

ENERGY PRICES, TARIFFS, TAXES AND SUBSIDIES IN UKRAINE¹

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GENERAL CONTEXT

Prices and Tariffs²

For many years, electricity, gas and district heating tariffs for residential consumers were very low in Ukraine; until recently, they were even lower than in neighbouring countries such as Russia. The increases in gas and electricity tariffs, implemented in 2006, are an important step toward sustainable pricing levels; however, electricity and natural gas (especially for households) are still priced below the long-run marginal cost. The problem seems even more serious in district heating and nuclear power. According to the Ministry of Construction, district heating tariffs, on average, cover about 80% of costs. Current electricity prices do not fully include the capital costs of power stations, which are particularly high for nuclear power. Although the tariff for nuclear electricity generation includes a small decommissioning charge, it has not been sufficient to accumulate necessary funds for nuclear plants decommissioning.

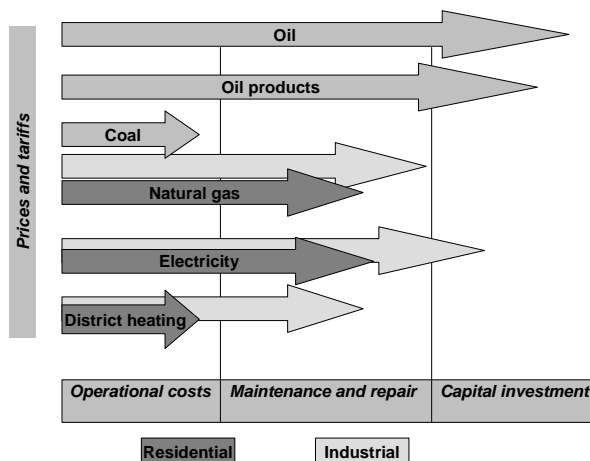
Despite some progress with price liberalisation in the early 1990s, real prices for energy actually declined from 2000-05. While inflation (the producer price index) grew by 47% from 2001-04, prices for electricity, natural gas and heating grew only by 22% over the same period. The sharp growth in price for gas imports in 2006 made an increase of domestic prices unavoidable. The National Electricity Regulatory Commission (NERC) raised gas prices for various consumer groups by 25% from May 2006, and by a further 80-85% from July 2006. NERC is also gradually raising electricity tariffs with the intention of reaching cost-recovery levels by 2008. At the same time, the government limited the growth of residential gas and electricity tariffs in the Fall of 2006, ostensibly to protect the poorest half of the population. This tension between raising prices

to cover costs and protecting the population is likely to continue. District heating prices are also expected to grow because of the higher fuel costs; these prices are primarily set at the local level. Adjusting the economy and social support programmes to higher energy prices is painful and challenging, but it is a necessary step in the transition to a market economy.

Coal prices are formally set by the market. However, in practice, large industrial groups that own metallurgical plants have tremendous influence over the price of coal. As a result, Ukrainian coal is reportedly priced 20-40% below costs at the mines. Mines receive direct production subsidies and many mines also receive capital investments from the state budget, but even with subsidies most mines are loss-making.

Oil and oil product prices are not regulated and approximate world prices. Most of the oil is imported to Ukraine by foreign, vertically-integrated companies that also own or operate Ukrainian refineries. These companies set prices for imported crude oil based on their business considerations. Ukrainian companies with over 50% state ownership must sell domestically produced crude oil and gas condensate at auctions.

Figure 1. Energy Prices and Tariffs Compared to Costs, June 2006



Source: IEA estimates based on information provided by the government and mass media.

1. This article is based on the IEA publication *Ukraine: Energy Policy Review 2006*, published in October 2006. The full-scale study looks at Ukraine's current energy policies and identifies three key priority areas for action: energy efficiency, cost-reflective pricing and transparency.

2. The term "prices" generally refers to non-regulated, market-based prices of a commodity; "tariffs" are regulated.

Subsidies

Ukraine does not have many explicit subsidies but the existing cross-subsidies and other distortions deflate prices for many energy products. Residential consumers, public institutions and agricultural users obtain energy at a relatively low, regulated rate. Electricity tariffs for households and natural gas prices for the residential and public sectors are lower than those for industrial users. Thus, industries bear the financial burden by cross-subsidising the residential and public sectors. On the other side, some industries are also subsidised, for example, through coal subsidies, and government-funded investments in coal mining and nuclear safety. Until the end of 2005 all Ukrainian consumers also paid relatively low natural gas prices, which were subsidised by Naftogaz of Ukraine through substantial revenues from transiting Russian gas to Europe.

The Ukrainian government recognises that it should raise energy prices to stimulate energy-efficiency improvements and attract the necessary investment to the sector. The *Energy Strategy to 2030* states that one of Ukraine's main tasks is assuring the coverage of production costs to create conditions for the sustainable development of energy companies. NERC began raising electricity and gas tariffs in May 2005, but tariffs for households and some other consumer groups have not yet reached cost recovery levels. Raising tariffs for households further is politically difficult. This highlights the necessity for strong co-ordination between energy policy and social and economic policy.

Taxation

Ukraine has made progress in reforming its tax system over the last several years. The European Business Association reports that Ukraine has resolved a number of problematic issues in taxation and made the whole system more transparent and simple (European Business Association, 2005). Nevertheless, the Ukrainian tax system still appears rather unpredictable "due to repeated changes in legislation, often retroactive, failure to proceed with declared intentions and schedules for tax reform, and many cases of one-sided fiscal interpretation of the law by the tax authorities" (European Business Association, 2005).

Ukraine has several nationwide taxes specific to the energy sector, which include:

- **Surcharge** on the effective tariff for electricity and heat, except for electricity produced by cogeneration plants.
- **Surcharge** on the approved tariff for natural gas for all consumer types.

- **Royalties** for producing oil, natural gas and gas condensate, for natural gas transit and for transportation of oil through main oil pipelines.
- **Fee for exploration activities.** This fee is intended to create an economic mechanism to compensate for exploration and prospecting costs financed by the state, and to collect funds for financing further exploration.

Ukraine also has several, more general, nationwide taxes, duties and levies that impact the energy sector, including a value-added tax (VAT) of 20%. Small companies, non-profit organisations and state institutions do not have to pay the VAT. Companies exporting goods, including energy products, must pay VAT on exports but the tax authorities ultimately reimburse it. Ukrainian refineries exporting their products have reported significant delays in VAT reimbursement, which has a negative effect on their finances. In addition, there are local taxes set by regional and city administrations. Ukraine also has environmental pollution fines.

NATURAL GAS AND OIL

Overview

Ukraine relies heavily on imported oil and gas. These imports are high on the political agenda, particularly as prices rise. The government is planning to reduce the imports and enhance domestic production. Achieving this goal requires reforms to attract investment to the sector. Today, the oil and gas industry in Ukraine is largely dominated by state-owned companies, though private and foreign investors have made some inroads. The presence of the state is most direct and pronounced in exploration and production, main pipelines (both oil and gas), gas imports and transit, and gas distribution. In contrast, refining and distribution of oil products are mostly in private hands.

The industry is heavily regulated. The government has many direct and indirect controls over the terms of investors' access to reserves and infrastructure, pricing and tariff setting, import and export transactions, and other key aspects of the market. Oil refining and distribution are the only elements of the Ukrainian energy sector that have well-developed competition and market-set prices. Refineries do not use state-of-the-art technology, and need significant investments in modernisation.

Domestic gas prices for many consumer groups are below cost and are cross-subsidised by higher industrial prices. The increased price for gas imports in 2006 has been of great concern for the economy, given the large dependence of the industrial and residential sectors on natural gas. Thus far, the economy has shown resilience, though prices may rise further. That said, the Ukrainian government should introduce more effective

measures to stimulate long-term performance and efficiency in the oil and gas sectors, and in the economy at large. To date, lack of competition, strong state involvement and inadequate price signals have undercut efforts to increase performance and efficiency.

Natural Gas Price Setting

From 1999, NERC approves methodologies for pricing natural gas, and for transmission and distribution services for all consumer categories. NERC sets natural gas price caps for all customers, as well as tariffs for transporting gas via main and distribution pipelines, and for gas distribution and storage. The Ukrainian authorities deem that such regulation is necessary because the natural gas sector is dominated by monopolies.

A central feature of current regulations is the differentiation of tariffs, which is based on the status of the consumer (e.g. industrial vs. residential), not on the real cost of supply. This practice establishes a complicated system of cross-subsidies: relatively high tariffs for industry³ cross-subsidise low tariffs for residents and public institutions. The Ministry of Fuel and Energy estimates that, by supplying gas to households and other consumers at artificially low regulated prices, Naftogaz of Ukraine provides implicit subsidies of UAH 4 billion⁴ (USD 0.8 billion) per year (Cabinet of Ministers, 2006a). An assessment by the World Bank estimates that implicit subsidies in the gas sector reached USD 1 billion in 2001 and 2002. This is equivalent to 2.5% of GDP, which interestingly was also the size of gas transit's contribution to GDP at the time. The World Bank attributes these implicit subsidies to the tariff structure and to other factors including non-payments (World Bank, 2003a).

Because of artificially low consumer prices, Naftogaz of Ukraine cannot cover its costs related to domestic gas supply; it is forced to use income from its other activities to recover losses from domestic gas sales. The company reportedly uses funds from the very expensive credit lines to cover current operations, which may ultimately lead it into bankruptcy. Its financial situation may deteriorate further as the new company, UkrGaz-Energo, acquired the most profitable industrial customers, leaving the residential and public sector to Naftogaz of Ukraine's subsidiary Gas of Ukraine.

A second aspect of the gas price regulation is the idea that gas is supplied and priced depending on its source. Following a Cabinet of Ministers' decree (Cabinet of Ministers, 2001), Naftogaz of Ukraine was forced to supply gas from specific sources to particular groups of

consumers – and to price gas at differentiated levels. The same decree discontinued the practice of gas auctions, which existed before 2002. From 2002, the intent was to supply gas as follows: residential consumers and public institutions were to receive domestically produced gas; district heating companies received gas acquired as payment for transiting Russian gas (until the end of 2005); and other industries were supplied with gas purchased from Turkmenistan and other countries. Final consumer prices were thus set on the basis of the gas balance, while the purchase price of gas depended on its origin (domestic production, payment as transit fee or import). This practice does not encourage transparency and undermines the attractiveness of gas production in Ukraine, which is key to energy security.

The Cabinet of Ministers modified this rule in March 2006 (Cabinet of Ministers, 2006b), after Ukraine stopped receiving gas from Russia as payment for transit services. However, the modified decree still requires Naftogaz of Ukraine (and other companies in which the state holds more than 50% shares) to supply domestically produced gas to the residential sector.⁵ In reality, this requirement has not been fully implemented. For example, one of the leading Ukrainian gas producers, Ukrnafta, refused to sell gas to residential consumers in 2005 and early 2006, arguing that residential tariffs would not allow it to recover its costs. If domestic gas continues to be sold at the lowest prices, there will be little incentive for investment in domestic production.

Regulated Tariffs

Regulated gas tariffs for the population did not change from 1999 to April 2006. From 1 May 2006, NERC raised the natural gas tariffs by 25% for households, district heating companies and budget-funded institutions. In June 2006, NERC raised gas tariffs to households by 85% (Table 1). The Cabinet of Ministers initially requested NERC to set tariffs at cost-recovery levels from January 2007. However, in the latter half of 2006, it has scaled back those plans and placed limits on tariff growth.

The total gas tariff for end-users consists of several components. The energy charge (the price of the gas itself) is paid to Gas of Ukraine or another wholesaler. The charge for transportation via the main pipelines (the same for all gas consumers regardless of their location) is paid to Ukrtransgaz. A charge for transportation via distribution pipelines and supply service charge are paid to oblgaz (local distributor). Consumers directly linked to main pipelines do not pay distribution and service charges.

3. Even the industrial tariffs do not always cover all long-term costs.

4. Hryvnia (Ukrainian currency).

5. Naftogaz of Ukraine is also obliged to supply budget institutions, district heating companies and electricity generators that supply heat and electricity to the population.

Table 1. Regulated Final Gas Tariffs for End Users (UAH or USD per 1 000 m³)

Consumer group	Tariffs in 1999		Tariffs on 1 January 2006		Tariffs on 1 May 2006		Tariffs on 1 July 2006	
	UAH	USD	UAH	USD	UAH	USD	UAH	USD
Households with meters	175.0	40.0	175.0	35.0	220.0	44.0	407.0	81.4
Households without meters	190.0	43.7	190.0	38.0	240.0	48.0	444.0	88.8
Budget-financed public organisations	231.0	53.1	288.0	57.6	360.0	72.0	648.0	130.0
District heating companies	189.0	43.5	304.5	60.9	383.4	77.0	686.0	137.0

Sources: Naftogaz of Ukraine; Verkhovna Rada.

NERC sets the total tariff cap for different groups of final consumers, as well as a tariff for gas transportation via main pipelines. It then approves the distribution and supply tariffs for each individual gas company on a cost-plus basis. The cost-plus approach to regulation does not provide incentives for cost reductions and efficiency improvements. Moreover, the tariff components do not always cover all costs and provide adequate profit to the relevant company. It is impossible to revise the tariff for any particular service (transportation, distribution, supply) mid-year without amending the overall tariff for end users. In some regions, the transportation or distribution tariff is higher than cost; in others, this tariff is below cost.

VAT Issue

By law, natural gas imported to Ukraine under inter-governmental agreements is exempt from the value added tax (VAT). Until January 2006, industry, district heating and power companies received gas without VAT because all gas imports from Russia and Turkmenistan were in the framework of intergovernmental agreements. The 20% VAT was only applied to domestically produced gas that was supplied to residential and public buildings. In the first half of 2006, no inter-governmental agreement was in place. Thus, industries (including electricity and heating) had to pay VAT on the price of imported gas. This significantly increased the non-payment problems. At the same time, it does not make sense to give imports preferential treatment over domestic supplies. The lost government revenue from the VAT exemption is similar to a subsidy.

Natural Gas Non-payment Problem

Several years ago there were significant non-payment problems for natural gas, especially among district heating companies and public institutions. The situation has improved significantly in 2004 and 2005. Residential consumers paid more than 100% of their gas bills, i.e. paid their current bills and a portion of the accumu-

lated debt. District heating companies' payments also improved, although did not reach 100%. Naftogaz of Ukraine created a special subsidiary, Gaz-Teplo, to address gas debt in district heating companies, although Gaz-Teplo's approach is not necessarily favourable for the sustainability of district heating. Following the rise in gas prices in 2006, the non-payment issue has returned. Gas of Ukraine reported a drop in the average consumer payments from 83% in the first quarter of 2005 to 74% in the first quarter of 2006.⁶ Even industries and electricity generating companies, which had no major problems with paying bills in the past, have started accumulating debt for gas in 2006. The fact that the VAT exemption no longer applied to imported gas in 2006 certainly played a role. Gas of Ukraine has introduced measures to limit gas supplies to non-payers.

Oil Prices and Taxes

Crude oil and oil product prices in Ukraine are not regulated, although the domestic crude oil market is not entirely competitive. The domestic oil market is somewhat protected due to restrictions on exports and re-exports. In addition, most crude oil is imported to Ukraine by affiliates of vertically-integrated companies involved in refining and distribution, such as TNK-BP, Lukoil and Alliance. Prices for crude are thus driven by company business considerations (profit and tax optimisation) rather than by the market itself. Oil produced domestically is an exception; it must be sold at auctions. However, NERC regulates prices of oil sold to the affiliated companies of Naftogaz of Ukraine. Ukraine is not the only country without a true crude oil market. Azerbaijan, Bulgaria, Georgia, Lithuania, Macedonia and many other countries have markets dominated by vertically integrated companies.

6. Most of the non-payments are from district heating companies and state organisations.

Generally, oil prices in Ukraine are higher than in Russia, but somewhat lower than on truly competitive markets. Low prices are not necessarily a positive thing: if they are the result of distorted and non-transparent price setting, they undermine domestic production, thus reducing energy security.

The oil products market is more competitive than the crude oil market, primarily because refineries sell a large portion of their output to nonaffiliated parties (wholesale and retail traders).

Tariffs for transportation of crude oil and refined products via main pipelines are regulated. NERC sets oil transmission tariffs for Ukrainian use and transit. Transportation tariffs vary depending on the volume, distance and direction of transportation, which is a common practice in the world. For example, in December 2002, domestic oil transportation tariffs varied from UAH 2-26.5 (USD 0.36-4.8) per tonne; in December 2003, they varied from UAH 5.3-31.8 (USD 1-5.8) per tonne (net of 20% VAT).

On 1 August 2005, Ukraine introduced new royalty regulations differentiating royalties on oil and gas condensate extraction depending on the field depth. Royalties for extraction from a depth of less than 5 000 metres were increased by 83% – from UAH 300 (USD 58) per tonne to UAH 550 (USD 107) per tonne. At the same time, the royalty on oil and gas condensate extraction from a depth of 5 000 metres and more was lowered to UAH 250 (USD 48) per tonne. The measure is expected to boost state revenue from oil and gas condensate production and simultaneously provide a tax break for more expensive investments in projects at a greater depth.

COAL

Overview

Ukraine's coal industry is economically troubled. Most of its mines are more than 40 years old. These mines are among the deepest, most dangerous and most inefficient in the world. Coal seams are typically less than 1.3 metres thick, more than 700 metres underground and have high levels of coalbed methane. Ukrainian coal production has been in decline for decades, though production has stabilised and even grown slightly since the mid-1990s, when Ukraine began reforming its coal sector. Initial reforms had limited results, though a new round of reforms launched in 2001 has succeeded in boosting production, closing unprofitable mines, improving efficiency and reducing mining deaths. Several mines have been privatised and now account for a large share of total production.

Coal is the only segment of the energy sector in which there are explicit government subsidies to support production. Today, average coal prices are below short-term production costs, in part because of rapidly increasing prices for mining equipment and materials. Many mines are in dire financial condition and unable to invest in their future. There appear to be governance problems in the coal sector that drive up the price of materials at the same time that the private industrialists selling these materials seek to keep coal prices down. This is particularly problematic in state-owned mines, which are under the supervision of the Ministry of Coal Industry. The government has a detailed plan to close additional mines and privatise most of those that will remain in operation. The *Energy Strategy to 2030* envisages major increases in coal production to reduce Ukraine's reliance on imported natural gas. However, Ukraine's ability to accomplish this hinges on the success of further reforms.

Pricing and Market Mechanisms

Coal prices in Ukraine are theoretically freely set by the market. In reality, there are many price distortions. The largest are coal subsidies, state fuel allocation in the power sector and the influence of private, monopoly buyers. Because of their dominant role and exclusive contracts to buy coal from some mining companies, private industrial groups have tremendous market power. Thus in practice, the government and large industrial groups set the price in a non-competitive manner.

There is a wholesale market for coal in Ukraine but the production costs exceed the prices at most mines. The government compensates a portion of the difference through direct production subsidies. In 2004, the government distributed subsidies of UAH 15.50 (about USD 3.00) per tonne of coal – equal to approximately 9% of the average wholesale price. The government also funds other, long-term coal mining costs at state-owned mines, including many capital expenditures, and mine closure and decommissioning costs.

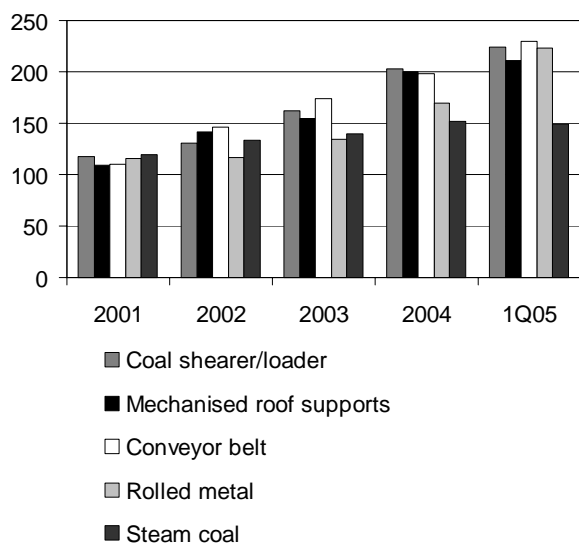
As part of the coal sector restructuring programmes, the government has made significant investments in coal mines to try to make them profitable. However, these investments come directly from the government budget and are not reflected in the coal price. In 2005, the government made UAH 1.4 billion (USD 277 million) of capital investments in coal mine technology and paid another UAH 800 million (USD 158 million) for restructuring and closing mines (including addressing the environmental consequences of the mining operations). Additional funds have been allocated for job retraining and addressing the social consequences of mine closure.

Most mines are still state-owned and many consumers (particularly power plants) are in state hands. The Ministry of Fuel and Energy allocates fuel to power plants. Thus while there is a wholesale exchange, the market does not set the prices; it only has a muted influence on them.

As indicated above, large industrial groups have tremendous influence over the price of coal. According to the 2003 Razumkov Centre study, as well as the 2003 World Bank study, Ukrainian coal is under priced by 20-40% at the mines because private intermediary structures monopolise distribution. Moreover, the price of coking coal is lower than the price of steam coal – a situation that does not occur anywhere else in the world and thus points to a major market distortion. Industrial groups that own metallurgical plants control both the distribution and purchase of coking coal. The Industrial Union of Donbas is one of the most powerful industrial groups in Ukraine. It owns – either directly or indirectly – a large number of metallurgical and machine-building companies, coal mines, and intermediaries. The Razumkov Centre report gives the example of two particular mines, Dobropillyavuhillya and Selydivvuhillya, at which a large percentage of all coal extracted was sold to a single intermediary, Closed Joint-stock Company ARS. The company then resold this coal to steel mills and other industries at a 20-30% mark-up.

Figure 2. Price Dynamics of Steam Coal and Selected Mining Equipment, as Compared to 2000

Change in price level (2000=100)



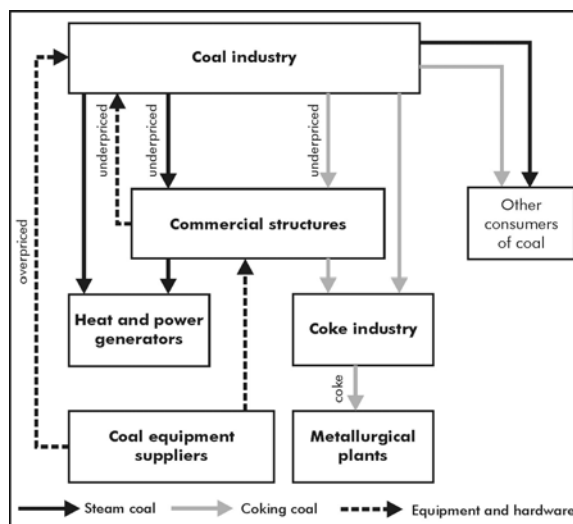
Source: Cabinet of Ministers, 2006a.

In turn, the metallurgical groups supply equipment and materials to the mines at prices that appear to reflect their monopoly over the production of these items. As a result, the prices of materials and equipment sold to

mines increased by approximately 220%. Over the same period, steam coal prices increased by 49% from 2000-05 (Figure 2) (Cabinet of Ministers, 2006a). The 2003 Razumkov report states that:

A fairly simple closed-circuit scheme is employed at the inter-sector market: coal industry (underpriced coal) – metallurgy (metal exports), power engineering – machine building (overpriced equipment and hardware) – coal industry. The losses of state enterprises are covered at the expense of the State Budget (or, in fact, the “corruption tax” on Ukrainian citizens); otherwise, the accumulation of debts by any enterprise in that chain is often organised artificially, to proclaim it bankrupt and privatise it for debts, or at the residual cost (Razumkov Centre, 2003) (Figure 3).

Figure 3. Financial Pressure and Control in the Coal Sector: Commodity and Money Flows



Source: Cabinet of Ministers, 2006a.

In its *Energy Strategy to 2030*, the government also highlights that private businesses with a monopoly on the production of certain types of coal mining equipment gain excessive profits, while coal mines have large losses. These private companies are able to amass these profits at the state’s expense because of the subsidies and the state ownership of the mines. The trend is particularly evident for coking coal, where the coal is eventually used to produce steel for export markets. This form of corruption keeps coal prices artificially low and the cost of coal extraction high. It also creates a mechanism for funneling state funds intended to subsidise a troubled sector into the hands of private companies controlled by rich industrialists. Several of these individuals have also benefited by purchasing indebted coal mines at far below market prices.

Profitability of Coal Extraction

According to a World Bank report, in 2003 the coal sector's average production cost was approximately USD 29 per tonne, 15% higher than the average coal price of USD 25 per tonne (World Bank, 2003b). By 2005, mines were still not profitable on average, but the losses were decreasing. Average prices were 5% lower than average costs in 2005, though among state-owned mines, this spread was 19% (Energobusiness, 2006). State-owned mines had costs 14% higher than average Ukrainian costs, and these higher costs were equally distributed among all the major cost elements (such as materials and labour). Moreover, the profitability of coal extraction in mines varies widely and mines with higher output tend to be more profitable. Privatised mines are also significantly more profitable than those owned by the state.

As of 1 December 2005, the coal sector had unpaid debts of UAH 9.4 billion (USD 1.86 billion) and net indebtedness of UAH 7.1 billion (USD 1.4 billion). A large portion of these debts are for taxes or workers' pay. Though unpaid debts are increasing from year to year, the rate at which they are increasing has been declining since 1996. An adjustment of the artificially-low coal prices to market conditions, coupled with investment in capital and new technologies, should make it possible for coal to be extracted in an economic and sustainable way, at least from a significant percentage of mines, without relying indefinitely on large state subsidies.

ELECTRICITY

Overview

The Ukrainian power sector has undergone major changes in the past two decades. While the sector may be most famous internationally for the Chernobyl nuclear power plant accident in 1986, since then significant changes have taken place in demand, market structure and ownership. Ukrainian power demand dropped by 42% from 1992-2001, but began to grow again in 2002.⁷ In the mid-1990s, the government unbundled the sector into generation, transmission and distribution. In 1997, Ukraine launched a wholesale market for power with a single buyer, called Energorynok, which also sells to distribution companies and large industrial consumers. The wholesale market has been distorted by the effects of non-payments, debts and state fuel allocation.

7. Electricity production dropped less dramatically, by only 31%. Imports dropped and distribution losses increased, which explains the difference in the consumption and production numbers.

The country plans wide-ranging reforms to reinvigorate the market including tariff reform and a move toward a system of bilateral contracts instead of a single buyer model. From 1998 to 2001, the government also sold off several of the power distribution companies to local and international strategic investors. In 2004, the government shifted gears and consolidated its assets in the sector into a new state holding company called the Energy Company of Ukraine. This company now owns the majority of non-nuclear generation and distribution assets. Formally, the wholesale power market still exists. However, it is not clear how competitive the market can be given the current ownership structure and government intervention of fuel allocation to power plants.

The Power Market

Ukraine's Wholesale Electricity Market (WEM) began operating in 1997. The state company Energorynok (or "power market") operates the market, serving as a single buyer of power. In principle, the large thermal gen-cos compete to sell power to Energorynok. Energoatom and Ukrhydroenergo also sell power (nuclear and hydro) to Energorynok, but at prices set by NERC. Thus, the competitive wholesale supply accounts for only about 35-40% of the power sold to Energorynok. Energorynok then sells power to the oblenegos and large industrial firms. NERC sets the regulated prices for transmission and distribution services (Kalchenko, 2004). In turn, the oblenegos sell to customers at rates that are based on the wholesale price plus the transmission and distribution tariff.

Several pieces of legislation regulate the market, including the 1997 *Law on Electricity*, Presidential decrees, orders from the Cabinet of Ministers and NERC, and the agreement between the members of the WEM. Since the electricity law was adopted, parliament has passed several important amendments. These amendments cover issues such as payments in the WEM, reducing fines on customers in arrears, ensuring fairness in tenders and proportional payments for electricity sold on the WEM.⁸

The market was set up as a replica of the England and Wales power pool, at least in theory. However, problems with non-payment and debt have significantly hampered market function. First, Energorynok accumulated UAH 17 billion (USD 3 billion) in debt on its own books. Second, the fact that Energorynok did not receive full payment meant that it could not pay the

8. Communication from the Secretariat of the Parliament's Committee for Fuel and Energy, Nuclear and Nuclear Safety.

generators in full. It ended up making payments based on a complicated algorithm negotiated with the WEM participants. In turn, the generators did not have enough money to pay for fuel, so the Ministry of Fuel and Energy allocated fuel to plants, distorting the market. The World Bank writes that “Price bidding in the WEM was really a shadow exercise that had little impact on actual wholesale prices or on the dispatch of energy from power stations” (Gochenour et al., 2004). In the end, thermal power generators were sometimes shut down, brief supply interruptions were common and, at times, the system operated at dangerously low frequency levels.

Ultimately, the WEM members agreed that only NERC (not the Ministry) could change the algorithm for cash allocations to power suppliers, and only in times of clearly defined technical emergencies. Nonetheless, the Ministry of Fuel and Energy continues to allocate fuel to power plants, which means that for all practical purposes, there is no competitive market. This lack of a competitive market has led to uneconomic dispatch decisions, which one consultant calculated has caused an almost 13% increase in fuel consumption for fossil-fired power production nationwide (as the most efficient plants were not dispatched first).⁹

Collections saw significant improvement after 2000 when the government began requiring payment in cash through special bank accounts instead of barter. This secured the integrity of transfers and made payments easier to track. However, the past non-payments were still a weight on the industry because many companies were effectively bankrupt. In June 2005, the Verkhovna Rada passed legislation that addresses this by developing a verified registry of the debts and levying a surcharge for debt payment on the sale of electricity (Verkhovna Rada, 2005). This law is now being implemented and debts between WEM participants have dropped steadily over the past year.

The ownership status of the power sector assets also has important implications for the power market. It is hard to imagine a truly competitive power market when the government has consolidated the majority of production and distribution assets into a single holding company. For now, however, the advent of the Energy Company of Ukraine has not resulted in a change in the power market structure or rules.

9. The Ministry of Fuel and Energy is still developing projections for fuel use in thermal power plants, drawing from the energy targets (or balance, as they are known in Ukrainian) outlined in the Energy Strategy to 2030. For example, the Ministry projects that in 2006, some 69% of coal purchases (all sales from state-owned mines) will be made through the WEM. Sales from private coal mines will be made on a bilateral basis.

Regulation and Pricing

NERC plays several roles in the power sector. It licenses power plants to connect to the grid and participate in the wholesale market. It also sets the price of power from nuclear, hydro, wind and cogeneration plants, based on a cost-plus type methodology.¹⁰

NERC also sets retail electricity tariffs with a cost-plus formula that factors in the market price of electricity purchased on the wholesale market, losses, operation and maintenance costs, and the allowed rate of return on investments by distribution companies. On average, the wholesale price of electricity makes up about 77% of the tariff, the transmission and distribution tariffs are, respectively, about 12% and 1% of the total, and covering the cost of losses on power lines makes up the remaining 9%. The cost of electricity is calculated based on the average wholesale price of all types of power. NERC sets the tariff for power distribution and local supply at a level that should cover costs and provide some profit, though oblenergos have expressed concerns that the tariff does not allow them to make all the necessary investments. NERC’s strategic objective is to optimise the retail price of electricity in each link of the energy chain and to balance the interests of all participants in the energy market. It sets the retail price according to customer class, which involves a cross-subsidy from industry to residential users.

Until September 2005, NERC had separate retail prices for each region, reflecting the different costs for each distribution company. However, it has now decided to set unified national prices. The logic behind this decision is that this approach is fairer to all consumers. In reality, unless costs are broadly equivalent across the country, a unified tariff introduces another cross-subsidy.

There is little discussion of allowing retail competition. In fact, over the past several years, fewer and fewer large manufacturers have been allowed to buy power directly from producers. The government felt the *ad hoc* nature of such sales was unfair and raised prices for other consumers.

NERC is independent of the Ministry of Fuel and Energy but it does not have complete budgetary and administrative freedom. Also, its rulings can be – and are – overruled at times.

10. A cost-plus methodology calculates costs and adds a fixed percentage profit to these costs. Thus, higher costs lead to higher profits, which provides a built-in counter-incentive against efficiency.

Ukraine has relatively low prices for power, even compared to Russia or Belarus. Table 2 shows average residential and industrial power prices in Ukraine and in other Eastern Europe countries in mid-2005. NERC has since raised regulated tariffs, but Ukrainian tariffs remain lower than those in most of its neighbouring countries.

Table 2. Comparison of Electricity Tariffs in Ukraine and Neighbouring Countries, Mid 2005

Country	Average residential tariffs	Average industrial tariffs
	USD/kWh	USD/kWh
Ukraine	0.023	0.0356
Belarus	0.033	0.0600
Russia	0.035	0.0420
Moldova	0.058	0.0580
Estonia	0.068	0.0604
Latvia	0.069	0.0602
Lithuania	0.081	0.0665
Poland	0.081	0.0638

Source: Ministry of Fuel and Energy.

Regulated tariffs for wholesale electricity in Ukraine are not high enough to cover depreciation, or re-investment, in power system assets. This affects nuclear, hydro and most thermal power plants. In the case of nuclear energy, the tariff calculations do not seem to adequately include allowances for future decommissioning costs or the full costs of nuclear safety. The latter are partly funded by the Ukrainian government directly and partly by Western governments, in addition to investments made by Energoatom. In the case of combined heat and power, the allocation of costs between heat and power tends to put more of the costs toward heat than would be warranted based on the split in energy output. Moreover, non-payments further lower the effective tariff (or, put otherwise, create an implicit subsidy for electricity).

The government and NERC decided in late 2005 to increase all electricity tariffs to rates that were "economically justified". Cross-subsidies will also be phased out as part of this move. NERC had decided to raise tariffs by 10% per quarter until these goals are met. The first of these increases took place in January 2006; even sharper increases have occurred since. In July 2006, NERC accelerated its schedule for increasing prices; it now plans to raise prices by 25% every six months for the next two years. According to NERC and the Ministry of Fuel and Energy, prices in July 2006 covered only 36% of the total long-term produc-

tion costs (Energobusiness, 2006). At the same time, the Parliament and Cabinet of ministers have taken actions to limit price increases. Tariffs are the subject of major policy debates: some in power want to ensure that prices will reflect costs by giving NERC more independence.

Costs and Pricing of Nuclear Electricity

The State Nuclear Regulatory Committee (SNRC) provides data on the cost elements of the wholesale nuclear power tariff in Ukraine. Fuel purchases account for almost one-third of the cost. Labour makes up slightly more than 10% of the cost. Profit is set at 30%. However, the profit must be used for what would be considered production costs by international accounting standards. Most of the nuclear safety upgrades are funded out of depreciation or profit. This means that virtually no money goes toward capital reinvestment in new capacity. In fact, capital costs for the two new nuclear reactors at Khmelnytsky and Rivne were funded from a special charge on all power sold and were not included in the nuclear tariff rate base. Decommissioning has also been excluded from the costs of nuclear power in the past, and it is not yet clear that new decommissioning funds will be adequately financed.

The costs of nuclear waste storage and disposal are also not part of the nuclear tariff rate base (although costs for removing spent fuel from the reactor are included). The tariff base also includes a small charge for what is called the "nuclear fuel cycle fund", though it is not clear if the charge would be enough to fully cover the capital costs of planned investments in this area. As indicated elsewhere, the governments of Ukraine and several other countries fund nuclear safety at Ukrainian reactors directly, though the tariff base also covers some of these costs.

In sum, a significant portion of the costs of nuclear power are not passed on directly to consumers through the tariff structure. While this is true to some extent for all power production (because capital replacement costs are chronically underfunded), it seems particularly a problem for the nuclear industry where capital costs make up such a large portion of total costs. This lack of cost coverage will make it much more difficult for the government to implement its plans to expand nuclear power.

NERC sets the tariff for nuclear power sold to Energoatom. The wholesale tariff for nuclear power in 2005 was UAH 0.078 (USD 0.016) per kWh, approximately 33% lower than the average wholesale power price. Despite tariff and price increases in 2006, the ratio of average and nuclear wholesale prices has remained virtually the same (Table 3).

Table 3. Average Wholesale Power Price by Type of Power Plant, July 2006

Type of power plant	Cost	
	UAH/kWh	UAH/kWh
Nuclear*	0.080	0.016
Thermal condensing	0.192	0.038
Hydro*	0.077	0.015
Combined heat and power*	0.175	0.035
Wind*	0.242	0.048
Average	0.129	0.026

*The wholesale price of power from these types of plants is regulated.

Notes: On 27 July 2006, the regulator approved an increase in the nuclear tariff to 0.0888 UAH/kWh (USD 0.018/kWh); the hydro tariff also rose in late July to 0.0869 UAH/kWh (USD 0.017/kWh).

Source: Energorynok, 2005a.

DISTRICT HEATING

Overview

District heating is of great economic and social importance in Ukraine. It accounts for a large share of Ukrainian total primary energy use and provides heat to more than 65% of Ukrainian homes and offices. Public authorities perceive district heating companies as providers of public services, not as qualified business players operating on a true market. The perception of district heating as a social service, the current tariff policy, the protracted lack of investment and inefficiency – all of these factors undermine the sector's sustainability. District heating generation and transportation facilities are inefficient and need urgent replacement and modernisation. Efficiency of heat consumption must also be improved, especially in residential and commercial buildings, which consume nearly half of district heating. However, the current structure of the building sector does not stimulate energy efficiency. Moreover, Ukrainian cities do not fully exploit the economic and environmental benefits of district heating: the current use of cogeneration, waste heat and renewable energy sources is rather low. The government understands the major problems of the sector and has announced positive reforms such as installing meters, increasing the share of cogeneration, introducing competition and involving the private sector. Yet, the actual implementation of these reforms has been very slow, and much remains to be done. Lack of reliable statistics, especially on heat demand, makes the development of district heating policy challenging.

Tariff Regulation

The current practice of regulating heat tariffs in Ukraine needs improvement. Major problems with the current approach include:

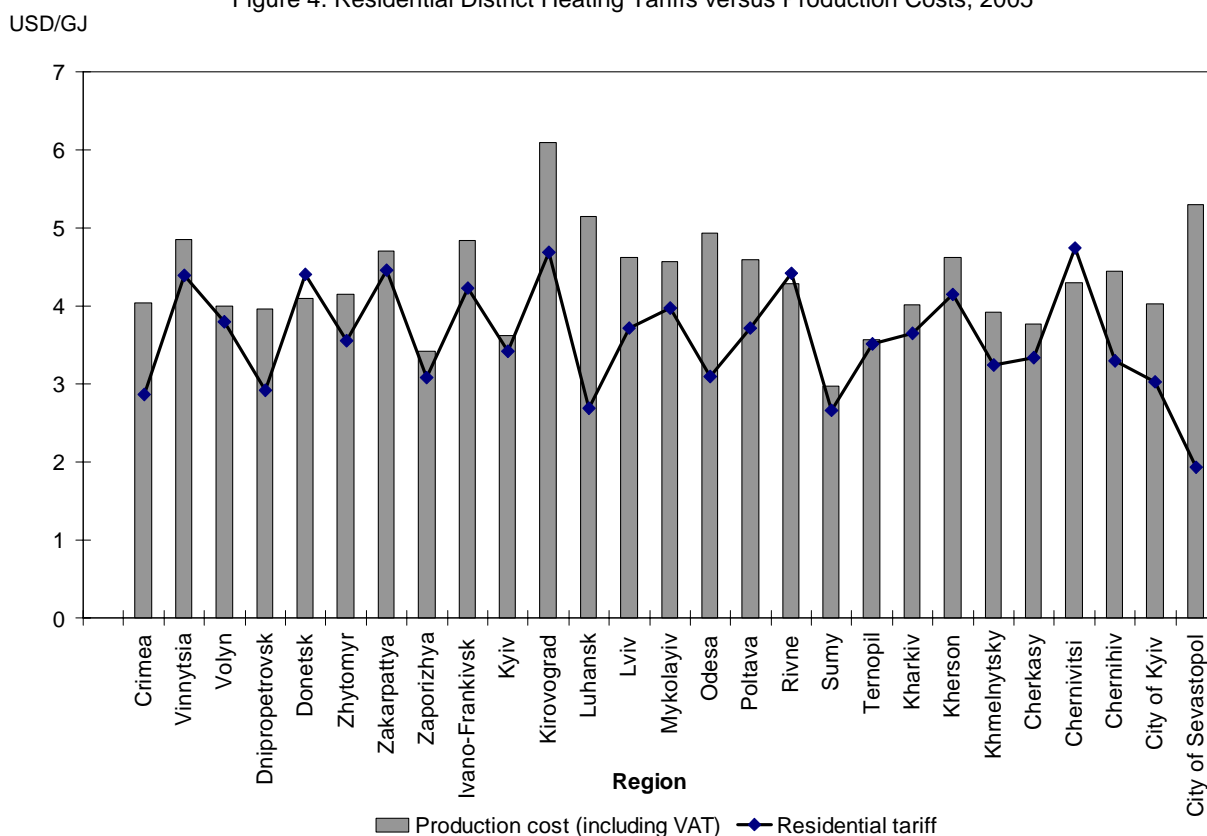
- Unclear distribution of responsibilities between central and local authorities.
- Conflict between the regulatory and ownership/management functions in local authorities.
- Lack of professional regulatory competence at the local level.
- Inadequate legal and regulatory framework regarding the principles, methodologies and rules of setting heat and combined heat and power tariffs.

Current regulatory practices endanger the security, quality and availability of fundamental heating services. Additionally, tariffs are not clear and understandable to final consumers, which makes district heating less attractive compared to individual heat options. The Ukrainian government and policy makers understand that tariff policy needs improvement. The recently adopted laws have several positive provisions; the next step is to implement them effectively.

The 2004 *Law on Housing and Communal Services* and the 2005 *Law on Heat Supply* require that tariffs for district heating and hot water supply cover all economically justified costs. The *Law on Heat Supply* also states that if the regulator sets costs at a lower level, it must develop compensation mechanisms – in other words, the regulator must find ways to cover the difference. In reality, district heating tariffs vary greatly across the country and do not always cover cost. In 2005, residential tariffs covered more than 100% of current costs in the Rivne and Chernivitsy regions, but only 45% of costs in Sevastopol (Figure 4). Local authorities often set tariffs below cost for political and social reasons. Then local budgets lack the finances to cover the difference. Even in cases in which tariffs cover current costs, they do not generally include a component for major capital investments and other long-term costs. On the other hand, tariffs sometimes include costs that are not related to heat supply. This also can deny district heating companies of much needed income for investment.

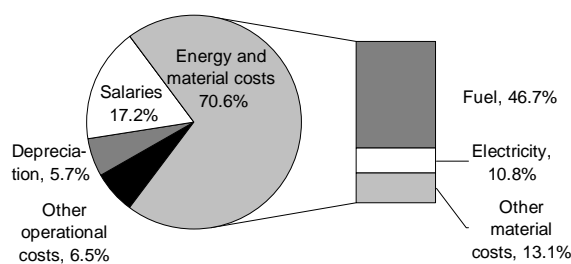
To improve the competitiveness of combined heat and power, the *Law on Heat Supply* stipulates that heat tariffs from combined heat and power generation must not be higher than tariffs for heat from other sources. In practice, this provision can be difficult to implement because local authorities maintain the ability to set heat tariffs from heat plants at a below-cost level, and are allowed use the local or regional budget to compensate the difference to the district heating company. NERC cannot apply the same instrument to cogenerated heat, as it cannot make modifications in the State Budget.

Figure 4. Residential District Heating Tariffs versus Production Costs, 2005



Source: Ministry of Construction, Architecture, Housing and Communal Services.

Figure 5. Average Heat Production Cost Structure of District Heating Companies



Source: Ministry of Construction, Architecture, Housing and Communal Services.

The Ukrainian *Law on Heat Supply* stipulates that tariffs must be established as a sum of generation, transmission, distribution and supply costs – plus a profit margin, which is set by the Cabinet of Ministers. Figure 5 shows the average cost structure of heat generation. Cost-plus tariffs encourage companies to raise costs in order to raise profit and provide no incentive to

make investments that would lower operating costs. However, the law does introduce one concept of incentive regulation: it allows companies that decrease their costs through efficiency improvements to preserve the same tariff level for three years. Thus, they realise greater profit as a reward for their effort.

Subsidies

Although they have been significantly reduced over the last few years, subsidies and cross-subsidies at various levels still create distortions on the Ukrainian heat market. The subsidies begin at the fuel level and are evident throughout the chain. To start with, district heating companies receive natural gas at a below-market price. For example, in 2005 Gas of Ukraine supplied gas to district heating companies at UAH 189 (USD 35) per 1 000 m³; electricity generating companies paid UAH 331 (USD 61) per 1 000 m³.¹¹ Companies that produce combined heat and power thus have

11. Households were able to obtain gas at even lower prices.

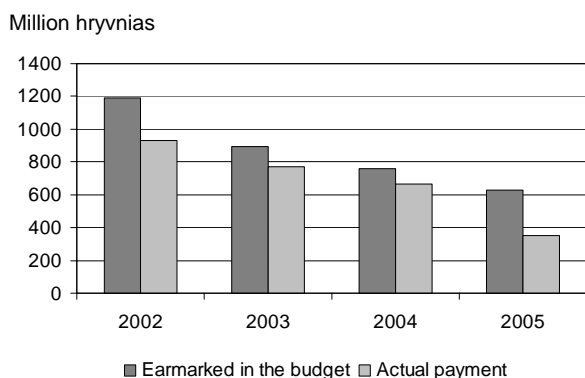
an incentive to allocate most of their fuel costs to heat to be able to get cheaper gas. Even more importantly, the difference between the gas price for heating companies and for manufacturers may give district heating companies an incentive to illegally re-sell gas at higher market prices.

As district heating tariffs do not cover costs, the difference must be covered by subsidies from local or state budgets. Budget payments, however, are often delayed, which results in significant accumulated debt to district heating companies.

Residential tariffs are also cross-subsidised by higher industrial tariffs. Such cross-subsidies have been reduced over the last few years but still exist in many regions. For instance, in Crimea, industrial tariffs for heat and water are 3-4 times higher than residential tariffs (Kucherenko, 2005). As a result, many industries switch away from district heating and build their own boilers. When they lose large industrial customers, district heating companies are forced to put even greater costs on the shoulders of their remaining consumers.

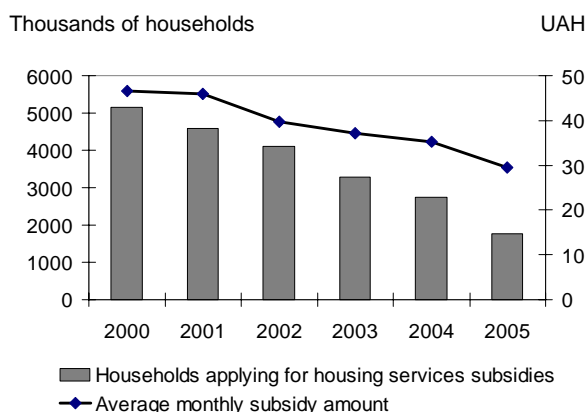
Finally, households that spend more than 20% of their income on housing and communal services are eligible for targeted social subsidies. In addition, several population groups, such as war veterans or Chernobyl victims, benefit from discounted (“privileged”) tariffs for communal services. Contrary to subsidies, such privileges are not income-based. Consumers eligible for subsidies or privileges pay only a portion of the bill, and the state budget compensates the remaining amount directly to service providers. This scheme does not necessarily motivate households to consume less energy. The number of households applying for these subsidies has been declining in the recent years because household incomes have been growing faster than tariffs for communal services (Figures 6 and 7).

Figure 6. State Budget Subsidies for Housing and Communal Services Payments, 2002-05



Source: Ministry of Construction, Architecture, Housing and Communal Services.

Figure 7. Households Applying for Housing Services Subsidies and Average Monthly Level of Subsidies, 2002-05



Source: Ministry of Construction, Architecture, Housing and Communal Services.

NEXT STEPS

Increasing tariffs can take place in stages to minimise the impact on the population and to ensure that non-payments do not resurface as a problem. The first step, raising tariffs to cover short-term marginal costs, has already occurred. The second step, restoring the sector's financial health, is just starting. The third and fourth steps are covering capital costs (or amortisation) and profit. When Ukrainian tariffs have reached the fourth step, consumers will cover long-term marginal costs, which should position Ukraine to attract required investment. NERC's plan to raise tariffs by 25% every six months for two years is a welcome development and should be supported.

As tariffs are raised, the Ukrainian government needs to make sure that it has effective welfare networks in place to assist low-income households. The point of raising tariffs is not to cause the poor to suffer but rather to allow the system as a whole to operate in a sustainable manner and to allocate resources efficiently.

Raising tariffs will also help promote energy efficiency, which Ukraine needs in order to decrease its energy import dependence. The Energy Strategy to 2030 shows some impressive increases in power capacity and production. However, in reviewing its energy strategy, the government could improve the feasibility of its plans by ensuring that they are based on comprehensive economic analysis. Rising energy prices should reduce demand, reducing the need for some capacity investments. Likewise, policies to improve energy efficiency in end uses can further reduce the need to add capacity. Co-ordinating the analysis on these various trends could sharpen the electricity projections and hence the plans based on them.

The government and NERC have made important efforts in the area of the electricity and natural gas pricing policy. The tariff increases were absolutely necessary for maintaining the sustainability of the Ukrainian energy sector.

Recent partial roll-back of the tariff increases are thus concerning. Increasing tariffs to cover long-term marginal costs will encourage efficiency, attract energy sector investment and reduce the need for government subsidies. It will also help improve Ukraine's energy security by ensuring that Ukraine does not need to compromise on energy security or political priorities to maintain low prices in energy import contracts.

In the oil and gas sector, several additional price-related reforms would also benefit Ukraine. In particular, current policies that assign prices based on the type of consumer and source of gas supply are untenable, particularly in the face of further upward pressure in import gas prices. Upstream, pricing domestic gas at the lowest rates discourages exploration and production activities. Downstream, multi-tier pricing creates huge opportunities for arbitrage on a grey market and for implicit subsidies that discourage efforts to increase payment discipline and gas utilisation efficiency. The end result is the propensity to import gas rather than produce it domestically, which has a negative impact on the balance of trade and payments, and on investment and employment.

Reforms in the oil processing and distribution sector are somewhat more advanced than in other energy sub-sectors, which can provide useful lessons. Ukraine has a vibrant and competitive oil product market, which generally works quite well. An episode of government intervention has demonstrated that heavy market regulation is counterproductive and should be avoided. Introduction of price regulation in the spring of 2005 led to a deficit of oil products; refiners preferred to export them to other countries where prices were unregulated. When regulations were ultimately cancelled, the stable supply of oil products quickly returned. This supports the argument that a market-based approach is more effective than government intervention.

On the other hand, the Ukrainian coal sector still has many hurdles to overcome in order to become competitive. Poor governance is of great concern. The Energy Strategy to 2030 highlights this with its analysis of the rising cost of materials and machinery in the coal sector. These materials are supplied by a limited number of companies that often charge excessive, monopolistic prices. While most coal companies remain under state ownership, they are effectively controlled by private industrial groups that buy their coal output and sell

them mining equipment. As a result, Ukrainian mines are, on average, loss making, even with substantial subsidies. In fact, the subsidies may actually perpetuate the system of unofficial private control by providing an additional source of attractive cash for the taking. Reforming the mining sector must involve improving transparency and clarifying business relationships.

Moving to more market-oriented coal prices could help. The government mentions the need to move to market prices in the July 2005 Concept for the Development of the Coal Industry, starting with the proposed establishment of coal auctions, which seems a sound approach. These auctions can minimise the possibility that private industrialists will manipulate prices through inappropriate control of individual mining enterprises. Once the market is established, the government plans to allow companies to use long-term contracts again, which is logical as long as the government monitors the competition carefully for fairness. Monitoring the competition means reviewing sales prices on an ongoing basis, and referencing international prices, costs and other relevant benchmarks, to ensure that a competitive market develops quickly. Such steps can reduce the likelihood of continued undervaluation of Ukrainian coal. Current oversight of financial transactions at state-owned mines is often weak, creating opportunities for private industrial groups to gain excessive control over sales and purchases, and hence, the mining enterprises themselves. An auction-based market will help to address this, but the government can also improve state management of the mining enterprises.

Government subsidies on coal should also be reduced. This applies both to production and most capital subsidies. As noted, production subsidies often encourage corrupt control by private entities; thus such subsidies do little to improve the sector's future prospects. Moreover, subsidies for technological improvements do not make much sense if privatisation is planned in the near future. Private investors would be in a better position to make investment decisions, and investments now may not result in a net increase in the sale price at privatisation. One area in which there is a clear-cut need for continued state spending is in mine closure and addressing the associated social consequences. At the same time, state management of these budgets could be improved to ensure that the funds are used efficiently and effectively, targeting groups most in need.

Ukraine has taken important steps toward establishing a competitive market for electricity and privatising the sector. However, since the late 1990s, little has been done to consolidate the initial efforts. Ukraine now has an opportunity to build on its early successes in market opening and privatisation.

The participants in the wholesale electricity market have agreed to transition the system from a single buyer model to bilateral contracts. This move could be appropriate to Ukrainian market conditions. However, some of the core problems today seem less related to the market structure than to imbalances in market fundamentals (for example, tariffs that do not fully cover costs, lack of competition on fuel markets, government fuel allocations, and unwillingness in the past to take sanctions against customers in arrears). It is important that the market participants and government move swiftly and methodically in implementing any transition. Experience in IEA countries shows that uncertainty about electricity market and regulatory systems stunts investment.

A key condition for any system to work is full cost coverage. The regulated components of the tariff – namely for nuclear energy, hydro power, transmission and distribution – make up the majority of total system payments. Current tariffs do not cover full costs for capital investments, maintenance or environmental protection. This is true for all sources of power, but seems to be particularly problematic for nuclear installations. In the nuclear sector, tariffs fall short of fully covering not only capital investments, but also waste storage and disposal, and decommissioning costs.

If Ukraine wants to attract investment and ensure reliable electricity supply in the future, it must raise tariffs. Ukraine now has some of the lowest electricity tariffs in the region, even lower than in energy-rich Russia. After 15 years of underinvestment in the electricity sector, the government itself highlights that many electricity assets are operating beyond their design life. Continued underinvestment only pushes back the time when investment is needed, which ultimately means that the price shock from rapidly rising tariffs will be that much more severe. NERC has begun the politically difficult task of increasing tariffs. Perseverance and consistency in the long term will be key to addressing the problem.

Tariff regulations must have adequate provisions to support capital investment. While it is reasonable for NERC to ensure that total costs are not excessive, capital investments are a challenging regulatory issue: they may raise costs in the short term before lowering them over the long haul. NERC and the government need to be careful to reach the right balance in designing regulations that protect consumers from monopolistic prices and yet allow companies to make their own investment decisions.

Currently, Ukraine's electricity assets are not used to their full value, in part because the prices do not provide the necessary incentives. A good example is hydro

power, which is regulated and is the lowest cost power in Ukraine. Hydro power is extremely valuable for balancing frequency on the grid. By pricing it so low, there is little incentive to use it when it is most valuable. Moreover, there is little incentive to invest in more hydro. Hydro could be priced based on its value as part of a vibrant wholesale electricity market.

As part of raising tariffs, it is also important to look more critically at the nuclear power costs that are not fully covered today: capital expenditures, waste disposal and decommissioning. In IEA countries, these three areas of cost comprise the majority of nuclear power costs; underfunding them makes the nuclear industry financially unsustainable and distorts the electricity market. Likewise, future nuclear power plants and plant extensions would better serve the market if they were funded directly from the price of nuclear power, not from a surcharge on all electricity or other cross subsidy.

More effort needs to be expended on fully understanding both the costs of nuclear power and the availability of domestic uranium before deciding on new nuclear infrastructure. This will increase the likelihood that plans will proceed smoothly and that nuclear can play an appropriate role in improving Ukraine's energy security. The issue of uranium reserves is important. If less uranium can be extracted at competitive prices than planned, Ukraine will have to import uranium to meet its targets. Likewise, if global prices are lower than domestic costs, Ukraine will raise the cost of nuclear power by relying solely on domestic sources.

District heating, when well-managed, has significant economic, environmental and social benefits, especially when it is based on cogeneration. With adequate policy, district heating can be a reliable and relatively cheap source of heat and can contribute to reducing emissions of greenhouse gases and local air pollutants.

District heating in Ukraine suffers from inefficiency and urgently needs investment in refurbishment and modernisation. The increasing gas price highlights the urgent need for efficiency improvements, which would reduce gas consumption and, ultimately, reduce the burden of fuel cost on final consumers. Yet, the current policy framework does not make district heating attractive for investment, which undermines its sustainability. Barriers to investment and efficiency improvements include (but are not limited to): the current pricing policy; lack of metering; the focus on heat production, not consumption; unclear ownership and management of buildings; and difficult access to financing for interested parties. It is vital to create adequate policy and regulatory conditions for attracting private investments in the sector.

The current system of regulating district heating has clear disadvantages. The major problem is that local authorities act as both owners and regulators of district heating, which leads to a conflict of interest and provides incentives for non-transparency. Heat prices are often below operational costs, which creates financial distress for district heating companies. At the same time, the tariffs are quite high because the current regulation does not stimulate efficiency and cost reduction. The plan to transfer heat regulation functions from municipalities to NERC is commendable and must be implemented in practice. The proposal to create a separate agency for regulating district heating and other communal services has pros and cons. In any case, either NERC or the new regulating institution must be truly independent from both political and stakeholder interests.

In sum, raising energy tariffs is one of the most important steps policy makers can do to ensure Ukraine's energy security and economic efficiency.

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