

FORCED TO BE FREE? THE CONSEQUENCES OF THE TRANSITION TO EUROPEAN NETBACK GAS PRICES FOR UKRAINE'S ENERGY DEPENDENCY

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Abstract

This paper proposes a theoretical framework for understanding how Russian gas prices for Ukraine shape the dynamics of the Russo-Ukrainian bilateral gas trade and, by extension, Ukraine's evolution as an independent state. It posits a negative correlation between the price of Russian gas and the extent of Ukraine's energy dependency on Russia, which rests on three pillars: Ukraine's high gas consumption, its energy poverty, and Russia's status as a monopolistic supplier of energy to Ukraine. The paper also discerns a positive correlation between Ukraine's dependency on Russian energy and its political and economic vulnerability to Russian pressure. The framework suggests that Ukraine's transition to oil-linked gas prices since 2009 has reduced politico-economic and energy dependency upon Russia, thereby improving Ukraine's relative position in terms of the asymmetrical Russian-Ukrainian interdependence in energy and politico-economic matters. However, Ukraine's ability to benefit from these gains in practice will remain contingent upon its capacity to gear its political institutions towards serving the interests of the state, rather than those of dominant business-administrative elites.

Key words: *Ukraine, energy, energy reforms, gas prices, energy dependency*

On January 19, 2009, Russia and Ukraine signed a contract setting the price at which Ukraine would purchase Russian gas for the next decade. The agreement terminated the 2009 gas war—a dispute over gas prices that prompted Russia to withhold gas supply to Ukraine and Europe for over two weeks. It also committed Ukraine to purchasing Russian gas at high oil-linked prices, which was bound to significantly impact its gas-intensive economy. Competing business-administrative groups in Ukraine spun the conflict's outcome in ways that furthered their respective agendas. The government of former President Viktor Yanukovich portrayed it in starkly negative terms, stressing its role in exacerbating Ukraine's suffering in the financial crisis in that it inflated the fiscal deficit through higher energy import costs, and destabilized the economy. Like his predecessors in the office of Ukrainian president, Yanukovich argued that high gas prices are inimical to Ukraine's state interests in order to further his own and his allies' personal ends, while tacitly ignoring the extent to which the previous pricing mechanism had helped generate the kind of Ukrainian economy that could be severely crippled by a shock in a single source of energy supply. Meanwhile, the 2009 contract's purportedly disastrous consequences was used to legitimize the jailing of its chief architect and key opposition figure Yuliya Tymoshenko, as well as to justify the president's refusal to meaningfully reform Ukraine's inefficient and corrupt energy sector. This prolonged Yanukovich's access to energy-related rents, and has helped

bring the Ukrainian economy to the verge of collapse in recent months.

Yanukovych's ability to exploit the 2009 gas contract for propaganda purposes was bolstered indirectly by a near absence of scholarly publications assessing and contextualizing its impact. At the time of writing, only the Oxford Institute for Energy Studies and Margarita Balmaceda have produced relevant studies on the subject (Pirani, Stern & Yafimava 2009; Pirani 2011; Pirani 2012; Pirani 2013; Balmaceda 2013). However, these works have focused either on gauging the impact of Ukraine's domestic politics on its energy policy, or on the effects of the external shock of higher gas prices on various domestic developments. Only limited attempts have been made to theorize how these have combined to affect the larger Russo-Ukrainian energy relationship in its historical context. This paper's contribution is that of a theoretical framework for conceptualizing the relationship between the price of Russian gas for Ukraine, the latter's energy dependency on Russia, and the impact of this dependency on Ukraine's political and economic development. While the framework does not purport to provide an exhaustive account of Russo-Ukrainian energy and politico-economic relations, it may provide a useful lens for understanding the interaction between Russian gas prices and Ukraine's multifaceted vulnerability to Russian pressures.

The theoretical framework presented herein is formulated through historical analysis of Russo-Ukrainian energy relations both prior to and after the transition to oil-linked gas prices in 2009. It suggests that there exists a negative correlation between the price of Russian gas and the extent of Ukraine's energy dependency on Russia, which rests on three pillars: Ukraine's high gas consumption, its energy poverty, and Russia's status as a monopolistic supplier of energy to Ukraine. In addition, it discerns a positive correlation between the extent of Ukraine's energy dependency on Russia and its political and economic vulnerability to Russian pressure. Consequently, Ukraine's transition to high oil-linked gas prices since 2009 has reduced its energy and politico-economic dependency on Russia, rendering it freer to pursue a more pro-Western foreign policy, and providing impetus for domestic institutional reform. However, Ukraine's ability to benefit practically from these gains will remain contingent upon its capacity to gear its political institutions towards serving the interests of the state, rather than those of dominant business-administrative elites.

After analyzing the dynamics of the Russo-Ukrainian gas trade up to 2009, this paper will conceptualize and evaluate the theoretical framework in light of subsequent developments. While it considers the many facets of the Russo-Ukrainian asymmetrical interdependence in energy and politico-economic matters, its primary focus is on Ukraine's many dependencies in this relationship and their links to the price of Russian gas—the fuel with the largest share in Ukraine's energy mix. Throughout, “low gas prices” refers to prices for Russian gas that are below the level of European netback—that is, gas prices at the border with the European Union (EU). “High gas prices” refers to those prices that are tantamount to European netback levels and linked to the price of oil.

Russo-Ukrainian Energy Relations Prior to 2009

The Soviet Era

Urbanization, industrialization, and electrification were key tenets of the Soviet Union's development strategy. As an integral part of the USSR, Ukraine became a key participant in the transformation of the former Russian Empire from a backwater on Europe's fringe into an industrial powerhouse, not least through its provision of gas—a fuel necessary for industrial development (Pirani 2011). Throughout the 1950s and 1960s, Ukraine produced almost half of all Soviet natural gas, with production peaking in 1975 (Pirani 2012; Chow & Elkind 2009). From that point, however, its easily accessible reserves began depleting and in the 1980s Ukraine quickly transitioned to being a net importer of gas from other Soviet republics—in particular from Russia (Pirani, Stern & Yafimova 2009).

The development of heavy industry and manufacturing plants on Ukrainian territory rendered the economy gas-intensive at a time when its own energy prospects were deteriorating. However, Ukraine's membership in a socialist state that included energy-rich republics like Russia ensured it access to cheap and plentiful energy while the Union lasted (Park 2011; Pirani 2012). In the USSR, energy was distributed to enterprises and municipal residences on the basis of need, and its costs were kept well below world energy prices to facilitate industrial development (Goldman 2008; Park 2011). Soviet Ukraine was thereby able to develop gas-intensive sectors under the assumption of energy abundance, even while the republic itself was becoming increasingly reliant on fuel imports from the West Siberian gas fields.

The accessibility of Russian gas produced a surfeit of Ukrainian fuel consumption and made feasible the postponement of technical upgrades that would have improved energy efficiency. By 1990, the energy intensity of the Ukrainian economy had become more than twice that of the world average (Stuggins, Sharabaroff & Semikolenova 2013). Meanwhile, Soviet Ukrainians, having been reared in a climate of plentiful energy, came to view Russia as a reliable supplier of gas, and considered cheap energy a basic social service (Aalto, et al. 2013; Park 2011). They also learned to accept Ukraine's energy-intensive economy as the norm.

In addition to its reliance on Russian energy, during the Soviet era Ukraine became embedded in a system of gas and oil pipelines that saw Russia as the union's most geopolitically important and energy-rich member (Balmaceda 2006). No direct pipeline connections were built between Ukraine and any of the Central Asian republics, some of which would in due course become net exporters of fossil fuels, including to Ukraine.¹ As was the case with political relations, Russia mediated energy among the USSR's constituent members through their structural subordination to it in the gas pipeline system.

Ukraine nonetheless acquired strategic significance denied to the other republics, due to its geographic location as a sizable 'borderland' between Russia and Europe, enabling it to become an integral player in Russo-European energy relations. For the economically stagnant Soviet Union of the 1970s, exports of

gas to European states became a crucial financial band-aid that helped postpone structural economic adjustments. Unlike intra-Soviet energy transfers, the Russo-European gas trade rested on “market principles”, or rather their closest equivalent in a sector that to this day lacks a unified global market. In Europe, Moscow was able to link gas prices to those of oil and, given oil’s escalating value in the wake of the 1973 OPEC oil embargo, derived tremendous profits. Ukraine’s position as the conduit for over 90 per cent of Russo-European gas transit and its extensive gas storage facilities, strategically located near the USSR’s Western border, made it a linchpin in pan-European energy flows (Balmaceda 2013).

1991-2008

After the implosion of the USSR, Ukraine’s importance as a transit state and a large consumer of Russian gas, coupled with Russia’s bleak economic outlook and desire to nurture a friendly regime in Kiev, enabled it to secure the perpetuation of relatively low Russian oil and gas prices. Until 2009, this arrangement helped conceal from the Ukrainian public the full implications of the fact that with independence Ukraine renounced its membership in an energy-rich state and had become energy-poor (Pirani 2007; Balmaceda 2013).

In the 1990s, Russia’s economic collapse rendered it particularly reliant on exports of fossil fuels to Europe (Pirani 2012). This came to furnish as much as 60 per cent of Russia’s export revenue and 45 per cent of its federal budget (Chernavsky & Eismont 2012; Kryukov, Tokarev & Yenikeeff 2011). Having inherited sovereign control over the gas pipeline system and storage facilities on its territory,² independent Ukraine was in a position to either sabotage the flow of gas from Russia to its most lucrative Western markets or, conversely, enable the Russian gas export monopoly Gazprom to reap the highest profits in Europe by affording it low transit and storage fees.³ As independent Ukraine became the fifth largest gas importer in the world, the country also emerged as a very large and potentially lucrative foreign consumer of Russian gas in its own right (Balmaceda 2013). The post-1991 energy relationship between Ukraine and Russia thus became characterized by an “asymmetrical interdependence” (Balmaceda 2013, p. 93-94), whereby Ukraine remained reliant on Russia for roughly half of its energy needs, while retaining leverage over Russia’s energy sales in Europe and in Ukraine itself.

In theory, Ukraine could deploy its status as a crucial gas transit state and gas importer to mitigate its energy dependency by insisting on several things: a more transparent energy relationship with Russia, contractual and geographic diversification of its energy imports through Russian gas pipelines,⁴ and Russian cooperation in helping Ukraine devise and implement a coherent national strategy for transitioning to European netback prices. However, domestic political developments, including the early capture of the Ukrainian state apparatus by powerful business-administrative groups with vested interests in the continued availability of cheap Russian gas (and the obfuscation of Russo-Ukrainian energy dealings), precluded any mitigation of Ukraine’s energy dependency until the external shock of high gas prices in 2009.⁵

During the transition from the Soviet command economy to a more *laissez-faire*

system, and the concomitant privatization of state assets, Ukraine's gas-intensive chemical fertilizer plants, steelworks, and other industries of Soviet provenance were rapidly snatched up and redistributed among a few competing groups of business elites with ties to the president (Balmaceda 2013). Given Ukraine's long isolation from international quality standards, its low export prices hinging on low input costs became its major source of competitive advantage in global markets. For the gas-intensive industries, keeping gas prices low through cheap imports from Russia—the country that could provide the cheapest gas possible—became the easiest path towards profit maximization. In the process, elites imperceptibly vested millions of Ukrainians employed in the gas-intensive industrial sector (particularly in Ukraine's Southeast) with an economic stake in the maintenance of genial relations with Russia (Balmaceda 2009) and, indirectly, in the enrichment and empowerment of the oligarchs themselves.⁶

While guaranteeing a standard of living tolerable to the population, the low gas price regime served as a disincentive for Ukrainians to conserve gas and resulted in the overconsumption and over-importation of the commodity from Russia. It also breathed life into uncompetitive sectors of the Ukrainian economy, enabling them to muddle through without significant reforms (Balmaceda 2009). As a result, the first decade of Ukrainian independence passed without the emergence of any major domestic economic actor with a vested interest in energy supply diversification, and with Ukrainian energy consumers remaining generally insulated from economic pressure to adjust to the underlying reality of Ukraine's post-1991 energy scarcity.

From 1991 to 2005, Ukraine's internal political configuration—notably the weakness of its democratic institutions and lack of meaningful public oversight of the government's workings—severely crippled its ability to manage its energy inefficiency and its dependence on cheap Russian gas. In particular, it made possible the institutionalization of a two-tiered gas pricing mechanism for domestic energy consumers that, by making energy available to the public and residential sectors at heavily subsidized prices, would lead to Ukraine's exorbitant consumption of Russian gas for years to come and the extensive theft of Russian gas transiting through Ukraine (which led to disputes with the Kremlin); the allocation of lucrative gas sales for the Ukrainian industrial sector to private gas distributors linked to powerful politicians rather than state-owned Naftohaz Ukrainy, generating endemic bankruptcy in the latter; the introduction of intermediary companies into Russian-Ukrainian energy relations, including Central Asian gas exporters like Turkmenistan, complicating dealings between the trade partners; and the development of a barter system to maintain gas deliveries from Russia and Turkmenistan into Ukraine, despite its recurrent liquidity crises which inflated gas prices and fuelled corruption (Balmaceda 2013). Ukraine was neither passive nor purely reactive in its dealings with Moscow, as its politicians and business elites played an active role in shaping the country's energy prospects in ways that benefited them.

These policy outcomes, and particularly the way they fostered opportunities for illicit activities, combined to greatly complicate the dynamics of Ukraine's energy dependency (Balmaceda 2009; Pirani 2011). Given the inherent opacity of illicit trade, the notorious absence of the rule of law in both countries, and collusion

between competing cohorts (Russian and Ukrainian) of corrupt politicians and Gazprom officials, it became impossible to reliably quantify the exact amount of Ukrainian state debt for Russian gas (Balmaceda 2013). Further, as Ukraine's energy sector became a breeding ground for corruption that implicated its major political figures, reform became increasingly difficult; since most politicians could be implicated in energy-related rent-seeking, any meaningful attempt to raise the issue would have spelled the end of any number of careers. Most crucially, Ukraine's authoritarian, corrupt, and non-transparent domestic political environment hid from the public the extent of the country's energy-related woes, including the true cost of nominally cheap Russian gas. This will be discussed in greater detail below.

It should be noted that the relationship between Ukraine's domestic politics and its energy relationship with Russia was bidirectional. While bad governance served to exacerbate Ukraine's energy dependency, this circumstance, and importantly the availability of low Russian gas prices, made it politically inexpedient for politicians to make the uncomfortable choice to refuse cheap gas. This is not least due to the fact that such a manoeuvre would temporarily slow down growth in Ukraine's most important economic sectors, and expose the decision maker to powerful opponents who could easily exploit the public's ingrained sense of entitlement to cheap energy. Independent Ukraine effectively found itself trapped in a vicious cycle, in which cheap gas bred venal politicians, who bred cheap gas.

Although profits from the deft exploitation of Ukraine's energy dependency were mostly pocketed by select individuals with connections to top-level Russian and Ukrainian politicians, its costs were foisted upon the Ukrainian public in a variety of more or less covert, and more or less monetized, schemes. These included "state guarantees, high inflation, a devalued currency, and growing budget deficits and foreign debt", as well as a besmirched international reputation as an unreliable trade partner, an increasingly non-transparent economy, state corruption, and a growing number of political concessions to Moscow as Ukraine slowly recovered its economic and geopolitical clout following the dramatic rise in post-1998 oil and oil-linked gas-prices (Balmaceda 2013, p. 104; Goldman 2008; Pirani 2012). In the 1990s, Russia's weakness and the the dominance of pro-Russian voices in the Ukrainian Rada under President Kuchma rendered Russo-Ukrainian energy relations underpinned by low prices acceptable to both parties.

By offering energy discounts for naval infrastructure in Crimea, Russia was already exploiting Ukraine's energy dependency to extract political concessions (Balmaceda 2013). The dawn of the new millennium, however, brought the exogenous shock of steeply rising oil and oil-linked gas prices in Europe, and Ukraine's endogenous political transformation that culminated in the Orange Revolution. While the former rendered Russia more assertive as it sought to reimpose its control over the members of the former Soviet Union (FSU), the latter made Ukraine increasingly unwilling to participate in Russian-led reintegration schemes in the post-Soviet geopolitical space.

Because a major increase in energy costs would have immediately destabilized the fragile gas-intensive Ukrainian economy, so long as the generally pro-Russian

Kuchma regime was in power (1994-2005) Russian gas prices for Ukraine, while rising, remained low (Nygren 2008). Meanwhile, both Gazprom and the Russian government, through foregone profits and tax revenue, effectively subordinated Russia's immediate financial interests to its long-term political aspirations, as well as to the personal interests of select politically powerful individuals in the Russian government and Gazprom—individuals who sometimes colluded with Ukrainian politicians and oligarchs to extract rents from Ukraine's energy dependency (Balmaceda 2013). However, as the prices for gas in the European market rose steadily throughout 1998-2006, and as Ukrainian politicians began deploying anti-Russian rhetoric in the lead-up to the Orange Revolution, the particular configuration of state, corporate, and personal interests in the Kremlin and Gazprom that had until that time fostered relatively stable low gas prices for Ukraine, was unsettled. A process of disorderly reshuffling ensued, culminating in the 2006 and 2009 gas wars.

The causes of the 2006 gas war can be traced to contemporaneous and mutually reinforcing transformations in both Russia's and Ukraine's official energy policies, the shifting dynamics of the complex bidirectional relationship between the Russian state and Gazprom, the upsetting of existing cross-border rent-seeking schemes in the energy sector by the newly elected regime of President Yushchenko, and possible attempts by actors in both countries to foster artificial energy scarcities and insert new actors (Balmaceda 2013). Among Ukraine's new team of "Orange" politicians—notably Yushchenko and Prime Minister Tymoshenko—there was a sudden outpouring of anti-Russian and pro-NATO rhetoric. This prompted the Kremlin to doubt that its policy of subsidizing Ukrainian energy imports since 1991 was paying off. Members of the new Ukrainian government quickly moved to redistribute energy-related rents among themselves, quarrelling and disturbing status quo rent-sharing schemes that included Russian partners (Balmaceda 2013). In the process, Yushchenko came to demand the raising of tariffs on Russian gas transit through Ukraine, which, due to the linkage of the price of gas imports to transit tariffs in the Russo-Ukrainian energy agreement, escalated into a broader conflict. Through Gazprom, Russia retaliated with a firm insistence that Ukraine begin paying almost four times as much for its gas imports. Meeting resistance, it responded with a three-day gas cut-off.⁷

Both prior to and after this conflict, Gazprom was not a passive foreign policy tool of the Russian government. Instead it was steered by close Putin ally Alexei Miller, and the state had more than half the company's stock in its hands. These realities, coupled with the fact that Gazprom's corporate interests demand not only charging its foreign energy customers high gas prices, but also appeasing the Russian state⁸, suggest that Gazprom cannot be considered an independent active generator of Russia's new energy stance towards Ukraine, though it certainly helped foster it. The Russian state effectively permitted Gazprom to insist on its corporate interests—and Russia's financial interest—of raising the export prices to Ukraine as, with recalcitrant 'Orange' elites in Kiev, there was no longer good reason to forego this revenue. This was especially the case as, by 2006, Russia had grown strong enough that it no longer had to subsidize the Ukrainian economy in order to

extract key concessions.

The 2006 gas war concluded with a weakening of Ukraine's leverage over Russia. It also prompted public indignation over Yushchenko's apparent weakness in the face of Russian pressure and rumours that he used the deal to pursue his own and his allies' interests at the expense of the state. The new contract committed Ukraine to charging Russia low gas transit and storage fees, and to pay increasingly more for Russian gas; between 2006 and 2008 the price of Russian gas imports doubled, though it remained significantly lower than the level of European netback. Meanwhile, no clear mechanism for negotiating the terms of future price increases was established, paving the way for further altercations, which would culminate in the gas war of 2009 (Balmaceda 2013). RosUkrEnergo (RUE), a new intermediary with ties to both Gazprom and Yushchenko, acquired a monopoly on all gas imports flowing into Ukraine from both Central Asian and Russian sources, arrogating to itself tremendous profits for unnecessary services. As a result, any gains in Ukraine's energy independence due to the ostensible geographical diversification of energy supply were offset by needlessly high prices and further obfuscation of the country's energy dealings (Balmaceda 2013).

The result of these measures was that the Ukrainian economy did not, as expected, take a hit, but in fact continued growing due to record-high world prices for its exports. However, the terms of the conflict's resolution largely discredited 'Orange' politicians (those who believed in the necessity of maintaining low Russian gas prices as well as those committed to breaking the cycle of dependency) in the eyes of the Ukrainian public and Western observers. Because during the crisis to counter the Russian gas cut-off Ukraine diverted quantities of Europe-bound gas for its own consumption, it exposed itself to charges of corruption and criminal activity from Russia and Europe alike. The resultant perception that Ukraine was engaging in illicit activities at Europe's expense raised yet another barrier on its already perilous path to strengthening relations with the EU, and effectively doomed the new government's pro-Western foreign policy to failure. All of these developments benefited Russia, as they helped to isolate Ukraine from the West and fundamentally undermined the credibility of pro-Western factions within the Ukrainian political system. In essence, the course and outcome of the 2006 gas war illustrates how Ukraine's energy dependency on Russia made it possible for this external actor to significantly affect the course of Ukraine's domestic and foreign policy, while setting the stage for the gas war of 2009.

Conceptualizing Ukraine's Energy Dependency: The Theoretical Framework

On the eve of the 2009 gas war, Russia still supplied over 70 per cent of Ukraine's gas and was its only major supplier of energy through the intermediary RUE.⁹ Meanwhile, Ukraine's energy intensity remained twice that of neighboring Poland and, in 2008, when (at its peak) the Ukrainian GDP ranked 45th largest in the world, Ukraine was the world's sixth largest consumer of gas. It devoured more of the precious resource than the Czech Republic, Hungary, Poland, and Slovakia

combined (Chow & Elkind 2009). With the main Ukrainian economic sectors still relying on supplies of cheap Russian gas, it became impossible not to question the meaning of the country's nominal independence (Balmaceda 2008). However, while detrimental to its claim to sovereignty, Ukraine's dependence on Russian gas was rendered rational by fiscal concerns, and given Ukraine's domestic political environment. The following paragraphs illustrate how, prior to 2009, Ukraine's energy dependency on Russia can be seen as resting on three pillars: the high gas intensity of the Ukrainian economy, Russia's status as a monopolistic supplier of gas to Ukraine, and Ukraine's energy poverty. Each pillar contributed to Ukraine's fumbling approach to foreign policy and economic development.

After 1991, Ukraine's gas-intensive economy was a luxury that it could afford only because cheap Russian gas remained available and insulated it from financial pressure to diversify its energy mix. Cheap gas also enabled Ukraine's exports to remain competitive without significant structural economic reform or innovation. In effect, the continued availability of cheap natural gas enabled the Ukrainian economy to remain "frozen in seemingly permanent transition" (Chow & Elkind 2009, p. 79), as it offered no material incentive for businesses to incur the costs of improving energy efficiency, or for residential customers to conserve energy. It also sent confused and distorted price signals to economic actors, making it rational to continue investment into the already-developed, gas-intensive industries instead of incurring the costs of entry into other sectors that would have been truly competitive in global markets without Russian subsidies.

As cheap gas could only enter Ukraine through Russia, that country could not but remain Ukraine's only major external supplier. Artificially low Russian gas prices discouraged attempts to look for other suppliers and other sources of energy in general, many of which had become available due to technological breakthroughs in the 2000s. While some European countries began to take advantage of deliveries of liquefied natural gas (LNG) from North Africa, the Middle East, and Canada as a substitute for Russian supplies, for Ukraine investment in the construction of a LNG terminal would have seemed an unnecessary cost in light of the availability of cheap Russian gas. This abundance also helped keep Ukraine energy-poor by discouraging investment into exploration of the country's own shale gas deposits. To assess and extract shale gas which, by the 2000s, remained its only domestically available gas source, Ukraine would have had to make sizable investments into the necessary technology or to improve its domestic business environment to attract foreign direct investment (FDI). As with building an LNG terminal, these were seen as superfluous costs as long as Ukraine could import Russian gas cheaply.

In short, by 2009 it had become clear that Russian energy had only been nominally cheap; Russian gas in fact carried with it many invisible "costs". Low prices not only helped keep Ukraine's economy energy-inefficient, undiversified, and vulnerable to sudden shocks in energy prices, but also fuelled corruption in the Ukrainian political system and rendered Ukraine extremely vulnerable to Russian pressure politically. This was true both on the visible level of interstate relations, and beneath the surface. Circumstances visibly came to a head in the aftermath of the Orange Revolution, when Russia exchanged energy discounts for assets

in Crimea (possibly influencing the peninsula's ultimate secession from Ukraine in 2014). Beneath the surface lay Russian actors' impact on powerful Ukrainian business-administrative groups.

On the basis of these observations a theoretical framework for understanding the interaction between the price of Russian gas for Ukraine and its energy and politico-economic dependencies on Russia can be formulated. The historical record to 2009 suggests that, given Ukraine's domestic political configuration, including the political prepotency of industrial interests, low Russian gas prices structurally underpinned Ukraine's exposure to arbitrary interference from Russia in its economic and political affairs. In particular, the availability of cheap Russian gas rendered reasonable Ukraine's over-consumption of Russian gas imports, as well as Russia's continued status as the monopolist exporter of gas to its energy-poor neighbour. These consequences in turn enabled Ukraine's energy dependency to translate into economic and political dependency on Moscow. The development of the Russo-Ukrainian energy relationship prior to 2009 in effect suggests that the price of Russian gas and Ukraine's energy dependency were negatively correlated, with declining prices corresponding to an increase in energy dependency. It also indicates that there was a positive correlation between Ukraine's energy dependency and its political and economic dependence on Russia, as the more Ukraine relied on Russian energy for maintaining its economy, the more its economic and political stability became vulnerable to Russian interference.

With the signing of the January 19 deal that committed Ukraine to paying European netback gas prices starting in 2010 (after an initial doubling in tariffs in 2009), the 2009 gas war effectively ended the low gas price environment and ushered in its opposite—a high gas price environment in Ukraine, as in the rest of Europe.¹⁰ By acquiescing to European netback, Ukraine committed itself to paying the oil-linked price of gas at which it is sold at the border with the EU (the EU base price) minus the transportation costs between Ukraine and this border (Pirani 2013).¹¹ This shift enables a test of whether or not Russian gas prices negatively correlate with Ukraine's energy dependency in general, and whether or not Ukraine's energy dependency positively correlates with its economic and political dependence on Russia—that is, if the opposite of what held in a climate of low gas prices continues to hold when gas prices are high. I propose to investigate this with the help of four hypotheses:

1. High Russian gas prices would make it rational for Ukraine to reduce its consumption of gas in absolute terms, diminish its relative proportion in the country's overall energy mix, and lower the energy intensity of its economy through investments in energy efficiency.
2. High Russian gas prices would make it rational for Ukraine to diversify its sources of energy supply in order to bypass Russian or Russian-controlled suppliers.
3. High Russian gas prices would make it rational for Ukraine to seek to boost its domestic gas output and thus become less energy-poor.

If any of the first three hypotheses hold—which would amount to a reduction

in Ukraine's energy dependency on Russia—then it is also possible to formulate the fourth hypothesis:

4. By diminishing Ukraine's energy dependency on Russia, high gas prices would decrease Russia's political and economic leverage over Ukraine.

Before proceeding with the test, it is imperative to mention the potential impact of a major confounding variable, the effect of which on Ukraine's gas consumption might approximate the impact of high gas prices suggested by the theoretical framework. This confounding variable is the global financial crisis of 2008 that, by 2009, contributed to a 15 per cent contraction in the Ukrainian economy (Svoboda 2011; Balmaceda 2009). The financial crisis catalyzed a sharp decline in demand for Ukraine's gas-intensive steel, chemical, metallurgical, and machine exports (Balmaceda 2009; Aslund 2009), which diminished industrial gas consumption. Although the contemporaneous occurrence of the financial crisis and the 2009 gas contract makes it nearly impossible to disentangle their unique effects, the confounding impact of this variable on each hypothesis must be considered separately before proceeding with the analysis of events after 2009.

Hypothesis 1: High Russian gas prices would make it rational for Ukraine to reduce its consumption of gas in absolute terms, diminish its relative proportion in the country's overall energy mix, and lower the energy intensity of its economy through investments in energy efficiency.

The potential effect of the confounding variable is potent here, since it is virtually impossible to say definitively if an absolute decline in Ukraine's gas consumption after 2009 would reflect the effect of high gas prices, or simply a decrease in demand for Ukrainian exports abroad. Even a decrease in the relative proportion of gas in Ukraine's overall energy mix can be attributed to the effect of the financial crisis, as it would disproportionately affect the gas-intensive industries and potentially induce fuel-switching away from gas. However, if the financial crisis were the reason for the absolute and relative declines in Ukrainian gas consumption, one would expect to see a correlation between fluctuations in the size of the Ukrainian Gross Domestic Product (GDP) and Ukrainian demand for gas. Specifically, one would expect that as the Ukrainian GDP grew and the economy recovered, the country's gas consumption would also grow. Meanwhile, investments in improving the energy efficiency of businesses are usually made with a long-run calculus of costs and benefits in mind due to the large financial outlays involved. Since business owners are likely to consider the effects of the financial crisis more or less temporary, it is unlikely that they would seek to make long-term investments to improve energy efficiency on the basis of a recession alone. Consequently, evidence of investment in the improvement of business energy efficiency cannot be primarily attributed to the effects of the financial crisis.

Hypothesis 2: High Russian gas prices would make it rational for Ukraine to diversify its sources of energy supply to bypass Russian or Russian-controlled

suppliers.

Efforts to diversify suppliers of gas usually entail immediate and direct costs, as investment into importing arrangements from new sources necessitates the construction of nonexistent infrastructure, investment in new technology, and the establishment of new diplomatic contacts. An economic recession leaving both the government and the Ukrainian business sector cash-strapped is thus likely to discourage efforts at supply diversification. Thus, evidence of increased efforts to diversify sources cannot be attributed to the effect of the financial crisis.

Hypothesis 3: High Russian gas prices would make it rational for Ukraine to seek to boost its domestic gas output and thus become less energy-poor.

The same logic that applies to hypothesis 2 applies to hypothesis 3, as efforts to boost domestic gas production entail costs to the government and business for the exploration and extraction of shale gas—the only gas Ukraine has left—or for reaching out to potential foreign investors, which would be a more likely prospect at the end of a recession. Moreover, a recession that would depress gas consumption in gas-intensive export industries and thus gas demand can be expected to deter the appearance of new domestic gas suppliers. Evidence of increased efforts to find domestic sources of gas therefore cannot be attributed to the effects of the financial crisis.

Hypothesis 4: By diminishing Ukraine's energy dependency on Russia, high gas prices would decrease Russia's political and economic leverage over Ukraine.

The financial crisis, which launched Ukraine into its worst recession since the 1990s and impoverished its government, might be expected to make Ukraine particularly eager to accept any Russian discount on the price of gas. Thus, the financial crisis might temporarily increase Russian leverage over Ukraine and thereby offset any gains accruing from its decreased energy dependency on Russia. The findings for hypothesis 4 are thus particularly vulnerable to distortion by the confounding variable.

Testing Hypothesis 1

Hypothesis 1: *High Russian gas prices would make it rational for Ukraine to reduce its consumption of gas in absolute terms, diminish its relative proportion in the country's overall energy mix, and lower the energy intensity of its economy through investments in energy efficiency.*

Since 2009, Ukraine's gas consumption has fallen significantly in absolute terms. In 2009 it decreased by 21.8 per cent compared with the previous year, from 67.3 bcm to 52.8 bcm (Pirani 2011; 2012). Although in 2010 it rose again modestly to 57.6 bcm (Pirani 2012), the following year imports fell to 40 bcm, only to diminish to 33 bcm in 2012 (Olearchyk & Buckley 2013). These figures suggest that between

2009 and 2012, Ukraine's annual gas consumption averaged at 45.9 bcm/annum, compared with about 73.6 bcm/annum between 2003 and 2008 (Pirani 2012). Thus, in the aftermath of the 2009 gas war Ukraine was consuming on average 27.7 bcm less gas per year than previously, with its absolute consumption falling by almost 40 per cent. This is a considerable and unprecedented reduction in light of the country's previous consumption patterns. Ukraine was projected to import only 24 bcm of Russian gas in 2013 (Tuohy & Bulakh 2013), with its consumption in the first quarter amounting to a 17.4 per cent reduction compared with the same period in 2012 (National Radio Company of Ukraine 2013).

These numbers reveal consistent annual reductions in Ukraine's consumption of Russian gas, despite the fact that by 2010 its economy had begun to recover (Matsuki et al. 2012). While Ukraine has not yet recovered its pre-2009 GDP levels and in fact entered a mild recession in 2012 (Olearchyk 2013a). Whereas its GDP fluctuated yet has risen overall, its gas consumption declined. This suggests that cuts in Ukraine's gas consumption were not prompted by the recession primarily, but instead by the new high gas price environment—the only new factor that can account for the observed changes after 2009.

There is also evidence that savings in gas consumption arose partially because the share of gas in Ukraine's energy mix fell. Gas-intensive industry and electricity generators have cut demand by diversifying towards other fuels like coal. This has decreased the relative significance of gas in total energy consumption (Pirani 2011; Olearchyk & Buckley 2013). In general, while in 2007 gas accounted for about 47.9 per cent of Ukraine's energy landscape, by 2013 its share had gently fallen to about 40 per cent (Apergis & Payne 2010; Natural Gas Europe 2013b).

Further, sensing that the principle of higher gas prices has become an entrenched fact of Russo-Ukrainian energy relations, Ukraine has begun to seek not only short-term, but also long-term strategies for reducing its heavy reliance on gas such as enhancing its renewable energy capabilities. The Yanukovich government worked to build wind energy potential in Crimea and to accelerate the development of Ukraine's hydro, biomass, photovoltaic, and geothermal energy sources (Kudrya & Pepelov 2011). The context of rising energy prices seems to have generated some investor enthusiasm, with DTEK, Ukraine's largest power generator, launching construction of a large wind park in Zaporizhia in 2012 (Pirani 2011; KyivPost 2012). In addition, there seems to have been a rise in public awareness of the need to develop more renewable sources of energy, with Ukraine hosting renewable energy summits such as the Ukraine Renewable Energy Development Summit (December 2012) and the annual Ukrainian Energy Forum. The latter was launched in 2010 to invite discussion on Ukraine's energy situation and ultimately to move forward by adopting sustainable development strategies.

In addition to fuel source diversification, by 2012 Ukraine began to work toward improving the energy efficiency of its gas pipeline infrastructure, in part by turning to Europe for funds and expertise. In 2009, Ukraine secured EU financing to upgrade its GTS (Balmaceda 2009) and on May 3, 2013 it held roundtable talks with the EU regarding the future development of Ukraine's gas market (The Wall Street

Journal 2013). In part as a result of these measures, through efficiency investments Ukraine has succeeded in decreasing its consumption of so-called “technical gas”—gas that is lost in the pipeline system due to various inefficiencies and problems—by about 37 per cent (Olearchyk & Buckley 2013; Pirani 2013).

In 2013, the energy intensity of the Ukrainian economy remained high and the country stayed among the world’s eleven most energy-inefficient economies (Tuohy & Bulakh 2013). However, high gas prices seem to have nudged Ukraine’s industrialists to invest in improving fuel efficiency in their sector (Pirani 2011). Although it is impossible to disentangle the effect of the financial crisis from that of high gas prices, in 2009 overall industrial demand for gas fell by more than 41.9 per cent, while industrial output contracted by about 30 per cent. This suggests that gas consumption declined more steeply than production (Aslund 2009; Pirani 2011). Pirani (2013) has indicated that at least some of this decline can be traced back to business’ investments in improving efficiency through technological upgrades.

In sum, as the framework suggests, after 2009 Ukraine decreased its consumption of Russian gas in both absolute and relative terms, and improved the efficiency of its economy. This is because it became rational to consume less of a product that had significantly risen in price.

Testing Hypothesis 2

Hypothesis 2: High Russian gas prices would make it rational for Ukraine to diversify its sources of energy supply to bypass Russian or Russian-controlled suppliers.

The end of low Russian gas tariffs prompted efforts in Kiev to erode Russia’s status as a monopolistic supplier of gas to Ukraine. This applied alike to Russia’s role as the point of origin of imported gas, its role as an intermediary player in gas flows from the Central Asian gas exporters, and its political clout in the area (Pirani 2013). In particular, Ukraine has begun investing in infrastructure aimed at decreasing reliance on conventional natural gas, of which Russia remains the only viable major source in Ukraine’s geographical vicinity, while building partnerships with European countries to import small quantities of their fuel. In 2013, Ukraine scheduled the construction of three coal gasification plants and a liquefied natural gas (LNG) terminal, which would enable it to receive as much as 5 bcm of gas—equivalent to about 17 per cent of its annual energy needs—through non-conventional, non-pipeline means (Olearchyk & Buckley 2013). Ukraine also succeeded in arranging imports of small volumes of fuel from Slovakia and Germany, and began developing capacities to import from Hungary at prices which appear lower than those charged by Gazprom and in volumes that could potentially meet one fifth of gas requirements (Pirani 2013; The Wall Street Journal 2013). According to former Minister of Energy Eduard Stavytsky, by diversifying Ukraine’s gas suppliers and undermining the Russian export monopoly, Ukraine’s bargaining position in future gas price negotiations with Russia will be enhanced, rendering Ukraine less dependent on Russian energy (The Wall Street Journal 2013). These findings are consistent with the framework presented here, as they reveal that after

2009 Ukraine began working to diversify its energy suppliers to reduce exclusive reliance on gas flows controlled by Russia.

Testing Hypothesis 3

Hypothesis 3: High Russian gas prices would make it rational for Ukraine to seek to boost its domestic gas output and thus become less energy-poor.

Since 2009, Ukraine has attempted to increase its domestic gas output as a means of mitigating its reliance on Russian gas (Olearchyk & Buckley 2013). Having depleted its easily accessible gas deposits, it has had to develop capabilities for reaching “hard gas” like shale (Natural Gas Europe 2013b). Before 2009, Ukraine was ignorant of the extent of its shale deposits, but has in recent years learned that these might in fact constitute the third largest in Europe (Reuters 2012). According to former Energy Minister Stavytsky, within a decade these deposits have the potential to make Ukraine self-sufficient in gas (Olearchyk & Buckley 2013). This would drastically decrease its energy dependency and possibly make it a net exporter of shale by 2025 (Olearchyk 2013c; Olearchyk & Buckley 2013; Natural Gas Europe 2013c). To explore and extract hard gas, which requires the application of cutting-edge Western technology, Ukraine awarded three production- and revenue-sharing agreements in 2012 to Royal Dutch Shell, Chevron, and Exxon Mobil (Natural Gas Europe 2013c; 2013d).¹² At present it is far too early to share in Stavytsky’s enthusiasm entirely. The technical and environmental concerns pertaining to shale drilling, the uncertain impact of political upheaval in Ukraine, and Gazprom’s avowals that Ukrainian shale projects would not threaten the company’s position in the Ukrainian market, all complicate a rosy outlook (Olearchyk & Buckley 2013). However, Ukraine’s attempts to develop its shale deposits are nonetheless steps towards mitigating its energy poverty, in line with hypothesis 3.

Testing Hypothesis 4

Hypothesis 4: By diminishing Ukraine’s energy dependency on Russia, high gas prices would decrease Russia’s political and economic leverage over Ukraine.

The confirmation of the first three hypotheses amounts to a reduction in Ukraine’s energy dependency. We can now investigate whether this circumstance has, in turn, reduced its political and economic reliance on Russia. As noted above, the distorting impact of the major confounding variable—the financial crisis—is potentially major, as the event (from which Ukraine is still recovering) may exert additional and unique pressures on the country to yield to Moscow’s demands in exchange for financial relief. The same can be said of many other factors, including Ukraine’s domestic political structure, which in practice could render the country pliable to Russian pressure and offset gains in energy independence. However, these complications do not obviate the fact that reductions in energy dependency might still result in gains for Ukraine in terms of politico-economic independence. The following should be construed as tentative reflections on the post-2009 dynamics of this relationship.

The April 2010 agreement between President Yanukovich and President Medvedev to exchange a twenty-year extension on Russia's lease of a Crimean naval base for a small, temporary reduction in the prices at which Russia sold its gas to Ukraine, has been sometimes interpreted as an indication that gains in energy independence did not alter Ukraine's pliability to Russian political pressure (Charnysh 2013; Conde & Martins 2010). However, the agreement came so soon after the conclusion of the 2009 gas contract that it would be unreasonable to expect a significant reduction in Ukraine's energy dependency on Russia by mid-2010. Further, it is not at all clear that the conclusion of the agreement was foreseeably detrimental to Ukrainian interests or was concluded against its will as a simple result of Russian energy pressure. While naval bases on its territory were in some ways an affront to Ukrainian sovereignty, and proved to be a stepping-stone in Russia's eventual takeover of Crimea, the so-called Kharkiv Accords helped Ukraine through the recession by keeping its gas bills lower than they might have been.

Nonetheless, the stalemated Russo-Ukrainian discussions on Ukraine entering the Russian-led European Economic Community (Customs Union) represent a clear attempt on Russia's part to reintegrate the FSU under its leadership by exploiting Ukraine's dependency on Russian gas. President Putin has consistently promised much lower gas prices for Ukraine if it accedes to the Union (BBC World News 2013). However, in acceding Ukraine would have put a decisive end to the prospect of moving closer to the West which, as the recent "Maidan" protests have shown, is favoured by a broad cross-section of the population. Despite the seductive "carrots" of much cheaper gas, and the "sticks" of ultimatums that Ukraine immediately repay its purported debt to Gazprom,¹³ former President Yanukovich consistently refused the Russian offers. While the decisions of Ukrainian politicians have been influenced by a variety of factors—a topic on which meaningful research has yet to be done—Ukraine's gains in energy independence were of rhetorical use in resisting Russian pressure. Politicians threatened to dispute the Russian energy debt charges through international arbitration, as Ukraine had acquired against Russia "more leverage than ever in the past" as a result of its preliminary success in diversifying its gas suppliers and reducing consumption (Olearchyk 2013c). Similarly, Ukraine's former Prime Minister Mykola Azarov referred to these successes as the "strong new cards" that Ukraine could use to bargain in disputes with Russia (Olearchyk 2013b). At minimum, on the level of formal governmental discourse Ukrainian officials appeared confident that the country had made real progress in reducing its energy dependency. They deployed this in defense of what they saw as Ukraine's politico-economic interest in abstaining from the Customs Union.

With the severance of the "umbilical cord" of cheap Russian gas which, since 1991, nurtured elements in Ukrainian society that kept its domestic and foreign policy largely frozen in the Soviet era, we can now expect to see changes in both spheres. By eliminating one of the Ukrainian industrial elite's pro-Russian sympathies, while at once increasing the importance of Ukraine as a large and very profitable market for Russian energy exports, higher Russian gas prices have improved Ukraine's position relative to Russia in terms of their asymmetrical

interdependence in energy and politico-economic matters. As a result, in theory Ukraine has become freer to pursue a pro-Western foreign policy if it so desires—a factor which may have played a role in enabling the 2013-2014 “Maidan” protests. The ties that Ukraine has been able to forge with European states for the import of their gas, financing, and expertise in gas sector reform can be used as a springboard for a more comprehensive rapprochement with the EU. On a domestic level, having to court outside investment into the non-conventional gas sector has brought to the fore a need for Ukraine to improve its business climate. This could be beneficial to the Ukrainian economy as a whole by necessitating greater transparency. Similarly, investments in improving the energy efficiency of Ukrainian industry may make the economy more resilient, dynamic, and secure in its future prospects, instead of riddled by fear of chaos during a spike in gas prices. Ukraine’s political system may also be subject to a push for meaningful democratization as a result of economic reforms and greater cooperation with the West. In fact, this outcome, while far from certain, is a necessity if Ukraine is to benefit fully from the new opportunities afforded by its altered energy relationship with Russia.

As the history of post-1991 Russo-Ukrainian energy relations makes clear, Ukraine’s domestic political configuration, and particularly the ability of successive business-administrative groups to take state institutions hostage and exploit them for private gain, have consistently prevented the country from fully reaping the benefits of its asymmetrically interdependent energy relations with Russia. As result of the 2009 gas war, Ukraine’s potential leverage in energy matters vis-à-vis Russia has increased. However, the extent to which this development will translate into practical reductions in Ukraine’s politico-economic dependency on its Eastern neighbour will greatly depend on the extent to which its political institutions will be geared towards pursuing state interests. It will also hinge on the general skilfulness and uprightness of its politicians, who in turn depend on the quality of the country’s educational and legal institutions. Also of crucial significance will be whether Ukrainians choose to consider the full (rather than the nominal) costs of cheap Russian gas for development and appreciate that Ukraine can successfully adapt to high energy costs—it has in fact already begun to do so—or whether they instead choose to focus on the inevitable short-term costs of transition to a new energy and economic model. A high gas price regime does not amount to a magic formula for fixing Ukraine’s numerous problems, but it provides an unprecedented opportunity for the country to make a decisive, positive break with its past.

Conclusion

Since 2009, Ukraine has taken concrete steps to decrease its energy dependency on Russia by working to reduce imports of Russian gas, undermine Russia’s status as a monopolistic energy supplier, and mitigate its energy poverty. In the process, the country began consuming less Russian gas in absolute and relative terms, investing in improving the energy efficiency of its gas-intensive businesses, diversifying its sources of gas supply, and encouraging exploration of non-conventional domestic gas. As a result, Ukraine’s diminished reliance on Russian gas after 2009 has

featured as a discursive weapon in Kiev's efforts to resist joining the Moscow-led Customs Union, and in general has rendered Ukraine freer to pursue a more pro-Western foreign policy and reform its domestic institutions. These findings suggest that it is possible to conceive of Russo-Ukrainian energy relations in terms of a theoretical framework whereby the price at which Ukraine buys its gas from Russia negatively correlates with the extent of Ukraine's energy dependency on Russia, while its energy dependency positively correlates with Kiev's political and economic vulnerability vis-a-vis Moscow. Nonetheless, whether or not the Ukrainian public will benefit from the recent changes in the structure of Ukrainian-Russian energy relations will remain crucially dependent upon domestic politics. It is to be hoped that the election of President Petro Poroshenko will be a steppingstone towards a meaningful democratization of Ukrainian governance, and particularly towards increasing public oversight of the work of state representatives. Such a development will be necessary to prevent future hijackings of public institutions by a self-seeking elite. While enabling some domestic reform, a regime of high gas prices will ultimately depend on additional, exogenous support for meaningful political change if it is to be fully exploited by Ukraine as a whole, for the benefit of its people.

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Notes

¹ Of particular importance here is Turkmenistan. At various points throughout the 1990s and 2000s it would supply gas to Ukraine through intermediaries operated by individuals on both sides of the Russo-Ukrainian border, but only through the Gazprom-owned gas transit system inside Russia.

² Despite the contemporaneous construction of the Yamal-Europe gas pipeline, which would bypass Ukraine and instead traverse Belarus on its way to Europe, Ukraine kept its share of the Russo-European gas transit at about 80 per cent (Pirani 2007).

³ Cheap gas storage in Ukraine enabled Gazprom, which lacked similar infrastructure in Russia, to manipulate its gas supplies to—and thus prices in—the European gas market (Balmaceda 2013).

⁴ Ukraine's imports of small quantities of gas originating in Turkmenistan since independence cannot be construed as a successful supply diversification scheme. This is because that gas was either transited through Russian gas pipelines on its way to Ukraine, or was labeled as 'Russian' gas and sold as such. In practice, this enabled Russia to indirectly remain a monopolist supplier of gas to Ukraine.

⁵ For a comprehensive overview of domestic political factors that have shaped post-1991 Russo-Ukrainian energy relations and perpetuated Ukraine's energy inefficiency and dependence on Russia, see Balmaceda (2013).

⁶ The civil war in Ukraine's Southeastern region, including pro-Russian separatism, can be partially traced back to the importance of cheap Russian gas for the viability of the region's energy-intensive economy. This economy became threatened in the aftermath of the so-called 'Maidan' protests elsewhere in the country, which prompted a hike in the price of Russian gas for Ukraine.

⁷ Ukraine was asked to immediately switch from paying \$50/thousand cubic metres of natural gas (mcm) to paying \$160-\$230/mcm (Pirani 2007; Goldman 2008).

⁸ The Russian government provided Gazprom with a variety of perquisites that furthered its competitive advantage domestically abroad (Balmaceda 2013).

⁹ The rest of the gas consumed in Ukraine was produced domestically. However, "Russian" gas could originate from Central Asia, before being purchased by Gazprom and sold to Ukraine (Balmaceda, 2013).

¹⁰ Ukraine would pay European netback minus 20 per cent in 2009 (\$360/mcm) and 100 per cent European netback in 2010 (\$450/mcm). In 2008, Ukraine was only paying about \$170/mcm (Svoboda 2011). Although Yanukovich succeeded in securing a temporary 30 per cent discount on Russian gas and amended some other clauses of the contract, he was unable to alter it in substance and Ukraine remains bound by most of its provisions, including the European netback pricing mechanism.

¹¹ It should be emphasized that the 2009 negotiations ushered in the high gas price environment for Ukraine specifically, as many other countries were able to actually lower the prices they were paying for Russian gas in bilateral negotiations with Gazprom around the same time, citing technological breakthroughs and the increased availability of gas on spot markets as justifications for lower prices.

¹² The Shell deal in particular was the largest agreement of its kind in Europe and has already led to drilling for gas in Eastern Ukraine, although its future is uncertain (Tuohy & Bulakh 2013). Crucially, Ukrainian officials referred to these deals as being part of Ukraine's broader effort to boost domestic gas production, diversify sources of supply, and make its gas-intensive heavy industry more energy-efficient.

¹³ In January 2013, just a month after Yanukovich's refusal to discuss integration, Gazprom issued Ukraine a \$7 billion bill for the gas that the country should have imported according to the "take or pay" clauses in the 2009/2010 gas contracts (Olearchyk 2013c). The issue of unpaid bills only emerged after Yanukovich's refusal to discuss further integration, and was in any case of dubious credibility as Ukraine has argued that its total gas consumption reaches the volume it agreed to buy if one combines the gas imports of Naftohaz Ukrainy, and those of new private companies that began to import gas from Russia in the aftermath of Naftogaz's 2011 unbundling (Natural Gas Europe 2013a).

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