

CONFERENCE ORGANIZERS



Sponsors



Co-Sponsors



INFORMATION PARTNERS



JOINT-STOCK COMPANY «GAZPROM»

LIMITED LIABILITY COMPANY SCIENTIFIC-RESEARCH INSTITUTE
OF NATURAL GASES AND GAS TECHNOLOGIES – VNIIGAZ

INTERNATIONAL CONFERENCE

**WAYS OF INNOVATION: NEW TECHNOLOGIES
IN GAS INDUSTRY (INNOTECH-2008)**

15–16 October 2008

Abstracts

Moscow
VNIIGAZ 2008

**THE MARKET EFFICIENCY OF GAS PRODUCTION INDUSTRY
IN THE TYUMEN REGION (1993–2007):
THE ECONOMIC ANALYSIS**

A.A. Afanasiev

(Central Institute of Economics and Mathematics, RAS)

The econometric study was done for production functions of the gas production industry of the Tyumen region and Gazprom subsidiaries within this area. The results of the study showed that within the period between 1993-2007 the best functions to describe the natural gas production process in the fields of the region from the viewpoint of traditional econometrics criteria is the following: $\Gamma_t = e^{164} \cdot \bar{\Phi}_{t-1}^{0,87} \cdot L_t^{0,13} \cdot e^{-0,083t}$ and $\Gamma_t = e^{-1,21} \cdot \bar{\Phi}_{t-1}^{0,88} \cdot L_t^{0,12} \cdot e^{-1,61 \cdot 10^{-7} \cdot G_{1963,t-1}}$, and from the fields of Gazprom subsidiaries: $\Gamma_t = e^{168} \cdot \bar{\Phi}_{t-1}^{0,90} \cdot L_t^{0,10} \cdot e^{-0,086t}$, where Γ_t – is gross natural gas production, L_t – average annual employees, $\bar{\Phi}_t$ – average annual fixed assets denominated in 1990 prices 1990 r., $G_{1963,t-1}$ – accumulated natural gas production, t – time (year), e – base of the natural logarithm.

It is determined that the labor elasticity in the gas production $\frac{\partial \Gamma_t}{\partial L_t} \cdot \frac{L_t}{\Gamma_t}$

of these three function is varied only by 0.01–0.02 units of the average wage share in 1993-2007 with accrued items in the gas production cost of 0.11 in the large local companies which is within the statistic error. If the production labor elasticity equals the wage share with accruals in costs and the other costs refer to the capital, the maximum labor and capital substitution rate in the gas production both in Tyumen region as a whole and local Gazprom subsidiaries equal the ratio of factor price thus proving Pareto-efficient use of resources in the gas production. Based on the above the following conclusions can be made:

1. 1993–2007 Russian gas producing companies located in Tyumen region including Gazprom reached the maximum natural gas production with the set technologies and factor price with the minimum costs of labor and capital, i.e. minimum production cost.

2. With the set up technologies and factor price any change in gas production structure in Tyumen region in 1993–2007, such as Gazprom split into several independent gas production companies, would not bring any more Pareto-efficient use of labor and capital ensuring the maximum gas production output.