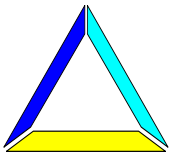
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International Practices in Pipeline Operations

Executive Summary

Several factors are changing the environment in which oil and gas pipelines are operating. In particular, the increasing liberalization of European gas markets with rising degree of flexibility, the large number of competing transit routes, or simply the need for large funds for investments strongly determine the future profitability of pipeline operations.

Typically, pipelines operations involve a multitude of players such as governments of different countries, private energy companies, and financial institutions. All these players have distinct and sometimes even conflicting interests. This creates uncertainty what in turn offers interesting possibilities for financial institutions that can step in as insurers and providers of capital necessary to finance large-scale long-term projects. From this discussion it is obvious that the various players work best within a partnership agreement, which allows each to realize its objectives while holding risks to a minimum due to risk sharing and institutional safeguards.

Against this background, we study in detail the co-operative agreements among various players in pipeline operations for several case studies. We focus on both, Oil pipelines (Baku-Tbilisi-Ceyhan, Caspian Pipeline Consortium, Druzhba-Adria) as well as gas pipelines (Interconnector, Algeria's pipelines under the Mediterranean, Blue Stream, Yamal-Europe, and the privatization of the gas industry in Hungary and Slovakia). Based on this discussion we conclude the following best practices of international pipeline operations:

- **Energy pipelines should operate within public-private co-operations!**
  This avoids waste of public funds while guaranteeing stable, market-oriented conditions that are necessary pre-condition for profitable private operations and investments.
- **Local and international players should cooperate!**
  This secures the highest-possible use of transit capacities as well as supplies for trade on international markets at well-known conditions.
- **International capital markets should be used for financing pipeline investments!**
  This ensures most efficient financing while risks are appropriately priced.

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1. Introduction

Oil and gas pipelines are of crucial importance for today's energy markets. On global gas markets, pipelines transport almost ¾ of total consumption, and although tankers ship most of the globally demanded crude oil, pipelines are also the dominating transportation system in large oil-producing countries such as the Russian Federation or the Caspian states. Construction and maintenance of pipelines requires huge long-term investment, but it gives decision rights on issues such as pipeline access and pricing. Since availability of sufficient transport capacity often forms a bottleneck between fuel-producing and -consuming regions, such rights can be important determinants for the flow as well as the flow direction of energy fuels. With global energy markets becoming more and more flexible due to technological progress and ongoing liberalization, control over energy pipelines has become an important aspect in the competition between globally operating energy companies as well as large-scale investors with correspondingly large financial implications.

The geographic position of Ukraine in-between the huge energy resources of Russia and the Caspian region on the one hand and the large market of Western Europe on the other side has long put it into a position as "energy bridge" hosting several key pipelines. However, most of these pipelines have until now been operated by Ukrainian state-owned companies independently and without significant involvement of foreign entities. In the future, this will be difficult to continue since global energy players increasingly seek to bypass Ukraine if they cannot get access to Ukrainian transit infrastructure. Furthermore, maintenance investment requires large funds which Ukrainian firms will have difficulties to attract, and the state control of Ukraine's pipeline system has repeatedly been the reason for strong political pressure from other governments, often far beyond economic reasoning. All this threatens the competitive position of Ukraine's pipeline system and thus, calls for reorganization. Policy makers and businessmen have already realized this and have started to discuss different options of pipeline operations such as privatization, concession and formation of international consortia. Against this background, the purpose of this paper is to review best international practices of pipeline operation and to derive the necessary policy recommendations for the Ukrainian case.

2. Managing Energy Pipelines

2.1 Players in the Pipeline Transport Sector

Pipelines operations involve a multitude of players such as governments of importing, exporting and transit countries, extraction companies, transit capacity and distribution network operators, and financial institutions. All these players have distinct and sometimes even conflicting interests. For example, while profit-maximizing operators of transit capacity have an incentive to charge high transit fees, energy companies in both exporting and importing countries are interested in minimization of transportation costs. Furthermore, private pipeline operators seek to extract maximum profits, but face the political and financial risks as the projects tend to span over decades and the potential for policy changes e.g. with respect to liberalization of energy markets makes forecasting of financial flows less certain. This in turn offers interesting possibilities for financial institutions that can step in as insurers and providers of capital necessary to finance large-scale long-term projects.
In brief, Objectives and risks of the main players can be characterized as follows:

Governments have the following objectives:

- → Sustaining domestic energy supply;
- → Sufficient pay-offs from transit systems, allowing for profits to budgets as well as proper maintenance of pipelines;
- → Economic development and observance of environmental and labor standards.

They face the following risks:

- → Difficulties to accurately estimate costs and benefits of a given pipeline project (where public funds are involved);
- → Financial losses hit public budgets and divert resources from social needs;
- → Political interference in investment and operational decisions that contradict economic efficiency and leads to loss of public funds.

Energy companies operating extraction, transit capacities or distribution networks have the objective to

- → Receive profits from utilization of extraction and/or transit possibilities from extracting to consuming regions.

They face the following risks:

- → Lower receipts than expected due to lower energy prices or emergence of alternative routes (economic risk);
- → Renegotiation of terms of agreement with government or imposition of new regulatory standards, royalties, tariffs, etc., or even expropriation and nationalization of their property (political risk).

Banks provide much of the financing for the often multibillion dollar projects. Their objective is to:

- → Maximize long-term return to invested capital through commensurate profits for energy companies.

Their risk is:

- → Default on loans due to economic or political problems of energy companies (see above).

Typically, **International Financial Institutions (IFIs)** such as the World Bank, the European Bank for Reconstruction and Development or the European Investment Bank refinance the often-multibillion-dollar projects. Their objectives are to:

- → Realize long-term return to invested capital;
- → Promote regional economic development;
- → Supporting labor and environmental standards (e.g. by influencing the nature of inter-governmental agreements);

→ Supporting the (tacit) interests of the organization's influential member(s) even when they are out of line with economic necessity.

Their risks are:

→ Possibility of default due to insufficient economic viability of the project or political destruction;

→ Association with projects of dubious developmental value sullies their reputation.

2.2 Contractual Arrangements

From the previous section it is obvious that the various players work best within a partnership agreement, which allows each to realize its objectives while holding risks to a minimum due to risk sharing with other players and institutional safeguards. For instance, governments seek to obtain maximum royalties from private sector participation but also benefit from shared risks and improved efficiency. Private energy companies in turn seek to raise profits and to control the parts of infrastructure that are crucial for their (core) operations. At the same time, private sector participation typically requires involvement of banks to provide necessary financing and to mitigate economic and political risks. In turn, banks are requesting participation of IFIs for refinancing loans and increasing security as IFIs can tie in governments in agreements by increasing the future costs of non-compliance through decreased investment ratings in case the government decides to revise contractual terms ex post.

Partnership agreements between all players involved can take various forms. To guarantee a sufficient balance of each participant's interest certain **principles** should be upheld:

- **Fair compensation** to the state for provided resources;
- **Non-discriminatory access** to the pipeline (which prevents abuse of monopoly power and price fixing as a result of collusion with oil producers);
- Open and transparent **access to project tenders** for selecting the most-efficient project partners.

Typically, **ownership and operation structure** is determined by an agreement between the government and a consortium of private players. Main types of such structure include:

1. **Management contract**: (temporary) right to the consortium for operating the transit system in order to collect revenues while investment decisions and ownership remain in the state's hands;
2. **Concession**: the consortium (temporarily) receives rights for operating the transit system as well as responsibility and potential benefits from investments while paying royalties to the state;
3. **Privatization**: the government sells the full system to a private operator/consortium. Typically, the major problem is finding buyers at an acceptable price, especially if the transit system already exists but is in a dilapidated state and/or market developments are difficult to predict.

Apart from ownership structure, agreements between private/public players also determine the regulatory framework of operation and stipulate government assistance in construction and operation. Furthermore, when a new pipeline is built across borders an inter-government agreement may set up a joint venture for building it, which then signs separate accords with suppliers and purchasers of fuel (see the examples of *Interconnector* or *Blue Stream* below).

2.3 Differences and Trends on Oil and Gas Markets

Important differences exist between oil and gas markets. On the oil market a mature network of pipelines and tanker shipment systems guarantees its global functioning. Price hikes on one market immediately lead to increased supplies of oil from other regions until prices equalize again. Thus, regional oil markets are operating at fairly integrated price levels since none of the globally operating oil companies can exercise strong market power in a specific region.[1]

[1] OPEC – the organization of 11 oil exporting countries – intends to determine global oil supply. Nevertheless, since non-OPEC countries still account for around 60% of total supply this has mainly indicative character (see www.opec.org).

Consequently, oil pipelines are in intense competition not only with other pipelines originating from (and/or serving to) the same region, but virtually with the entire global oil transportation network.

In contrast, markets for natural gas are typically regional in scope because only pipelines can ship natural gas over great distances at reasonable costs. Such pipelines fix large investment funds within a specific region. This has typically been financed by the rents from regionally monopolized distribution structures and long-term supply contracts. After Europe's gas industry as well as its main suppliers (Russian Federation, Algeria, Norway) have benefited from such a monopolized structure – politically justified by the need to accumulate funds in order to finance the necessary infrastructure – during the last 30 years, the EU commission has recently taken serious steps towards liberalization with the intention of creating a united European gas market.[2] In particular, this contains a timetable for gradually opening up the market including the strict separation between gas-transporting and gas-distributing companies, non-discriminatory third-party access to transit, distribution and storage capacities, common principles of independent regulation, as well as the opportunity for industrial and private consumers to independently choose their gas supplier. As a consequence, also European markets for natural gas will become more and more integrated since energy traders can no longer afford signing long-term commitments with companies of gas-exporting countries as they have done in the past. Instead, spot markets – typically located at the intersection of different pipeline routes – will gain in importance. This tendency will be further supported by recent technological advances in liquefying natural gas, which will allow for transporting it in tankers at reasonable costs so that also remote regions such as the Middle East and South America can supply gas to the EU. As a consequence of this increasing regional integration, also gas pipelines will increasingly have to compete with one another.

Trends towards liberalization of energy markets are not only limited to the EU territory. Rather, the **Energy Charter Treaty** and the ensuing process provide a potentially global multilateral rules-based framework for energy contracts (much like the WTO does for global trade in goods and services). The Treaty, which entered into force in 1998, stipulates favorable conditions for foreign energy investments and non-discriminatory access to pipelines. The current task of the Energy Charter Conference is to complete the Transit Protocol, which would spell out guidelines for energy transport. The Charter's membership extends to most European countries, including Ukraine, and some of the CIS states. Russia has not yet ratified the Treaty, and North African (Maghreb) countries have observer status.[3]

3. Case Studies of Oil and Gas Pipelines

To show how energy companies, governments and investors have been trying to deal with the challenges of pipeline operations this section presents a number of case studies of different oil and gas pipelines. Our intention is to present a selection of several important pipelines outside Ukraine without claiming completeness. Furthermore, as the discussion will show, one should keep in mind that not all cases presented below can be considered successful. Thus, this section is meant as a selection of observed practices only. Based on these observations, we will present recommendations and best practices in the final section.

[2] See e.g. German Advisory Group Beraterpapier S21, "The EU Natural Gas Market and Ukrainian Policy on Russian Natural Gas Transit – Will Ukraine Be a Gas Bridge to Europe?" or European Commission, "Opening up to Choice: Launching the single European gas market," July 2000. Available at http://europa.eu.int/comm/energy/gas/publications/index_en.htm

[3] Energy Charter Secretariat (2003), "What is the Energy Charter? An Introductory Guide" (www.encharter.org/index.jsp?psk=01&ptp=tDetail.jsp&pci=188&pti=14).

3.1 Oil Pipelines

3.1.1 Baku-Tbilisi-Ceyhan

The Baku-Tbilisi-Ceyhan (BTC) project involves constructing a 1760 km pipeline through Azerbaijan, Georgia and Turkey to the Mediterranean terminal at Ceyhan. Its total cost cited by the International Finance Corporation (IFC) is USD 3.6 bn and its capacity will amount to 1 m barrels per day (bpd) or 50 m tons per year (tpy). The completion of the conduit coincides with the development of Phase 1 of Azeri Chilag Guneshli (ACG) offshore fields expected to yield 400,000 bpd. Under optimistic assumptions production will rise to 1 m bpd by 2010, precisely the capacity of the BTC pipeline. Before the peak production, BTC operators hope to attract Kazakh oil although such prospects remain uncertain, given the rate of Kazakh oil field development and the reliance of Kazakhstan on the Caspian Pipeline Consortium (see below) and Russian pipelines.[4] Total cost of all phases of ACG and BTC construction is about USD 10 bn. Upward risks exist due to the relatively low agreed price of the Turkish portion of construction and the possibility of governments' demands for higher transit fees or taxes (albeit precluded by the legally binding agreements). Riskiness and moderately low returns to this expensive venture have caused repeated delays in the project and made some analysts declare that its execution is motivated more by political considerations (US strategic interest) than by economic viability. However, so far the worst expectations have been thwarted: oil price remains rather high, and fears about the political transitions in Georgia and Azerbaijan turned out to be exaggerated. Finally, as the Bosphorus straits have reached peak capacity and Turkish authorities impose increasingly stringent limitations on their use for oil transit, BTC looks even more favorable.

BTC is developed by an international consortium of 11 private and public partners. With a share of 30.1 % British Petroleum holds the largest stake and is also the project operator. The second biggest stake belongs to the State Oil Company of the Azerbaijan Republic (SOCAR), followed by smaller stakes of other oil companies. Financing occurs on a 70-30 debt-equity scheme.[5] Notably, only less than 20 % of debt comes from commercial banks with the rest covered by international financial institutions (IFC and EBRD) and export credit agencies of advanced countries as well as senior sponsor loans. The support of International Financial Institutions (IFIs) is crucial for this project as an institutional risk-mitigating mechanism. Indeed, the preferred creditor status that IFC and EBRD enjoy ensures greater trustworthiness of the project agreements, since any failure to comply on the part of governments will jeopardize their ability to borrow from these institutions and will have far-reaching implications for their reputation on the commercial finance market. Additionally, IFI involvement adds to the development component of the project, promoting, among other things, public consultations, reforestation in the Borjomi national park in Georgia and attention to social and labor needs of the region. In this sense, IFI involvement is beneficial to both the consortium and the countries involved, even as it puts the latter into a straitjacket of obligations.

Publicly available Inter-Government Agreement and Home Government Agreements were signed in 1999 and 2000 respectively, giving essentially a *carte blanche* to the consortium. Provisions include generous tax breaks, exemption from further regulations above the international standards applied, governments' obligation to furnish all requisite aid and fixed transit tariffs. The latter will rise according to a cascading scheme, from USD 0.12 per barrel in Georgia and USD 0.20 per barrel in Turkey in 2005-2009 to USD 0.17 and USD 0.37 respectively in 2021 (Azerbaijan transits oil for free). In contrast, the consortium itself is expected to charge a transit tariff of around USD 3 per barrel. Despite the huge costs of USD 3.6 bn, which have to be financed by the proceeds of oil transportation, many NGOs and

[4] Mansley (2003), "Building Tomorrow's Crisis - The Baku-Tbilisi-Ceyhan Pipeline and BP: A Financial Analysis", Claros Consulting, p. 26 (www.bankwatch.org/issues/oilclima/baku-ceyhan/downloads/financial_analysis_03-03.pdf).

[5] Ibid., p. 19.

government representatives have expressed dissatisfaction with the level of benefits accruing to the transit countries.[6]

3.1.2 Caspian Pipeline Consortium

At present, the main transport channel for Caspian oil is the Caspian Pipeline Consortium (CPC). Its creation dates back to a 1997 agreement, whereby a consortium of public and private interests was established to create a new route for Kazakh oil to go to the market. In contrast to the BTC project, there was no substantial IFI involvement and correspondingly, less transparency. Ownership is 24 % Russia, 19 % Kazakhstan and 15 % Chevron, with other oil companies and the Sultanate of Oman accounting for the remainder. The capacity of the pipeline is 567000 bpd[7] with a length of 1500 km and total cost of around USD 2.6 bn. The pipeline stated its operation in 2001. As the Kazakh government expects its oil production to rise from less than 50 m tons a year now to about 150 m tons in 2015 the pipeline capacity will probably need to be expanded. On the other hand, uncertainty about the true size of Kazakh oil fields, repeated conflicts between the Kazakh government and Chevron due to attempts to revise already signed contracts in favor of greater benefits for the state as well as competition from the newly build BTC pipeline are likely to slow down this expansion. Alternatively, new pipelines can also be constructed towards new markets such as China.

3.1.3 Druzhba-Adria

A smaller but auspicious exercise in international co-operation in oil transit has been the Druzhba-Adria integration project initiated by Transneft, the joint stock company that inherited Russian oil transit management. In order to utilize the opportunities offered by the Balkan states in transporting Russian oil to world markets, it is planned to integrate the giant east-west "Druzhba" pipeline with the currently idle "Adria" line. The latter will be reversed from its original use and instead, transit oil from Druzhba to the Croatian port of Omisalj. Since the pipelines exist already, only technical improvements and the reconstruction of the Omisalj terminal are necessary to enable the reverse operation of the Croatian pipeline. Planned capacity is to gradually increase from 5 to 15 m tons a year (100,000 to 300, 000 bpd).
The project's operator is Transneft, but the way of implementing it is through an agreement between the governments of six nations, whose oil transit systems are involved in the venture. They all guarantee free passage of additional volumes of oil associated with the commencement of "Druzhba-Adria" while requiring the observance of existing contractual obligations for Russian oil. The pipeline will be equally accessible to any supplier of oil, ensuring non-discrimination. The parties agreed upon a unified tariff in all transit countries of USD 0.64 per ton and 100 km, valid for the first stage of 5 m tons a year, with further tariff policy to be renegotiated. Transit countries retain an additional element of independence due to the 10 years nature of the agreement, although it will be extended automatically if no objection arises.

3.2 Gas Pipelines

3.2.1 Interconnector: A Model for Public-Private-Partnership

As the European Commission urges EU members to transfer their energy use to natural gas and green groups take the lead in fostering the process in the name of phasing out allegedly dangerous nuclear and environmentally unfriendly oil and coal sources, there is a need for more transit capacity between different EU markets. To that end, the Commission adopted a green paper "Towards a European strategy for the security of energy supply" which proposed priority co-financing for a dozen interconnection projects. Not only will the completion of such projects facilitate gas supply, but it will also result in the formation of a European energy market that is pan-European in scope as well as genuine in its structure (in contrast to the old structures,

[6] Additional information on the BTC project can be found on the websites www.caspiandevelopmentandexport.com, www.ifc.org/btc and for NGO critique www.bakuceyhan.org.uk.
[7] www.platts.com.

which are beset by monopolies, state ownership and information problems). Interconnector, a bi-directional pipeline crossing the English Channel, is a milestone in this development.
The project history of Interconnector is characterized by the co-operation between public bodies and private investors. In 1992, the UK Department of Energy brought together representatives of oil companies to assess the market demand for a cross-channel pipeline. In 1994 commitments and capacity bids were received, and the Interconnector company was formed with small shares belonging to multiple energy corporations. It received a 20-year transportation agreement signed in 1998 and capacity commitments amounting to 20 bn cubic meters a year in gas supply from Britain to continental Europe. Although the main thrust of the project is in the direction of the continent, it can be switched in a day's time to ship up to 8.5 bcm of gas per year in the reverse. The project's original cost of USD 843 m was split between equity, loans and lease facility. The European Investment Bank also provided a loan of USD 645 m.[8]

3.2.2 Algerian Challenge: Pipelines under the Mediterranean

As demand for natural gas in Europe is expected to double by 2030, Algeria intends to benefit from the opportunity.[9] In addition to its important position as global exporter of liquefied natural gas (LNG), it also has substantial and expanding pipeline capacities. The construction of a pipeline between Algeria and the Iberian peninsula in the 1990s is an interesting case study of institutional co-operation. In 1992, Algerian state energy giant Sonatrach signed a long-term supply agreement with Spain's Enagas. Morocco and Enagas established procedures for the construction of Europe-Maghreb Pipeline (also known as Pedro Duran Farel pipeline). The Portuguese company Transgas joined the venture in 1994, contributing 28 % of the capital stock. Europe Maghreb Pipeline Ltd. (EMPL) was established as the owner and operator of the pipe. The Moroccan section, Maghreb pipe, gave the exclusive right to use it to EMPL. The latter also signed construction contracts with another company.
Financing comes, as in other similar projects, mainly from commercial banks, export credit agencies and especially the European Investment Bank. The latter's support was made possible by a political decision on the part of the EU, which declared EMPL a priority project at its Essen summit in 1994. Upon completion of the current compression station construction, the line's capacity will increase from currently 8 bcm to 11 bcm per year.
Overall Algerian exports of natural gas account for 60 bcm per year and are expected to growth to 85 by 2010.[10] To meet this ambitious goal, Sonatrach quickly moved to constructing another pipeline to Sardinia, 1550 km in length. This project's execution is entrusted in GALSI, a joint venture between Sonatrach, Enelpower, Edison, EOS, and Wintershall.[11] The company was founded in January 2003 in Milan, with Sonatrach holding the largest stake. The project was like the EMPL recognized as priority by the European Commission.
Thus, as a rising player on the European gas market, Sonatrach position itself alongside with the main players of Europe's gas industries in order to benefit from the expected changes on the EU market.

3.2.3 Blue Stream: Gazprom's Route to Turkey

As part of Russia's and Europe's efforts to diversify energy supply and transit routes, Russian gas monopoly Gazprom undertook the construction of a pipeline under the Black Sea to supplement and partially replace the existing land route traversing a number of third countries — Ukraine, Romania and Bulgaria. To that end, Russia and Turkey signed an intergovernmental

[8] See www.interconnector.com.
[9] See e.g. a statement by Dr. Chakib Khelil, Minister of Energy and Mining at www.mem-algeria.org/actu/ministre/allocutions/summit_gaspipe_dz-it.htm and Moraleda (2002), "How the Major Barriers to Cross-Border Gas Trade were Overcome in the Case of the Maghreb Pipeline", International Energy Agency, Paris (www.iea.org/about/crossbor/moraled.pdf).
[10] Focus Limited, "Transport par Canalisation Algerie 2002 Pétrole et Techniques, N°440", Sept. Oct. 2002 (www.mem-algeria.org/actu/comn/articles/trc.htm).
[11] See www.fedre.org/pagesite/forums/geneve2003/presentation_sonatrach.htm.

agreement on 15 December 1997, whereby the Turkish state petroleum pipeline company BOTAS committed to shipping 365 bcm of gas over the course of 25 years through the new pipeline Blue Stream. The final capacity is projected at 16 bn cubic meters a year (to be reached in 2010), while the first queue will ship 4 bcm a year. Total length of the line is 1,213 km. In February 1999 Gazprom signed a memorandum with an Italian construction company ENI, which subsequently resulted in the creation of a Russian-Italian special construction company. To facilitate the technically difficult construction, an intergovernmental protocol promising tax benefits was signed between Russia and Turkey in November 1999, which came into force after parliamentary ratification. The total cost of the project stands at USD 3.2 bn. Much of it was financed by loans from international banking consortia, uniting Western European and Japanese banks. The pipeline's commercial operations were launched in February 2003[12].

Right from the start of operations there appeared a rift in understanding between the Turkish and the Russian side. The Turkish side asked Gazprom to decrease the volume of gas supplied to Turkey as well as to decrease its price from USD 115 per tcm to USD 75 per tcm. Such a price and decreased volumes were estimated to decrease Gazprom revenue from the project by about USD 15 bn. To show the strength of its position Turkey temporarily stopped buying gas from Blue Stream in March 2003. A series of anti-corruption investigations were started in Turkey against the officials involved in the planning of the Blue Stream pipeline. It was claimed that the projected development of the Turkish economy was incorrect and that the growth of domestic demand for gas is not as optimistic as it was forecasted. Furthermore, the Blue Stream project turned out to be about twice as expensive as it was planned so that supplying Russian gas along the conventional route via Ukraine, Romania and Bulgaria appears to be cheaper than through the Blue Stream. Also, since due to Blue Stream the share of Russian gas in the Turkish gas market exceeds 50% the Turkish government has allowed for greater gas imports from Iran to diversify its supply. On August 1, 2003 a resolution in the dispute was found and Turkey started buying Russian gas under new conditions. The new contracts were not disclosed, but it appears that they were not as favorable for Gazprom as before. In 2004 it is planned to transport 4 bcm via Blue stream to Turkey.

3.2.4 Yamal-Europe: The Threat to Ukraine

As Ukraine and Russia had certain conflicts resulting from Ukraine charging what in Gazprom's view were too high transit tariffs and took gas from the magistral pipelines without sanction, Gazprom increasingly loathed its strong dependence on Ukraine's transit capacity and started construction of a bypassing pipeline, Yamal-Europe. The pipeline traverses Russia, Belarus and Poland, with the first two countries' sections under the control of Gazprom and the third managed by EuroPolGaz, a polish company owned by the Polish Oil and Gas Company PGNiG and Gas-Trading S.A. (together 52%) as well as Gazprom (48%). For Gazprom, the project pursued mainly three goals: First, constructing a bypassing line around Ukraine can be used in the short term as a bargaining chip in negotiations, helping Gazprom to ensure lower transit tariffs and more favorable conditions in Ukraine. Second, when Yamal gas deposits are sufficiently developed and prepared for commercial exploration some time in the future, the pipeline will enable Gazprom to bring gas to European consumers without relying on the established transit capacities through Ukraine and without vulnerability to Ukrainian force-majeure behavior. Finally, Yamal-Europe creates new transit capacity to accommodate Gazprom's growing gas exports to Western Europe. The line's completion is expected in 2005, with a design capacity of 33 bcm per year. Even now, after the first queue was launched in 1999, the pipeline transports more than 20 bcm per year.

In its current state, the pipeline does not pose significant risks for Ukraine's gas transit status, considering that it can only transport little of the 195 bcm of gas expected to be exported by 2010. Furthermore, recent struggles between Gazprom and Beltransgaz have also affected

[12] See www.gazprom.com/eng/articles/article8895.shtml and Inogate December 2003 news report at www.inogate.org/html/news/news_report.shtml with a reference to Interfax 16.12.2003

reliability of gas transit through Belarus as operations have temporarily come to a complete still stand (albeit for a few hours only). On the other hand, given Gazprom's strong bargaining position against Belarus[13] it appears to be rather likely that the recent dispute will be settled to the benefit of Russia and Gazprom. In this case, a further expansion of Yamal-Europe to up to 56 bcm will be quite realistic, given the cost advantage of Yamal-Europe vis-à-vis the Ukrainian transit system.

3.2.5 Privatization in Eastern Europe: Hungary and Slovakia

While the previous examples described structure and organization of investment into new pipeline capacities, in Hungary and Slovakia also formerly state-controlled trunks of the existing pipeline system from Russia to Western Europe have been given in private operation. Interestingly, while in both cases this has been done through partial privatization with some control rights remaining in state hands, the results of privatization are not the same. Rather, they reflect the different strategic positions and objectives of the two companies.

In Slovakia, the main focus was on operating the gas transit capacities. Prior to privatization, gas transit accounted for roughly 50% of total revenue of SPP (the state-owned monopoly-supplier of gas transit and domestic supply) and – unlike SPP's second key activity domestic gas supply – did not generate losses. Furthermore, controlling gas transit operations through Slovakia also was a key objective of Gazprom and its main European partners since Slovakia's transit system shipped almost 60% of Russian gas exports. Consequently, in 2002 49% of SPP's shares were sold in equal portions to Ruhrgas and Gas de France for the total amount of USD 2.8 bn while Gazprom received the option to buy a third of the Ruhrgas-Gas de France shares (16.3%) until mid-2004. The remaining 51% were retained in state ownership. However, according to the privatization agreement, the state committed itself not to intervene in SPP's operational activities and to exercise only controlling rights.[14]

In Hungary, the situation is quite different. While gas transit systems have been far less important, Hungary's promising economic performance, as well as the perspective of the EU eastern enlargement in 2004 have stimulated the objective of exploring domestic and regional markets. Accordingly, since 1994 the integrated oil and gas company MOL has been gradually privatized with the objective of building the Central and Eastern European oil and gas market leader. At present, 9.1% and 10% of MOL's shares, respectively, are hold by Austrian OMV and Slovak Slovbena & Slovintegra, two oil and gas companies, while 54.2% of MOL's shares are free floating and 26.7% remain in state ownership, including a 'golden share' that enables the state to veto all major changes.[15] Further strategic partnerships are set up through shareholdings of MOL in INA, the Croatian oil and gas group (25%), and the Slovak oil company Slovnaft (70.02%), as well as a partnership agreement with TVK, a chemical company and sole polyolefin producer in Hungary. Given this broad range of activities as well as its minor importance in securing international gas transit, Europe's leading gas companies have so far not acquired large shares in MOL.[16]

4. Conclusions and some Policy Recommendations

To conclude, several factors, such as increasing liberalization of energy markets with rising degree of flexibility, the large number of competing transit routes, or simply the need for large

[13] The Belarussian energy mix consists to more than 70%, and almost all of it has to travel through Gazprom pipelines.

[14] See "Independent Auditor's Report", 2001, as well as further information available at www.spp.sk.

[15] See the information as of September 2003 as given at www.mol.hu.

[16] This was only different in 2001 when the Hungarian government proposed to separate the gas and oil interests of MOL into individual companies and to offer shares to foreign investors, what raised the attention of Ruhrgas and Gas de France who where interested in entering the Central European gas market. However, a newly elected government turned down such plans in 2002 (Osiadacz (2002), Gas Industry in Accession Countries. www.ien.com.pl/cenerg/resources/activities/0309_conf/29/6_aosiadacz.doc).

funds for investments, are changing the environment in which oil and gas pipelines are operating. In turn, this requires strategic co-operations between the stakeholders involved such as governments, (international) private energy companies and financial institutions. This strategy can potentially succeed in ensuring an efficient maximum-use of available pipeline capacities at minimal political risks. However, whether or not such co-operations will eventually be successful depends crucially on the details of the contract, in particular the sufficient mix of obligations (e.g. investments), commitments (e.g. political guarantees) and benefits (e.g. profits or royalties) between all project partners. Based on the case studies presented above, we suggest the following three principles:

- **Energy pipelines should operate within public-private co-operations!**
  Public objectives such as security of energy supply and revenues from energy transit can be realized by public-private co-operations. This helps avoiding waste of public funds for e.g. investment in idle capacity and shields pure operative decisions from political interference (it would for example have limited interference of various governments in the process of determining the flow direction of the Odessa-Brody pipeline). In turn, the state needs to reward its private partners by offering stable, market-oriented conditions that provide incentives for investments. This for example includes clear regulatory provisions, equal treatment of all potential partners or open and transparent access to project tenders. In principle, co-operation agreements can be established through (partial) privatization or concession agreements for state operations (while management contracts appear less favorable because they leave investment decisions with public authorities). If implemented correctly, both cases allow for sufficient controlling rights of the state to protect its interests.

- **Local and international players should cooperate!**
  Local energy and transit companies secure the highest-possible use of their capacities. International companies can secure their supplies for trade on international markets at well-known conditions. This will be of crucial importance in the future since the increasing degree of flexibility on energy markets like the EU will not allow traders to enter into long-term 'take of pay' contracts as they have done in the past.

- **International capital markets should be used for financing pipeline investments!**
  This has the following advantages. First, in many cases it is the only way to acquire the large amount of necessary funds. Second, the conditions on which investors are willing to provide finance are a meaningful reflection of the project as such, both with respect to its economic viability as well as with regard to the concrete proposals and agreements between governments and companies involved. Finally, inclusion of IFIs further reduces costs of lending capital but comes at the expense of certain conditions that need to be met. However, participation of IFIs is viewed as a sign of quality and will contribute positively the reputation of the project.

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