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IN OIL AND GAS INDUSTRY
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PAPER ABSTRACTS

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— Carry out experiment and field studies of SCC on process CS pipelines of Gazprom.

— Improve scientific, methodical and regulatory support of operation reliability of process CS pipelines of Gazprom with due account of SCC.

— Draw up requirements for new types of tubular goods, materials, methods, equipment and technologies aimed at increasing resistance of process CS pipelines to SCC.

— Develop special components of technical status management system for process CS pipelines of Gazprom, which take into account specific features of SCC defects generation and propagation.

— Provide scientific and methodical basis to regulatory documents, new types of tubular goods, methods, materials, equipment and technologies enabling higher resistance of process CS pipelines to SCC.

Implementation of the comprehensive approach will help to minimize risks of destruction of existing pipelines by timely scientifically grounded repair and rehabilitation works and ensure required reliability and stability parameters of gas pipelines under construction in areas of the probable propagation of stress corrosion processes.

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Forecasting of natural gas production from Gazprom fields in Tyumen region

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Econometric approaches are actively applied by modern economists for national economy forecasting, including natural gas production.

According to the econometric research made by the author, the power-exponential function estimated through 1984–1997

$$T_t = e^{4.01089410256} (\bar{\varphi}_{t-1(1990)})^{0.59784305826-5.5807142565 \cdot 10^{-4} G_{1984,t-1}} \quad (1)$$

is the most precise, in terms of ex post forecast principle, to forecast the natural gas production from Gazprom enterprises in the Tyumen region for 11 years in advance (1998–2008). (Where: T_t – gross natural gas production over year t ; $\bar{\varphi}_{t-1(1990)}$ – average annual fixed industrial assets value (in constant 1990 prices) over year $t-1$; $G_{1984,t-1}$ – cumulative natural gas output from the first Tyumen region industrial start-up (1963) through year $t-2$.)

Indeed, the ex post forecast (assessed absolute relative projection) error for 1998 is 1.4%; for 1999 – 2.1%; for 2000 – 1.9%; for 2001 – 0.9%; for 2002 – 0.1%; for 2003 – 0.1%; for 2004 – 0.8%; for 2005 – 2.3%; for 2006 – 1.9%; for 2007 – 1.6%; and for 2008 – 0.7%.

For 2009 the ex post forecast error makes 16%. The necessary statistic data have been inaccessible to the author, the average annual Gazprom gas-producing sector capacity utilization reflecting the gas demand swings was not included in the function (1).

For 2010 the function (1) forecasts natural gas output from Gazprom Tyumen subsidiaries as 476.3 bcm with the standard error of 10 bcm that complies with company's natural gas production plans for all its enterprises as 519.3 bcm.

2010 forecasts for other power-exponential functions $T_t = e^{a_0} (\bar{\varphi}_{t-1(1990)})^{a_1 + a_2 G_{1984,t-1}}$ studied from 1984 up to 1998–2008 and having a little higher ex post forecast errors (with the maximal one of 4.5%) were approximately the same as in the function (1) or a little higher: 482.7; 488.7; 491.0; 489.1; 485.5; 483.5; 480.7; 476.8; 474.3; 472.8; and 474.2 bcm correspondingly.