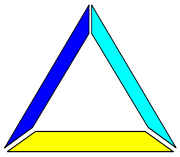
INSTITUTE FOR ECONOMIC RESEARCH AND POLICY CONSULTING
IN UKRAINE
GERMAN ADVISORY GROUP ON ECONOMIC REFORM
Reytarska 8/5-A, 01034 Kyiv,
Tel. (+38044) 278-6342, 278-6360, Fax 278-6336
E-mail: institute@ier.kiev.ua, http://www.ier.kiev.ua



W8

Breakthrough for Electricity Sector Privatization?

The Proposal of the Ministry of Fuel and Energy

Executive Summary

Ukraine's electricity sector is in urgent need for investments. To improve matters, the Ministry of Fuel and Energy (MinF&E) proposes attracting strategic investors by privatizing significant parts of state-owned generation and distribution companies and using the revenue to finance additional investments.

Our evaluation of this proposal starts by characterizing the present situation of the electricity sector as a vicious circle where low profitability and competition levels have distracted investments so that assets have depleted and efficiency has declined for many years. As a result, investment needs have reached dramatically high levels. A proposal to develop the sector must be evaluated against its ability to attract urgently needed investment.

In an assessment of previous privatization in the electricity sector, we find that the overall performance of privatized assets has been significantly improved, suggesting a clearly positive impact of privatization. Hence, the proposal of MinF&E could indeed mark a break through for future developments. Nevertheless, we find that several critical aspects still need to be improved. In particular, the proposal suggests overcoming the present lack of investments simply by increased public spending rather than by providing stronger incentives for investments in general. The proposal also lacks sufficient provisions to ensure an efficient allocation of available funding to investment projects. Finally, we note that it should be even more ambitious with respect to the number of assets offered for privatization, and it should be more explicitly embedded in the present reform process of the wholesale electricity market.

Outline:

1. Introduction
2. Background of electricity sector privatization
3. Review of previous privatization
4. The MinF&E proposal
5. Summary and recommendations

1 Introduction

In May 2007, Ukraine's Ministry of Fuel and Energy (MinF&E) submitted a draft proposal on privatization in the electricity sector for approval to the Cabinet of Ministers (CabMin). The main objective is attracting private funds to finance urgently needed investments. Due to intensified discussions within the government, no final decision has so far been taken. However, because a reliably functioning electricity sector is a crucial precondition for sustainable growth and development of the overall economy, the issue should be dealt with as soon as possible and independently of any political change that in the meantime might have occurred. To support the discussion process, we have reviewed the MinF&E proposal. Compared to previous suggestions we consider it a clear break through. Nevertheless, we note that several critical issues still need to be improved and provide the necessary recommendations of how this can be achieved.

This paper is structured in five parts. Following the introduction we lay out the rationale for privatization in the electricity sector. Section three reviews the results of previous privatization rounds and section four discusses the MinF&E proposal. In the last section we provide recommendations for further improvements.

2 Background of electricity sector privatization

Generally, privatization of state-owned assets should be considered the first-best option in competitive markets. In this way, private owners have incentives to increase asset values through investments and improved efficiency. In turn, higher corporate profits benefit the state through increased tax revenues and allow focusing on key public policy issues such as education, health and social affairs. At the same time, competition in the respective markets prevents private owners from misusing their assets, e.g. by charging monopoly prices.

In principle, the same logic applies for the case of the Ukrainian electricity sector. However, two points deserve specific attention:

- Ensuring fair competition for network industries such as electricity is a challenging task and relies on the existence of sufficient regulatory frame-conditions. Although Ukraine implemented a modern regulatory design – the so-called *British Pool* model – on its electricity wholesale market in 1996 experiences so far have been mixed. In particular, the system has not succeeded in implementing strong competition due to flaws in the institutional setup as well as transition-specific factors such as low payment discipline.[1] Consequently, stakeholders decided to launch a fundamental reform of the wholesale market which is currently underway. For the time being, this results in low levels of competition and – more importantly – uncertainty concerning the future market development.[2]
- For Ukraine's electricity sector, improving efficiency is of utmost importance:
  In general, the more efficiently firms operate, the lower the costs of supply. Ukraine's electricity sector, however, operates at very low efficiency levels, as empirical evidence suggests. Ukrainian Oblenergos are found to be on average only about half as efficient as comparable electricity distribution companies in Poland, the Czech Republic, Hungary and Eastern Germany (see Box 1). In other words, improving efficiency up to the standards of distribution companies in those other countries would already allow for cutting current cost levels by almost 50%. A similar potential can be expected for generation and transmission. Hence, improving technical and allocational efficiency of operations in the electricity sector would allow for substantial reductions of "justified" cost levels.[3]

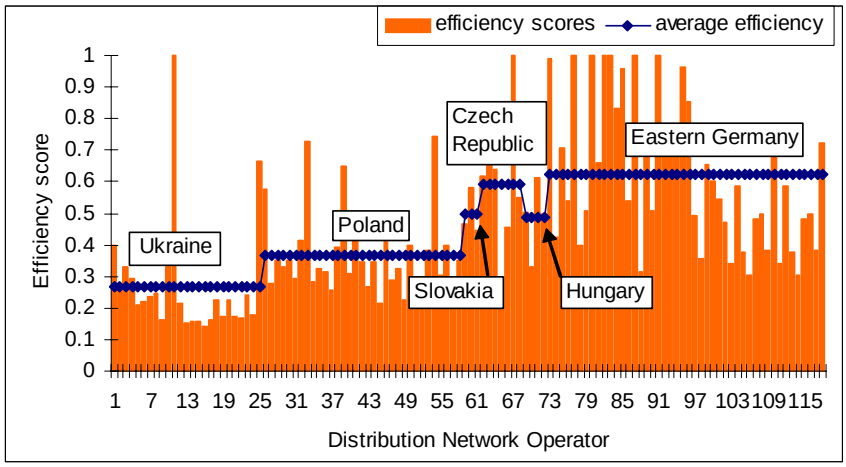
[1] For detailed discussions see e.g. GAG/IER Advisory Paper V8. *EU Energy Sector Reforms:A benchmark for Ukraine!* (2006) or GAG/IER (2003) *Development of Domestic Markets in Ukraine. Welfare through Competition* (see http://www.ier.kiev.ua/English/books_eng.cgi)

[2] While the general direction – a switch to bilateral contracts and a short-term balancing market – has already been decided upon, important details such as market rules, codes and transitory arrangements still have to be specified.

[3] Note however that since electricity tariffs to households are still set below cost-covering levels, reducing supply costs through higher efficiency does not mean that electricity tariffs can be reduced.

Box 1
Measuring the efficiency of Ukraine's Oblenergos

Providing firms with incentives to improve their performance is an explicit objective in modern regulatory practice. For specifying well-defined incentive schemes, regulators need to measure and compare efficiency levels of regulated firms, for which they typically use standardized methodologies. In several West European countries including the Netherlands, Austria, Norway or Germany, the efficiency of different electricity distribution system operators is measured by using the *Data Envelopment Analysis* (DEA). Based on the same methodology, GAG and IER in cooperation with the Technical University of Dresden currently assess the efficiency of network operations of Oblenergos. Therefore, an efficiency score is estimated for each company, which measures the share of efficient costs in total costs, relative to the best-performing companies in the sample group. For example, an efficiency score of 1 indicates that a company is 100% efficient compared to other companies in the sample group. However, a score of 0.6 indicates that only 60% of the firm's costs are efficient. In other words, the comparison with other firm reveals that the output of the company could be produced by 60% of its actual costs, while 40% are considered inefficient. This study delivers first insights into the performance of Ukrainian firms relative to one another (Figure 1), as well as in comparison to network operators in other countries such as Poland, the Czech Republic, Slovakia, Hungary or Eastern Germany (see below).



While we find average efficiency levels to be rather low in all countries, Ukrainian Oblenergos are on average only half as efficient as those in e.g. the Czech Republic. Thus, "justified" costs in Ukraine could be reduced by almost 50% on average by improving firm-level efficiencies.

(Methodological remarks: In our analysis, the output of distribution companies is the amount of supplied electricity, controllable cost drivers are labor input and the network length. Not controllable cost drivers such as the number and structure of electricity consumers and the population density in the supply area are also considered. More detailed information is available from GAG upon request.)

The electricity sector comprises of predominantly outdated and energy inefficient technologies which consume almost 30% of Ukraine's total primary energy supply. Investments in modern technologies could significantly increase the energy efficiency of power generation and thereby, reduce overall energy consumption. This would also have significant impacts outside the electricity sector, such as environmental benefits and reduced import dependency.

While both causes deliver strong arguments to increase efficiency, the problem is that doing so requires significant investments which need to be financed.

To sum up, the dilemma of Ukraine's electricity sector is that low levels of competition and uncertain market developments diminish investment incentives so that assets increasingly deplete and efficiency levels decline. As this continues, the scale of necessary investments raises, making it ever more difficult to attract funding. By today, the government estimates that overall investment needs necessary for ensuring sustainable electricity supply until 2030 will require investments of UAH 522 bn (USD 104 bn).[4] This dramatic but still realistic figure is the benchmark against which all future suggestions to develop Ukraine's electricity sector will have to be measured.

[4] Cabinet of Ministers (2006a), Енергетична стратегія України на період до 2030 року (Energy Strategy of Ukraine to 2030), Decree No. 145.

3 Review of previous privatization

Before we discuss the recent MinF&E proposal in detail we briefly review Ukraine's previous experiences with privatization in the electricity sector. So far, several regional distribution companies (Oblenergos) have already been (partly) privatized:

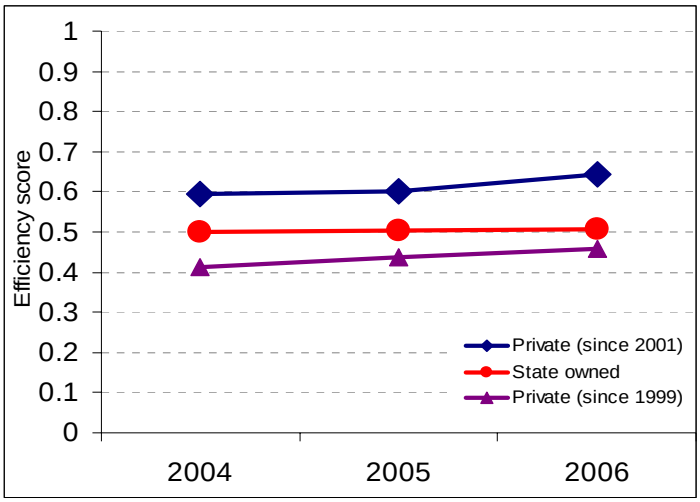
- In 1997 and 1998, 22 minority share packages (from 4-36%) were floated on the stock market and nine tenders were held for selling packages from 20-36% of shares. Total privatization revenue accounted for UAH 19.2 m (USD 3.6 m).
- In 2001, controlling stakes between 51-75% of six Oblenergos were sold through open tenders. Total privatization revenue accounted for UAH 865.7 m (USD 160 m) and investors agreed to settle existing debts of around UAH 736 m (USD 136 m).

The first round in 1997/98 has been strongly criticized for intransparent bidder criteria which effectively eliminated open competition. In contrast, the second round in 2001 was conducted far more transparently. This enabled two international investors[5] to acquire controlling stakes in the six Oblenergos while the state received far higher revenues. As a result of both privatization rounds, all Ukrainian Oblenergos have at least private minority shareholders, and 14 out of 27 companies are under private control. Overall, the performance of private Oblenergos – and in particular those privatized in the more competitive second round – is stronger than that of state-owned ones. They have higher profit margins, account for higher reduction of losses from electric power lines, have higher levels of average investments, and are more successful in ensuring payments of their customers.[6] This first assessment is confirmed by a more fundamental comparison of technical efficiency levels of Oblenergos, a measure for company performance which is increasingly used in the regulation of distribution networks in the EU (Box 1). Efficiency levels are estimated as share of efficient costs in total costs of a company, relative to the best-performing companies in the same country. As Figure 1 demonstrates, average efficiency of Ukrainian Oblenergos is low (around 60%), independently of the ownership structure. However, only privately-controlled firms have exhibited significant increases in average efficiency. Moreover, the six companies that were privatized in the more transparent second round consistently account for the highest efficiency levels.

To conclude, Ukraine's electricity industry has already been exposed to privatization. In fact, our analysis demonstrates that privatization can lead to efficiency-oriented ownership structures which are able and willing to invest in improving their companies' performance. Nevertheless, the slow speed of progress also demonstrates that privatization alone is not a sufficient policy measure to overcome the fundamental problems of the electricity sector. Hence, it should be regarded as a partial but necessary element of a broader reform of the sector.

Figure 1

Technical efficiency and ownership of Oblenergos



Note:All firms with less than 50% state ownership are considered private.
Source: own calculations

[5] AES (USA) and VS Energy (Slovakia/Netherlands).

[6] For performance evaluation of Ukrainian Oblenergos see IEA (2006): Ukraine Energy Policy Review; or Concorde Capital (2005): Oblenergos. Sleeping Beauties?

4 The MinF&E proposal

In its privatization proposal, MinF&E points to the dramatically urgent need for investments (see above) and identifies two main causes for the low levels of current investments:

- Financing all necessary investments by commercial bank loans would require price increases for electricity beyond realistic levels; and
- The ongoing reform of the wholesale market is causing additional uncertainty which further increases the costs of financing investments.

Against this assessment, the objective of the MinF&E proposal is to attract strategic industrial (and possibly foreign) investors in order to promote equity financing. Compared to the previous rounds of Oblenergo privatization as well as to all previous privatization proposals for Ukraine's electricity sector, the scale of assets which is suggested for sale is truly significant (Table 1).

In detail, the proposal lists all thermal electricity generators and almost all Oblenergos which are currently under (partly) state ownership and suggests using the following approaches:

- Privatization:
  - Shares of firms with 25-27% state ownership will be floated as single packages on the stock market;
  - Shares of firms with 27-75% state ownership will be sold in competitive tenders with investment obligations; and
  - Firms with more than 75% state ownership will issue new shares while earmarking new capital for investment purposes.
- Public-Private Partnership:
  - Applicable to all firms with more than 50% state ownership.

To foster investments, the proposal stipulates that only 50% of privatization revenues are transferred to the budget while the remaining half is earmarked to finance investments in the electricity sector. Finally, the proposal acknowledges that several crucial preconditions need to be fulfilled prior to privatization. In particular, stakeholders need to agree on the final design of the electricity wholesale market, settle existing debts of state-owned firms and solve a prevailing dispute on real estate property rights. ***Assessment:*** Although the list of companies presented in the proposal does not include all state-owned electricity assets, it still is an almost complete list of firms which under present conditions could and should be privatized.[7] It is also positive that the proposal stresses the need for conducting sales under transparent and competitive conditions. Hence, it could clearly mark a breakthrough in electricity sector privatization.

[7] The list does not include two further Oblenergos with somewhat unclear ownership structure. Other state-controlled firms not mentioned include operators of hydropower, nuclear and combined heat and electricity generation plants, for which privatization also rises complicate interactions with aspects of national security and regional development or heat market developments and communal reforms.

Table 1
Privatization proposals for the electricity sector

	State ownership	Shares to be sold			
	2007	CabMin Resolution No. 226-r (April 26, 2006)	State Property Fund initiative of October 20, 2006	State Property Fund Plan on Privatization till December 2007	CabMin privatzation proposal (2007)
Regional distribution companies (Oblenergos):					
Vinnytsyaoblenergo	75%+1		15%	15%	Emission of new shares
Volynoblenergo	75%+1		15%	15%	Emission of new shares
Dniprooblenergo	75%+1		15%		Emission of new shares
Zakarpattyaoblenergo	75%+1		15%	15%	Emission of new shares
Khmelnytskoblenergo	70.01%		10.01%		70% (tender)
Chernivtsyoblenergo	70%		10%	10%	70% (tender)
Krymenergo	70%		10%	10%	70% (tender)
Mykolaivoblenergo	70%		10%		70% (tender)
Donetskoblenergo	65%		5.06%	5.06%	65% (tender)
Kharkivoblenergo	65%		5%		65% (tender)
Zaporizhyaoblenergo	60.25%				
Luhanskoblenergo	60.06%				
Ternopiloblenergo	50%+1				50%+1 (tender)
Kyivenergo	50%+1				50%+1 (tender)
Cherkassyoblenergo	45%		6%	6%	45% (tender)
Lvivoblenergo	26.98%	26.98%	26.98%	26.98%	26.98% (auction)
Odesaoblenergo	25.01%	25.01%	25.01%	25.01%	25.01% (auction)
Poltavaoblenergo	25%+1	25%+1	25%+1		25%+1 (auction)
Prykarpattyaoblenergo	25.02%	25.02%	25.02%		25.02% (auction)
Sumyoblenergo	25%+1	25%+1	25%+1		25%+1 (auction)
Chernihivoblenergo	25%+1	25%+1	25%+1		25%+1 (auction)
Generation companies:					
Zakhidenergo	70.11%		10,10%		70.11% (tender)
Centrenergo	78.29%		18.29%		Emission of new shares
Dniproenergo*	76.04%		16.04%	16.04%	Emission of new shares
Donbasenergo	85.77%		25.77%		Emission of new shares

* In August 2007, Dniproenergo issued new shares leading to a 50%+1 share of state ownership.

Nevertheless, several critical issues still need to be stressed:

- Most importantly, overall investment incentives remain weak. While the causes for currently low investment levels – high costs of capital and regulatory uncertainty – are correctly identified, the proposed measure to overcome all problems is simply increased public spending together with investment obligations. In fact, the proposal does not foresee further measures to increase the attractiveness of investments such as providing incentives through appropriate regulation. However, since significant parts of the electricity sector, e.g. the operation of distribution systems, are regulated activities, successful privatization also requires a regulatory regime which is capable to provide sufficient incentives to private, profit-maximizing firms.

- The intended use of half of the privatization revenue for financing electricity investments raises serious concerns:
  - First, providing state-owned firms with access to low-cost funds potentially distorts competition between public and private firms. In turn, this would diminish the profitability of privately-owned assets and thus, reduce incentives for strategic investors to participate in privatization. Obviously, this would contradict the overall objective of the proposal.
  - Second, earmarking privatization revenues for specific purposes generally induces opportunity costs. While financing short-term budget deficits is certainly not a socially more valuable alternative, investments in education or long-term reforms of the social safety system might be. Hence, without a further assessment of alternative options, using 50% of the privatization revenues to finance investments can imply foregoing significant social benefits.[8]
  - Third, the concept lacks an explicit mechanism for allocating investment funds to the most efficient projects, i.e. those with the highest social values. If state-owned firms can instead request those funds simply on the basis of administrative procedures, this will further diminish their incentives to improve performance. Worse, it could even foster rent-seeking activities of private co-owners who seek to free ride on access to additional funding at low or even no cost.
- Next, the distinction between firms with state-ownership of 75% and below, which will be fully sold, and those with higher share ownership is not consistent with the objective of attracting additional funding. In fact, the highest revenues – and thus the highest funding – could be attracted by selling the larger rather than only the smaller share packages. As the proposal implies that none of the thermal electricity generators can be fully sold, this also raises the question of how investments in thermal power generation – the by far largest part of needed investments[9] – could be financed.[10] The suggested issuance of new shares or public-private partnerships can to some extent also attract private funds, but the incentives for private investors will clearly be lower when property rights have to be shared with the state.
- Finally, the impact of the currently ongoing reform of the wholesale market is too weakly considered in the proposal. In fact, as long as relevant details of the reform are unclear, privatization is unlikely to attract the highest possible bids, in particular not from strategic investors. Moreover, a possibly flawed institutional and organizational market design can later on cause costly conflicts with wider political objectives such as Ukraine's intention to develop its energy sector according to EU standards and to join the Energy Community Treaty (Box 2).

[8] For recommendations on the use of privatization revenues in Ukraine see also GAG/IER Advisory Paper V11: *Large privatisation receipts in Ukraine: Recommendations on how to use the money wisely* (2006).

[9] The CabMin Energy Strategy to 2030 estimates that investment needs for thermal generation will be twice as large as those for transmission and distribution systems.

[10] In August 2007, the largest thermal generating company Dniproenergo issued new shares and thereby reduced state ownership to 50%+1 share. It is so far not clear what this will mean for the suggested procedure (issuing of shares) for Dniproenergo in the MinF&E proposal.

Box 2
Electricity market reform and privatization: two case studies

Prior to their accession, new EU member states faced the need to privatize their electricity sectors while reforming their markets according to EU standards. None of the countries can be regarded a showcase for successful privatization. The following two examples illustrate that in the absence of a coherent market reform privatization can easily fail, even when being considered a success in the short run.

Hungary initiated a massive privatization program in 1995 with the main objectives of stimulating investments in power generation and raising revenue for financing a government budget deficit. In the absence of transparent and cost-reflective price regulation at that time, the government decided to attract investors by concluding long-term power purchasing agreements (PPAs) which secured the sale of generation capacity over periods of up to 20 years. Together with price adjustments of electricity tariffs for final consumers to cost-covering levels, this created rather favorable conditions for privatization with high budget revenues. Indeed, privatization of Hungary's electricity sector was completed in just 9 months and is considered one of the fastest cases of energy privatizations in Eastern Europe.

Despite this apparent success, the significant use of long-term PPAs has proven to be a large burden for further development of the sector as it resulted in low levels of competition and higher-than-necessary market prices. Finally, with the harmonization of market rules with EU standards prior to Hungary's accession long-term contracts had to be suspended and power generators be compensated, again through increased electricity prices.

In the **Czech Republic** restructuring of the electricity sector started in 1992 when the Czech Power Company (CPZ) was established as dominant generator and operator of 8 regional distribution companies. In the same year, about 30% of CPZ was voucher privatized. In preparation for EU accession, the electricity market was further liberalized in 2001. In parallel, the government announced plans to sell its 68% share of CPZ. However, several issues such as unclear implications of a further harmonization to EU standards on CPZ's vertically integrated company structure, low levels of financial transparency, as well as high financial obligations created significant uncertainty. As a result, privatization has failed, despite repeatedly expressed interests of major European electricity companies such as EdF, EON, Electrabel, Enel or Iberdrola. In 2003, the Czech government eventually abandoned its privatization plans since no investor was willing to offer the proposed minimum bid of about EUR 6 bn while complying with all obligations. As a result, CPZ has remained in public ownership until today and the government had to forgo all expected revenues.

5. Summary and Recommendations

As we explained, the benchmark for every proposal seeking to develop Ukraine's electricity sector are the officially estimated investment needs of UAH 522 bn (USD 104 bn) until 2030. The recent MinF&E proposal on privatization in the electricity industry explicitly takes on this challenge. Compared to previous suggestions it clearly marks a break through. Not only does it propose putting a significantly larger number of assets on sale than ever before, but it also stresses the need for attracting investments, identifies strategic and possibly foreign investors as the most potential target group, and underlines the need for competitive privatization transactions.

Despite this generally positive assessment, some further improvement is still in order. In our analysis on the impact of previous privatization on electricity sector development we argued that privatization is necessary for sustainable development, but that it should be embedded in a broader set of measures. Hence, our key recommendations are:

⇒ **Extend the Scope of assets offered for privatization!**

We are not aware of any obvious reason why thermal power generation plants should remain in state ownership. Instead, the currently planned reform of the wholesale market, in particular the shift to direct contracts, can send strong incentives for strategic investors to acquire those assets and improve their efficiency and profitability. Allowing for full privatization of thermal electricity generators would ensure that these incentives can be fully utilized. Moreover, a more diversified ownership structure of thermal generation assets would also stimulate competition on the wholesale market and thus, better support its functioning.

⇒ **Embed the privatization program more strongly in a consistent proposal to reform the electricity sector!**

Such a proposal inter alia requires completing the intended shift to a model of bilateral contracts on the wholesale market, improving regulation of network tariffs (see next recommendation), and rebalancing consumer tariffs based on the costs and quality of supply as well as the efficiency levels of distribution companies. Ideally, all those points would be explicitly stipulated in a comprehensive program to develop Ukraine's electricity sector.

⇒ **Support privatization by explicitly strengthening investment incentives!**

This requires amending market design and regulation of the sector. Best practice of international electricity regulation offers various suggestions of how this could be realized. For example, NERC could put a cap on regulated distribution tariffs so that firms can make additional financial gains from cutting costs. In such a framework, investments can be stimulated by allowing for 'add-ups' on regulated capital costs in return for high network quality, e.g. measured by number and duration of power outages (as e.g. implemented in the UK or in Germany) or simply in return for investments in 'priority projects' (as it is e.g. done in Italy or France).

Similarly, while the obligation to use half of the privatization revenues to finance investments in the electricity sector will certainly increase available funding, we criticize the lack of explicit provisions to ensure an efficient allocation of those additional resources and note that – depending on the overall volume – this can even diminish incentives for strategic investors. To clarify this part, we recommend that the proposal should rigorously determine its objectives and instruments. The recommended objective should not simply be to enable equity investments of state-owned firms, but to generally stimulate those investment projects that create high social benefits. Against this objective, all firms should have access to funds on equal terms, independently of their ownership structure. However, funds should be available for only a minor share of the overall investment volume (e.g. 10-20%) while the remaining part has to be financed like any other commercial investment project. In this way, transparency, accountability and efficiency of the investment projects could be strongly improved.[11]

Kiev / Berlin October 2007

Autors: FP, OK, IY
Lector: RK

[11] See GAG/IER Advisory Paper V11: Large privatization receipts in Ukraine: Recommendations on how to use the money wisely (2006).