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Consumers as players in the Russian gas sector

by **Simon Pirani**

Preface

This Comment Paper, by Simon Pirani, provides an update of the analysis in his paper *'Elusive Potential: Gas Consumption in the CIS and the Quest for Efficiency'*, OIES 2011.

The three main markets for Russian gas; namely the domestic market, CIS and European markets have seen consumption levels significantly impacted by a range of factors in the past four years. These include the impact of the financial crisis and subsequent recession, the growth of renewables (and coal) in Europe, the increasing competition between suppliers of gas as well as the consequences of abrupt changes in gas price levels in specific market geographies.

Given the scale of the markets involved (in aggregate some 650 bcma) and the conclusion that such changes have momentum yet to be spent before some form of equilibrium is attained, this study has resonance beyond the CIS – Europe arena.

Howard Rogers

Introduction

Consumers of gas have become a significantly more powerful force in the Russian gas sector in the past five years, and their power will continue to grow for the rest of this decade.¹ The most important drivers of change are the evolution of market relationships and the weakening of monopolistic structures, especially in the European market, where the dominance of long-term contracts with oil-linked price formation is giving way to gas-to-gas pricing, and in Russia itself, where the system under which gas was delivered as a subsidised service by a monopolistic supplier is being superseded by a market that is becoming progressively more liberalised.

¹ This Comment is based on a paper delivered at the New Actors in Russian Energy/ Energy Workshop, in Oslo on 11-13 December 2012, organised by the Fridtjof Nansen Institute/ RUSSCASP and the Aleksanteri Institute Center of Excellence on Russian Modernization. Their support is gratefully acknowledged.



This paper (i) identifies the consumers of Russian gas; (ii) in sections covering Europe, the CIS, and the Russian power, industrial and household sectors, describes how their role has changed and the senses in which they have emerged as economic actors; and (iii) suggests preliminary conclusions. Many of the issues covered were discussed, with more comprehensive consideration of the statistical information, in an earlier paper.²

Consumers of Russian gas

The Russian gas matrix shown in Table 1 gives an overview of the sources of supply of gas to the Russian gas balance and the areas of demand served by it. The matrix focuses on the physical volumes produced in Russia and Central Asia and delivered via the unified gas supply system (UGSS), and does not include the small amounts of gas consumed in the Russian Far East and gas exported from Sakhalin to Pacific countries. It shows that Russia's own production accounts for nearly 75% of supply, supplemented by Central Asian imports (less than 5% of the total). It highlights the three main areas of demand for Russian gas (Europe, CIS importers and Russia): it is these that will be covered in this paper.

TABLE 1. THE RUSSIAN GAS MATRIX 2011 (preliminary); 2010 in brackets	
Supply	Demand
Gazprom production 513 bcm (508 bcm)	Russian demand 412 bcm (495 bcm)
Non-Gazprom production 157 bcm (142 bcm)	Russian exports to the CIS 77 bcm (64 bcm)
Central Asian imports 29 bcm (33 bcm)	Russian exports to Europe 160 bcm (140 bcm)
Source: Russian ministry of energy, Gazprom, OIES estimates Note. These indicative figures are presented as a general picture, not as a gas balance. The figures come from different sources. There are inconsistencies, particularly for Russia's own consumption. The data (from Othe energy ministry), apparently does not reflect movements in and out of storage, and appears to include technical/fuel gas for 2010 but not 2011.	

European consumption of Russian gas is currently about 140 bcm/year, i.e. about one third of Russia's own consumption. The largest European consumers of Russian gas are Germany, Italy and Turkey. But because European sales of Russian gas are priced on average at more than four times the level of domestic Russian prices, they remains a key source of revenue for Gazprom and the treasury. There have been far-reaching changes in the European gas market in the last three years, i.e. (i) a steep fall in European demand in 2009 due to the recession, from which the market has still not recovered; (ii) as a result of this (and other factors) there is currently an over-supply of gas to Europe, and a wide differential has opened up between

² Simon Pirani, *Elusive Potential: Gas Consumption in the CIS and the Quest for Efficiency* (OIES, 2011). This can be downloaded from the OIES web site.



the high oil-linked prices on which gas is sold on long-term contracts and the lower prices on gas-to-gas markets (i.e. at gas hubs); and (iii) the oil-linked price formation method became unsustainable for many of the the integrated energy and utility companies who were committed to buy gas on long-term contracts but had to compete with cheaper gas available at the hubs. Russia was faced with insistent demands by such companies, the original purchasers of most Russian gas exported to Europe, for contract terms to be renegotiated. The series of renegotiations and commercial arbitration cases that resulted in 2011-12 is unprecedented in the European industry's history.

CIS importers' consumption of Russian gas is about 60 bcm/year. A little under two-thirds of this goes to Ukraine, and one-third to Belarus, with very small amounts also going to Armenia, Moldova and (as swaps) Kazakhstan. Developments in Ukraine since 2009 are significant. In 2009, after the "gas wars" came to a head, Naftogaz Ukrainy, the Ukrainian national oil and gas company and the largest-volume purchaser of gas exported from Russia, signed a contract under which it was committed to oil-linked prices, similar to those in the European export contracts, until 2019. Given that Ukraine is essentially a captive market for Russian exports – and, because of the layout of pipelines, could not easily, quickly or cheaply access alternative sources of supply – its consumers have effectively been forced to participate in an experiment demonstrating the impact of steep gas price increases on economies with gas-intensive industry and municipal infrastructure inherited from the Soviet Union. So far, this has led to substantial reductions in consumption, some energy-saving measures in industry, some fuel switching, and an impetus to long-awaited government initiatives to source alternative supplies and increase domestic production. The experiment is important not only for Russia's largest export market but also because of what it tells us about how the much larger Russian market might react to higher prices.

On average in recent years, Russia has consumed between two and three cubic metres of gas for each cubic metre that it exports. This huge market – the second-largest in the world after the USA – is now in transition from the immediate post-Soviet framework, within which gas was sold at or below cost, as an effective subsidy to the economy during the 1990s slump and the recovery from it, to a market in which regulated prices are moving upwards and key elements of regulation are being reduced over time. Some types of consumer power are clearly visible, in the first place in the power sector, where the largest non-Gazprom producers (Novatek and Rosneft) have started to compete with Gazprom, and with each other, for large-volume long-term contracts with the power companies. The impetus for this competition has come not only from the beginnings of gas market liberalisation, but also from the electricity sector reform as a result of which these companies were separated-out from the nationalised power monopoly UES, and/or privatised, in 2006-07. Similar competition can be observed among large industrial gas consumers. As in Ukraine, rising prices will also lead consumers to gas-saving measures, of which there is already some evidence. In the residential, municipal and district heating sectors, the dynamics are different, due to low prices and government nervousness about discontent over welfare provision. Here a different type of consumer power is apparent, in the reappearance since the 2008 financial crisis of significant levels of non-payment for gas delivered.



Europe: a sea change in Russia's relationship with the highest paying consumers of its gas

The changes in European market conditions mentioned above have resulted in the biggest change in the relationship between Gazprom and European gas consumers since Russian exports to Europe began. Rather than giving a full account, I will quote from recently published work by Jonathan Stern and Howard Rogers, my colleagues on the natural gas research programme, who have researched this relationship comprehensively. Their recent summary of the changes³ highlighted that:

-- Of the failures by consumers to meet take-or-pay levels in import contracts in 2008-10, the "vast majority" related to imports from Russia and resulted in contract renegotiations between Gazprom and its buyers, "who were exposed to competition from north-west European hub prices";

-- These renegotiations led to Gazprom agreeing that the price indexation of 15% of the gas imported from Russia would be related to hub prices instead of oil prices for the three years beginning October 2009, and that in many cases where companies had failed to offtake take-or-pay volumes, these would be rolled over to subsequent years;

-- In early 2012, Gazprom agreed with a number of customers that base prices in the long-term contracts would be reduced by 7-10%, and take-or-pay levels reduced to around 60%. (PGNiG of Poland came to such an arrangement with Gazprom in November 2012, after the summary by Stern and Rogers had been published.)

-- In 2012, or at the latest in 2013, "the majority of gas sold in Europe would be based on spot prices at hubs", and that this change "encountered strong resistance from Gazprom", which at first remained insistent that there was "no acceptable alternative" to oil-linked pricing, although it had by early 2012 shifted its position and accepted the prospect of hybrid pricing, i.e. prices linked partly to oil and partly to gas hubs.

-- The substantial realignment of the relationship between Gazprom and large European consumers resulted in an unprecedented number of arbitration proceedings between them. The proceedings by E.On, whose managers had been particularly vocal about the need to move away from oil-linked pricing, were discontinued when an agreement on a new price basis was reached.

Stern and Rogers conclude⁴ that the transition from oil-linked prices will be completed, although it will "not be straightforward"; that it will result in "significant changes to, and the possible eventual termination of, some existing long-term contracts". They warn of a possible "significant deterioration of relations between buyers and sellers of gas", in particular with respect to Gazprom, which has been the "principal, and most vocal public opponent of any fundamental move away from oil-linked prices".

³ Jonathan Stern and Howard Rogers, "The Transition to Hub-based Gas Pricing in Continental Europe", in *The Pricing of Internationally Traded Gas* (Oxford, 2012), pp. 163-167

⁴ Stern and Rogers, op. cit., pp. 170-173



The importance of these developments for the future of the Russian gas sector can hardly be overstated. As a result of the economic crisis, and the sharp fall in European gas demand, consumer power has been exercised to bring about the most far-reaching change between buyers and seller in the history of Russian gas exports to Europe. The trend of Russia's share of the European market falling may well continue into the long term. Gazprom will in future be selling gas into a European market that will be more competitive and more volatile. Increasingly, there will be linkages between this market and the Russian domestic market.

CIS: captive consumers looking for escape routes

The significance of Ukraine as the largest CIS importer of Russian gas was mentioned above. Import prices to Belarus are set in bilateral negotiations; while agreements in 2007 and 2010 provided for progress towards European netback levels, the timetable has constantly been put back in return for political and commercial concessions, including sale of the Belarus gas transit company to Gazprom. The specifics of the Russo-Belarusian relationship, together with the relatively closed and heavily regulated nature of the economy, have largely protected Belarussian gas consumers from changes in market conditions. Ukrainian consumers have no such protection. Naftogaz, the national gas and energy company, has since 2009 bought gas at oil-linked prices near the level of, and since 2010 probably above the level of, European netback.⁵ Ukrainian industrial and power sector consumers (42% of consumption in 2011) buy gas at regulated prices linked to the import prices, and in small quantities from local independent producers on the open market; the district heating sector (17%) buys gas at heavily discounted prices, with the differential partly covered by government subsidy; and the residential and public sector (35%) buys gas produced in Ukraine at heavily discounted prices that do not cover production costs. Import prices have risen constantly since 2006, with a sharp acceleration in 2009-10; industrial consumers' prices have followed them; and tariffs for residential, public sector and district heating consumers have also risen, but much more slowly.

Consumers in Ukraine are reacting to this new environment in the first place by reducing consumption, mainly by making efficiency savings or by switching to alternative fuels, primarily coal. The sharp price increases in 2009 coincided with the financial crisis, and the economic recession in Ukraine was the most serious among former Soviet countries. Industrial production fell and this no doubt contributed to lower gas consumption. Further research is needed to establish the respective roles of the recession, energy saving and fuel switching, but there seems little doubt that all three have played a major part. Table 2 shows consumption in 2006-2011, with my estimates for 2012. Table 3 shows figures for the first ten months of 2012, on which those estimates are based. Figure 1 shows the figures given in Table 2 in graphic form.

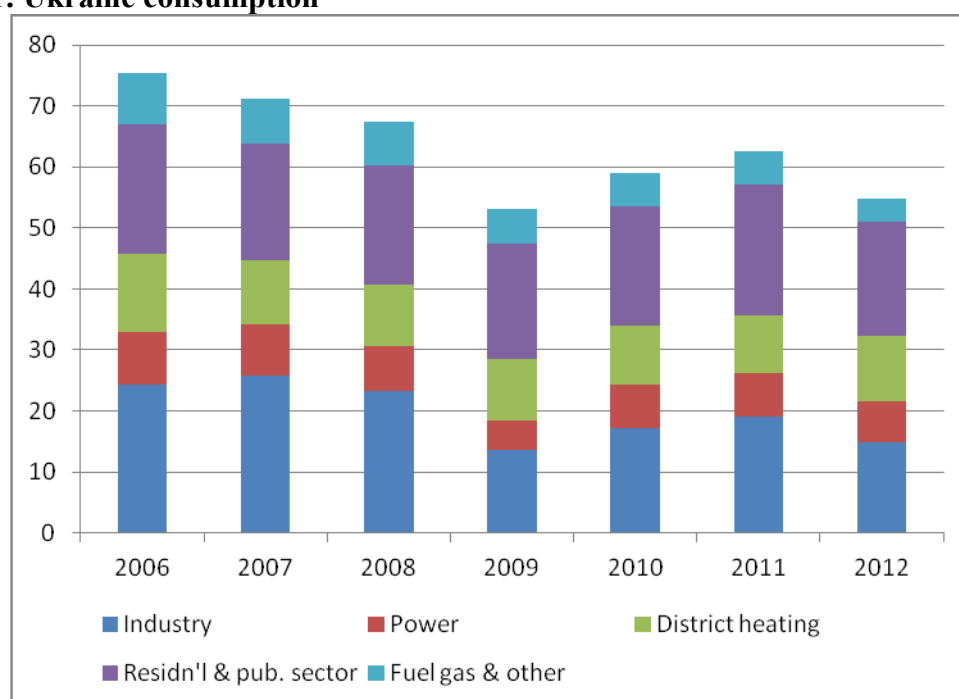
⁵ By European netback I mean the price at which Russian gas is sold at the border of the EU, minus transport costs between Ukraine and that point. For a discussion of the "European netback" price formation mechanisms established in the January 2009 contracts, and the price levels, see: Simon Pirani, Jonathan Stern and Katja Yafimava, *The April 2010 Russo-Ukrainian Gas Agreement and Its Implications for Europe* (OIES, 2010).



Table 2. Ukraine: gas supply and consumption by sector, bcm							
	2006	2007	2008	2009	2010	2011	2012 est.
Total	75.3	71.1	67.5	53.1	59	60.3	54.8
Consumption							
Industry	24.3	25.8	23.2	13.5	17.2	19.1	14.9
Power sector	8.6	8.4	7.5	5	7.2	7.1	6.6
District heating	12.8	10.5	10	10.1	9.5	9.4	10.9
Residential & public sector	21.3	19.2	19.6	18.9	19.7	21.6	18.6
Technical gas	8.1	7.0	7.0	5.4	5.0	5.1	3.6
Other	0.2	0.2	0.2	0.2	0.4	0.2	0.2
Supply							
Imports	54.5	50.1	47.2	31.5	37.2	39.7	34.3
Own production	20.7	20.7	20.1	21.3	20.4	20.6	20.5
Source: energy ministry/Energobiznes, author's estimates (for 2012)							

Table 3. Ukraine: gas supply and consumption by sector. First ten months of 2011 and 2012		
	2011 Jan-Oct	2012 Jan-Oct
Total	48.5	41.7
Consumption		
Industry	16.1	12.5
Power sector	5.4	5
District heating	6.3	7.4
Residential & public sector	16.4	13.7
Technical gas	4.1	2.9
Other	0.2	0.2
Supply		
Imports	31.4	24.6
Own production	17.1	17.1

Figure 1: Ukraine consumption



Source: energy ministry statistics/ Energobiznes

Over the period 2006-12, industrial consumption has fallen by nearly 40%. Significant elements in this fall are lower gas consumption in the metallurgical sector as a result of energy efficiency measures and technological upgrades, and lower consumption by fertiliser plants that use gas as feedstock. By 2011 industrial demand had regained more than half the ground it lost in the 2009 financial crisis, but the sharp fall in 2012, against a background of (albeit extremely sluggish) economic growth of 2%, suggests efficiency savings are playing a role. Negative proof is supplied by the lack of similar savings in the power sector, where what fuel switching could be easily accomplished has been undertaken in 2006-07, and the district heating sector. But the continued gentle decline of consumption in the residential and public sector is also noteworthy. The substantial savings in Ukraine's consumption of "technical gas" (i.e. fuel gas plus losses in the pipeline system) is also playing a role. Part of the reason for this is the reduction in the volumes of Russian gas transiting Ukraine to Europe. But my earlier research in 2011 already suggested that efficiency investments by Ukrtransgaz also made a noticeable difference, and that the fall in technical gas consumption was faster than the fall in volumes transited.⁶

Further research is needed to disentangle the respective effects of energy saving and the recession. But a simple comparison of gas consumption and GDP growth in Ukraine and Russia, shown in Table 4, suggests that there is surely an energy saving trail to follow.

⁶ Pirani, *Elusive Potential*, pp. 88-90.



Table 4. Russia and Ukraine: gas consumption and economic growth

	Russia				Ukraine			
	Natural gas		GDP growth		Natural gas		GDP growth	
	Consumption, bcm	% of 2008 consum.	Growth	GDP as % of 2008	Consumption, bcm	% of 2008 consum.	Growth	GDP as % of 2008
2006					75.3	111.56	7.3	90.77
2007					71.1	105.33	7.9	97.94
2008	458547.7	100.00		100	67.5	100.00	2.1	100
2009	428742.1	93.50	-9.3	90.7	53.1	78.67	-14.8	85.2
2010	490089.6	106.88	4.3	94.6	59	87.41	4.1	88.69
2011	495558.1	108.07	4.3	98.7	61.9	91.70	5.2	93.3
2012 est.	460538.1	100.43	3.5	102.1	54.8	81.19	2	95.17

Source: Russian energy ministry, Ukraine energy ministry/Energobiznes, World Bank, author's calculations

The table shows that Russia, having brought its GDP more or less back to the 2008 level, is this year on course to consume slightly more gas than it did in 2008. In Ukraine, GDP is still short of the 2008 level by about 5%. But gas consumption is down by nearly 19%. The statistical comparison proves nothing in itself, but does suggest this is a phenomenon worth researching further.

Ukrainian consumers have reacted to the new high-price environment not only by consuming less gas, but also by seeking to diversify supply away from Gazprom. The main types of diversification are:

1. Re-establishment of sales of Central Asian gas, separately from the Gazprom-Naftogaz contract of 2009. These sales by trading entities to Ostchem Holding, which controls Ukraine's chemical fertiliser sector, amounted to 4.8 bcm in 2011 and 6.75 bcm in the first ten months of 2012.⁷ The volumes are purchased from Turkmenistan, Uzbekistan and Kazakhstan and form part of the gas balance of Gazprom Schweiz, a Gazprom subsidiary, and have resulted in Naftogaz losing its status as the sole importer of gas. Contract terms and prices are not known, although last year Ostchem Holding stated that the import prices were comparable to those paid by Naftogaz. The conclusion of such contracts must have involved considerable political lobbying in Russia, since the Central Asian volumes cross Russia through Gazprom's pipelines and are sold in competition with its gas. Unlike Gazprom volumes, this gas is not subject to Russian export duty, meaning that the commercial entities involved have a margin roughly equivalent to that duty (i.e. 30% of the sale price) to share. While this trade was made possible by political rather than commercial factors, we may still consider market conditions and the high prices faced by Russian chemical plants as a key driver of Ostchem Holding's actions.

2. Efforts by Naftogaz to source alternative supplies. As a midstream player that buys imported Russian gas and sells it to domestic consumers, Naftogaz has been presented with the same dilemma as the German, Italian and other midstream energy companies, i.e. has been faced with losses as a consequence of high oil-linked prices during the post-2008

⁷ Ministry of energy statistics, reported in *Energobiznes*



recession. Unlike its German and Italian counterparts, it also has to supply final consumers at regulated prices, including those receiving heavy discounts. Moreover, Ukraine's physical dependence on westward gas flows from Russia and the nature of the contractual arrangements on transit and supply mean that sourcing alternative gas is more difficult than in Germany and Italy. But the differential that has opened up between oil-linked prices and spot prices in the European market, referred to above, has provided an opportunity. Naftogaz has consequently begun to import gas flowing in the reverse direction, from Slovakia, under a contract with RWE. The volumes are currently small (0.365 bcm/year), but Ukrtransgaz engineers have stated that as much as 5 bcm/year could be received in this way at any time, from Hungary as well as Slovakia. The Ukrainian energy minister states that the gas is \$40-70 cheaper than that supplied by Gazprom.⁸ Ukrainian officials also continue efforts to establish an LNG terminal on Ukraine's Black Sea coast; most recently they have said that a floating terminal will be leased in the first instance. Major questions remain about such a project – not least, how tankers will be able to pass through the Bosphorus on their way to it – but discussions of it sound less illogical, given the wide gap between oil-linked prices on one hand, and gas-to-gas prices in Europe and LNG prices on the other.

3. In terms of supply diversification the Ukrainian government's efforts to raise domestic gas production must also be mentioned. In the last year, against a background of high prices, the long-delayed Shell-Naftogaz onshore joint venture has begun to drill wells, blocks have been tendered to Chevron and Shell, and amendments made to the PSA law that foreign investors have long said would be necessary before they would consider any substantial investment in the Ukrainian upstream. These developments will not result in any substantial increase in domestic production for another few years, and the natural decline of Ukrgezdobuvannya's fields mean that overall output may actually fall, but there can be little doubt that it is Ukraine's position as a consumer of Russian gas, and the new high price environment, that has provided the impetus for these developments.

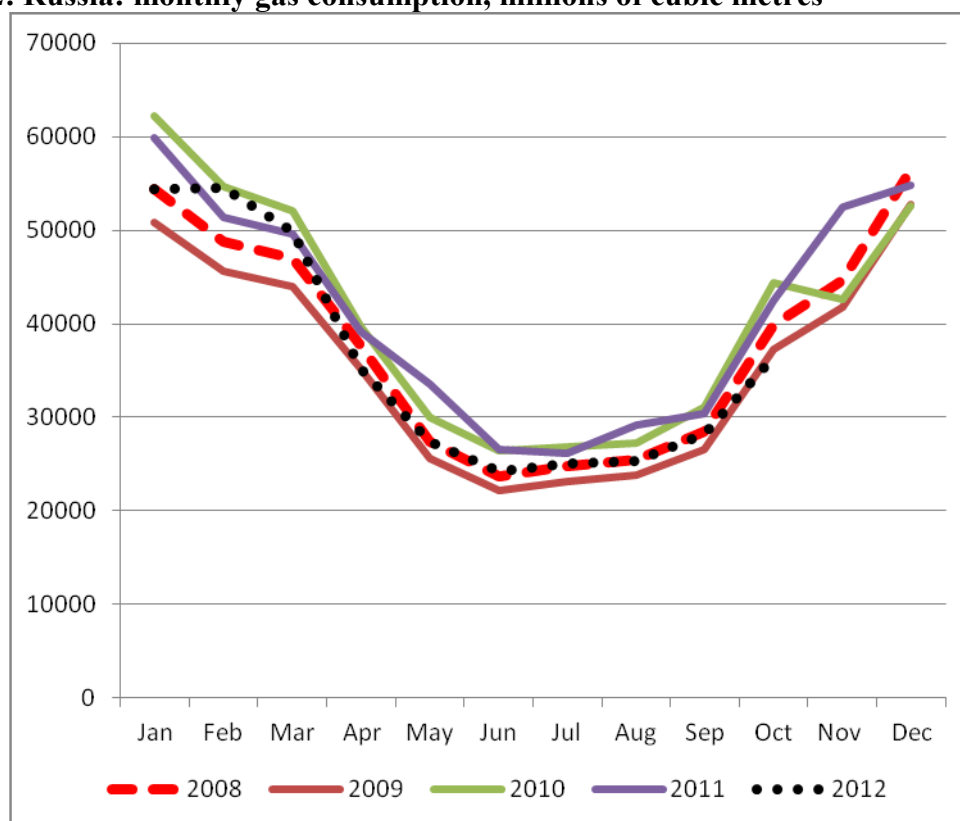
Russia consumption overview

Russia, unlike Ukraine, has shown no discernible decrease in overall consumption over the last five years. The reduction in 2009, in line with the recession of that year, was reversed in 2010, and variations since then are comfortably within the range determined e.g. by weather and various temporary factors. Russian gas consumption as measured by the energy ministry is shown in Figure 2. The Russian economy has largely recovered the ground lost as a result of the recession, as is shown in Table 4 above, and gas consumption appears to have followed a similar trend.

⁸ "Ukraine starts reverse gas deliveries from Europe", *Interfax Russia and CIS Oil and Gas Weekly*, 7 November 2012; Dixi Group *Weekly Analytical Report*, 19-25 November 2012



Figure 2: Russia: monthly gas consumption, millions of cubic metres



Source: ministry of energy web site

Against a background of steady overall consumption in volume terms, there are significant changes taking place in the Russian market: in the power sector and industry, a big shift towards non-Gazprom producers as market liberalisation unfolds; energy saving measures stimulated by rising regulated prices; and in the residential and public sector, the re-emergence of non-payment. The move away from Gazprom is substantial. Under long-term sales contracts reported as signed in 2012,⁹ large power and industrial consumers will be buying more than 65 bcm/year from non-Gazprom suppliers by 2015. In addition to this, Gazprom managers have stated that 40% of its existing long-term contracts with power and industry sector consumers in Russia will expire in 2013, potentially bringing into play another 89 bcm/year of demand previously met by Gazprom.¹⁰

Russian power sector: exercising choices

More than half of the gas consumed in Russia (264.5 bcm in 2008, according to IEA statistics) goes into the production of electrical power and heat.¹¹ This is the sector in which consumer power has been exercised most effectively, especially over the last year, by the largest companies diversifying away from Gazprom and undermining its monopoly position. Information about natural gas purchases by Russian power companies is summarised in Table 5. The Table covers purchases by Inter-RAO, the state-controlled power holding company; its

⁹ See sections on power sector and industry below, and Table 1 in James Henderson's paper

¹⁰ "Gazprom teriaet Rossiui", *Vedomosti*, 9 November 2012

¹¹ For the sectoral breakdown, and the difficulties in counting it accurately, see Pirani, *Elusive Potential*, pp. 40-44.



subsidiaries; the other wholesale generating companies (OGKs) with gas-fired capacity; and the six territorial generating companies (TGKs) (whose assets are mainly urban combined heat and power (CHP) stations) with the largest gas purchase requirements. (There is more comprehensive information in my earlier paper, *Elusive Potential*¹²).

Table 5. Gas purchases by Russian power companies					
Company	Ownership	Gas consumption, bcm		Gas as % of fuel balance, 2011	Information about gas supply
		2009	2010		
Inter RAO and companies that it controls					
Inter RAO	Indirect state control				In November 2012, signed contract to purchase from Rosneft up to 875 bcm of gas over the 25-year period 2016-2040, with a 35 bcm/year take-or-pay provision. It is presumed that these volumes will replace those now being purchased by Inter-RAO from Novatek, under a contract to supply 7.7 bcm in 2010-2015, and those supplied to OGK-1 from Novatek, under a contract that expires end 2015.
OGK-1	Inter-RAO (61%)	10.76	13.21	90.10%	In 2011, bought gas from Gazprom at regulated prices ("limit" gas), 0.074 bcm for Urengoykaya GRES only; and from Novatek, 11.94 bcm for four other larger power stations. Purchases from Novatek under a contract to supply 57 bcm in 2010-2015.
OGK-3	Inter-RAO (majority share)	5.16	5.1	55%, down from 61% (2009)	In 2011: bought from Gazprom at regulated prices ("limit") gas, 3.99 bcm; additional Gazprom gas, 0.04 bcm; supplies from market 1.22 bcm.
Other wholesale electricity generating companies (mainly large thermal power stations)					
OGK-2	Gazprom	10.42	10.65	70.60%	In 2011, main suppliers: Surgutneftegaz (9%), Gazprom distribution companies in northern region (18%), Stavropol (21%), St Petersburg (12%), Ryazan (12%) and Rostov (12%)
EON-Rossiia (OGK-4)	EON	11.97	12.58	80%	Key fuel supplier in 2010-11 is Surgutneftegaz (supplied 39% of fuel, including most of gas for Surgutskaya, EON-Rossiia's largest power station). In 2011, procurement from Novatek "significantly increased". Gas also purchased from regional Gazprom affiliates. In Jun-Sep 2012 signed new long term contracts with Novatek (150 bcm over 15 years), Lukoil (2.24 bcm over 10 years) and Rosneft (23 bcm over three years for Surgutskaya GRES and Surgutneftegaz)
Enel OGK-5	Enel	6.14	6.68	97-98%	Includes volumes bought at FTS regulated prices (70-100%) and on the market (0-30%)
OGK-6		4.72	5.99		n/a

¹² See bibliography



Territorial generating companies (mostly urban CHPs)					
Mosenergo (TGK-3)	Gazprom	21.16	22.87	98.40%	n/a
Volzhskaya TGK (TGK-7)	KES	11.94	11.98		n/a
TGK-9		7.92	7.82		n/a
Fortum (TGK-10)	Fortum	6.61	6.67		August 2012, signed a 15-year (2013-2027) gas purchase contract with Novatek (volume estimated at 2 bcm+/year). Mid 2012, signed a gas supply contract with Rosneft for 2.3-2.5 bcm/year in 2013-2017
Kvadra (TGK-4)	Kvadra	6.17	6.83		n/a
TGK-1		5.61	6.15	98.90%	Supplier: Gazprom Mezhtregiongaz St Petersburg
Source: company annual reports, press					

The Table shows that two types of consumers are pushing vigorously towards non-Gazprom suppliers: (i) Inter-RAO, the state-controlled holding company that controls OGK-1, OGK-3, and other power assets; and (ii) some of the largest foreign-controlled companies in the power sector, in particular EON-Rossiia and Fortum. In addition to its natural advantage as the incumbent, Gazprom is afforded some stability by its control of power assets such as OGK-2 and Mosenergo, the largest gas consumer among the TGKs; moreover, there are parts of the country where other producers are not in a position to supply gas. Nevertheless, press reports indicate fierce competition between Gazprom and the other suppliers for the largest consumers. Rosneft was recently reported as stating that the contracts it has signed this year with E.ON and Fortum include effective discounts of 11% and 2% respectively to the regulated tariff in the areas to which gas will be delivered.¹³

Another aspect of developing competition is that consumers will begin to seek their own upstream assets: Inter RAO defines the development of its own fuel business as a key strategic aim.¹⁴

Finally it should be noted that gas demand by TGKs may develop in a different way from OGKs, since the former are in part exposed to the heat market, which is undeveloped and lacks the unified, national approach to raising tariffs – albeit with all the frustrations it causes to power companies – adopted for the power market.

Factors that will shape gas demand in the power sector over the coming decade include the development of power demand; the pace at which power tariffs are increased; the scale and management of investment in new generation capacity; and the relative prices of gas and coal. But Gazprom's status as the quasi-monopolistic supplier to the sector has already ended, and in future it will compete – with Rosneft and Novatek in the first instance, and then with other suppliers – to supply the power sector.

¹³ “Novye klienty Rosnefti”, *Vedomosti*, 27 November 2012

¹⁴ Inter RAO, *Godovoi otchet 2011*, p. 100.



Russian industry: efficiency savings potential

Large industrial consumers of gas are, like those in the power sector, exercising consumer power by diversifying away from Gazprom for their gas supplies. This year, three of Russia's five largest steel companies have signed long-term purchase contracts with Novatek: Magnitogorsk works (for 50 bcm over 10 years from 2013), Mechel (for 17 bcm over eleven and a half years) and Severstal (for 12 bcm over five years from 2013).¹⁵ Uralkhim, the chemical fertiliser producer, has agreed to purchase 1.6 bcm/year from Novatek in 2013-2017, although its total gas consumption is higher than that.

Industrial consumers are also implementing energy-saving measures as gas prices rise. It is still difficult to gauge what has already been achieved, or the potential, but my earlier research on the three largest industrial consuming sectors (chemicals, steel and cement) showed that: (i) chemical fertiliser producers, for whom gas is a feedstock and the largest item of costs, are undertaking efficiency improvements in order to maintain their competitive advantage against Ukrainian and European producers whose gas inputs are substantially more expensive; (ii) in the largest steel companies, a great deal of the most straightforward technical improvements that produce energy saving (replacement of open hearth furnaces by oxygen converter furnaces, installation of continuous casting capacity, increased recycling of blast-furnace gas) have already been implemented, but that the government projects further improvements in the industry as a whole; and (iii) very considerable efficiency savings could be made in the cement sector (the government projects a 40% reduction in energy used per unit of production) by the transition from "wet" to "dry" process.¹⁶

In general, it appears to be the case that there is more "low hanging fruit" – efficiency improvements that can be made with short investment payback times – available to industrial customers than to those in the power sector, where very large-scale investments are needed, and in the district heating sector, where investment programmes must be coordinated with complex and costly municipal service provision reform.

A final observation is that industrial consumers, like those in the power sector, are likely to react to the new market conditions by seeking to purchase their own upstream assets. An early example is the \$400 million purchase by Evrokhim in January 2012 of Severneft-Urengoi, a gas exploration and production company based in the Yamal-Nenets region, with estimated production capacity of 1.1 bcm/year of gas and 220,000 tonnes/year of gas condensate.¹⁷

Russian households: the power to keep prices down

A significant proportion of the gas consumed in Russia (50-60 bcm/y in recent years, compared to 65-70 bcm/y for industry and around 260 bcm/y for power and district heating) is consumed in the residential and municipal sector. This includes gas delivered directly via municipal services providers to people living in flats; gas delivered by gas distribution companies directly to people's homes for cooking and/or small heating appliances; and gas delivered (mainly for cooking) to schools, hospitals and other public sector buildings. Prices

¹⁵ "Novatek inks 5-year Severstal deal", *European Gas Daily*, 3 October 2012

¹⁶ Pirani, *Elusive Potential*, pp. 71-79

¹⁷ Evrokhim press release, "EuroChem acquires natural gas operator", 20 January 2012



in this sector are heavily discounted: average wholesale prices for these consumers were 2431 rubles/mcm in 2012, compared to 3051 rubles/mcm for industry and power customers.¹⁸ But this differential does not tell the whole story, as the gas is further discounted, e.g. at the expense of municipal services providers, before reaching the final consumer.

In short, this cheap gas represents a subsidy to household budgets, which was first provided during the economic slump of the 1990s, via Gazprom, as part of the welfare benefit package inherited from the Soviet Union to which Russian citizens felt entitled. During the early and mid 2000s, the government tried to dismantle and reduce this package, and to implement market principles in municipal services provision – i.e. everything from rents, building services and bus fares to pensions and health and education services – but has trod very carefully. When the benefits system was reorganised in January 2005, with benefits administration being shifted from central to local government, there was a sizeable protest movement, the largest in Russia during Putin’s first two terms (2000-08).

As for gas supplies to the residential and municipal sector, the 2007 decision to liberalise the gas market specifically excluded these sectors from price reform, stating that the prices that they paid would move up only in line with inflation.¹⁹ The tug-of-war between governments central and local, Gazprom and municipal services providers, over how the subsidy to the population would be funded, has therefore continued.

The economic crisis of 2008-09 brought an end to the substantial year-on-year improvements in average living standards in Russia, and resulted in a new fall in living standards for some of the poorest sections of the population. In consequence, significant numbers of the poorest Russians have returned to exercising consumer power in the way that they did in the 1990s – by non-payment for municipal services including electricity and gas. Political reluctance to cut off non-payers remains ubiquitous. According to Gazprom, the level of non-payment by residential consumers was 8% in 2011, up from 5.9% in 2010; by municipal services providers, 5% in both 2011 and 2010; and by “socially significant groups of consumers” (i.e. those entitled to additional welfare benefits), 6.2% in 2011, up from 5% in 2010. Significantly, Gazprom’s list of regions where payments from municipal services providers had deteriorated significantly includes not only extremely poor regions in the Caucasus where payments have historically always been low (North Ossetia, Kabardino-Balkaria, Adygea and Dagestan), but also some of the large industrial regions where the economic crisis has hit poor households and widened income gaps, e.g. Smolensk, where non-payment by municipal service providers was 41.8% in 2011, up from 47.3% in 2010; and Moscow region (i.e. excluding the city itself, where there is no non-payment problem), where non-payment by municipal services providers was 20.5% in 2011, up from 17.2% in 2010.²⁰

Non-payment by relatively poor sections of the population is a quite different exercise of consumer power from that by power sector and industrial customers, but no less significant. The most likely outcome is that the government will continue to exercise very great caution

¹⁸ Federal Tariff Service web site, gas sector statistics

¹⁹ See also Pirani, *Elusive Potential*, pp. 27-29. The most substantial survey of this issue is: Indra Overland and Hilde Kutschera, “Pricing Pain: Social Discontent and Political Willpower in Russia’s Gas Sector”, *Europe-Asia Studies* (2011) 63:2, pp. 311-331.

²⁰ K.G. Seleznev, director general of Mezhhregiongaz, at press conference of 15 June 2012; slide presentation from press conference.



in increasing regulated prices of gas and other municipal services. No deep-going changes in this sector can be expected until substantial municipal services reform gets underway.

Preliminary conclusions

Observers of the Russian gas sector do not tend to think in terms of consumer power, because the extent to which market mechanisms work in the sector has in the past been limited. The significant changes in the way that market mechanisms are applied – in Europe, with the transition to hub-based gas-to-gas pricing, and in Russia, with price reform and market liberalisation – have made consumer power a real factor.

In Europe, the large European energy companies that buy most of the gas imported from Russia have since the economic crisis of 2008-09 exercised market power – by reductions in offtake, testing take-or-pay levels, and insistence on renegotiation of contracts and arbitrations – and forced Gazprom to make significant amendments to its contracts. Gazprom has, against its own repeatedly-expressed will, been forced to acknowledge the possibility of hybrid pricing structures. The situation contains at least the possibility of a further deterioration in relations between Gazprom and these consumers, who pay the highest prices for Russian gas. It is at least possible that the long-term decline in Russia's share of the European gas market will continue. Certainly, it will be a much more competitive and volatile market than it has been in the past. For Gazprom, commercial decisions about whether to retain its policy of insisting on high prices at the expense of volumes are posed. For the Russian government there are strategic choices about the relative importance in its export strategy of westward exports and potential eastwards exports and whether to retain Gazprom's export monopoly.

In the CIS, the dramatic fall in consumption in Ukraine, among industrial consumers in particular, shows that even in captive markets, high prices will lead to fuel switching and energy efficiency measures when these alternatives become rational. This has implications for the much larger Russian market too: as prices there continue to rise, there is little doubt that consumer power will be exerted by fuel switching and energy efficiency measures, suggesting that consumption is unlikely to rise.

In Russia, the use of consumer power has already helped effectively to end Gazprom's role as a quasi-monopolistic supplier. In the power sector, which accounts for the majority of Russian gas consumption, consumers – including both those in Russian state-controlled companies and foreign-controlled companies – are moving away from Gazprom and signing long-term contracts with other suppliers. This trend is likely to continue. Among industrial consumers, market power is being exercised both through switching to other suppliers and implementing energy efficiency measures. It is also likely that Russian gas consumers in the power and industrial sectors will increasingly seek to acquire upstream assets.

In the residential and municipal sector, a softer type of consumer power is exercised that has kept prices low. The argument is often made that gas and energy make up quite a small proportion of household budgets and that the impact on living standards of higher prices is less than e.g. the impact of rising food prices. The difference, though, is that most Russian citizens continue to regard municipal services, including gas, as a right to which they are entitled from government; politicians have throughout the post-Soviet period been extremely cautious about confronting citizens on this score. Even modest price increases, against a



background of the negative effects of the economic crisis on living standards, have seen a resurgence of non-payment. This suggests that raising prices in these sectors will remain difficult and the government will only attempt to do so as part of wide-ranging reform, which will be costly and will take a long time.



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