

Bosphorus Bypass Proposals

John Roberts – July 2004

Northern Lines

Odessa-Brody

A 25 mt/y (500,000 b/d), 644-km line between the Ukrainian Black Sea port of Odessa and Brody in the northwestern Ukraine was completed in August 2001. The question is whether it will be used to convey Caspian crude northwards to Central Europe or Russian crude south to the Black Sea. For the line to function as envisaged, Ukraine needs to secure either a connection into Russia's Druzhba export system at Brody (the issue is one of permission, since a physical connection is easy) or construction of a further line at least as far as Plock in Poland, where it would enter the Polish system. Ukraine would also need to secure commitments from shippers to use the line for export purposes (as opposed to storage). A related loading and storage terminal at Pivdenny, near Odessa, was opened in December 2001.

Alternatively, the line could be reversed and used to carry Russian crude to the Black Sea, as favoured by Moscow and, increasingly by Ukrainian President Leonid Kuchma (who first ordered construction of the line with Caspian throughput in mind).

Option 1. Extension to Plock: A 500-km extension to Plock has been under consideration for several years but no real progress has been made. From Plock, oil could be piped to refinery and Baltic terminal at Gdansk.

Option 2. Connection to Omisalj: This constitutes the cheapest option since it simply connects up existing infrastructure. But the line from Brody to Omisalj already carries Russian crude and with Russia facing its own export pipeline capacity constraints it is unlikely to yield space to Caspian oil coming up from Odessa.

Option 3. Extension to Plock and Wilhelmshavn. This is the newest proposal. It is being studied by Germany's ILF Consultants, and would involve construction of 500kms of new line to Plock, utilisation/upgrading of existing line from Plock to Schwedt, and construction of 600 kms of new line from Schwedt to Wilhelmshavn. Estimated costs are put at \$2bn.

Overall status: Infrastructure in place to Brody and, indeed, on to Omisalj. But no approval for Omisalj and no finance for Plock. Basic design for hook-up to Omisalj completed. Wilhelmshavn option is at preliminary study stage.

Adria-Druzhba integration

There are various options for connecting Russia's Druzhba export pipeline system to the Adria pipeline and its loading terminus at the Croatian port of Omisalj in the Adriatic.

Work on one link-up between the systems is currently in hand, starting at 5 mt/y (100,000 b/d) and then rising to 15 mt/y (300,000 b/d). The length of the system would be 3,197 km. Principal works on the Adria section are costed at \$20m to integrate the systems and reverse the existing Adria pipeline flow.

Status: The reversed line is due to start functioning imminently. Long-term prospects would be for an expansion of the entire system.

Constanza-Pancevo-Omisalj-Trieste (CPOT)

This line, sometimes termed the South-East European Line - SEEL), would run from the Romanian Black Sea port of Constanza through Serbia and Croatia to Italy's northern Adriatic terminal at Trieste in Italy, where it would connect with the Trans-Alpine Pipeline. It would

deliver crude oil to Serbia's refinery at Pancevo, near Belgrade, and to the Croat Adriatic terminal at Omisalj. The length would be around 1,310 kms (Constanza-Trieste) or 1,238-km (Constanza-Omisalj).

An option involving transit through Hungary and Slovenia to Trieste appears to have been dropped. The envisaged capacity is 33mt/y (660,000 b/d) rising to 50 mt/y (1.0 mb/d). Costs estimated at €700m but could rise if Serbian elements require extensive new build. As of July 2004, CPOT was saying that it expected piping to be of 40-inch diameter throughout, indicating little or no use of existing lines.

Overall Status: Study stage; no final choice of how much existing pipeline should be incorporated into system. Feasibility study prepared by the US HLP Parsons Company adopted by officials from Serbia, Romania and Croatia in May 2004.

South Balkan Lines

Albania-Macedonia-Bulgaria Oil (AMBO) Pipeline

This 913-km pipeline would run from the Bulgarian Black Sea port of Bourgas to the Albanian Adriatic port of Vlore. Planned capacity is 37.5 mt/y (750,000 b/d) with possible expansion to 50 mt/y (1.0 mb/d). Costs are put at \$850m to \$1.2bn. Extensive studies have been conducted including plans for financing based on one-third partner equity and two-thirds debt backed by bilateral and multilateral lenders. US TDA helped finance a feasibility study in 2002. A US-based Group, the AMBO Pipeline Corporation, is developing this proposal.

Status: Study stage. Albania approved its section of the route in December 2003. Bulgarian intentions remain uncertain.

Bourgas-Alexandroupolis (Trans-Balkan Oil Pipeline)

This 286-km line would run from Bulgaria's Black Sea port of Bourgas to the Greek port of Alexandroupolis in the Northern Aegean. Bulgaria, Greece and Russia signed an initial agreement on the line in 1997 and the project has since been pursued with greater or lesser enthusiasm by Lukoil. In November 2002 agreement was reached that Greek, Bulgarian and Russian entities would each hold a one-third stake in the venture. Lukoil would be the dominant partner however as its Bulgarian subsidiary would chair the project. Lukoil has since suggested that Turkey might wish to become involved. Basic design work has been completed with initial plans for loading of 150,000 tonne tankers at Alexandroupolis replaced by plans for port expansion to enable loading of 300,000 tonne tankers. Projected capacity would be 30-40 mt/y (600,000- 800,000 b/d). Costs are put at \$600m - \$700m. Lukoil and Greece's Latsis group are promoting the project.

Status: Basic design completed.

Turkish Lines

Kiyikoy-Ibrikbaba

There are at least two current proposals for constructing a pipeline along this route. Both essentially envisage a 198-km line from Kiyikoy on the Black Sea to Ibrikbaba on the Gulf of Saros in the Aegean Sea. Both claim to have made significant progress; both are still awaiting formal Turkish government approval while saying they have already secured personal support from Turkey's leaders.

- In June, Russia's Transneft signed a memorandum of understanding with Turkey's Anadolu group to study the project and, should approval be secured, to construct the line. Other participants in this project's initial working group are Russia's TNK-BP and Tatneft. Capacity would be 1.2 mb/d and costs are put at \$913m. This appears to be the group with which Turkish entrepreneur Okan Tapan, former head of Caspian Transco, is involved. Tapan is reported to believe a basic line can be built for as little as \$430m. A throughput tariff of \$4.50 per tonne is envisaged, reduced to \$3.10 after seven years.
- The Thrace Development Ltd, backed by Turkish interests and headed by veteran US oilmen Howard Lowe and Jack Bowen, the former CEO of the US Transco Energy Company, also says it is planning a Kiyikoy-Ibrikbaba line – and that it has already secured a 500,000 b/d commitment from Russian oil suppliers that would justify construction of a planned 48-inch pipe. Capacity would be 1.2 mb/d rising eventually to 2.5 mb/d. Lowe says financing is in place, that the project has secured the requisite approval of the Director General of Turkey's Petroleum Authority and that it is now before the country's Cabinet.

Samsun-Ceyhan

A Turkish company, Calik Enerji, is currently proposing a line from the Black Sea port of Ceyhan to the existing Mediterranean terminal at Ceyhan. Two alternatives are under study. Both would carry 50 mt to Ceyhan and provide an extra 5 MT to the refinery at Kirikkale near Ankara.

- **Samsun-Ceyhan Direct, with spur to Kirikkale.** The main pipeline would run 660-kms and would require three pumping stations and construction of a 5 mt/y capacity 180-km spur line to Kirikkale. Costs are put at \$1,060m.
- **Samsun-Kirikkale-Ceyhan.** The main pipeline would run from Samsun to Kirikkale utilising the same rights-of-way as the Turkish onshore leg of the Blue Stream gas pipeline to Ankara. From Kirikkale it would utilise the existing right of way of the pipeline currently carrying oil from Ceyhan to Kirikkale. The length would be 770 kms and require four pumping stations. Costs are put at \$1,070m.

Status: Preliminary Study Stage. Awaiting formal Turkish government approval.

Agva-Izmit: The Tupras refinery bypass

The prospect that Russia's Tatneft would be taking a substantial stake in the Izmit Refinery on the Sea of Marmara raised the possibility of a limited supply line to serve the refinery, which lies just 40kms from Agva, the nearest point on the Black Sea and 75 kms southwest from the Sakarya river estuary on Turkey's Black Sea coast. The refinery has an 11.5 mt/y capacity and a local pipeline would therefore have the ability to remove this volume from Turkish Straits traffic, either by substituting Russian crude for its current Middle Eastern input or by using otherwise empty tankers to carry Russian crude on their return journey from Izmit through the Dardanelles.

Status: Tatneft has at least considered this idea but no progress can be expected until the Council of State, Turkey's highest court, finally rules on whether the privatisation of Tupras is to go ahead. On 23 June 2004 the court issued a preliminary rejection of a government move to enforce the sale of a 66% stake in Tupras to Tatneft and the local Zorlu group.

Other possibilities

- Reversing the Baku-Novorossiysk Line. This line, nominally of a minimum 15 mt/y (300,000 b/d) capacity but currently thought to have a maximum 50,000 b/d capacity in Russian Daghestan, could be reversed to carry oil from the Russian Black Sea port of Novorossiysk for inputting into the new BTC line at Baku. Transneft seems most unlikely to approve such a move as it uses the northern end of this system to carry Kazakh oil from Makhachkhala to Novorossiysk.
- The Georgian International Oil Company has often proposed a link along the Black Sea coast from Novorossiysk to the Georgian port of Supsa coupled with reversal of most of the Georgian section of the existing Baku-Supsa line to enable a link up to the BTC system. Again, Transneft seems highly unlikely to approve such a project.

Source: Platts

A POSSIBLE TARIFF COMPARISON

The German pipeline consultants ILF have calculated an indicative range of possible throughput tariffs for various options. To enable comparisons to be made, in each case ILF assumed that the operational line possessed a capacity of 35 mt/y. Actual tariffs, of course, would reflect the fact that actual capacities would be different. The table is intended purely for comparative purposes.

NORTHERN ROUTES

Odessa-Brody-Plock	\$14.5 per tonne
Odessa-Brody-Plock-Wilhelmshavn	\$20.00 per tonne
Constanza-Trieste	\$7.3 to \$15.5 per tonne, depending on choice of route and line construction/refurbishment issues

BALKAN ROUTES

AMBO	\$9.50 per tonne
Bourgos-Alexandroupolis	\$5.00 per tonne

TURKISH ROUTES

Kiyikoy-Ibrikbaba	\$4.51 per tonne
Samsun-Ceyhan	\$10.00 per tonne

Source: ILF

**John M. Roberts, Energy Security Specialist, Platts
New Mill Farm, Jedburgh, TD8 6TH, Scotland. UK**

Tel: +44-1835-863-725

Fax: +44-1835-863-757

Mobile: +44-7966-290-354

Email: john_roberts@platts.com