Bulgarian outlays for construction and assembly on Russian territory as of January 1, 1992 was 171.02 Mn EPU, and for goods - 18.6 Mn EPU.

Bulgarian specialists will complete the construction of the Severostavropolskoye underground tank farm in 1994 (Stavropol territory), a number of residential buildings, and social-cultural establishments in Orenburg, Kimry (Tver region), a technical center with experimental production for the Morneftegaz institute in Kimry, and several other structures.

PIPELINES

Will the Proposed Gas Pipeline from Turkmenistan to Turkey Be Placed Under the Caspian Sea?

Turkmen officials plan to create an international consortium to build the Turkmenistan-Turkey gas pipeline (which will continue on into Europe). Turkmen President Saparmurad Niyazov is expected to sign a decree on the formation of the consortium.

CONSORTIUM MANAGEMENT TO HAVE BROAD POWERS Informed sources in Turkmenistan told Interfax the consortium may be made up of the Argentine Bridas, American U.S.-CIS, and the American-Swiss company Wavemeg, set up by the Swiss Imeg Management S.A. (Geneva) and the American Wavetech Geophysical Inc (out of Denver, Colorado).

The draft of the decree stipulates that the consortium will be managed by a committee of the presidents of the above-mentioned companies and Turkmen Minister of Oil and Gas Nazar Suyunov. The committee will be headed by Turkmen President Saparmurad Niyazov.

The committee will have the authority to negotiate on behalf of the Turkmen government for project financing, pipeline construction, and to accept new members to the consortium. The committee may also be authorized to negotiate contracts to sell Turkmen gas in Europe, which will be transported through the pipeline. Interfax learned talks are in progress with representatives of gas companies in Germany, France, and Turkey.

WAVEMEG MAKES PROPOSAL ON GAS PIPELINE CONSTRUCTION Interfax learned Turkmenistan has not chosen a route for the future pipeline. Turkmen and western specialists are considering two routes: offshore and onshore. Both routes will take the pipeline through Iran to Turkey and on to Europe.

Wavemeg has drawn up a proposal to lay a high pressure export pipeline along the Caspian floor, which will cost less than $2 Bn. Considering that the company may join the international consortium, experts said the Wavemeg proposal may be used as a base project.

Company specialists said initial capital outlays to build the gas pipeline from Krasnovodsk (Turkmen Caspian coast) - Astara (Iranian coast) - Dzhulfa (western Azerbaijan - north Iran) - Dogubayazit (eastern Turkey) may be kept below $2 Bn by:

1. using substantial volumes of gas which western Turkmenistan can supply over the next several years to ensure initial export along much shorter Krasnovodsk-Turkey pipeline,

2. using high pressure pipelines instead of the usual 75 bar pressure,

3. staging the construction of the gas pipeline so that the first phase brings a profit, which will be used to finance the later stages.

Transmitting gas under high pressure (roughly 200 bars for the Trans-Caspian subsurface pipeline and 130 for the inland pipeline) has two main advantages: the need for interval compression to reach maximum capacity is eliminated and the pipe diameter can be reduced. Naturally, thicker walled pipes will be needed, but this is needed in any event for underwater pipelines.

Pipelines operating at pressures between 100 and 200 bars and from 65 to 130 bars have double and triple (respectively) the capacity of pipelines with the same diameter operating in the 50-75 bar range. This gives the project flexibility in the early stage, allowing a gradual increase in system capacity from 10 to 31 Bn cu.m.

The obvious advantage of the high pressure system is the fact that eastern Turkey, which consumes 8-12 Bn cu.m of gas a year, can be supplied through an offshore pipeline with a diameter of 28" or 30" and a 42" or 48" inland pipeline without building relay compressor stations. Thus, the operation of the system will be uncomplicated right from the start and can be controlled from Krasnovodsk. The pipeline capacity may be increased by 50% at the later stages of the project by building parallel offshore lines and relay compressor stations.

A high pressure offshore pipeline would be able to receive heavy associated gases from offshore fields following compression and dewatering. Heavy gases can be easily separated at any inland point and sold as hydrocarbon liquids. The underwater gas pipeline may thus play a large role in the development of offshore oil and gas production off Turkmenistan and Azerbaijan.

Foreign experts said the simplest and shortest route for the Turkmen pipeline to Turkey would be a 400 km underwater line at depths of 200 meters from Krasnovodsk to Astara on the Iranian coast near the Azerbaijani border. This pipeline will be situated more than 20 km from the Azerbaijani coast.

FINANCIAL ASPECTS OF PROJECT Wavemeg experts made an economic analysis of the project based on a gradual increase in the export of Turkmen gas along the Krasnovodsk-Dogubayazit pipeline from 10.1 Bn cu.m of natural gas to 17.1 Bn cu.m, 20 Bn cu.m, and 31 Bn cu.m in subsequent years.

COST ESTIMATE	1	2	3	4*
Krasnovodsk compressor station	101	150	175	224
Offshore units	353	667	667	981
Inland units	703	704	778	1,173
BASIC COST ESTIMATE	**1,157**	**1,521**	**1,619**	**2,378**
unforeseen circumstances	87	114	121	178
unforeseen price increases	58	76	81	119
TOTAL COST	**1,301**	**1,711**	**1,822**	**2,675**

** 1 - phase one ($Mn); 2 - phase two ($Mn); 3 - phase three ($Mn); 4 - phase four ($Mn).*

An offshore branch will be built from the gas pipeline and 3 compressors with 28 megawatt turbines will be installed at the Krasnovodsk station to export 10.1 Bn cu.m of natural gas; the export of 17.1 Bn cu.m will require two branches and 5 compressors; 20 Bn cu.m will take two branches and 6 compressors, and three compressors at relay stations, and the export of 31 Bn cu.m will require three branches, 8 compressors at the Krasnovodsk station and another 19 at relay stations.

Experts estimated nearly 672 Bn cu.m of natural gas will be exported to Turkey during the first 25 years of the operation of the pipeline system. In the worst case scenario with a fixed minimum price of $75 per 1000 cu.m the project will generate income of $50 Bn, of which $7.3 Bn will be spent on construction and $3.67 Mn on operation and repair of existing systems.

The remaining $39.3 Bn ($58.55/1000 cu.m) will be Turkmenistan's profits, less the cost of gas transport and taxes. Thus, the average cost of transporting gas to the Turkish border over a 25-year period, not including transport costs and taxes, will be just $16.45 per 1000 cu.m of natural gas.

EQUIPMENT

Program to Produce and Introduce Gas Meters Launched in Ukraine

The Ukrainian production association Oktava (Kiev) and the French corporation Schlumberger have agreed to form a closed-type stock company within Oktava for a project to produce gas flow meters.