



# IMF Policy Discussion Paper

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## Cross-Border Issues in Energy Trade in the CIS Countries

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and Clinton R. Shiells*



## **IMF Policy Discussion Paper**

European II Department

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December 2002

#### **Abstract**

The views expressed in this Policy Discussion Paper are those of the author(s) and do not necessarily represent those of the IMF or IMF policy. Policy Discussion Papers describe research in progress by the author(s) and are published to elicit comments and to further debate.

This paper explores from a regional perspective the distorted nature of trade in energy products within the CIS countries. The persistence of pricing distortions, barter arrangements, and discriminatory access to pipelines, as well as failure to honor contracts, has disrupted and distorted energy exports to non-CIS countries, undermined energy sector reforms, and distorted investment decisions. The paper focuses on cross-border issues as an integral component of the wider problem of inefficient energy use within the CIS. Several policy recommendations are proposed, including measures to foster greater competition, reduce state involvement, and promote regional cooperation.

JEL Classification Numbers: F14, F15, L95

Keywords: Energy sector; Former Soviet Union; Transition economies; Regional issues

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<sup>1</sup> We would like to acknowledge the contributions of John Wakeman-Linn, Thomas Richardson, Thomas Laursen, Alexander Pivovarsky, Peter Thomson (World Bank), Anna Unigovskaya, and Timo Valila.

Contents	Page
I. Introduction .....	3
II. Trade, Prices, and Barter .....	8
A. Trade in Oil and Oil Products .....	9
B. Trade in Natural Gas .....	12
C. Trade in Electricity .....	13
III. State Involvement, Monopoly Power, and Energy Trade .....	14
A. Oil Sector .....	14
B. Natural Gas Sector .....	16
C. Electricity Sector .....	17
D. Energy Trade and Transit Problems .....	20
Energy exporters .....	21
Energy importers .....	26
Responses to transit impediments .....	26
IV. Conclusions and Policy Recommendations .....	27
References .....	32
 Text Table	
1. Oil Production and Trade by the Baltic and CIS Countries, 1992-99 .....	10
 Text Boxes	
1. Key Elements of Energy Sector Reform .....	18
2. The Energy Charter Treaty .....	21
3. Construction of New Pipelines .....	25

## I. INTRODUCTION

**The breakup of the Soviet Union had far-reaching implications for energy trade in the region.** With the creation of national borders, 5 of the 15 constituent countries emerged as net energy exporters,<sup>2</sup> while several others became highly energy dependent. The net exporters found that their pipeline access to regional and European markets largely fell under the control of neighboring countries. This created situations of strategic interdependence in which national governments attempted to take advantage of monopolistic positions to extract rents through limiting access to transit pipelines. At the same time, lack of access to Western markets provided scope for net exporting countries to avoid the discipline that competition in the world market would have provided in the pricing of energy products, although limited access to pipelines was clearly not the only factor introducing a wedge between domestic and international energy prices. The net importing countries, which had been accustomed to very low energy prices, were confronted with massive terms of trade shocks. Arrears on energy payments—sometimes used as a source of budgetary financing—increased sharply in the importing countries, contributing to rapid growth of external debt, and contractual arrangements—particularly over transit obligations—were frequently breached. Various forms of barter and other noncash payments arrangements flourished within and between both exporting and importing countries. Cross-border issues related to energy trade became a

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<sup>2</sup> These were Azerbaijan, Kazakhstan, Russia, Turkmenistan, and Uzbekistan.

recurrent source of tension between the Commonwealth of Independent States (CIS) countries,<sup>3</sup> and failure to settle disputes often led to disruptions in trade flows.<sup>4</sup>

**There is broad consensus within the international financial institutions (IFIs) on the nature of energy sector problems in the CIS countries and on appropriate reform strategies.** By international standards, energy intensity levels in the CIS remain extremely high, notably among the region's net energy exporters, but also in some energy-deficit countries, such as Belarus and Ukraine.<sup>5</sup> The slow progress toward using energy more efficiently—both for industrial and household use—mainly reflects continued (mostly indirect) subsidization of domestic energy prices and also the incomplete restructuring of large state-owned enterprises. The literature cited below, which this paper will not attempt to replicate, considers how the relatively low levels of domestic energy prices within the CIS have led to inefficient technological choices, wasteful consumption, and suboptimal levels of investment in energy infrastructure, exploration, and conservation. Incentives for pipeline construction have also been distorted.

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<sup>3</sup> The CIS is an alliance of 12 of the former Soviet republics (Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, the Kyrgyz Republic, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan).

<sup>4</sup> Distortions in regional energy trade largely affect the CIS countries. The Baltic countries, all being net importers, have moved earlier with energy price reforms and now have limited barter arrangements. The energy market in the Baltics is being opened in a phased manner in the context of EU accession. However, high tax rates particularly associated with EU accession have provided incentives to smuggle, especially gasoline into the Baltic countries.

<sup>5</sup> See EBRD (2001), Chapter 5 for details.

**The policy advice of the World Bank and others has been to dismantle monopolies and allow market-based access through transit pipelines to world markets.** They have also recommended the establishment of independent regulatory frameworks to address monopolistic practices and ensure transparent and nondiscriminatory access to such pipelines. Moreover, they have stressed the need to raise domestic energy prices and improve collection levels, while protecting the poorer sections of the population that are vulnerable to energy price rises (especially heating and electricity prices).<sup>6</sup> The recommended sequencing has been to raise energy prices (especially for heating and electricity)<sup>7</sup> and enhance collections first—through privatization of distribution companies in a sound legal and regulatory environment—and then to demonopolize and liberalize the sector. In Russia, however, there is still an ongoing debate on whether restructuring of energy monopolies should precede increases in energy prices. Based on a review of the experiences of the European and central Asian countries during the 1990s, the World Bank is reevaluating the prerequisites needed for successful privatization of the electricity sector, including:

(i) economic and political stability; (ii) “commercialization” of state-owned companies

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<sup>6</sup> See, for instance, Gray (1995), Lovei (1998), EBRD (2001), and Box 1 below.

<sup>7</sup> There is a debate concerning whether prices should be raised to full cost recovery levels or to world market prices. Clearly, energy products widely traded on competitive world markets should be priced at world market levels. If energy products are not highly tradable (such as electricity), some have suggested that they be priced to cover full economic costs, notwithstanding the difficulty of estimating such costs. Others would argue that competition in the world market, and between alternative energy sources, should ultimately serve to pin down regional energy prices and that regional variation in production costs should not be overemphasized as a source of energy price variation. In particular, some would argue that natural gas, which is the most important input into electricity generation in Russia, for instance, can reasonably be characterized as a tradable commodity, and its price in world markets should be reflected in the price of electricity.

(cutting off of budget support, functional and accounting separation, improved metering and collection procedures, etc.); (iii) legal reforms to allow cut-offs of nonpayers; and (iv) higher tariffs to cover costs and the elimination of cross-subsidies.

**The World Bank's policy advice in the region has favored unbundling, although they are reevaluating the need for stability and commercialization prior to unbundling of electricity sectors.** Unbundling entails subjecting some parts of a vertically integrated energy company's operations to increased competition to isolate the naturally monopolistic segments. This is expected to yield social benefits through reduced scope for exploitation of market power, elimination of cross subsidies, and avoiding the loss of control sometimes associated with highly integrated firms.<sup>8</sup> Unbundling, in particular, may be necessary to help address the difficulty of assuring nondiscriminatory access to pipelines if they continue to be controlled by the incumbent monopolist. However, there are also factors favoring vertical integration such as reduced supply uncertainty and lower transactions costs, if credible independent regulatory and competition agencies can be established.<sup>9</sup> In this regard, the difficulty of establishing and implementing an independent regulatory framework in transition economies should not be understated.

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<sup>8</sup> See Al-Obaidan and Scully (1993) for a theoretical discussion of the costs and benefits of vertical integration between oil refiners and crude oil producers.

<sup>9</sup> See, for instance, Al-Obaidan and Scully (1993) and Joskow (1997).

**While the need for further energy sector reforms within individual CIS countries has been extensively analyzed,<sup>10</sup> less attention has been paid to the cross-border implications of the domestic energy sector distortions enumerated above.** This paper attempts to take a fresh look at the underlying problems in the region, in light of the reform strategy supported by the World Bank and others, by focusing on these cross-border effects. It shows how vertically integrated energy companies with substantial state involvement restrict access to transit pipelines for oil and gas and thereby disrupt and distort regional energy trade. The lack of transparency and discriminatory nature of access to transit pipelines also provide incentives for corruption and inefficient rent seeking, creating vested interests that block reforms. In some instances, such as the administrative allocation of Russian oil transport company *Transneft's* export pipeline capacity (as described in Section III below), oil companies must serve the domestic market to get access to the high-priced export market, which holds domestic energy prices down. Moreover, limited access to non-CIS markets puts downward pressure on prices for exports to other CIS countries and reduces the incentive for governments to tackle politically difficult domestic energy pricing issues. Indeed, the establishment of nondiscriminatory access to markets outside the CIS would put pressure on the net exporting countries to raise domestic energy prices.<sup>11</sup> Finally, energy trade based on

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<sup>10</sup> See, for instance, Petri et al. (2002), which provides an assessment of the costs of energy sector quasi-fiscal activities in the countries of the former Soviet Union, based on case studies of Azerbaijan and Ukraine.

<sup>11</sup> In a static analysis, reallocation of fixed overall export pipeline capacity would put upward pressure on prices of suppliers gaining access but downward pressure on prices of those losing access. With appropriate policies, investment in new pipeline capacity would relax this constraint over time.

barter and other noncash payments methods impedes efficient resource allocation, and makes it more difficult to deal with tax evasion or address the widespread concerns of governance and corruption associated with the nontransparency of energy deals.

**The paper is organized as follows.** Section II describes the regional market for energy including who are the major exporters, trends in trade patterns, what factors explain intraregional variation in prices, and the nature of barter and other noncash payments mechanisms. This provides the background for Section III, which considers how continued state involvement and the monopolistic structure of the energy sector give rise to transit impediments that influence the pattern of regional energy trade. Section IV summarizes the paper's policy recommendations.

## II. TRADE, PRICES, AND BARTER

**This section identifies the main producers, describes trends in regional trade flows, and analyzes intraregional variation in prices, in the markets for oil and oil products, natural gas, and electricity.** Each of these three energy markets has its own distinctive features which should be considered. Prices of oil and oil products have to a significant extent converged to world market prices, in contrast to natural gas and electricity, whose prices remain well below western European levels.<sup>12</sup> Also, barter and swap arrangements have been used to exchange gas and electricity despite the nontransparency and allocative inefficiency inherent in such noncash transactions. Such arrangements distort resource

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<sup>12</sup> This paper does not cover trade in coal, but conditions similar to oil and oil products are apparent in that market.

allocation because there is no mechanism for captive energy buyers to get prices of their export goods—and therefore terms of trade—right, so long as they cannot sell their exports to third parties.

#### **A. Trade in Oil and Oil Products**

**Russia plays a dominant role in the region's oil sector.** It produces about 80 percent of the region's crude oil and accounts for a similar share of total net exports in the region. The bulk (about 85 percent) of Russia's crude oil exports is directed to non-CIS countries, with about half flowing through pipelines in Belarus and Ukraine and the other half shipped by sea through terminals at the Black and Baltic Seas. **Kazakhstan** is a rapidly emerging oil producer and exporter, with most of its exports going outside the region via pipelines through Russia. **Azerbaijan** is also a net oil exporter, with its exports transported through Georgia and Russia. **Uzbekistan** consumes most of its limited oil production. **Turkmenistan's** oil exports have been growing rapidly in recent years, although long-term prospects appear limited. **Belarus** is a net importer of crude oil, but with large refinery facilities, it is a net exporter of oil products to neighboring countries. Most other countries in the region also have refineries, many with significant excess capacity.

**A significant reorientation of trade in oil and oil products produced in the CIS region has taken place.** This reorientation reflects increases in real prices for oil and a significant drop in overall economic activity in the CIS. Thus, while oil output has for a number of reasons declined sharply, domestic consumption within the region has fallen even more rapidly with the result that total exports have tended to rise and a greater proportion of output has been sold in markets outside the CIS (Table 1). While in 1992 about 22 percent of all oil

produced in the region was exported on net in the form of crude and petroleum products to destinations outside the Baltic and CIS countries, by 1999 such exports (net of imports) reached 50 percent of total production. Within the Baltic and CIS countries, net imports of oil and oil products by the net importing countries fell by more than half, from 87 million tons in 1992 to 34 million tons in 1999.

Table 1. Oil Production and Trade by the Baltic and CIS Countries, 1992-1999  
(In millions of tons)

	1992	1999
<b>Production of crude oil</b>	449.3	369.7
<i>(In percent change)</i>	...	-17.7
<b>Net exports outside the Baltics and CIS</b>	99.1	184.4
<i>(In percent of production)</i>	22.1	49.9
<i>Of which:</i>		
Crude oil	79.6	134.5
Petroleum products	19.6	49.9
<b>Domestic demand for crude oil and oil products</b>	336.7	176.7
<i>(In percent change)</i>	...	-47.5

**Sources:** International Energy Agency; and IMF staff estimates.

**Intra-CIS trade in oil and oil products is now generally conducted on a cash basis and at market prices.** However, export prices for Kazakh crude oil vary considerably across markets and between different producing companies. On average, reported prices for oil sold to Russia and Ukraine—the only CIS countries importing significant volumes of the Kazakh crude—are between one half and two thirds of prices on world markets. This partly reflects crude oil swap arrangements conducted at accounting prices, but it is also the result of

Kazakhstan's dependency on the Russian *Transneft* pipeline system for its primary access to international markets.<sup>13</sup>

**Excess oil refining capacity and governments' attempts to hold prices down for certain groups of consumers and oil producers have led to temporary and ad hoc imposition of trade barriers.** In response to excess domestic supply of oil products in neighboring countries, Kazakhstan and Russia have at various times resorted to imposing temporary import surcharges and countervailing duties which have been justified on antidumping grounds and reflect excess refinery capacity in the region. The excess capacity signals a need for further restructuring of the region's oil refining industry. In addition, both Kazakhstan and Russia regularly impose quantitative bans and restrictions as well as seasonal export duties on certain types of oil and oil products, reflecting the planting and harvest cycle in agriculture as well as the heating season.<sup>14</sup> Regional cooperation in support of domestic structural reforms could help avoid protectionist responses to supply imbalances.

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<sup>13</sup> Kazakhstan's dependency on the *Transneft* pipeline system serves to restrict its exports outside the region, thereby increasing its supply of crude oil to other CIS countries. See Section III below for more details.

<sup>14</sup> In early 2000, the Kazakhstani authorities imposed export quotas on crude petroleum in an unsuccessful attempt to channel supply to the domestic refineries. The underlying causes of the poor financial condition of the refineries (arrears and gross inefficiency) were subsequently addressed through ownership changes and restructuring. The administrative allocation of export quotas reportedly became more restrictive in the first half of 2002.

## **B. Trade in Natural Gas**

**As with oil, Russia is by far the largest producer and exporter of gas in the region.** It accounts for more than 80 percent of production and more than 90 percent of net exports (the other net exporters are Kazakhstan, Turkmenistan, and Uzbekistan). The extent of export reorientation to non-CIS countries has been less than for oil, consistent with smaller price adjustments (as described below). Russia is the only country in the region exporting significant quantities of gas outside the Baltic and CIS countries—to central and western Europe—with a market share in the latter of about 25 percent. Other net exporters in the region have until now been excluded from European markets because they face restrictions on their access to Russian transit pipelines. For many of the CIS countries, Russia also holds a virtual monopoly position as the dominant supplier of gas. While Ukraine produces natural gas, it also relies on imports from Russia and Turkmenistan. Tajikistan imports gas mostly from Uzbekistan but also from the other main producers in the region (Kazakhstan, Russia, and Turkmenistan). The Kyrgyz Republic is wholly dependent on supplies from Uzbekistan.

**Gas import prices for the CIS countries are well below world market prices and vary considerably within the region, leading to highly inefficient energy use.** In recent years, the highest prices for Russian gas were reported for sales to western Europe (\$125 per thousand cubic meters). This compares, for example, with Belarus, which paid \$30 per thousand cubic meters for gas in 2000. In some cases, gas pricing has a political dimension and is used to advance foreign policy objectives. In other cases, control over gas pipelines has also helped keep domestic gas prices low. Gas prices also depend on payments arrangements, whether cash, credit, or barter.

**The use of barter to pay for gas imports has meant that transactions are largely nontransparent, and as such have contributed to price discrimination and created opportunities for corruption and tax evasion.** Barter transactions are largely in the form of goods for fuel. It is not possible to determine the true price at which this gas was delivered under barter contracts because the rules for determining the “price” at which eligible barter items would be valued were unclear. Moreover, countries experiencing difficulties in paying for current fuel deliveries have at times arranged transactions whereby current fuel shipments are “paid for” with equity in domestic companies, including energy companies.

### **C. Trade in Electricity**

**Electricity prices for cross-border transactions involving CIS countries appear well below prices in western European markets.**<sup>15</sup> While less than 1 percent of the region’s electricity production is traded with the rest of the world, there is substantial intraregional trade, particularly exports from Russia. Given that intra-CIS trade in electricity can also involve barter and swap arrangements, it is difficult to interpret prices negotiated in bilateral deals. Nevertheless, the low level of quoted export prices suggests that the pricing of exports may be undermining efforts to raise domestic prices, although it is also possible that low domestic prices help to limit export prices.

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<sup>15</sup> EBRD (2001) and Gray (1995) argue that electricity prices are well below long-run marginal cost in the CIS countries, based on a comparison of electricity prices in the CIS countries with those in the EU and North America, although the use of electricity prices in the EU and North America as comparators is questionable.

**As in the case of gas and oil, payments disputes have disrupted electricity supply from Russia.** For instance, Georgia, Kazakhstan, and Ukraine have in recent years been temporarily cut off from the Russian grid. Also, Belarus has a long record of nonpayments for electricity imports from Lithuania, leading to a cutoff of such exports on a number of occasions. Lithuania has recently sold Belarussian debt and exports have resumed. By 2001, all CIS members except Armenia were reconnected to the old Soviet grid, now called the Unified Power System.

### **III. STATE INVOLVEMENT, MONOPOLY POWER, AND ENERGY TRADE**

**Lack of competition, continued state involvement, and inappropriate regulation of natural monopolies serve to restrict access to transit pipelines for oil and gas and thereby distort regional energy trade.** This section describes the extent of state involvement in the energy sector, the monopolistic and vertically integrated structure of the oil and gas markets, the transit impediments associated with these market structures, and how these impediments distort and disrupt regional energy trade, through discussion of selected CIS countries.

#### **A. Oil Sector**

**Most of the Russian oil industry is now in private hands.** Rapid privatization, often under questionable circumstances,<sup>16</sup> has led to divestiture of majority stakes in all but two Russian oil companies. With the notable exception of transportation, competition in these markets is generally robust and corporate governance, while still questionable, is rapidly improving,

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<sup>16</sup> See Lieberman (1996).

driven by the requirements of international capital markets. Oil processing capacity is predominantly, but not exclusively, integrated with the larger extractive firms. Russia has considerable excess refining capacity, a situation also prevailing in a number of neighboring states where loss-making refineries are typically supported by state oil firms. For instance, Azerbaijan's state oil firm *SOCAR* owns two refineries which operate at about 40 percent of capacity. These two refineries remain in operation primarily to maintain employment.

**The Russian oil transportation system is overwhelmingly dominated by the state-owned enterprise *Transneft*.** This firm handles 95 percent of Russian crude oil transportation within Russia. Part of *Transneft*'s export capacity is allocated based on production volumes, in a manner which provides incentives to overproduce, and the residual capacity is allocated administratively in an ad hoc, nontransparent manner. As discussed in Section D below, *Transneft*'s transit monopoly gives rise to serious transit impediments and distortions in neighboring oil exporting countries, notably Azerbaijan and Kazakhstan.

**The administrative allocation of crude and refined oil exports in Russia drives a wedge between domestic and world market prices.** The production-based allocation of part of the oil export pipeline capacity creates an incentive for oil companies to overproduce crude oil. The excess production is either sold domestically, which widens the wedge between domestic and world market prices further, or is refined (either for export or domestic sale). However, as the state has in the past conditioned certain refined products' exports on the fulfillment of domestic delivery targets, a wedge has also been driven between domestic and world market prices for these refined oil products. IMF staff estimates that the wedge between domestic and world market prices was around 2 percent of GDP at end-2000

(including the impact of export duties); the size of this wedge depends on (volatile) world market prices for oil products.

**Integrated state firms in the region also support cross-subsidization schemes through below market, and even below cost, sales to the electricity sector and for domestic product sales.** For instance, Azerbaijan's domestic energy market is heavily regulated, and essentially treated as part of the state government. The state oil firm *SOCAR* provides fuel oil and natural gas to *Azerenergy* and *Azerigas*, for their use in producing electricity and gas heat, respectively, again at well below export prices. *Azerenergy* and *Azerigas*, in turn, provide utility services at tariffs below their cost of production. Even this below-market tariff is rarely paid. As a result, *SOCAR* has in recent years received no payment for the fuel oil and natural gas it has supplied to the utility companies. The net result of all these nonpayments, below-cost tariffs, and preferential tariffs that exist for a wide variety of consumers, is implicit subsidies for utility consumers totaling roughly 25 percent of GDP in 2000, according to IMF staff estimates.

## **B. Natural Gas Sector**

**In Russia, the state exercises significant control of the gas sector through *Gazprom*.** This company controls some 90 percent of gas production in Russia, 80 percent of gas reserves, the gas transportation network, and has monopoly rights to export gas outside the CIS. The central government owns 38 percent of *Gazprom* (though much of the remainder was divested early in the 1990s to workers and managers inside the firm) and has majority representation on the board of directors. Indeed, for a number of years the state's residual equity stake was explicitly placed in a trust management arrangement administered by the

firm's managers. Nevertheless, *Gazprom* has long engaged in quasi-fiscal activities by delivering low cost gas to Russian regions and to selected CIS countries (notably Belarus). During the past year, the Russian government has sought to reassert its controlling interest in *Gazprom*, and a close associate of the Russian president was appointed as its chief executive officer in 2001. Although the accounts of *Gazprom* have been audited, its activities remain nontransparent and some investors have been critical of the firm's quasi-fiscal activities and the thoroughness of *Gazprom*'s audits. It should also be mentioned that *Gazprom* has published IAS-based financial statements since 1998. The ring-fence around *Gazprom*'s domestic share market (foreigners are not allowed to purchase *Gazprom*'s shares in Russia but can only hold *Gazprom*'s ADRs) has created a dual market for its shares and prevented foreign shareholders from exercising normal shareholder control. Aside from the state's involvement in *Gazprom*, a privately held company, *Itera*, has become an increasingly important player in intra-CIS and domestic gas trade. Questions have been raised regarding *Itera*'s relationship to *Gazprom* management.

**The Russian authorities have been working on a reform plan for *Gazprom* and this is expected to be announced by the end of 2002.** A key question is whether *Gazprom* will retain control of the pipeline system which, in view of the international experience discussed in Box 1, has potentially important implications for efforts to achieve nondiscriminatory access to the pipeline.

### C. Electricity Sector

**The state currently dominates all activities in the Russian electricity sector.** The state controls electricity generation, transmission, sales, and distribution through its 52 percent

### **Box 1. Key Elements of Energy Sector Reform**

Based on experience with energy sector reform in Europe and central Asia and other regions, the World Bank has developed a strategy for reform in the energy sector of Europe and central Asia (for further details, see Lovei (1998)), although the World Bank's policy advice on the sequencing of privatization and unbundling is being reevaluated based on the experiences of the 1990s (see Section I above):

- carefully sequenced unbundling of vertically integrated monopolies to isolate natural monopolies and increase competition among energy producers and suppliers;
- for market segments subject to natural monopolies (transportation and distribution), strengthening regulatory systems with prices set to ensure cost recovery and promote efficiency (including the elimination of cross subsidies);
- strengthening payments discipline including through cutoffs of nonpayers and elimination of noncash payments;
- eliminating production subsidies and closing uneconomic energy production facilities;
- opening domestic energy markets to foreign competition and investment, including by facilitating the construction and rehabilitation of transnational oil and gas pipelines and electricity connections;
- strengthening the institutional framework for regional trading including compliance with the provisions of the Energy Charter Treaty;
- supporting poor households that are unable to cope with the rising cost of energy services through means-tested subsidies;
- introducing taxes to compensate for the negative externalities of energy production and consumption, and developing other measures to protect the environment;

International experience, including in the United Kingdom and the United States, shows that it may be very difficult to achieve nondiscriminatory access to gas transportation pipelines if the incumbent firm remains in control of the pipeline because the firm will tend to give preferential access to its own affiliates, implying that ownership separation in addition to financial and operational separation may be necessary for successful unbundling.

Privatization may play a useful role in reforming the energy sector especially in providing additional incentives to raise collection rates, but should be carefully sequenced. For instance, it may be best to privatize electricity distribution prior to generation to provide additional incentives for collection of energy payments from consumers. In the meantime, it would be important to improve trust management arrangements to ensure that residual state shareholding in energy companies—including those with considerable monopoly power—are not abused for quasi-fiscal purposes.

stake in *RAO UES*, which in turn has ownership stakes in all but 2 of the 74 vertically integrated regional energy companies. Of total generation capacity, 84 percent is accounted for by *RAO UES*, the regional energy companies under its control, and the nine state-controlled nuclear power plants. The federal high-voltage grid belongs to *RAO UES*, while parts of the regional high-voltage grids and the low-voltage grids belong to regional energy companies. Tariff regulation in the wholesale market and in electricity transmission is conducted by the recently established Single Tariff Agency, with the government approving any tariff changes, but it remains to be decided whether the Single Tariff Agency or Regional Energy Commissions control retail tariffs. At present, the implicit subsidy due to below-market electricity pricing is estimated at roughly 3-6 percent of GDP. In addition, there is significant cross subsidization of residential retail tariffs by industrial retail tariffs.

**The main problem in the Russian electricity sector has been insufficient investment.** As a result of insufficient investment in generation capacity over the last 15 years and the recent upswing in industrial activity which has boosted the demand for electricity, the risk of supply shortfalls in the medium term has increased. While the state will continue to invest in the natural monopoly segments of the power industry, a reform plan for the entire electricity sector has been developed to attract large-scale private investments, including from abroad, into the potentially competitive segments of the sector. The broad reform plan, which was approved by the government in July 2001 and covers a period of 8 to 10 years, ultimately envisages the liberalization of both wholesale and retail electricity tariffs as well as the withdrawal of the state from electricity generation (with the exception of nuclear power generation) and sales.

**Kazakhstan was an early reformer in the unbundling of electricity production, distribution, and transmission.** Almost all generation is in private hands. A substantial portion of their regional distribution network has been privatized, while transmission remains in government hands. A wholesale market was created. Nevertheless, problems remain owing to a lack of investment and disputes with foreign investors, largely reflecting the lack of an adequate tariff-setting mechanism.

#### **D. Energy Trade and Transit Problems**

**This subsection describes the disruptions and distortions in regional energy trade associated with discriminatory access to pipelines.** Belarus, Russia, and Ukraine are at the center of regional transit activity and reforms to liberalize transit are key to greater regional trade and economic efficiency. Regional efforts to liberalize access to transit pipelines could help to achieve a cooperative solution that would yield larger long-run benefits than might be achievable solely based on national reform strategies, given the short-run incentives for non-cooperative behavior. The importance of ensuring market-based transit of energy to help ensure the development of the region's rich energy potential was recognized and codified in the Energy Charter Treaty of 1994. Unfortunately, not all countries (including Russia) have ratified the treaty and policies have not always been consistent with the full implementation of the treaty's provisions (see Box 2).

### **Box 2. The Energy Charter Treaty**

The Energy Charter Treaty and the Energy Charter Protocol on Energy Efficiency and Related Environmental Aspects were signed in December 1994 and entered into force in April 1998. To date the treaty has been signed or acceded to by 51 states—all of the European and central Asian nations, plus Australia and Japan, although some countries (including Russia) have not ratified the treaty.

The Treaty was developed on the basis of the European Energy Charter of 1991, which was a declaration of political intent to promote East-West energy cooperation. The charter was born out of the initiative of former Dutch prime minister Ruud Lubbers and sought to set out a legal and institutional framework to support trade and cooperation between western Europe, eastern Europe, and the Baltic and CIS countries on energy.

The Energy Charter Treaty is a legally binding multilateral instrument, the only one of its kind dealing specifically with intergovernmental cooperation in the energy sector. The fundamental aim of the Energy Charter Treaty is to strengthen the rule of law on energy issues, by creating a level playing field of rules to be observed by all participating governments.

The treaty's provisions focus on five broad areas: (i) the protection and promotion of foreign energy investment, based on the extension of national treatment, or most-favored-nation treatment (whichever is more favorable); (ii) free trade in energy materials, products, and equipment, based on WTO rules; (iii) freedom of energy transit through pipelines and grids; (iv) mechanisms for the resolution of state-to-state or investor-to-state disputes; and (v) energy efficiency and related environmental aspects.

The treaty places considerable emphasis on freedom of transit as the key to the development of energy markets in eastern Europe and the Baltic and CIS countries and provides for a dispute settlement mechanism for transit issues. However, as evidenced by the still pervasive problems in energy transit, the treaty's provisions have not been put into place effectively in many CIS countries, notably in Belarus, Russia, and Ukraine, which hold the key to improved efficiency in regional trade.

Business law commentators on the treaty have noted the multitude of deep-rooted transit disputes and the nonexistence or immature nature of transit law in the region, which the treaty seeks to address. Some commentators have called for a further strengthening of freedom of transit through the creation of an international pipeline organization for the region to manage pipelines, modeled after the European waterways commissions, to break the political and economic logjam that has stifled energy trade in the Baltic and CIS countries.

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Sources: The Energy Charter web page; [www.encharter.org](http://www.encharter.org), and Clark (1998).

### **Energy exporters**

**The largest energy exporter in the region, Russia, depends heavily on Ukraine, and to a lesser extent on Belarus, as transit routes for its oil and gas exports to the rest of**

**Europe.**<sup>17</sup> The transit of gas through Ukraine has been particularly problematic for *Gazprom*. High official transit tariffs, nonpayment problems, and high losses (including unsanctioned use) have persistently disrupted Russian exports to western Europe through Ukraine. As a result, and despite considerable excess capacity in Ukraine's transit pipelines, *Gazprom* concluded an agreement in 2000 with a western consortium (including *Ruhrgas* and *Gaz de France*) to undertake a feasibility study for construction of a gas pipeline bypassing Ukraine.<sup>18</sup> Similar difficulties have led *Transneft* to complete an oil pipeline to bypass a section of pipeline running through eastern Ukraine to Rostov-on-Don.

**The major transit countries (Kazakhstan, Russia, and Ukraine) set discriminatory tariffs favoring domestic suppliers.** Transit fees for both oil and gas vary widely across the region, reflecting efforts even by small countries with transit monopolies to extract rents. Moreover, published tariffs do not reflect the entire transit cost to exporters, such as *Transneft's* lack of a quality bank and its imposition of significant "deemed losses" charges which bear no relation to actual transit costs.<sup>19</sup>

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<sup>17</sup> See Section II above for further discussion of Russia's oil transit routes.

<sup>18</sup> The line, which would have a capacity of 210 billion cubic meters per year and cost an estimated \$2 billion, would link the main northern gas line near the Belarusian/Polish border near Brest to main lines in the Slovak Republic, through Poland.

<sup>19</sup> A "quality bank" is an equalization scheme to compensate shippers of different quality crude oils being mixed in a pipeline. The quality discount from the absence of a quality bank on light crude from Kazakhstan's Tengiz field has been estimated at about 10 percent by IMF staff.

**The other large producer of natural gas in the CIS, Turkmenistan,<sup>20</sup> has been among the exporters most seriously affected by limited pipeline access and distorted fees.** The only gas export route available to Turkmenistan following independence—the unified gas supply system (UGSS) of the former Soviet Union—did not allow it to reach markets outside the Baltic and CIS countries,<sup>21</sup> but each country along this route was able to extract economic rents on its sales within the region.

**Azerbaijan and Kazakhstan have faced similar transit difficulties.** In the case of Azerbaijan, the country has two available oil export pipelines.<sup>22</sup> The limited capacity of the pipeline through Georgia to the Black Sea is completely absorbed by the modest production of the Azerbaijan International Operating Company (AIOC). All other oil exports must go through the *Transneft* system to Novorossiysk on the Black Sea. The cost of transport through this pipeline is substantially higher (about \$9 per ton) than via Georgia, both because of higher transit fees and because of a quality discount, as light Azeri oil is mixed with heavier Urals crude. Kazakhstan faces a similar situation. Its access to the Russian transit pipeline has been administratively limited and higher quality oil has been penalized by the

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<sup>20</sup> All transport and distribution facilities in Turkmenistan are state owned; there are reportedly a few joint ventures operating in extraction.

<sup>21</sup> Exports to western Europe through the UGSS system would have to transit through Russia. However, Russian suppliers utilize this export capacity, so that Turkmenistan is effectively cut off from access to markets outside the region. In the long term, the situation may improve if Russian gas output declines.

<sup>22</sup> To date, Azerbaijan has not been able to produce and export significant quantities of gas. With the development of the Shah Deniz gas field, and the gas pipeline across Georgia to Turkey, that will change significantly, beginning in 2005 or so.

absence of a quality bank. The coming on stream in mid-2001 of the Caspian Pipeline Consortium (CPC) pipeline (see Box 3 below) has put Kazakhstan in a better bargaining position, as evidenced by a recent agreement with Russia securing Kazakhstan's long-term access to the *Transneft* pipeline and another agreement with *Gazprom* establishing a joint venture for gas exports.

**The oil companies in Azerbaijan and Kazakhstan<sup>23</sup> generally face a monopoly seller of transportation services in Russia.** Although alternative pipeline capacity is being built, *Transneft* does not respond to price signals in the way a properly managed private concern would, since producers of Azeri or Kazakh oil cannot bid scarce pipeline capacity away from Russian producers. As a result, investment is diverted away from these countries, output there is lower, and fiscal positions are weaker than they otherwise might be. Moreover, given the monopolistic practices faced by Azerbaijani and Kazakhstani firms in their attempts to access the *Transneft* pipeline system to reach deep water ports in Novorossiysk and Ventspils, they have been forced to develop high cost alternatives. For example, low cost oil extracted relatively close to foreign markets is not allowed to outbid higher cost oil produced at a further distance in Siberia.<sup>24</sup>

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<sup>23</sup> The Kazakh president recently decided to merge *Kazakhoil* with the state oil and gas transport monopoly, a move that runs counter to the reform objective of separating transport from other parts of the oil and gas sectors.

<sup>24</sup> Railway tariffs can also distort regional trade. In 2001, the Russian government reduced railway tariffs on export cargoes shipped through Russian ports. This reportedly has led to a reduction in the volume of oil and other cargo transported through Baltic and Ukrainian ports.

### Box 3. Construction of New Pipelines

Reflecting the preference of major oil and gas companies for control over their export pipelines, many new pipelines have been built or are planned. The most important of these to date involves the \$2.6 billion 1,500 km, CPC pipeline (initial capacity of 28 million metric tons per year) connecting the Kazakhstan Tengiz field to Novorossiysk on the Black Sea. This pipeline, which began operations in autumn 2001 is independent of the Russian *Transneft* monopoly and has cut export costs from the Tengiz field roughly in half. Several other major Kazakh fields are in process of linking up with the CPC over the next few years. This promises to drive down export costs significantly for these fields and open up access to international markets for others, which will put upward pressure on domestic prices.

Several other large investment links have been recently completed or are planned for the next 5–10 years:

- Russia has recently completed a new crude oil pipeline linking the Timan-Pechora region to northern Europe (with a capacity of 12 million metric tons per year). A link from Siberia to China by 2005 is planned, as is an expansion of the Druzhba line to the Balkans (by 5-15 million metric tons per year);
- In mid-2001, Ukraine commissioned a 650 kilometer, 24 million metric tons per year pipeline from the Black Sea port of Odessa north to Brody with possible further links to the Russian Druzhba line and also Poland;
- Azerbaijan has advanced plans for the construction of a new 48 million metric tons per year oil pipeline from Baku through Georgia to Ceyhan on the Mediterranean coast of Turkey, bypassing the problematic Bosphorus straits. The cost would be about \$3 billion; and
- The \$2.8 billion Blue Stream gas pipeline under the Black Sea from Russia to Turkey would reach its capacity of 16 billion cubic meters per year by end-2003. A new gas pipeline from Azerbaijan's Shah Deniz field to Turkey is also under preparation.

Some pipeline proposals have not yet been successful, reflecting political tensions and uncertainties regarding potential output and cost sharing. Turkmenistan's plan to link up (under the Caspian) its gas supply with the proposed Azeri line to Ceyhan, and the potential Kazakhstan linkup of oil from the potentially very large offshore Caspian find (Kashagan), continue to face difficulty. Further, the lack of an agreement between the Islamic Republic of Iran and the other coastal states on the delimitation of national territory or the sharing of Caspian Sea resources is impeding development particularly of the southern region.

Geopolitical considerations outside the region impose noneconomic constraints, particularly for petroleum transit from the Caspian region through the Islamic Republic of Iran. From a purely technical efficiency point of view, Caspian Sea oil is closest to world markets through the Islamic Republic of Iran to the Persian Gulf directly by pipeline or via swap arrangements. As for gas, potentially large markets in India and Pakistan would require transit through Afghanistan.

### **Energy importers**

Several countries face monopoly suppliers and thus must pay relatively high prices. The Kyrgyz Republic effectively can only purchase natural gas from Uzbekistan, while Moldova is dependent on the Soviet-era pipeline crossing its territory. At the same time, all Russian gas destined for central or western Europe must transit through either Belarus or Ukraine. As a result, some of these countries are able to use their monopoly power in the provision of transit services to obtain gas at a lower cost, although prices are not always transparent, being “bundled” with the transit fees.<sup>25</sup>

### **Responses to transit impediments**

In the absence of regional cooperation efforts to establish more competitive access to transit pipelines, adversely affected countries have attempted to alleviate the transit impediments, primarily by constructing new pipelines (see Box 3). Competitive alternatives to existing pipelines are a welcome development and diversification of export routes can help reduce risk. Nevertheless, there is the potential for diversion of investment to oil and gas pipeline construction, away from its most efficient allocation, as a result of geopolitical pressures and attempts by exporters to circumvent countries to avoid extraction of monopoly rents by transit suppliers (*Transneft's* and *Gazprom's* attempts to find alternatives to Ukraine's pipelines). Economic efficiency would be best served if access to existing pipelines were nondiscriminatory and allocated using price-based mechanisms (such as auctions) rather than through administrative means. In the absence of access to pipelines under competitive

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<sup>25</sup> The state owns the transit pipelines in Ukraine while Russia owns the pipelines in Belarus.

conditions, it is difficult to assess whether or not a particular pipeline construction project is economically efficient.

#### IV. CONCLUSIONS AND POLICY RECOMMENDATIONS

**Tackling distortions in energy trade of the CIS countries, including notably by promoting nondiscriminatory and transparent access to transit pipelines, has the potential to unlock substantial allocative benefits for the region.** By helping to bring domestic prices more into line with world market levels, this could boost domestic energy reform efforts by raising the opportunity cost of selling in the domestic market instead of exporting, and allow investment decisions to be made more rationally. However, it will be essential to develop well-targeted mechanisms to ensure that the poor are not hurt by increases in domestic energy prices. Removing transit impediments could also help avoid future disruptions in trade resulting from the exercise of monopoly power.

**The obstacles to regional energy reform are severe.** They stem primarily from strong vested interests, such as owners of transit pipelines and energy resources as well as governments that receive a share of the monopoly rents. Many policies will require creative bilateral/regional cooperation, including to ensure maximum efficiency in the provision of transit services, in order to overcome the incentives for noncooperative behavior by national governments in the region.

**A range of policy reforms that would improve regional welfare are probably not feasible unless bundled into a package of reforms containing counterbalancing items.**

Many of the policies that would likely be viewed as beneficial by a subset of CIS countries

would probably not be acceptable to others. Nondiscriminatory, transparent, price-based allocation of pipeline access (through auctions, for instance) for gas or oil throughout the CIS, for example, might remove investor uncertainty and lead to greater investment and output in both sectors. However, the winners as a result of this measure (exporters of gas in Turkmenistan or oil in Kazakhstan, for instance) could not be compelled to compensate the losers (such as Russian firms capturing the rents arising because Kazakh oil is of higher quality than Russian crude, or Ukraine, which captures rents from gas transiting its territory) if this reform were viewed in isolation. Nevertheless, if it were part of an agreement that included other elements, it might gain support in a regional forum. The government of Ukraine, for instance, might agree to participate in a consortium involving foreign investors (possibly including Russian and other European investors) to manage the operation of its gas transit pipelines if the fee were sufficiently attractive and Ukraine were given assurances of uninterrupted access to gas supply, an option that has been under discussion for several years. Russia's vision and leadership role will be crucial to the resolution of the region's energy problems given its importance in regional energy trade.

Bearing in mind the preceding considerations, the following policy measures, which were highlighted in this paper as having special relevance for cross-border energy trade and are consistent with World Bank policy advice, should be considered with a view to their feasibility in a regional setting:

- **Access to oil and gas transit pipelines should be allocated in a transparent and nondiscriminatory manner.** International experience suggests that it may ultimately be necessary for the incumbent monopolist to divest itself of the pipeline as a means

of enforcing genuine nondiscriminatory access, although this would need to be carefully sequenced with other reforms. All CIS countries should ratify the Energy Charter Treaty and implement measures sufficient to ensure that the treaty's provisions regarding nondiscriminatory, free access to regional transit facilities are observed.

- **Expansion of the transport network driven by private investment would help alleviate capacity constraints, reduce transport costs, and enhance competition.**

Large investments will be required to expand transport capacity further, and foreign capital is likely to be an important source in this regard. Absent such investments, continuing significant transit difficulties will tend to lower the attractiveness of investment in exploration and field development. A stable and market friendly investment environment is clearly needed to attract the large sums required from foreign investors. Close policy coordination within the region will also be needed to ensure maximum efficiency in the provision of transport services.

- **Countries should refrain from introducing trade barriers in response to excess supply conditions in neighboring countries.** Production subsidies should be eliminated and uneconomic energy production facilities should be closed. Improved access to transit pipelines will help alleviate excess supply and thereby ease trade tensions.

While countries with transit pipelines could in principle undertake measures to liberalize access on their own, there are strong incentives for noncooperative behavior to extract

economic rents and avoid transitory adjustment costs associated with domestic price increases. However, it would be in everyone's interest to open up access to existing pipelines and build new pipelines in the long run, in order to reap the benefits of higher gas exports to western Europe and Asia and to promote efficient energy use based on appropriate domestic energy prices.

This argues for further efforts to promote regional cooperation. The appropriate mechanism for regional cooperation in the energy sector would need to be further elaborated by the countries themselves but could build upon the recent CIS initiative for enhanced regional energy sector cooperation, efforts to implement the Energy Charter Treaty, or could involve a new international commission. There may also be a role for non-CIS countries given the need for foreign investment in the energy sector in the coming years.

In contrast to the preceding policy recommendations, which would benefit from a cooperative, regional approach, the following policy measures could be undertaken within the context of national reform programs:

- **Countries should take steps to move away from barter and other noncash payments arrangements since these decrease transparency, reduce allocative efficiency, and promote corruption.** The governments should take the lead by avoiding noncash transactions. Where cash constraints are the reason for the barter deal, countries should seek to sign export and import contracts based on arm's length, market prices simultaneously.

- **Better regulation of firms with market power will improve energy sector performance, whether or not the firms are state owned.** Just as privatization is not a panacea for good corporate governance, continued state ownership is not a panacea for good government regulation of a monopoly.
- **Firms that remain in state hands could be subject to more rigorous and arm's length trust management arrangements.** Examples could be the Ukrainian gas transit pipelines or the Russian government's residual asset stake in *Gazprom*.

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