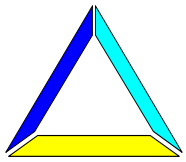
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Q 9

Is the gas which Ukraine receives as transit fee used efficiently?

0. Summary

NAK Naftogaz Ukrayiny is paid for its transit services not in hard currency but in kind, i.e. in natural gas. Though the monetary value of this gas is substantially higher than the operating costs of the Ukrainian gas transit system (GTS), under-investment in maintenance and rehabilitation of this gas transit system is obvious. In addition, NAK Naftogaz Ukrayiny is one of the biggest debtors to the budget. In 2000 the company had to transfer 1,005 m UAH to the state budget as a special tax on its transit services. In fact it paid only 23.4 % of this amount.

The main reason for these problems is that Ukrainian **legislation restricts how and under which conditions the natural gas obtained as a transit fee (NGTF) has to be used**. According to these rules the NGTF has to be used to cover the demand of gas of private households, of budget organizations of all levels and of communal heating enterprises (altogether called "funds of oblast state administrations" - OSA funds). Any remaining NGTF and the natural gas extracted domestically should be sold to the power generating companies.[1] Prices for these customers are politically set and do not reflect market prices. Thus, the current system of managing the received payment for NAK Naftogaz Ukrayiny's transit service is inefficient and creates big losses for the economy. In 2000 losses for the Ukrainian economy which occurred by selling the NGTF below market prices were about 5 bn UAH. Even if 100% of the gas supplied would have been paid losses would still have been about 4 bn UAH.

The following measures are recommended in order to encourage efficient use of the income of the gas transit business for the Ukrainian economy:

I. The best way to improve the gas transit payment system would be if Gazprom would **pay for the service in cash**. Such type of transactions, which is usual for the whole world, would substantially increase transparency of the sector.

II. **As long as the transit service is still be paid in kind (NGTF) economic efficiency should be raised by selling the received gas (NGTF) at market prices.** This would increase real budget income and would, in principle, enable NAK Naftogaz to finance maintenance of and investment into the transit pipelines, thus securing reliability of the transit pipeline.

[1] Cabinet of Ministry decree #1800, "On the supply of natural gas to the economy and private households in 2001", December 11, 2000.

III. Market prices for gas supply consist of the price of the amount of gas supplied and prices for transportation and distribution. Prices for the last two services have to be regulated as they have the character of a natural monopoly. Such regulated tariffs should cover the respective costs.

IV. **Adjustment of current gas prices to market prices could be done stepwise:**

- The first step should be to **raise payment by final customers up to 100%.** Otherwise tariff changes would not have any economic effect. In order to enforce payment cut-offs have to be carried out consequently and the **system of metering has to be improved**[2] in order to give customers clear responsibility for their consumption of natural gas. Meter installation could be financed from selling the natural gas saved and from a modest basic charge for energy services (meter rental).
- The second step should be **to increase tariffs for transportation and distribution up to cost covering levels**. Due to the higher fixed costs of the distribution net, which is of high density, distribution costs would be higher than transportation costs. Therefore the power of National Electricity Regulatory Commission (NERC) should be increased. The commission should also monitor the costs of different services on a regular basis and prevent current cross-subsidization of one service by another by NAK Naftogaz Ukrayiny. At the same time, the government has to substantially improve conditions for introducing competition into the production and supply segments of the industry, i.e. setting transparent rules and tariffs for access to pipelines.
- In a third step **prices for gas should be raised up to the market price for all costumers**. Simultaneously this should be accompanied by adjustment of transportation and distribution tariffs to efficiency criteria, thus implementing a price cap tariff for these natural monopoly services.

V. **If subsidization of certain costumer groups** is considered to remain **necessary for a limited period of time,** it would be **more efficient and transparent to raise tariffs up to the market level and then finance the necessary subsidies out of the state budget.** This would allow to improve transparency and to adjust to changes in the amount of NGTF.

Enforcement of the proposed measures of sector restructuring would allow Ukraine to substantially improve the reliability of its GTS and play a key role in a gas transport to Europe not only today but also for many years to come.

[2] About 90% of industrial meters are obsolete rotor meters that do not meet modern requirements; the level of installation of gas meters in the apartments is very low and current meters in heat-and-power engineering and industry measure gas flow subject to substantial errors.

1. Introduction

The Ukrainian state owned company NAK Naftogaz Ukrayiny owns and operates the Ukrainian gas transportation pipeline net. The net includes also the pipelines for transit of Russian natural gas to Western- and Southern-European countries. In return for its transit service on behalf of Russia's Gazprom, NAK Naftogaz Ukrayiny is not paid in hard currency but in kind, i.e. natural gas. The amount of natural gas obtained as a transit fee (NGTF) was between 34.7 and 27.9 bcm during the last years. Though the monetary value of this gas is substantially higher than the operating costs of the gas transit system (GTS), underinvestment in maintenance and rehabilitation of the Ukrainian GTS is obvious. According to Ukrainian experts 17% of the main gas pipelines have been fully depreciated, 25% of the gas pumping units have been fully depreciated, about 35% of insulation materials of the main gas pipelines need to be replaced, more than 30% of gas distribution stations need reconstruction, and almost all of the underground gas storages facilities must be technically re-equipped[3].

In addition, the company is one of the biggest debtors to the budget[4] and continues to accumulate debts. At the end of the year 2000 the company owed more than 3 bn UAH to the State budget.[5]

The paper aims at analyzing the consequences of current system of distribution of natural gas obtained as transit fee (NGTF) and its economic impact and proposes policy instruments required to eliminate the current distortions.

2. The current method of the NGTF distribution and its economic consequences

2.1 The amount of gas received as payment for transit services (NGTF)

The NGFT is determined by a complicated and not at all transparent mechanism. On the one hand, an annual transit fee is negotiated, which was 1.09 USD/tcm/100km in 1999/2000 and which increased up to 1.75 USD/tcm/100km in 2001. On the other hand, the gas price agreed between the Ukrainian side and Gazprom is of importance. In 2000 this price was about 50 USD/tcm and in 2001 it increased to 80 USD/tcm.

The total volume of NGTF obtained by NAK Naftogaz Ukrayiny decreased from 34.7 bcm in 1999 to 27.9 bcm in 2000. For the year 2001 about 29 bcm are expected to be received.

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[3] Source: presentation on Ukrainian Gas Transportation network made on 10.07.01. by the Ukrainian members of FIAC Oil & Gas Working Group. However, representatives of NAK Naftogaz Ukrayiny state that these figures are incorrect because they reflect the planned usage of equipment but real depreciation of equipment is lower.

[4] Golodnuk, I and V. Skarshevskii, 2001, *Comparative Analysis of Bankruptcy Systems in Ukraine and Poland*, CASE, p. 11.

[5] NAK Naftogaz Ukrayiny should pay UAH 8.4 bn in the year 2001 but company's management believes that the charged payments are set too high and will insist on their reduction in the next year. Thus, it paid UAH 3.8 bn to the State budget instead of UAH 5.7 bn required payments only in the first eight month of 2001. Source: Interfax

2.2 The regulation of NGTF supply

At present, the Ukrainian legislation restricts for what purposes the transit gas should be used and under which conditions. According to the decree of the Cabinet of Ministers[6] the NGTF should be used to cover the demand of private households, budget organizations of all levels and communal heating enterprises (so called funds of oblast state administrations - OSA funds). Any remaining NGTF and the gas extracted domestically should be sold to the power generating companies. In 1999 the Government tried to change the procedure of NGTF distribution and to oblige the budget organizations and heating enterprises to buy natural gas at auctions. However, these attempts had little successes due to the resistance of these consumers to pay cash for natural gas bought at actions. In 1999, only 5% of the total amount of natural gas supplied to Ukrainian customers was sold via auctions.

Prices for gas supply are far from market prices

Currently gas prices (including what is charged for transportation, distribution and supply) for private households and tariffs for natural monopoly services like transportation and distribution for all other customers are set by the National Electricity Regulatory Commission (NERC). The final gas prices for other consumers supplied by NAK Naftogaz Ukrayiny are fixed by NAK Naftogaz Ukrayiny itself.

The structure of gas prices for final consumers is distorted. Tariffs for private households, budget organizations of all level and communal heating enterprises are much lower than for industry (see table 1), although one should expect the costs of supply to the first groups to be higher.

Table 1.
Tariffs for consumers supplied by NGTF (UAH per tcm)

Customer group	1999	2000	1H 2001[7]
Population	168.6	182.8	182.8
Budget enterprises	219.9	189.7	186.5
Communal and industrial heating enterprises	215.9	190.7	216.5
Total by OSA funds	189.4	184.5	195.4
Power generating companies	242.1	302.6	331.5
Industry	215.6	344.2	322.1

Source: Ministry of Economy and own estimates

NAK Naftogaz Ukrayiny has tried to raise the prices it charges several times. However, the state owned company price setting policy is subject to substantial pressure from the central and the local governments. Last year NAK Naftogaz Ukrayiny issued new orders but could not implement price increases due to this

[6] Cabinet of Ministry decree #1800, "On the supply of natural gas to the economy and private households in 2001", December 11, 2000.

[7] The price was estimated as the amount of natural gas supplied in Ukrainian Hrivnyas divided by the amount of supply in cubic meters. These estimates differ from the tariffs published in *"Uryadovyi Kur'er"* where the tariffs for households without gas meters, with gas meters, budget organizations, communal and industrial heating enterprises were UAH 190,175 (set by NERC decree №310 of 10.03.99), 231 and 241 per tcm respectively. The price for gas transit by transportation and distribution pipelines is UAH 52.5 per tcm.

pressure. By resisting price increases, the government still continues the practice of implicit subsidization of privileged consumer groups.

Natural gas prices for final consumers in Ukraine are distorted not only in their structure but also in their absolute level, which is far below the respective price level in neighboring transition countries (see table 2).

Table 2:
Natural gas prices in neighboring transition countries (USD/tcm)*

	1999		2000	
Country	**Industrial consumers**	**Private consumers**	**Industrial consumers**	**Private consumers**
Czech Republic	108.2	115.0	112.0	133.2
Hungary	102.2	125.1	94.7	112.6
Poland	91.5	148.3	101.9	155.4
Slovak Republic	82.3	54.8	76.9	74.7
UKraine	*50.5*	*40.2*	*63.3*	*33.6*

* Prices include transportation and distribution
** supplied by NAK Naftogaz Ukrayiny

Source: IEA/OECD, Energy Prices & Taxes, Quarterly Statistics, II/2001; Ministry of Economy of Ukraine and own estimates

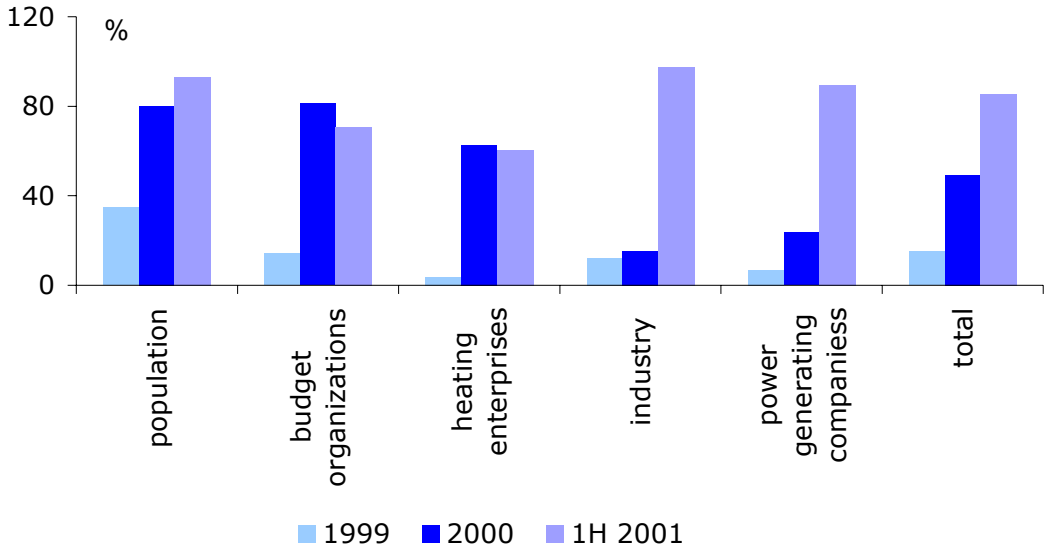
Additional price reduction is caused by non-payment

Lack of cash for maintenance and investment

Furthermore, the cash revenue generated from selling natural gas according to the legislation has not allowed NAK Naftogaz Ukrayiny to finance maintenance and rehabilitation of the gas transit system (GTS). According to business estimates, total cost of operating the transit system in 1999 was 2,575 m UAH (about 515 m USD), while cash revenues were 1,083.7 m UAH. The low cash revenue in 1999 resulted from different factors, the most important of which are the non-payment for consumed gas and various forms of non-monetary settlements. In 1999, the consumer groups that obtained gas from OSA funds and power generating companies only paid for 36.7% of the consumed gas and only 16.1% were paid in cash. Solving the problems of non-payment and non-monetary transactions were key goals of the government's policy during 2000 – 2001. A certain success was achieved. The respective figures for 2000 were 81.3% and 61.2%, and in the first half of 2001 they were 95.9% and 93.4% (see Figure 1).[8] Assuming that the total cost of operating the transit system did not increase but only adjusted to PPI, the operating costs of the GTS in 2000 were 3,111 m UAH while cash revenue from selling NGTF to OSA customers was 3,115 m UAH (see table 3). Hence, the improved payment discipline in 2000 made it possible to at least cover the operational costs of the transit pipeline.

[8] However, this large increase in cash payments should be interpreted with caution because NAK Naftogaz Ukrayiny considers one day mutual settlements through the special clearing account between budget organizations, power generating companies, railroad, coal mines and some others groups on the one hand and itself on the other hand as a cash payments.

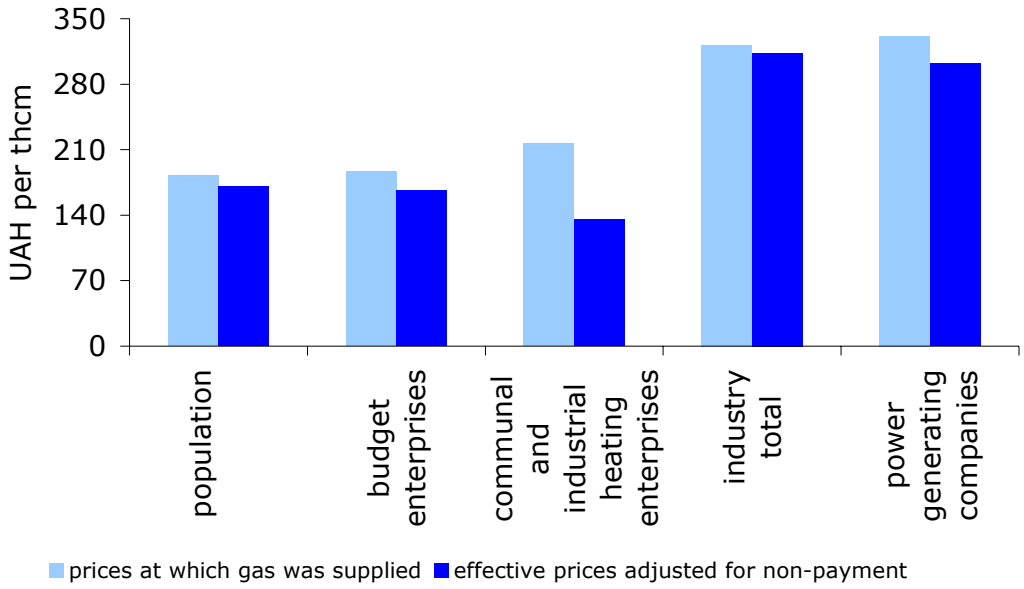
Figure 1.
Cash payments to NAK Naftogaz Ukrayiny as % of amount supplied



Source: Source: Ministry of Economy of Ukraine

Currently the rate of payment of final gas consumers in Ukraine is still below 100%. In practice this leads to effective prices that are even lower than the already artificially low tariffs established by NERC and Naftogaz Ukrayiny. Based on payment rates of 93% for private households, 89% for budget organizations, 63% for the industrial and communal heating enterprises and 97% for the power generating companies,de facto the NGTF was sold at prices of 170, 166, 136 and 313 UAH/tcm, respectively, in the first half of 2001 (see Figure 2).

Figure 2.
Effective prices for different group of consumers in the 1H 2001



Source: Ministry of Economy of Ukraine and own estimates

2.3 Potential versus real earnings from NGTF

If the market price of natural gas in Ukraine can be considered to have been about 40 USD/tcm in 1999 and about 60 USD/tcm in 2000[9], and if Naftogaz Ukrayiny would have been able to sell the NGTF at these prices, its revenues would have been 5,816 m UAH and 9,107 m UAH in 1999 and 2000 respectively (Table 3).

[9] The price for 1999 is the average gas price at auctions plus transportation and distribution. In fact the average market price might have been higher as comparison with other East European countries suggests. The average market price for 2000 was estimated on the basis of the price of natural gas at which power generating companies were supplied by Itera, which might be taken as a proxy for the market price of gas plus transportation and distribution. For simplicity we used transportation and distribution costs of USD 10 per tcm for both years. The 40 USD/tcm for 1999 are considered to be the minimum market price because NAK Naftogaz Ukrayiny sold only 5% of the total amount of natural gas sold in 1999. Hence, the average market price was probably higher.

Table 3.

Potential revenues and the amount of gas associated with from Russian gas transit to Europe

		1999	2000
1	Amount of gas obtained for transit services (bcm)	34.7	27.9
2	Potential revenue (UAH m)*	5,815.7	9,106.6
3	Planned revenues (UAH m)**	6,570.9	5,051.1
4	Amount of gas paid for (UAH m)	2,383.1	4,106.3
5	Cash revenue from selling gas to OSA funds and power generating companies (UAH m)	1,083.7	3,114.5
6	*Difference between planned and potential revenues (UAH m)*	*755.2*	*-4,055.5*
7	*Difference between actual and potential revenues (UAH m)*	*-3,432.6*	*-5,000.3*

* If sold at market prices
** Sold at officially determined prices

Source: Ministry of Economy of Ukraine and own estimates

However, NAK Naftogaz Ukrayiny sold the NGTF at prices below the market price of gas due to the regulation peculiarities and the political interference in its performance explained above. In 1999 barter was pervasive in the Ukrainian economy and market prices for those consumers who paid in cash and those who preferred to pay via non-monetary mutual settlements differed substantially. Thus, consumers who paid in cash could obtain a substantial discount. Therefore, the amount paid (real revenue) in 1999 was even lower than the planned revenue indicated in table 2. In 2000, the difference between planned and potential revenue reached about 4.1 bn UAH, the difference between potential and real revenue was about 5 bn. UAH (see table 3). These differences represent losses for the Ukrainian economy.

Lack of payment to the budget

In addition, according to law NAK Naftogaz Ukrayiny has to transfer part of its income from the transit business to the state budget. In 2000 the law "On State Budget of Ukraine 2000" provided that NAK Naftogaz Ukrayiny had to pay about 1,005 m UAH to the budget for gas transit. In fact, NAK Naftogaz transferred only 23.4% of this amount (235.53 m UAH). These non-payments to the budget additionally created a chain of non-payments within the economy.

According to the corresponding governmental decree[10], compensation of losses incurred by for regional energy suppliers because they have to supply gas to certain private households at subsidized prices has to be paid out of the fee that NAK is obliged to pay into budget revenues. As one of the results of NAK's debt to the state power distribution companies cannot obtain compensation for the services provided to subsidized costumers. This leads to huge receivables.

According to our calculations[11], we obtained that NAK Naftogaz Ukrayiny had to pay taxes of 1,394 m UAH due to transit of Russian gas to Europe – budget tax

[10] Cabinet of Ministers decree # 52, 24/01/01.

[11] For the details of estimation procedure see Opitz, Petra; von Hirschhausen, Christian (2001). *Ukraine as a Gas Bridge to Europe? Economic and Geopolitical Considerations.* In: Hoffmann,

1,005 m UAH, VAT 156 m UAH, profit tax 233 m UAH in year 2000.[12] However, today state has not seen much of this revenue due to the market distortions described above. Moreover, if it sold gas at market prices the respective figures for 2000 would be budget tax 1,005 m UAH, VAT 823 m UAH and profit tax 1,247 m UAH

Table 4.
Planned and potential budget receipts from selling NFTF

	Planned	Potential
Revenue	5,051	9,107
Profits before taxes	1,939	5,994
Budget tax	1,005	1,005
Profit tax	233	1,247
VAT	156	832
Total amount of tax paid	1,394	3,084
Profits after taxes	545	2,910

*The budget tax is fixed annually in the law "On State Budget" and calculates in the following way:

Amount of tax = average haulage*amount of gas transited*0.29 USD/100km/tcm*exchange rate
Therefore, it does not depend on the market price of the natural gas.

Source: State Treasury reports and own estimations

In summary, although payment discipline substantially improved in 2000-2001, NAK Naftogaz Ukrayiny can cover only operating expenses and is unable to generate enough revenue to meet its tax obligations and make required investments in system maintenance and rehabilitation.

Selling NTFG at market prices would not only enable NAK Naftogaz Ukrayiny to maintain and develop the gas transit system but would also substantially increase state revenue.

3. Conclusions and policy implications for Ukraine

I. The current system of handling of the received payment (NGTF) for Ukraine's is inefficient and creates big losses for the economy. The best way to improve the gas transit payment system would be if Gazprom would pay for the services in cash. Such type of transactions, which is usual for the whole world would substantially increase the transparency of the sector.

II. As long as the transit service is still be paid in kind (NGTF) economic efficiency should be raised by selling the received gas (NGTF) at market prices. This would increase real budget income and enable NAK Naftogaz to finance maintenance of and investment into the transit pipelines, thus securing the reliability of the transit pipeline.

Lutz, and Felicitas Möllers (eds.) (2001). Ukraine on the Road to Europe. Heidelberg, New York, Springer.

[12] Taking into account the amount of gas supply at actual prices.

III. Market prices for gas supply consist of the price of the amount of gas supplied and prices for transportation and distribution. Prices for the last two services have to be regulated as they have the character of a natural monopoly. Such regulated tariffs should cover the respective costs.

IV. Adjustment of current gas prices to market prices could be done stepwise:

- The first step should be to raise payment by final consumers up to 100% otherwise tariff changes would not have any economic effect. In order to enforce payment not only cut-offs have to be carried out consequently and the system of metering has to be improved.[13] in order to give customers clear responsibility for their consumption of natural gas. Financing of meter installation could be paid for by the natural gas saved and a modest basic charge for energy services (meter rental).
- The second step would be to increase tariffs for transportation and distribution up to cost covering levels. Due to the higher fixed costs of the distribution net, which is of high density, distribution costs would be higher then transportation costs. Therefore the power of NERC should be increased. The NERC should also monitor the costs of different services on a regular basis and prevent the cross-subsidization of one service by another by NAK Naftogaz Ukrayiny. At the same time, the government has to substantially improve conditions for introducing competition into the production and supply segments of the industry, i.e. setting transparent rules and tariffs for access to pipelines.
- In a third step the prices for gas should be raised up to the market price for all costumers. This should be accompanied by adjustment of transportation and distribution tariffs to efficiency criteria, thus implementing a price cap tariff for these natural monopoly services.

V. If subsidization of certain costumer groups is considered to remain necessary for a limited period of time, it would be more efficient and transparent to raise tariffs up to the market level and then finance the necessary subsidies out of the state budget. This would allow to improve transparency and to adjust to changes in the amount of NGTF.

B. D.; P. O. Lector C. v. H.

Kiev, October 2001

[13] About 90% of industrial meters are obsolete rotor meters that do not meet modern requirements; the level of installation of gas meters in the apartments is very low and current meters in heat-and-power engineering and industry measure gas flow with the substantial errors.