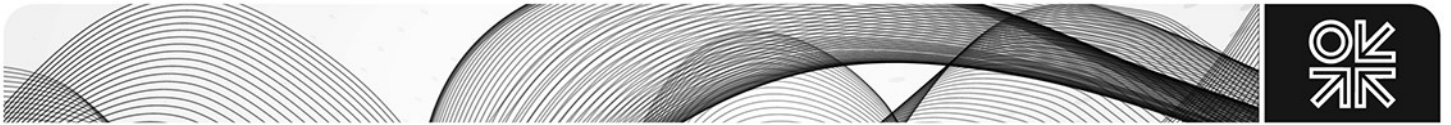
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<sup>49</sup> Yafimava, *The Transit Dimension of EU Energy Security*, op. cit.

<sup>50</sup> K. Yafimava, *The EU Third Package for Gas and the Gas Target Model: major contentious issues inside and outside the EU* (OIES working paper, 2013).

<sup>51</sup> Available on the BNetzA website (in German), [http://www.bundesnetzagentur.de/cln\\_1911/DE/Service-Funktionen/Beschlusskammern/1BK-Geschaeftszeichen-Datenbank/BK7-GZ/2008/2008\\_001bis100/BK7-08-009\\_BKV/Ver%C3%B6ffentlichung\\_Aktuelles.html](http://www.bundesnetzagentur.de/cln_1911/DE/Service-Funktionen/Beschlusskammern/1BK-Geschaeftszeichen-Datenbank/BK7-GZ/2008/2008_001bis100/BK7-08-009_BKV/Ver%C3%B6ffentlichung_Aktuelles.html)

<sup>52</sup> "European Commission to finalize OPAL exemptions from Third Energy Package by early Feb", Interfax, 17 January 2014.



not to approve the exemption as its approval would allow more gas to be transported through Nord Stream in the event of a transit crisis.

The onshore extensions of South Stream will face the same regulatory challenges as faced hitherto by Nord Stream. In December 2013 the EC announced that the intergovernmental agreements (IGAs) concluded between the Russian government and the governments of countries which territories South Stream is to cross, are not in line with the Third Package, and suggested that these need either to be amended in line with the Third Package or renounced. At the same time, the EC has encouraged South Stream to apply for an exemption from the Third Package. So far South Stream has not applied for an exemption and, despite apparently undermining its case by taking FID on the project, has been assured by the EU that this option will be available until capacity in the line has to be auctioned (in line with the CAM network code).<sup>53</sup>

Notably the Third Package *in its current form* is mostly concerned with regulatory procedures in respect of existing capacity, while any legally-binding regulatory procedure for construction and utilisation of new capacity is absent and is currently under development; it is expected to be finalised in 2016-17.<sup>54</sup>

The current crisis could produce one of two opposite outcomes for EU-Russia gas relations. A commercially logical outcome would be that the uncertainty surrounding Ukraine would be a decisive factor contributing towards speeding up the development of regulatory procedures (as part of the Third Package and without the need for an exemption) enabling construction and utilisation of new cross-border pipeline capacity in Europe. This would ensure that South Stream would be built on schedule, with the first string becoming operational in late 2015, and used for diversification of transit flows away from Ukraine, thus strengthening European transit security.

However, there is a strong possibility of the opposite outcome, i.e. a reduction of EU-Russia cooperation on gas issues, and about the routes by which gas can be brought into Europe. This could happen if European politicians believe that continuing cooperation might be perceived as: giving Russia something that it wants (despite the fact that Europe itself needs, although might not necessarily want, Russian gas); increasing Europe's dependence on Russian gas (despite the fact that South Stream does not necessarily mean increased dependence on Russian gas if largely used for re-routing of existing flows); and allowing Russia to isolate Ukraine (despite the fact that for more than 20 years there have been sporadic Russian and European attempts to create a consortium for joint ownership and operation of the Ukrainian gas network, and these have failed).

The latter outcome could have very substantial economic costs for both Europe and Russia given their interdependence in the gas sector (see the next section). It would indicate that the military and political crisis over Crimea and the change of Ukrainian government had catalysed an additional crisis in EU-Russia relations, in the gas sphere. It would also indicate that political priorities had prevailed over a more economically rational solution.

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<sup>53</sup> "EC: Russia should apply for South Stream exemption", *Natural Gas Europe*, 7 December 2013.

<sup>54</sup> K. Yafimava, *Building New Gas Transportation Infrastructure in the EU – what are the 'rules of the game'?* (OIES working paper, 2014 forthcoming).

## The longer term: Europe facing supply diversification and/or transit diversification

For Russian gas, the most significant effect of this crisis is most likely to be felt over the longer term: the perception of Russia as a secure source of gas supply is very likely to be undermined in Europe and the FSU, and possibly even in Asia. Gazprom and the Russian government are clearly aware of the potential for European consumers to redouble their efforts to diversify away from Russian gas imports towards alternative sources of supply or alternative sources of energy.

It has been argued above that the most likely source of a supply disruption is Ukrainian inability to pay gas debts. This led on 7 March to Gazprom warning that it could halt sales to Ukrainian buyers, as soon as the beginning of April if payment is not made. Ukraine might then retaliate by interfering with transit flows, leading to a reduction or complete cessation of gas flows meant for Europe. Russian politicians and gas industry managers understand what the PR effect of this would be, having seen a similar situation in 2009 result in them being blamed for the interruption of supplies to Europe, despite the fact that much of the fault lay on the Ukrainian side.<sup>55</sup> There is little doubt about how blame would be apportioned in 2014, in European political and business circles.

These issues of reputation have clearly been borne in mind during the crisis both by the Russian government and Gazprom; on the other hand, Alexei Miller's statement on 7 March, the danger of a 2009-type dispute, suggests that the importance of maintaining flows to Europe is being considered together with the serious revenue issue posed by Naftogaz debts – and that both these commercial questions are balanced alongside political and strategic issues.

From the European standpoint, a question remains about what can be achieved in terms of gas or other energy diversification and over what time frame. Russia supplied 30% of Europe's gas in 2013, and this reliance would be very difficult to cut in the current tight gas market, where LNG is being diverted to take advantage of higher prices in Asia.

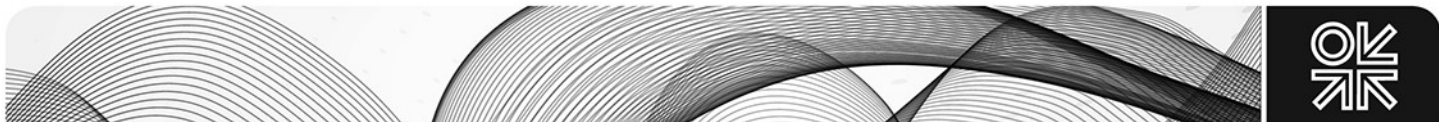
The only realistic short term option would be for European customers to compete with these high prices to bring LNG back and displace Russian gas, but this could be difficult in the current economic environment and would probably have a rather limited volume impact. In the longer term European customers could look to sign up alternative sources of supply, with perhaps the most obvious being US LNG exports from 2015/16, although again it would have to compete on price with other global consumers.

A switch away from Russian gas to renewables is another option but would also have cost implications brought on by the likely level of subsidies needed to encourage renewable energy development. This would be unlikely to provide any significant short-term change in the energy mix in Europe.

An alternative near term solution could be a switch to coal, but this would bring potential environmental concerns with implications for the likelihood of Europe meeting its emissions targets.

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<sup>55</sup> Pirani, Stern and Yafimava, *The Russo-Ukrainian gas dispute of January 2009*, op. cit.



As a result, although the political fall-out from the current crisis might be a call for diversification away from Russian gas, Europe's alternatives of LNG supplies, more renewables and more coal all involve complex issues and may impose additional financial and environmental costs.

## Summary and Conclusions

There have been no indications that Russia would cut off supplies to Europe, or that Ukraine would block supplies of Russian gas to Europe, or that EU countries that have criticised Russia's actions in Crimea would impose sanctions in the gas sector. The use of gas as a political or strategic "weapon" seems unlikely, in other words. (The escalation of military conflict outside the Crimean peninsula, with possible consequences for physical attacks on, or closures of, pipelines, is sufficiently unlikely that we have not discussed it in this paper.) The most likely source of supply disruptions is the serious indebtedness of Naftogaz Ukrainy, which, despite clearing some of its \$3.3 billion debt to Gazprom in late February, as of 7 March was in arrears to Gazprom by a sum of just under \$2 billion.

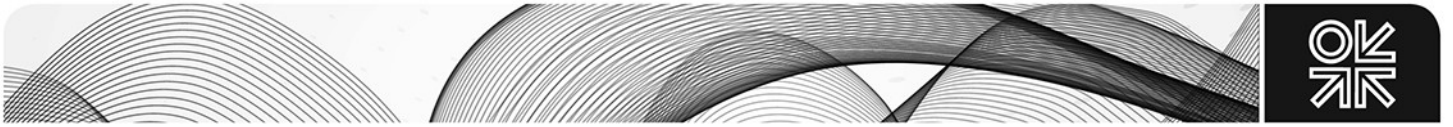
In numerous previous Russo-Ukrainian gas disputes, such a build-up of debt has led to Gazprom cutting off deliveries to Ukrainian customers. Naftogaz has then diverted gas in transit to consumption in Ukraine. This led in January 2009, in the most serious gas dispute, to all westward deliveries of Russian gas, both to EU and Ukrainian destinations, being suspended for two weeks.

Such a dispute now seems possible, even likely, (i) because the political and strategic dispute between Russia and Ukraine is so serious, and political tensions so high, that the possibilities of reaching a negotiated settlement of the financial issues are limited, and (ii) because Naftogaz's indebtedness is chronic, and is part of a larger problem – that of Ukrainian state indebtedness.

If gas deliveries through Ukraine are halted, the greatest impact will be on south east Europe, in particular Bulgaria, Romania and the former Yugoslavian countries, which have only limited access to gas from alternative routes. Eastern European countries including Hungary, Slovakia and the Czech Republic would be affected. A long interruption of supplies would affect Italy, the third largest gas market in Europe. The impact would be less serious than in 2009, because (i) the Nord Stream pipeline, which transports Russian gas to Germany without crossing Ukraine or Belarus, has been completed, and other interconnections have improved the situation in eastern Europe; and (ii) the economic situation, and the arrival of milder weather means that demand is relatively low.

The Ukrainian market, which requires around 30 bcm of imports each year, is likely to be hit hardest by suspensions of gas deliveries. There is some capacity for restarting small-volume "reverse flow" deliveries from Poland and Hungary, and starting larger-volume "reverse flow" via Slovakia – although sourcing such alternative supplies will not solve Naftogaz's financial problems and ability to pay. Ukraine has some gas in storage, but if it uses it, this will simply postpone part of its supply problem until next winter. All this is in addition to the economic consequences of the political crisis, which have exacerbated problems such as non-payment and development of Ukraine's own gas production.

The impact on Russia of any interruption of supplies would be primarily financial. Gas sales to Europe remain the cornerstone of Gazprom's revenue, and gas sales to Ukraine are a significant item. There would also be a limited impact on the state budget, which would aggravate an already serious economic and financial downturn – although gas revenues remain much less significant than oil revenues. The greatest damage to Russia, however, is reputational, and it faces the danger of being



perceived as an unreliable supplier of gas; indeed in Europe gas itself, from whichever source, could become regarded as unreliable compared to other sources of energy.

This will be a major factor in Russia's decisions in relation to gas in the coming weeks and months, as well as in the longer term. Strategic decisions about gas will be taken in government, and will be weighed against political considerations as well as commercial ones.

From Europe's standpoint, commercial logic would suggest that support would be given to diversifying gas transit away from Ukraine. This would imply regulatory support for the South Stream pipeline, which, if completed with four strings, should enable the transit of Russian gas through Ukraine to be suspended completely. It is possible, however, that political logic – which would seek to minimise cooperation with Russia on energy issues in line with European governments' views of the Russian action in Crimea – may prevail. In this case, the EU-Russian disputes over gas imports and regulation will worsen, with potentially negative consequences for South Stream. Moreover, European efforts to diversify away from Russian gas, the success of which has been limited in the past because of the economic costs, will be revived.