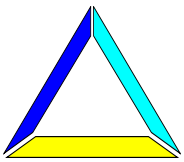
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EU Energy Sector Reforms: A benchmark for Ukraine!

Executive Summary

In the beginning of 2006 Ukraine was hit by an energy price shock, due to the price increase of Russian gas supplies to Ukraine by 60%. This prompts Ukrainian policy-makers to pay attention to energy market reforms. The policy paper looks at the main principles of how to stimulate competition on energy markets, based on the example of the European integrated energy market as it is currently being built. We discuss cornerstone concepts of the EU energy policy, namely, the concepts of unbundling vertically integrated monopolies, establishing third-party access to networks and market opening. The Ukrainian situation is contrasted with respect to the main principles of the EU Directives and recommendations on harmonization of Ukrainian and EU energy policies are given. Ukraine should concentrate on creating framework for competition in the gas market and focus on market opening in the electricity market.

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1 Introduction

In the beginning of 2006 Ukraine was hit by an energy price shock, due to the price increase of Russian gas supplies to Ukraine by 60%. Important consequences of a new contractual relationship with the Russian side were the cancellation of barter schemes and the start of monetary transactions as well as the creation of a Russian-Ukrainian joint venture to enter the Ukrainian gas market at the wholesale level. The clearly most dramatic implication will be significant increases of consumer prices for gas and electricity. To ensure that these price effects are no higher than absolutely necessary Ukraine's energy sector, which until recently has been dominated by large state-owned monopolies, should be restructured to allow for more competition.

Since the early 1990s, an energy policy intending to create a competition-driven energy market has been implemented by the European Union (EU). Accordingly, Ukraine's recently stated intention to harmonize its energy policy with EU standards appears to be a useful starting point for redefining its energy policy. Against this background, the present paper describes the main elements of the EU energy policy in its design an progress (section 2), assesses the extend to which the Ukrainian energy sector complies or not complies with the main principles of the EU energy policy (section 3) and gives recommendations as to how Ukrainian policy-makers should further proceed with the intended harmonization (section 4).

2 The reform of EU energy markets

2.1 Overview

Prior to the 1990s, energy markets of the European Union (EU) were characterized by national fragmentation and typically dominated by vertically integrated firms, which mainly operated as regional monopolies. Energy prices as well as the degree of state intervention in most Member States were rather high and investments were to a significant extent financed by public funds.

Against this background, the EU commission drafted the cornerstones for a common, competition-oriented energy policy, which all Member States were obliged to implement. The intention of this reform was to raise consumer welfare by creating a single, integrated energy market in which competition between all firms increases efficiency and drives down consumer prices.

The benchmark for the new EU policy was the liberalization of energy markets in the UK, which has helped to reduce consumer prices and state interventions into the market. At the same time, overdue investments could be financed by private rather than by public funds.

The main directives for the new EU energy policy were first issued in 1996 for electricity markets and in 1998 for gas markets.[1] The specific provisions of the directives are described in the appendix. In general, both foresee the use of three basic elements:

1) Unbundling of transmission and distribution networks from vertically integrated firms;
2) Ensuring Third Party Access (TPA) to networks and storage facilities; and
3) Gradually opening the markets.

In parallel, the directives also stipulated several additional tasks:

- To define responsibilities for the operation of transmission and distribution networks;
- To stimulate the implementation of common rules for the operation of infrastructure that interconnects different national markets in order to allow for undistorted cross-border trade;
- To improve the effectiveness of regulatory measures by fostering the use and implementation of incentive-stimulating methodologies and by improving them with respect to incentives for investments; and

[1] See directive 96/92/EC for electricity and directive 98/30/EC for gas.

- To support the development of a European infrastructure plan and the negotiations on reciprocal electricity-market-opening agreements with the EU's neighbours in order to increase supply security.

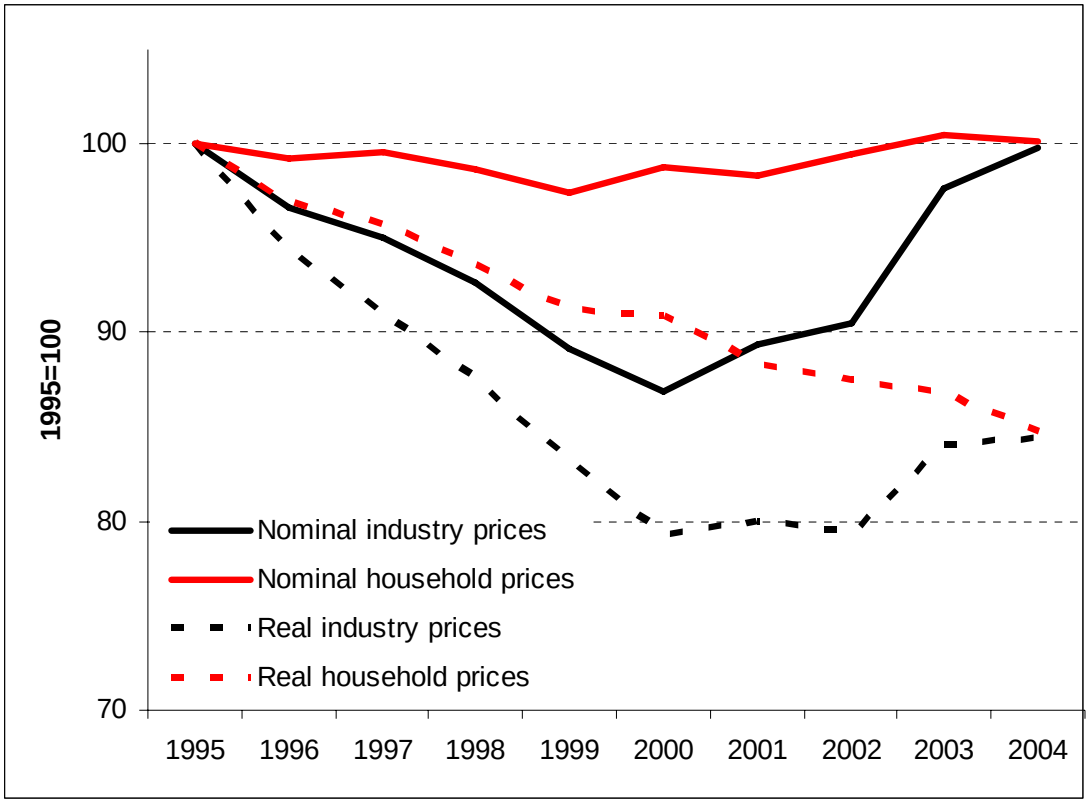
2.2 Reform Progress

Since the implementation of the energy directives, the EU commission has closely monitored the implementation and progress of reforms[2] and has come to a generally positive conclusion although the main intentions of the new policy have not yet been realized in full.

Most importantly, prices in the electricity sector where reforms initially started dropped after the reform was implemented. As Figure 1 shows, both nominal as well as real prices in the 12 main EU member states decreased significantly during the first years after reforms were implemented. During recent years, nominal prices have picked up again, mainly driven by strong increases in fuel prices for oil and gas.[3] Nevertheless, the figure indicates that nominal prices have still not significantly exceeded their levels of 1995, and real prices remain more than 20% below this level.

Figure 1

Evolution of end-user prices for industrial and household users in the 12 main Member States*



* Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Norway (joined the EU imitative), Portugal, Spain, UK

Source: EURELECTRIC (2005). Electricity Markets: Getting the Picture Straight and Boosting Market Integration. Brussels.

[2] These so-called benchmarking reports are available online at: http://www.europa.eu.int/comm/energy/index_en.html. The following discussion is largely based on the findings of those reports.

[3] The recent introduction of a CO2 emissions trading scheme in the EU has also increased nominal electricity prices. However, the scheme has been implemented only in 2005 so that its effects are not included in the figures. For the case of gas prices, price developments have remained closely related to crud oil prices and were thus not too strongly influenced by energy market reforms.

The decline in prices since 1995 was mirrored by a substantial increase in productivity growth in the European utility sector, which was significantly higher than in times before implementation of the energy directives as well as above the level of productivity growth in other large markets such as the USA (Table 1).

Table 1

Labor Productivity Growth: Gas, Electricity, Water.

% per annum	1979-1990	1990-1995	1995-2001
EU-15	2.7	3.6	5.7
USA	1.1	1.8	0.1

Source: Commission of the European Communities (2004). Annual report on the implementation of the Gas and Electricity internal market. Brussels.

Despite this positive first impression, the opening of EU energy markets to competition is far from being completed. In particular, the degree to which unbundling, network access of third parties (TPA) and market opening have been implemented across Member States is rather different. The benchmarking reports of the EU Commission show the following problems:[4]

- Markets in France, Belgium, Greece, Ireland, the Netherlands and Italy remained under the control of few incumbent firms and are poorly integrated with other countries' energy markets.
- Insufficient unbundling of network operations from vertically integrated firms alongside with poor provisions on network access of third parties (TPA) has proven to be the main obstacle for competition in Germany and Austria.
- The predominantly socially-motivated regulation of end user prices together with an overproportional use of long-term purchase arrangements in several new member states such as Poland, Estonia, and Hungary contradicts provisions of the energy directives like unbundling, distorts competition and constrains investments.

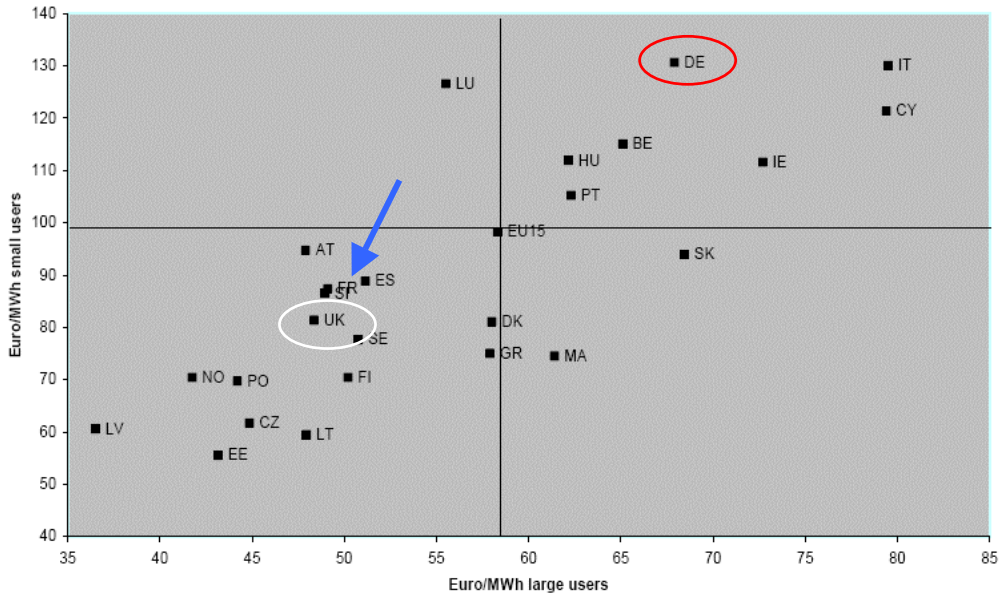
In contrast, countries such as the UK as well as Sweden, Finland, Denmark and Norway have more closely implemented the EU directives and have developed rather competitive market structures. Moreover, the Scandinavian countries have succeeded in implementing a common, integrated electricity market, the so-called *Nord Pool*. Essentially, country-by country comparisons[5] show that the positive developments of electricity prices and productivity levels as described above are to a large extent driven by developments on those markets.

As a result, after almost 10 years of EU energy reforms, markets still remain fragmented – although to a lesser extent than before – and price levels in countries such as Germany or Italy remain higher than those in e.g. the UK or Scandinavian countries (Figure 2).[6]

[4] Commission of the European Communities (2004). Annual report on the implementation of the Gas and Electricity internal market. Brussels.
[5] See e.g. the benchmarking reports of the EU Commission.
[6] The case of France is less obvious. Rather than extracting revenues from high domestic prices, the incumbent company EDF benefits from various forms of indirect government support, e.g. for the operation of nuclear power plants, in a non-competitive market. For most new member states, prices are kept at low levels due to explicit regulation, again with contradicting impacts on the development of competition (see above).

Figure 2

Variation of prices among EU Member States



Germany is highlighted by a red, the UK by a white oval, France by a blue arrow.

Source: Commission of the European Communities (2005). Report on progress in creating the internal gas and electricity market. Brussels.

At the same time, the implementation of the new energy policy was followed by a wave of mergers and acquisitions among European energy companies, as well as divestment by some players. Overall, two clusters have emerged:

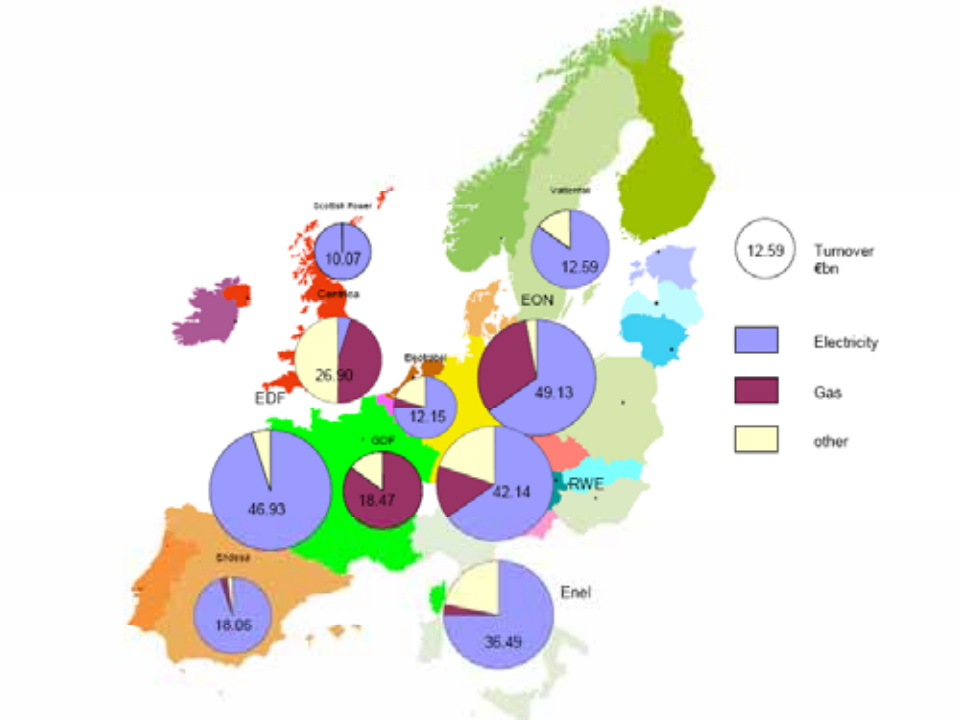
- Countries that only slowly introduced the energy directives, such as Germany or Italy, gave their incumbent firms the possibility to longer retain revenues at pre-liberalization price levels or – as for the case of France – to longer benefit from other indirect state support. In turn, companies such as E.on or RWE of Germany, Italy's Enel or EDF of France were able to accumulate the funds necessary for expansions into newly liberalized markets.
- Countries that were fast to implement the directives such as the UK saw their incumbent firms come under increasing pressure from new competitors or being the targets of takeovers by foreign firms. As a result, markets developed competitively with high productivity growth and relatively low price levels, but without their incumbent firms became strong, multi-national players on EU markets.[7]

The following two figures show the main players on the European energy market and give an overview on the presence of various companies on different markets within the EU.

[7] An exemption in this cluster is Vattenfall, a state-owned Swedish company, which has become the fifth-biggest electricity generator in Europe. However, unlike all other large European energy companies the largest market for its operations is East Germany, rather than its home country.

Figure 3

Main players on the European energy market



Source: Commission of the European Communities (2005). Report on progress in creating the internal gas and electricity market. Brussels.

Table 2

Presence of largest companies in selected individual Member States

	Electricity		**Gas**	
Country	Largest company	Other significant	Largest company	Other significant
Austria	VERBUND	**RWE**, **EON**, **EDF**	OMV	**GDF**, **RWE**
Belgium	**E-BEL***	**EDF**, ESSENT, NUON, **CENTRICA**	DISTRIGAS	ESSENT, NUON, **CENTRICA**
Denmark	ELSAM	E2, **VF***, **EON**	DONG	
Finland	FORTUM	**VF***, **EON**	GASUM	
France	**EDF**	**E-BEL***, **ENDESA**	**GDF**	TOTAL
Germany	**RWE**	**EON**, **VF***, **EDF**	**EON**	WINGAS, **RWE**, **EXXON**, **SHELL**
Greece	PPC		DEPA	
Ireland	ESB	NIE (Viridian)	BGE	**RWE**
Italy	ENEL	**E-BEL***, **ENDESA**, EDISON, VERBUND	ENI	EDISON
Netherlands	**E-BEL***	ESSENT, NUON, **EON**	**SHELL**	**EXXON**
Portugal	EDP	**ENDESA**	GDP	
Spain	**ENDESA**	IBERDROLA, EDP, ENEL, UNION FENOSA	GAS. NAT	BP, IBERDROLA, CEPSA
Sweden	**VF***	**EON**, FORTUM	**EON**	DONG
UK		**EDF**, **EON**, **RWE**, **CENTRICA**	**CENTRICA**	**SHELL**, **SHELL**, BP, **EON**, **EDF**, **RWE**
Poland	BOT	PKE, PAK, **E-BEL***, **EDF**	PGNIG	
Czech R.	CEZ	**RWE**, **EON**	**RWE**	**EON**
Slovakia	ENEL	TEKO, **RWE**, **EDF**, **EON**	SPP (**GDF**, **EON**)	
Hungary	MVM	**EDF**, **EON**, **RWE**	MOL	**GDF**, **RWE**, **EON**, ENI
Slovenia	HSE		GEOPLIN	

* E-BEL – Electrabel; VF – Vattenfall

(Large multinational players are highlighted by bold fonts)

Source: Commission of the European Communities (2004). Report from the Commission on the Implementation of the Gas and Electricity Internal Market. Brussels.

Altogether, the EU commission's assessment of energy sector reforms across Member States demonstrates that several countries have remained reluctant to open their national markets and in particular, to allow for the entry of foreign companies. Against this background the EU Commission further accelerated reforms in 2003 by setting stricter minimum requirements to put extra pressure on countries that so far have only poorly implemented the EU norms.[8]

2.3 Outlook for EU energy policy

Recently, two incidents have focused intention on the future of European energy policy. First, the Ukrainian-Russian gas conflict has raised concerns about security of energy supplies to the EU. Second, a new wave of multinational takeover attempts, including E.on's (Germany) bid for Spain's Endesa and Enel's (Italy) attempt to take over the French utility Suez, have created strong opposition from the governments of Spain and France.[9] Against this background, the EU Commission currently is reassessing the direction of its energy policy. In this context, European policy makers have presented three main proposals on how to best meet future challenges:

1. The Polish government launched an initiative to commit Member States to mutual support in case one encounters a policy-induced supply shortage (this proposal was frequently referred to as 'Energy Nato').
2. Several top level politicians (f.ex. president of France, Primeminister of Spain) have stressed the need for governments to support the formation of 'National Champions' in order to secure the interests of domestic consumers, which could be used as an argument for closing national markets against foreign competition and takeovers.
3. Finally, diversification of energy supply sources is quoted as a reasonable measure to e.g. reduce dependency of Member States on Russian gas imports.

In the course of the subsequent public discussion, the formation of an 'Energy Nato' has proven impossible to be implemented in practice and thus, has failed to receive the support of Member States' governments.

The formation of National Champions has been most strongly supported by the French government. However, it appears to be rather unlikely that this will be reflected by explicit policy decisions, because:

- Provisions to protect National Champions against foreign competitors on EU Member State markets counteract the objective of creating a single European energy market, which underlines the EU energy policy;
- With the governments of Germany and the UK two strong player in EU policy making have explicitly opted against such policies;[10] and
- This policy would even hurt French interests whose leading utilities such as EDF, GDF or Suez have all acquired substantial assets in other Member States and have benefited significantly from market opening.

The third alternative, a stronger diversification of supplies, appears to be the most suitable option, as it is consistent with general EU policies such as support of competition and creation of a single market, which also includes the EU energy directives. Moreover, it can well be combined with provisions to support the use of alternative energy fuels, an explicit objective of EU environmental policies.

In conclusion, neither increased concerns about energy security nor attempts of some EU governments to bloc foreign takeovers on their markets are likely to cause a reversal of EU

[8] Directive 2003/54/EC for electricity and 2003/55/EC for gas.

[9] The French government eventually stimulated a counter merger between Suez and GDF, another French utility. As for Eon's bid for Endesa, which has been approved by the EU Commission, the merger is still pending on the decision of the Spanish regulatory authority.

[10] In particular the UK would be negatively affected as they have opted before to sell the lion's share of their energy sector to foreign companies.

energy policies. Nevertheless the related discussions can still lead to significant delays in the implementation of the EU energy directives in national legislation.[11]

3 Ukraine's energy sectors

Taking the cornerstones of the EU energy policy towards welfare through competition as discussed in section 2.2 as a benchmark, this section assess the extent to which Ukraine's gas and electricity sector comply with EU standards.

3.1 Gas sector

Although the different functions such as gas extraction, transmission system operation, wholesale trade and retailing are performed by separate legal entities, Ukraine's gas sector still has a monopoly structure because with the exception of retailing, each task is almost exclusively performed by a single firm all of which are owned and controlled by a central, state-owned holding, NAK "Naftogaz Ukraine".[12] In particular, Naftogaz has full control over transmission systems and gas storage facilities through its subsidiary Ukrtransgaz, and it also owns large parts of the distribution networks, which are given to gas retailers (Oblgazes) for operation under management contracts. The national energy regulator NERC sets consumer tariffs based on governmental instructions. The structure of Ukraine's gas sector is shown in Figure A1 in the appendix.

Taking the requirements of the EU energy directives as a benchmark, Ukraine's gas sector performs as follows:

- **Unbundling**. Despite the role of Naftogaz as central holding, the operation of transmission systems is legally unbundled from gas extraction, wholesale trade or retailing. In contrast, distribution systems are operated by Oblgazes, which also perform as retailers. Accordingly, full compliance with the EU directives requires the unbundling of distribution systems from Oblgazes.[13]
- **TPA**. Access of third parties to networks is not effectively guaranteed. Although a regulatory body (NERC) sets tariffs for network access, there are no procedures or legally binding norms in place, according to which third parties can enforce access to transmission or distribution systems owned by Naftogaz. In fact, NERC operates so far only on the basis of a presidential decree. As a result, its role in the gas sector is highly politically dependent and has so far been limited to the execution of politically determined decisions.
- **Market opening**. Licenses for all types of operation in the gas sector are issued by NERC. While a specific law defines licensing criteria,[14] NERC has only limited possibilities to act independently.[15] Similar problems as for licensing apply to other necessary conditions for market opening such as well-defined contract termination procedures that would allow customers to switch suppliers. Hence, Ukraine's gas sector so far only poorly complies with the market opening criteria of the EU energy directives.

As preliminary conclusion, two urgent improvements are necessary for a better compliance with the EU energy directives:

a. Guarantee regulated TPA to network systems and storage facilities by:
   - Expanding NERCS competences in the setting of system tariffs (including the use of incentive-stimulating methodologies);

[11] At present, the EU Commission has stipulated a discussion on the principles of a "European Strategy for Sustainable, Competitive and Secure Energy" in which it inter alia stresses the need to continue the creation of a single, competition-driven energy market (http://europa.eu.int/comm/energy/green-paper-energy/index_en.htm).

[12] In fact, the market shares of the few independent firms which operate in either gas extraction or wholesale trader are negligible.

[13] This situation resembles the average performance of the EU-15 Member States, of which only half have so far achieved full unbundling of transmission and distribution systems.

[14] Law of Ukraine on licensing of certain entrepreneurial activities.

[15] In fact, the recent market entry of a second wholesale trading company (UkrGazEnergo) as part of the January 6 gas agreement with Gazprom licensing has been strongly based on government interventions.

- Defining appropriate legal procedures or legally binding norms to enforce TPA; and
- Strengthening the role of NERC in enforcing them.

b. Improve market opening by:

- Specifying objective and transparent licensing criteria for new entries into the gas market;
- Determining contract termination procedures; and
- Strengthening the role of NERC in enforcing them.

Nevertheless, all these measures are unlikely to stimulate competition in the gas sector unless prices are raised to internationally comparable levels. In fact, the monopolistic structure of the gas market reflects the intention of the state to limit and control various types of arbitrage opportunities that arise from import prices for gas at rather low levels. With the current increase of import prices, such arbitrage opportunities strongly diminish. Accordingly, a sensitive energy policy should now seek to ensure that price increases are not higher than necessary by stimulating the full use of efficiency potentials by stimulating competition on the domestic gas market. In addition to the steps listed above, this also requires the abolition of socially motivated tariff setting for households and a gradual replacement of consumer price regulation by competition on wholesale as well as on retail markets. Eventually, this will also require that access tariffs and TPA to distribution networks are ensured and sufficiently regulated and that the operation of distribution systems are unbundled from retail activities of Oblgazes.[16] In the long run a strategy to foster competition must also include privatization.

Finally, it must be stressed that fostering competition on wholesale and retail markets in Ukraine does not worsen the bargaining position vis-à-vis the Russian supplier because the gas transit system as well as storage capacities still remain under the control of a regulating agency, which could e.g. be used in setting up a framework agreement for gas imports.

3.2 Electricity sector

The Ukrainian electricity sector is structurally more open to competition than the gas sector. The market functions along the British pool model, where electricity generators submit bids into a common pool from which retail companies and eligible, large-scale power consumers purchase their electricty. The operator of this wholesale pool, the state-owned company Energorynok, balances supply and demand and determines wholesale prices. Price setting of generators is regulated for several generators[17] while in particular operators of thermal power plants can submit independent bids, which allows for some degree of competition. Most electricity consumers including households are supplied by regionally separated distribution companies (Oblenergos) at regulated tariffs, but industrial consumers are free to choose alternative suppliers without tariffs being regulated.[18] The structure of the market is presented in Figure A2 in the appendix.

Against the benchmark of the EU energy directives, the electricity sector performs as follows:

- **Unbundling**: Transmission systems are operated by Ukrenergo, a legally independent, state-owned company. Distribution systems belong to and are operated by Oblenergos, the electricity retailers. Hence, as for gas, unbundling requirements are only partially satisfied.[19]
- **TPA**: Third party access to the networks is guaranteed by the Law on Electricity Sector and its implementation is observed by NERC. Tariffs for the network access are regularly published. While Oblenergos as retailers and operators of distribution systems can try to block new entrants, there are mechanisms in place to solve such disputes.

[16] For a sequencing of reform steps necessary to foster competition on Ukraine's gas markets see our Advisory Paper U3: Ukraine's gas sector: Time for reforms. May 2005.
[17] This includes hydropower as well as nuclear power plants, CHPs and wind power.
[18] The market share of independent suppliers has more than doubled over recent years, from about 6% in 2002 to 14% by the end of 2004.
[19] Again, we stress that this assessment is fairly in line with average performance of EU-15 member states.

- **Market opening**: Licenses in the electricity sector are issued by NERC based on an explicit legal basis.[20] Together with the provisions on third-party access, the market appears to be sufficiently open to new entrants. Some degree of competition is present in the market. Nevertheless, regulated household tariffs, which are set at below-cost levels, preclude new entries into the retail market. Also, switching procedures are not clearly defined for all relevant customer groups including small-scale businesses. Power generation is competitive within the thermal power plant segment, in which plants compete in the wholesale market through bidding.
- **Tariff regulation**: In contrast to the gas sector, NERC plays a prominent role in electricity by regulating tariffs of distribution and transmission networks, bid prices for CHPs, wind- and hydropower as well as nuclear power plants and prices of most retailers. For the later, NERC sets household tariffs on levels below their costs and cross-subsidizes sales to households by setting industry tariffs accordingly. For all price regulation, the regulator uses standard cost-plus approaches, which do not comply with the standards set by the EU directives because they fail to provide incentives to regulated firms to reduce their costs and increase efficiency levels.
- **Interconnection**: The state-owned company Ukrinterenergo effectively controls as monopoly exporter of electricity the degree of interconnection of Ukraine's power grid with its neighboring countries. This constellation is necessary due to the low levels of electricity prices in Ukraine, which in turn are caused by the regulation of end-user prices as described above. However, denying power generators the possibility to enter into direct contracts with foreign parties creates a main barrier to investment and new entries and hence, competition in the sector.

Hence, Ukraine's electricity sector more clearly complies with the EU directives. However, although the regulator effectively plays a much stronger role than in the gas sector, it still lacks a sufficient legal basis, implying that the overall regulatory environment is still subject to considerable uncertainty. Accordingly, with the exception of thermal power generators who submit competitive bids to Energorynok, competition in the electricity sector has remained fairly low. In fact, Oblenergos have maintained their predominant position as regional monopolies on the retail market, mainly because of a rigid regulation of final consumer prices aiming at the cross-subsidizing household tariffs, which in turn reduces overall profitability in the retail segment. This regulatory strategy was possible with gas prices at the levels that prevailed until 2005 (about USD 50 per tcm). However, the dramatic recent increase will also raise the costs of electricity generation significantly[21] and will therefore also force increases in electricity prices. In this new situation, it will be important that all possible efficiency gains are realized so that price increases are no higher than absolutely necessary. At the same time, continuing the cross-subsidization of lower household tariffs by higher industry tariffs will cause even stronger distortions and increasingly hurt industrial production.

Against this background, policy makers should:

a. Cancel the cross-subsidization of household tariffs and redefine NERC's methodology to use incentive-stimulating approaches leading regulated firms to increase their efficiency.

b. Stimulate competition in the retail segment by regulating access tariffs and TPA to distribution networks thorough NERC and eventually, unbundling distribution systems from retail activities of Oblenergos.

c. Stimulate the integration of Ukraine's electricity system with its neighboring countries by allowing electricity generators to directly conclude export contracts with foreign custormers.

Besides these measures the state could consider further privatization in the energy sector, which was recently stopped.

[20] Law of Ukraine on licensing of certain entrepreneurial activities.

[21] Gas units account for about a third of Ukraine's electricity generation, and the costs of gas-based power generation determine marginal costs in the merit order at least during peak hours. Assuming an energy efficiency of 30% for a 20 years old OCGT generation unit and variable O&M costs of about USD 5 per MWh, a 60% increase of gas prices will raise the variable costs of gas-based electricity generation by about 40%.

4 Conclusions

Since its start in the mid-1990s, the EU energy sector reforms have demonstrated how to increase welfare through competition by stimulating efficiency and avoiding price setting at above cost levels. While the eventual intention of integrating European national markets into a single market is ambitious and the reforms are still in progress the positive first assessment of the reforms seems to ensure that they will continue and eventually succeed.

Recently Ukraine has suffered its first serious energy price shock, when its Russian supplier increased gas prices by about 60%. In the past, as long as energy prices in Ukraine were low, low levels of competition and even monopoly conditions on the gas market were tolerable. However, with prices starting to approach internationally comparable levels the need for competition in order to ensure that monopolies do exploit the market becomes ever stronger. Therefore, Ukraine needs to stimulate competition on its energy markets, for which the measures under the EU energy sector reform are an appropriate benchmark.

As we point out in the assessment of Ukraine's electricity and gas sector, compliance with EU standards can be achieved if more emphasis is placed on ensuring third party access to transmission and distribution networks, as well as on market opening. In addition, we argue that it will also be possible to bring energy prices up to internationally comparable levels so that companies will have sufficient incentives to operate in Ukraine's energy markets. Finally, the position of the regulatory agency, NERC, must be strengthened by creating an appropriate legal basis for its operations.

Kiev, May 2006
Author: FP, IP
Lector: LH

Appendix I: Key measures of the EU Energy Directives

1 Vertical unbundling

A central element of the EU policy is to rule out the possibility that a firm which controls the whole value chain can preclude other firms from entering the market by denying them access to network infrastructure. To achieve this, all member states are obliged to unbundle the vertically integrated firms that operate in their energy sectors. Initially, the directives allowed for 3 possible forms of unbundling:

1) Separation of accounts;
2) Legal separation of business units into different firms; or
3) Ownership change.

In principle, vertical unbundling reduces potential barriers to competition and promotes transparency in the energy sector. Theoretically, the more activities are unbundled from a vertically integrated monopoly the more this will stimulate competition. However, excessive governmental intrusion into the firms' property structure and operation is technically difficult to implement and – even more important – conflicts with other EU legislation such as protection of private property. Hence, to limit the scope of governmental intrusion, unbundling obligations are limited to the most important potential barriers to competition, the operation of transmission and distribution networks as well as gas storage facilities. As initial minimum requirement the directions established that those operations had to be conducted within separate accounts. In 2003, requirements were further tightened by demanding at least legal unbundling.

2 Third Party Access (TPA)

The second cornerstone of the EU energy policy is to allow for access of third parties to transmission and distribution networks in order to remove possible bottlenecks for competition and to create a level playing field for all market participants. In general, the EU commission has defined two different possibilities of how individual member states can ensure third party access (TPA) on their national markets:

- **Negotiated TPA** foresees that third parties can negotiate the terms and conditions of network access with the system operator, who is required to publish an indicative range of prices for network access based on average prices agreed in negotiations during the previous year;
- **Regulated TPA** means that terms and conditions of network access are under the control of a regulatory body, which is independent from all market participants.

Initially, the directives allowed national governments to choose one of the two options to guarantee TPA on their national markets. Since 2003, the EU Commission requires Member States to provide regulated TPA.

3 Market opening

A necessary condition for the creation of a competitive market is that consumers can freely choose their suppliers of gas and electricity, which requires the creation of a level playing field for incumbents as well as new entrants. To achieve this, the directives oblige EU Member States to authorize all relevant activities such as transmission, distribution, supply, storage or generation in accordance with objective, transparent and non-discriminatory criteria, e.g. by license, permission, concession, consent or approval.[22] Moreover, Member States are required to create conditions that allow consumers to switch their suppliers, including specification of contract details and duration, definition of contract termination procedures including

[22] If Member States decide to apply tendering procedures for new electricity generation capacity the directives again require the same objective, transparent and non-discriminatory criteria.

prohibition of additional charges etc. Finally, market opening also requires that network access (TPA) is sufficiently guaranteed.

Since at the time when the directives were issued, energy markets of all Member States were rather closed and authorization procedures were not subject to objective criteria, a stepwise opening process was foreseen, starting from generation and wholesale market activities and then gradually moving forward to retail supply. As a benchmark, Member States were required to open up energy markets for non-household consumers by 2004, and for all consumers by 2007.

4 Interconnection

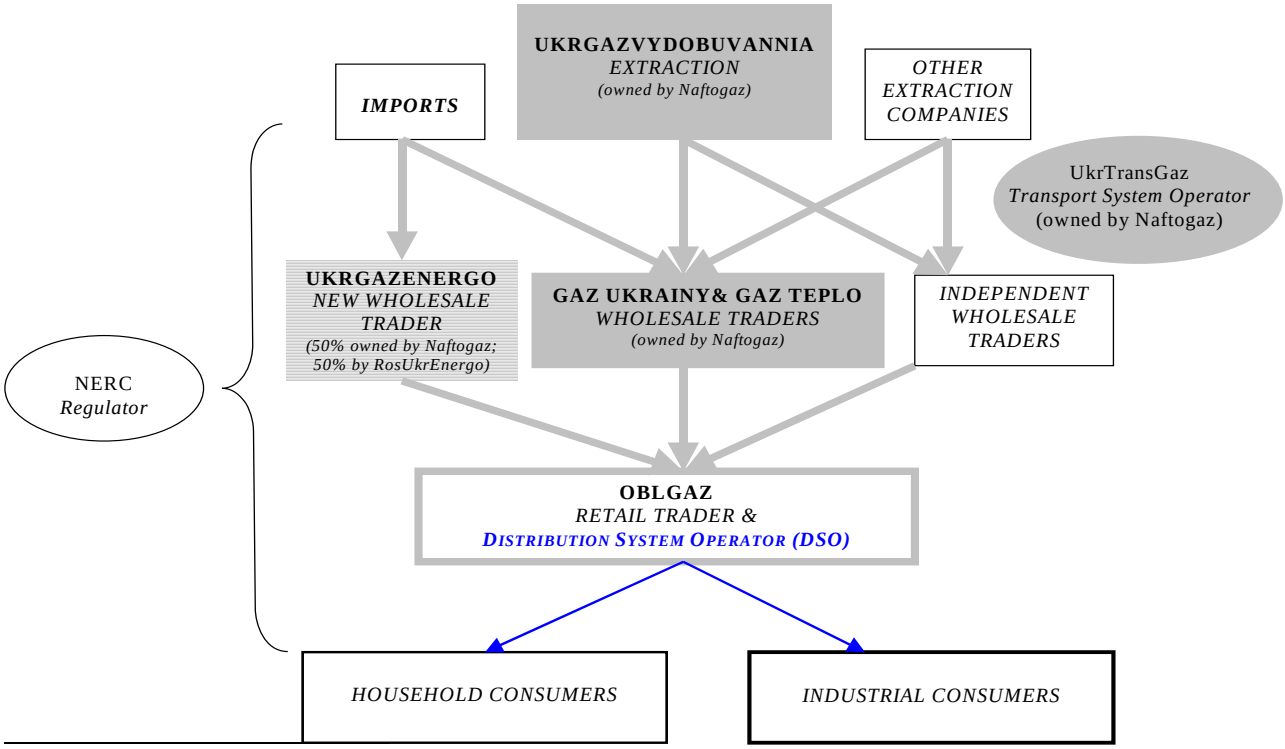
The objective of creating a single internal energy market requires the possibility for cross-border flows of electricity and gas in order to link different national markets and to create competitive pressure on incumbent firms through imports. To achieve this objective, the EU Commission requires countries to coordinate their activities in congestion management, as well as to harmonize legal, institutional and technical barriers to cross-border flows such as different norms and standards or business rules and contract types.[23] As a benchmark, the commission requires that the interconnecting capacity of each member state should be at least 10% of the country's domestic consumption. Regulatory bodies are required to monitor the necessary harmonization of cross-country trade.

Two separate EU regulations for electricity and gas specify the requirements for stimulating interconnection between different national networks.[24] They foresee inter alia that capacity of electricity interconnectors has to be sold through transparent auctions, as well as the harmonization of congestion management and balancing mechanisms of network system operators.

Appendix II: Ukraine's gas and electricity sector

Figure A1

Organzational structure of Ukraine's gas sector



[23] In countries such as Germany where e.g. electricity markets are even regionally fragmented, interconnection requirements not only concern cross-country but also interregional flows between different network system operators.

[24] Regulation 1228/2003/EEC on cross-border trade in electricity and regulation (EC) 1775/2005 on access conditions to the gas transmission network.

Figure A2

Organzational structure of Ukraine's electricity sector

