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Boosting gas trading in Ukraine

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Executive Summary

Ukraine needs a reliable price signal for natural gas to coordinate production, consumption, investment and trade. Such a price signal is best delivered by a transparent and liquid gas market.

Ukraine has all structural preconditions in terms of market size and infrastructure to develop a well-functioning gas market. Also, the regulatory reforms of the past two years already enabled some market development. But important steps are still to be taken to make the wholesale gas market, the retail gas market, the balancing energy market and pipeline capacity auctions functioning properly. We focus on the first market segment (wholesale) and identify four key areas that need to be addressed to enable a transparent and liquid market: (1) ensuring liquidity, (2) removing remaining administrative trade barriers, (3) de-risking gas trading and (4) finding a common platform. We summarize key actions to address the identified issues in the following table:

Timeline based on the above (the dates are optimistic assumptions until when substantial parts of the often long processes can be completed)

Finalisation	Ensuring liquidity	Removing remaining administrative barriers	De-risking gas trading	Common platform
April 2017	Gas release program, and/or Assign Naftogaz the obligation to act as market maker	Decide on VAT treatment NERC should monitor capacity hoarding “Use-it-or-lose-it” shall be properly implemented	Abolish currency controls Study optimal gas-trading currency	Moderate a discussion between market participants and channel liquidity to the chosen platform
Mid-2017	Make UGV an independent actor*	NERC should run a public consultation on market barriers Ensure effective unbundling	Complete monetization of housing and utilities subsidies Explore setting up a clearing house together with an IFI	
End 2017	Reform production licenses	Implement state-of-the-art processes and IT at the transmission system operator. NERC should reform entry and exit tariffs	Streamline energy policy making Enhance independence and capacity of Regulator	
In 2018 or 2019	Deal with gas imports from Russia Privatisation of production and storage*	Pre-privatise Ukrtransgaz		

* These steps are only effective, when deep reforms of the retail segment allow a cancellation of the public service obligation and enable functioning retail competition.

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Note
This version is the final version that slightly revises an earlier version circulated in January 2017.

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1 Introduction

Based on our discussion with the Ministry of Energy of Ukraine on December 8th we understand that Ukraine plans to boost gas trading at the existing virtual point in Ukraine by April 2017. This is connected with the expiration of the public service obligation – a special temporary regime on the natural gas market of Ukraine - which implies the launch of a free gas market for households and other non-industrial consumers. We were asked to provide our views on the necessary steps and a realistic timeline. To do this, we identify the main requirements for a functioning virtual gas trading point given the current situation in Ukraine. Because of the breath and complexity of the issue we *first* describe the focus of this report. *Second*, we introduce the current gas market conditions in Ukraine. This is very important, giving the quickly evolving nature of the Ukrainian gas sector. Then, part 4 lines out, which issues need to be addressed, in order to develop a well-functioning virtual gas trading point in Ukraine. Then we describe in some detail, possible avenues to address these problems. Finally, we conclude with a timetable that proposes a schedule for the necessary steps.

2 Focus of the report

Ukraine needs a reliable price signal for natural gas on which

- *producers* can base their production and investment decisions,
- *traders* can base their import, export and stocking decision,
- *consumers* can make sure they pay a fair price
- and which *network operators*, *tax authorities*[1] and *regulators* can use as a basis for setting taxes, charges and regulated tariffs in a cost-reflective manner.

Such a price signal is best delivered by transparent and liquid gas markets. That is, there is not only one, but several markets that need to be developed in parallel in a coordinated fashion. In essence, there are four interacting markets:

1. a retail market, in which final consumers can choose a retailer that provides them the best service at lowest cost.
2. a wholesale market at which gas producer and importer, large consumers and retailers as well as gas trader exchange gas volumes and form a transparent and reliable price signal.
3. a market for cross-border gas transmission capacity that maximises the potential for international arbitrage. In the EU, different coordinated capacity auction systems (such as PRISMA) have evolved that perform this task.
4. a market that allows gas market participants to cover imbalances (i.e., if they used more or less gas then they initially nominated) at competitive prices.

These markets need to be developed largely in parallel as otherwise sectoral monopolies at any of these levels (cross-border capacity, wholesale, retail or balancing) can offset the benefits of competition for consumers. Retail monopolies would, for example, not pass through the benefit from competition on the wholesale level to final consumers, but keep it for themselves. So all these

[1] For example, the royalties of Ukrainian gas producers are currently fixed based on the monthly import price posted by Naftogaz, as no better price signal is available.

markets are crucial in the longer run to ensure a well-functioning gas market to the benefit of the Ukrainian gas consumers. In this paper we focus on the wholesale market – but as outlined above developing the wholesale market without developing the balancing, retail and pipeline capacity markets will be of little value.

In this paper we describe key issues for developing a liquid and transparent gas wholesale market in Ukraine. We will also introduce remedies to address existing problems. But we will do so in general terms, as detailed proposals for individual measures (such as transmission tariff reform or a gas release program) require a separate analysis.

Finally we note, that the experience from gas markets in the EU shows that well-functioning wholesale gas markets take long time to develop. The liquid gas hubs with financial trading in Western Europe developed over 10 to 15 years. And they were not ordered by government, but developed based on an accommodating regulatory environment. So also in Ukraine, a functioning gas hub cannot be ordered by government or regulator, but government and regulator have an important role to provide the necessary preconditions.

3 What is already in place?

Important preconditions to develop a well-functioning gas market in Ukraine are already in place (see also our PP/03/2016). The Ukrainian gas demand is sizeable (2016: 30.3 bcm[2]) and shared between different consumers, gas can theoretically be supplied from several different sources (notably Russia, the EU, storages and domestic production) and non-discriminatory access to the pipeline system is legally postulated.

In fact, there is already a market for natural gas in which eligible larger consumers can buy gas from around 20 importers and around 50 producers[3]. This competitive segment is currently based on direct contracts between suppliers and consumers or brokered by specialised traders.

Ukraine intends to focus on gas trading at a virtual point and not at a specific physical location of its gas network. According to the Code of the Gas Transmission System[4] Ukrtransgaz already runs a virtual point at which title transfer can take place. Currently there is no fee to entry/exit this virtual point. In addition, there are already private gas exchanges in place that aim to match gas supply and demand[5]. For the time being, however, trade volume at these platforms is small compared to those in bilateral contracts[6].

On April 1st 2017 the special provisions of the CMU Decree #758 (01.10.2015)[7] will run out, essentially depriving small consumers of the regulated public gas supply services (currently provided by Naftogaz) at relatively low rates. This will imply that all consumers will have to find their own gas supplier, making a well-functioning gas market even more important[8].

[2] http://utg.ua/utg/media/news/2017/01/spozhivannya-gazu-ukranoyu-zmenshilos-lishe-na-4.html
[3] http://utg.ua/en/utg/media/news/2016/10/ukrainian-gas-market-prospects-of-boosting-expert-view.html
[4] http://utg.ua/en/utg/business-info/documents.html
[5] DiXi (2016).
[6] On January 17, 2017 "Poltava Petroleum Company" stated that it started trading at the "Ukrainian Energy Exchange" https://www.ueex.com.ua/eng/presscenter/marketnews/20626765/
[7] "Regulations on assignment of special obligations on subjects of the natural gas market for providing public concerns in the course of functioning of the natural gas market"

[8] Given the very concentrated nature of gas retailers and their continuing integration with private distribution companies, there is a risk that abolishing the PSO will make those retailers into quasi-monopolists for household supplies and

4 What is missing?

The current market almost only features domestic players[9], cross-border trade is limited and trading is solely conducted through non-disclosed bilateral deals[10]. Besides the lack of a properly functioning retail, balancing and capacity market – which we will not discuss here - the gas wholesale market in Ukraine lacks important conditions for a liquid and transparent market and legal, commercial, financial and political risks cannot be managed by reputable foreign companies. This is clearly inefficient, as such a market does not produce reliable price-signals for consumers and producers.

So, establishing a well-functioning market requires further steps. We identify four main areas: 1) ensuring liquidity, 2) removing remaining administrative trade barriers, 3) de-risking gas trading and 4) finding a common platform.

4.1 Ensuring liquidity

The first crucial task is to **ensure liquidity** of the market. Currently, most trade apparently happens between private Ukrainian gas producers that largely belong to three business groups and large gas consumers that often belong to the same business groups[11] and with the state-owned gas-incumbent Naftogaz. In January – October 2016 74% of the gas imports into Ukraine were conducted by Naftogaz that also controls 75% of the production[12].

Foreign players remain largely absent[13]. Only recently (in December 2016-January 2017) four European traders started direct supplies on the market, according to Naftogaz[14]. So after market opening, the Naftogaz-owned gas production and gas imports will be the main source of gas in Ukraine[15] – dominating the market (today, the price posted by Naftogaz at the 21st of each month serves as reference price for private traders). There is hence a strong commercial incentive for Naftogaz to use its market power – e.g., through underutilizing the booked import capacities – to rise prices. If market entry barriers are low, new players enter the Ukrainian market over time and increasing competition will force prices down. But this might take time and sharply rising prices could undermine the trust of the population in the market reform – potentially leading to a backlash. So it is important, to start with a good level of liquidity (market volume provided by competing players) from the beginning, to prevent excessive price jumps.

consequently lead to higher prices. Hence, we learnt that Ukraine plans to postpone the abolishment of the PSO in order to have time for the necessary reforms in the retail segment.

[9] Recently, four major foreign energy traders (Trailstone, engie, Trafigura and DufEnergy) have began entering the Ukrainian market. http://fromua.news/article/50514278/_odin_iz_krupneyshih_v_mire_treyderov_nachal_prodavatj_gaz_v_ukraine/

[10] Some information on imports is available through data provided by the customs service and by the neighbouring and Ukrainain gas transmission system operators.

[11] Imports by private companies and private gas production can be largely attributed to a small circle of major players (Group DF, SCM, Privat Group, see dixigroup.org/storage/files/2016-05-10/polbrief_dixi_**gas**_market_reform.pdf) with the notable exception of Engie, that recently entered the market.

[12] http://naftogaz-europe.com/article/en/qwerrtyuukreng

[13] There is, however, some positive development with Engie trying to get active on the Ukrainian gas market (http://www.engie.com/wp-content/uploads/2016/10/cp-signature-eem-ukraine.pdf).

[14] http://ua.interfax.com.ua/news/general/397107.html

[15] But in January – October 2016 only 8% of the industrial consumers were supplied by Naftogaz according to http://utg.ua/en/utg/media/news/2016/10/ukrainian-gas-market-prospects-of-boosting-expert-view.html

4.2 Removing remaining administrative trade barriers

Entering the Ukrainian market was complicated and did not pay off in the past. Hence, foreign companies remained on the side-lines, leaving the market to domestic players that were able to organize access to networks, imports, production or storage at fair cost. Despite significant progress – for example on access to the network – several administrative barriers continue to hinder the entrance of new gas market participants.

VAT for gas imports

Gas importers have to pay the value added tax (VAT) in advance[16]. This is in contrast to the EU single market, where VAT for gas is only paid by the final customer[17]. This is particularly damaging for gas traders as the Ukrainian tax administration often has difficulty to reimburse VAT for exports in time. Hence, traders have to pre-finance VAT and especially traders from outside Ukraine might find it difficult and bothersome to get their pre-payments back quickly.

Insufficient IT system for gas nominations

Injecting gas in one point and withdrawing it at another and making it change the owner are the basic underlying of each gas market. To make sure these so called "nominations" are reliably recorded and executed gas transmission system operators and market participants communicate via dedicated IT systems. Modern systems can be linked to the internal processes at the transmission system operator, but also to the trading software of traders, market operators, clearing houses, …. Nominations in Ukraine (and hence also at the Ukrainian virtual point) are still not following best EU market practices. This is, both, due to outdated over-complex processes (requiring a "lot of paperwork in Ukrainian language and stamps" according to one market participant) and due to the absence of a modern IT system at Ukrtransgaz to manage nominations. This makes properly linking a market software to the physical nominations impossible.

At the beginning of 2017, Ukrtransgaz procured a software for this purpose. As either the software (developed for the Hungarian market) or the Ukrainian nomination processes (or better both) would need to be thoroughly adapted it is hard to estimate when the new IT process will be running.

Households' subsidies

As a result of the current system of social support which was put in place to mitigate the rapid growth of household gas tariffs in 2016, gas suppliers have to reduce the bills for households by a legally defined subsidy which they shall get reimbursed from the state. The procedure of reimbursement, is however taking time (and creates risks for market participants not versed in dealing with Ukrainian authorities). So a substantial part of the cash-flow is frozen, which private companies would find difficult to accept. A monetization (i.e. direct payments to consumers) of these subsidies is desirable and feasible, but currently not undertaken.

[16] Before 2017, Naftogaz was excempted from paying VAT for imports, giving it a preferential treatment compared to competing importers. This preference was removed in the bill №5368 on changes to the Tax Code: http://samopomich.ua/en/kozhen-zakon-u-tomu-chysli-i-byudzhet-tse-kompromis-tetyana-ostrikova/

[17] Council Directive 2009/162/EU.

Reserve requirement

After protests from market participants the excessive reserve requirements imposed in 2014 due to the looming gas supply crisis – which forced suppliers to store 50% of their committed volumes, have been repealed at the beginning of 2017[18]. Such storage requirements are not only putting cost on traders (for storage and deferred interest rate for the invested capital) but also exposes them to some risk on whether their property right of the gas is in any case – even a supply crisis – recognised. Ukraine still has to build a track record on recognising property rights. But while reserve requirements are not helpful for attracting new market participants, Ukraine indeed needs some tool to safeguard supply security. A policy to implicitly oblige Naftogaz to ensure gas security of supply will get in the way of developing a level playing field.

Financial guarantees

The gas transmission system requires a relatively high financial guarantee. According to Chapter VIII of the Gas Transmission System Code network users shall provide at least the financial equivalent to 20% of their monthly supplies (VIII.3) and at least the monthly cost of natural gas transportation services (VIII.2) as a financial guarantee[19]. While this is a barrier on the entrance of small new market players, it might be sensible given that currently imbalances are only settled on a monthly basis and also in order to prevent traders from entering that only intend to game the system.

Limited gas import capacity

In 2016 there was only limited gas import capacity available on the Slovakian side (exit). This is due to the unavailability of backhaul capacity (which technically could be in the order of 80 bcm/y). The technically feasible back-haul capacity can for the time being not be used due the currently disputed transit contract with Gazprom. We learnt that Naftogaz booked almost the full pipeline capacity from Slovakia for several years. This made sense at the time as it provided the financial reason to construct the corresponding line in the first place. It, however, also implies that other companies were not able to easily supply Ukrainian customers with gas from the EU gas market. Currently, up to 90% of import capacity can be sold by Ukrtransgaz on a yearly basis (more than 10% need to be sold on a seasonal basis and only the residual is sold either as monthly or day-ahead product) according to IX.4.2 of the Gas Transmission System Code. We learnt that after April 2017 – new capacities shall be made available at the Slovakian exit point – resolving the problem of capacity hoarding by Naftogaz.

High Entry and Exit Tariffs

Tariffs for cross-border points set (by the regulator) are very high by international standards[20], while domestic producers do not yet pay entry tariffs. The motivation was to 1) make transit pay a significant share of the network cost, 2) to incentivise domestic production. This tariff differentiation is subject to change in April 2017, when domestic producers might also have to pay entry tariffs into the network. The entry tariffs are quite high (12.5 USD/tcm) as the regulator seeks a fast depreciation of the network, before transit flows might be circumvented. High entry and exit tariffs,

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[18] In September 2016, according to the Law of Ukraine "On the natural gas market" amendments and later relevant KMU decree, there was set the final obligation of 10% of "insurance stock" of monthly volume of gas supplier. Literally, it is stated – "not more than 10%" (http://zakon0.rada.gov.ua/laws/show/1541-viii).

[19] One trader indicated that a corresponding bank guarantee needs to be in Ukrainian language - which is difficult to obtain from a none-Ukrainian bank.

[20] This is partly a feature of the entry/exit tariff system. Ukraine is a large country, so the tariffs at the individual entry/exit points need to be larger to cover the cost of the larger system (even though traders might only want to ship gas over short distances).

however, not only discourage gas transit (and provide additional justification for bypassing pipelines); it also is a barrier for gas trading and integrating the Ukrainian system into the EU gas market. For example, storing EU gas in Ukraine becomes uncompetitive[21]. But it also prevents arbitrageurs to lower Ukrainian gas prices by importing gas from the EU, when it is cheaper there.

Access to exports capacities was impossible in the past but since 2017 quotas on gas exports are no longer applicable[22]. However, on the old border points, the gas measurement is still controlled by Gazprom that does not allow any other exports. At the new border points (created after 2014), the Ukrainian gas regulator has set an exit tariff at the beginning of 2017, only. This exit tariff, has however been set at a very high level (37 USD/tcm), posing a substantial financial disincentive for gas exports.

While exports might be largely uncommercial in the current situation where prices in Ukraine are higher than in the EU, preventing them administratively sends a bad signal to foreign companies (in particular potential producers) that are not sure whether they can evacuate their gas from Ukraine in case the market or regulatory environment turns out to be unfavourable. Without a reasonable exit-option, they might be less inclined to enter the market in the first place.

Incomplete unbundling

It is unclear to which degree non-discriminatory access to the gas distribution system can be guaranteed as distribution system operators are only formally unbundled from suppliers – but are possibly still controlled by the same interest. But access of different competitors to the distribution system is crucial so that final customers can actually switch. Technically, a major issue will be remaining coupled payment for gas and distribution services as in many cases gas supply fees do not distinguish DSOs tariff. This would make it virtually impossible for independent suppliers to settle their nominations with the DSOs on non-discriminatory basis.

Likewise, the gas transmission system operator Ukrtransgaz remains interwoven with the incumbent Naftogaz. This poses significant risk of discrimination and market foreclosure. For example, Ukrtransgaz could in theory improve the profitability of Naftogaz by reducing firmly available import capacity or raising administrative entry barriers through the network codes.

In addition, the operational independence of Ukrtransgaz' (the TSO) management from the Ministry of Energy which is its effective shareholder (as set out in the agreed unbundling model) is currently not guaranteed. Hence, the clear subordination of Ukrtransgaz to the Ministry, is perceived as an issue for independent operation – as in the past decisions had a strong tendency to be politicised.

So far, the newly created company to manage the gas transmission system (Mahistralni hazoprovody Ukrainy) appears not to be operational soon as transfer of Ukrtransgaz main assets is subject to some legal decisions and the arbitration process of Naftogaz and Gazprom (unbundling can only be

[21] There is an ongoing discussion on a special discount on network tariff for traders that only want to use Ukrainian gas storages.

[22] Until 2016 it was impossible to export gas from Ukraine. An ICIS Article stated: "Export of gas from Ukraine requires obtaining a quota permit from the government. Some Ukrainian gas companies have told ICIS that a great deal of red tape would need to be overcome to obtain the permit. ICIS understands that no producer has applied for an export permit yet as spreads between the Ukrainian market and potential export destinations are not high enough to encourage exports, when transportation costs are taken into consideration."

completed when Gazprom accepts that the transit obligation – which under the 2009 contract was put on Naftogaz – is reassigned to the new TSO).[23]

4.3 De-risking gas trading

Beyond pure arbitrage (buy cheap in one place/point of time and sell expensive at another one) gas trading is essentially about risk-management. Traders take numerous positions that typically involve uncertainty on price or volume. Depending on their strategy they put together a portfolio of positions that have a very high chance of cancelling out in volume terms, but leaving a profit. So a trader might allow a consumer to purchase gas up to a certain volume at a fixed price, having some volume uncertainty. At the same time it buys gas import capacity and a certain fixed volume-band of gas. However, in days where the customer needs more gas, the trader has to buy gas at the short term (or more expensive balancing market) while in days with low demand the trader can sell some gas back to the market. On these days, the trader faces a price risk. Beyond those commercial risks, that a trader is willing to take, there are additional risks that trader typically prefer to avoid – in the worst case by not trading at all.

Counterparty risk

Given the weak legal system it is more difficult to enforce contracts in Ukraine and as a consequence it is more likely that contracts are actually not respected. Hence, in gas trading there is a much higher risk in Ukraine that the counterparty of a trade – in particular, budgetary institutions, heat producing enterprises and (to limited extent) households – does not meet its obligation (e.g., pays the gas it bought; or delivers the sold it gas) and that it is difficult to legally recover corresponding damages.

The counterparty risk is typically managed by financial guarantees that counterparties have to deposit. However, western traders would not accept Ukrainian banks “letters of credit” as the Ukrainian banks themselves are not credit-worthy (as the country rating itself is insufficient). So Naftogaz is the only Ukrainian gas market participant that can issue acceptable guarantees as the state-owned holding is backed by a state guarantee. Even Ukrainian gas producers would not have the rating to participate. Consequently, currently trades typically happen based on pre-payments (or in the form of barter) with Naftogaz, or based on short-term pre-payment schedules (e.g., pay every 10 days for the gas in advance) between other players.

Regulatory uncertainty

Another issue is the obviously dynamic nature of the Ukrainian regulatory system. Over the past two years numerous gas-sector related reforms have been undertaken and several crucial steps are still in the pipeline. After a difficult start in 2014 where a looming supply crisis forced the government to take business-unfriendly emergency measures, such as high reserve obligations and extra taxes – most of the more recent reforms indicate that the country is developing in the right direction. Still major uncertainties on the path and final destination of the gas market persist and ill-communicated steps like the transmission tariff reform of January 2015 fuel suspicion on the politicised nature of gas legislation. Such uncertainty prevents domestic and foreign companies to invest more into the Ukrainian gas sector.

[23] We also hear MHU it has currently no resources to fulfil for its current/envisaged role.

Currency risk

Trading gas in Ukrainian currency (UAH) is a problem for international traders. The UAH has been extremely volatile in the past and there are no cost-efficient hedging instruments for this volatility available. Due to currency controls the UAH cannot be freely exchanged into Euro or Dollar and it might take several days to get foreign currency.

At the same time, trading gas in Euro or Dollar also faces the problem as exports of foreign currency falls under currency controls.

4.4 Finding a common platform

Currently there are different – largely idle - trading platforms and there is a risk, that in a first stage more trading platforms arise which will lead to a phase of fragmentation. Such fragmentation might take some time to settle through closures and mergers. During this time liquidity in individual markets might be low, preventing a rapid development of the gas market altogether. So, the Ukrainian government might help the market to choose a single liquid market platform.

5 Recommendations

In this section we will describe possible solutions to the above-described issues. Sometimes there are alternative options to resolve an issue, and sometimes only the combination of multiple steps promises to have a significant impact. Given the tight time-table we try to give a sense of priorities, by providing a rough estimate for the timing.

5.1 Ensuring liquidity

Liquidity at the gas wholesale market is limited on, both, the demand and the supply side. While households, district heating companies and the transmission system operator do not buy gas at the market due to several market barriers (e.g., district heating companies are prevented from conducting pre-payments, while at the same time they have huge arrays, so that no private trader would supply them). This will require creating a functioning retail and balancing market and removing corresponding market barriers – which is beyond the scope of this analysis. The below-described supply-side measures to generate liquidity are, however, only meaningful if there is competition for balancing and retail services.

1) April 2017: **A gas release program** is crucial to kick-start the day-ahead market as it generates some initial liquidity[24]. In Austria, the time-limited gas-release program proved very effective in kick-starting liquidity at the wholesale market. In Ukraine such an approach would imply that Naftogaz (or its production subsidiaries) would need to be forced to regularly sell a sufficient amount of gas in an auction. This auction should match the timetable of the market. For example, an annual release of 1 bcm, a monthly release of 100

[24] Poland's largest gas distributors and gas oil state company PGNiG (Polskie Górnictwo Naftowe i Gazownictwo), had an obligation (obligo giełdowe gazowe) to sell 30% of its produced gas on the Polish Energy Exchange (Towarowa Giełda Energii) in 2013. Every year this percentage increased, - 55% in 2015.
Source: amendments to the Polish Energy Law, came into force from the 11.09.13,
https://www.ure.gov.pl/pl/urzad/informacje-ogolne/aktualnosci/5419,Weszla-w-zycie-nowelizacja-ustawy-Prawo-energetyczne.html

mcm and a daily release of 1 mcm would amount to 2.6 bcm per year. The release can be either done via a separate auction or through the general gas market platform (we prefer the later, see d.) However, such a gas release program will make little sense, if Naftogaz will still be obliged to supply protected customers. In this case, it would imply that Naftogaz would have to release volumes to the market, only to buy them back to supply protected customers. Hence – a gas release program and retail market reform need to be properly coordinated.

2) In the longer term, a related question is how to **deal with gas imports from Russia**. Having no rules for importing gas from Russia seems not a credible longer-term strategy. The risk is, that free access of all players to deal with Gazprom might allow Gazprom to schedule large sums of money to individuals in Ukraine. On the other hand, having one (state-administered) import-monopolist will give rise to corruption concerns (like seen so often in the past). One solution would be to allow licensed traders to import gas from Russia when they fulfill two obligations: First, they would need to sell a predetermined significant fraction of this gas at the gas hub (e.g., 50%), and second, they would need to publish the price they paid to Gazprom for the gas. This would (1) allow Ukraine to buy Russian gas at competitive prices, (2) make it much more difficult for Gazprom to undermine trust in the Ukrainian market by shady deals with individual traders and (3) avoid a public body having to take the risk of buying Russian gas at one price, and selling it in Ukraine at another.
3) Mid-2017: **Balancing market**. Ukrtransgaz currently purchases about 100 mcm per month for balancing services. In addition, it also purchases technical gas (for running the compressors and covering losses). Conducting these somewhat regular purchases through the open market would generate a baseload demand that would help the market to evolve.
4) Option: **Naftogaz as market maker**. In developed markets, so called “market makers” are companies that promise to, at every moment, sell gas at a certain high price and buy gas at a certain low price. If they meet certain criteria (e.g., the spread between buy and sell price does not exceed a certain limit) they are qualified to obtain a special deal with lower trading cost. To boost liquidity one might consider to - for a limited period (e.g. 2 years), there could there be an obligation on Naftogaz to provide for each product a buy and a sell offer with a limited spread.
5) In 2018 or 2019: Enable **new production licenses** to be issued. Ukraine might produce significantly more natural gas. But gas production should not be restricted to the oligopoly of current license holders as this would be neither efficient (they likely do not have the same access to capital and know-how to invest, as some foreign companies) and perpetuate the very concentrated market structure in Ukraine. Consequently, making the licensing regime more friendly to new entrants should be a mid-term priority.
6) In 2018 or 2019: **Privatisation** of individual state owned production and storage assets can also be an important step to reduce concentration and hence increase production and competition. This would require that reputable foreign companies have a fair chance of entering this segment. In an interim period, UGV might be singled out of Naftogaz in order to act as an independent actor – thereby creating competition.

5.2 Removing remaining administrative trade barriers

1) **VAT for gas imports:** The cost and benefits of bringing Ukrainian VAT-rules in line with EU standards by exempting gas imports from VAT, shall be carefully studied.

   -> April 2017: **If there are no strong reasons to keep the current system, gas imports should be exempted from VAT**

2) **Insufficient IT system:** The Ukrainian government should encourage Ukrtransgaz to closely cooperate with its customers on developing a modern IT process for nominations. It should be consistent with EU best-practice and this might imply not only changes to the software, but also that outdated processes at Ukrtransgaz are replaced. The fastest solution would in our view be, not to adapt a foreign software to the complex Ukrainian processes, but to clone all the processes and IT of a well-functioning EU market in Ukraine. The implementation of the software-services procured by Ukrtransgaz in January 2017 (through the PROZORRO system)[25] from the Hungarian specialist ipsystems.hu should be closely coordinated, especially with Western traders that can help to ensure compatibility with systems in the EU.

   -> End of 2017: **Implement state-of-the-art processes and IT at the transmission system operator**

3) **Household subsidies**: The IMF and the government of Ukraine seem to agree on the monetization of household subsidies. Different models are discussed and the complex details still need to be worked out.

4) **Reserve requirement:** The repealing of the corresponding rules appears to have solved this issue. However, security of supply is currently implicitly demanded from Naftogaz which is politically pushed to store gas volumes beyond what the company envisages to be commercially sensible. On average, this implies commercial losses which require some out-of-the-market compensation. In the future, this approach should be replaced by a mechanism that does not give Naftogaz a special obligation.

5) **Financial guarantees:** Moving to daily balancing might reduce the financial risk of Ukrtransgaz from dealing with its customers. This might hence allow to reduce the required financial guarantees. Ukrtransgaz should consult its customers whether the level of financial guarantees is indeed a barrier to trade at the Ukrainian gas market. Actually, a public consultation might help to identify further barriers, not addressed in this report.

   -> Mid-2017: **NERC should run a public consultation on market barriers**

   -> moving the balancing regime to daily balancing

6) **Limited gas import capacity:** the regulator should be asked to closely monitor capacity hoarding and be obliged to take appropriate steps to prevent this. There might, for example, be a cap on the maximum import capacity the largest player can acquire. In addition the EU use-it-or-lose-it provisions should be properly implemented.

   -> April 2017: **NERC should monitor capacity hoarding**

   -> April 2017: **"use-it-or-lose-it" shall be properly implemented**

7) **High Entry and Exit Tariffs:** The tariff system should be reformed in order to help the better integration of the Ukrainian gas market with the adjacent EU markets and to show that transit through Ukraine is competitive with new pipelines. In Zachmann and Ruester 2014 we propose a stable, transparent and cost-reflective system that would allow Ukraine to benefit from its transit role and offer fair tariffs for market participants. Based on a wide consultation with all market players, NERC should come up with a new tariff methodology

[25] https://prozorro.gov.ua/tender/UA-2016-11-18-000528-c/

(possibly deviating from the current 'accelerated depreciation' approach). Likewise, planned changes to the storage tariffs shall only be decided after consultations with market participants, as the result of such changes should not be to diminish storage usage.

-> End of 2017: **NERC should reform entry and exit tariffs**

8) **Incomplete unbundling:** Putting in place 'Chinese walls' between policymaking and management of the gas transmission system operator, as well as its full unbundling from non-network related activities is crucial to ensure non-discriminatory network access for all market participants. In addition, the structure should provide the right incentives for a professional customer-oriented management (e.g., of nominations). To this end, we strongly suggest to explore the option of pre-privatising the TSO to an international financial institution (see Zachmann, 2016).

   -> Mid 2017: **enforce the unbundling plan**

   -> 2018 or 2019: **pre-privatise Ukrtransgaz (or MHU after the transfer of Ukrtransgaz assets)**

5.3 De-risking gas trading

1) **Counterparty risk:** One way to manage the counterparty risk is through setting up a clearing house that accepts to take the counterparty risk in return for a premium. Traders have to put money into the clearing house and then can trade up to the sum they put into their trading account. The next day the money is transferred from the buyer to the seller, when the hub announces that the gas nominations matched the trade. If the gas flow fell short, the buyer does not have to pay and gets compensated from the sellers account for the imbalance cost incurred. But given the country rating as well as the legal environment a private clearing house would likely not emerge. One option would be to discuss with an international financial institution whether they would be willing to take the risk, backed by a state guarantee, to set up a corresponding clearing house together with a specialised clearing provider (e.g., from the EU).

   -> Mid 2017**: explore setting up a clearing house together with an IFI**

2) **Regulatory Risk:** the regulatory risk can only be reduced by a) developing an impeccable track record for not screwing over investors with ad hoc regulatory changes, b) committing to international institutional frameworks such as the Energy Charter and the Energy Community and c) making decisions transparent and based on consulting with market participants. The later implies parallel working groups on the same issue shall be prevented and market participants shall be involved early in the process. Furthermore, the energy regulator (NERC) should obtain the budget and manpower needed to meet the stronger and more independent role it obtained with the last reform. Allowing it to conduct better market monitoring and high-quality regulation.

   -> streamline energy policy making
   -> strengthen the capacity and safeguard the independence of the regulator

3) **Currency risk:** Reducing currency risk will fore mostly require to abolish currency controls for gas trading. This might, however, not be possible unless all currency controls are abandoned (otherwise gas trading might be just used as a vehicle for circumventing currency controls).

Beyond, one should explore in which currency (EUR, USD, UAH) gas shall be traded at the Ukrainian wholesale market[26].

-> abolish currency controls
-> study optimal gas-trading currency

4) **Financial liquidity risks related to housing and utility subsidies:** Finding appropriate financial scheme to consolidate interests of social support of population with a well-designed risk distribution does not seem have a chance without fast introduction of one or another subsidies' monetization model. Immediate and temporary address of this issue might be for the suppliers to charge the consumers for gas and heat as adjusted for the subsidies' amount being reimbursed by Naftogaz (if present in the value chain) or immediately by State budget through applicable structures.

   -> speedy introduction of subsidies' monetization system

5.4 Finding a common platform

The state could avoid such fragmentation by selecting and favouring one trading platform e.g., by (1) targeting the gas release program to this platform or (2) requiring Ukrtransgaz to procure balancing services at this platform or (3) making the state a minority shareholder. This would, however, require the state to actively determine which trading platform to favour – raising concerns over corruption-risks in administrative decision-making in Ukraine. A less intrusive alternative would be to bring major market participants (Naftogaz, Ukrtransgaz, private producers and traders, DSOs) together and let them jointly decide on a preferable market platform. Such a platform could for example be politically supported by the above-described liquidity measures.

-> Moderate a discussion between market participants and channel liquidity to the chosen platform

[26] As gas is traded in EUR even in non-Eurozone countries (e.g., Czech Republic or Denmark), that might be an appropriate choice with respect to maximise market integration.

6 Conclusion

In the past two years Ukraine made significant progress in setting up a competitive gas sector. Major structural and legal prerequisites are already in place, ranging from non-discriminatory network access to the reformed governance of Naftogaz. The success of these measures is illustrated by the trading activities at the Ukrainian wholesale market. In particular the entry of Engie - a global gas-sector leader - and other traders from the EU is an encouraging sign.

But crucial barriers to achieve a liquid and transparent gas market remain. We are especially concerned that there is a risk that the dominant player can push up prices, when the market is opened. Instead of re-regulating gas prices we suggest increasing competition and liquidity of the market, including through some transitory measures. We summarize our recommendations in the following table.

Timeline based on the above (the dates are optimistic assumptions until when substantial parts of the often long processes can be completed)

Finalisation	ensuring liquidity	removing remaining administrative barriers	de-risking gas trading	common platform
April 2017	Gas release program, and/or Assign Naftogaz the obligation to act as market maker	Decide on VAT treatment NERC should monitor capacity hoarding “use-it-or-lose-it” shall be properly implemented	abolish currency controls study optimal gas-trading currency	Moderate a discussion between market participants and channel liquidity to the chosen platform
Mid-2017	Make UGV an independent actor*	NERC should run a public consultation on market barriers Ensure effective unbundling	complete monetization of housing and utilities subsidies explore setting up a clearing house together with an IFI	
End 2017	Reform production licenses	Implement state-of-the-art processes and IT at the transmission system operator. NERC should reform entry and exit tariffs	Streamline energy policy making Enhance independence and capacity of Regulator	
In 2018 or 2019	Deal with gas imports from Russia Privatisation of production and storage*	pre-privatise Ukrtransgaz		

* These steps are only effective, when deep reforms of the retail segment allow a cancellation of the public service obligation and enable functioning retail competition.

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- Economic Reform Agenda for Ukraine, by Ricardo Giucci, Robert Kirchner, Georg Zachmann, Stephan von Cramon-Taubadel, Policy Study PS/01/2014

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