

## **Press-release concerning the operation of the “ECG SOFC” independent power installation with the power of 1500 Wt**

In 2012, an agreement between “Gazprom transgaz Yekaterinburg” LLC and “Plant of electrochemical converters” LLC (Novouralsk) was made to carry out scientific and research works for production of independent power source based on solid oxide fuel cells with the power of 1.5 kWt and with efficiency coefficient not less than 25%. Usual natural gas serves as fuel.

This type of power source has a number of obvious advantages:

- Absence of rubbing parts, their robustness and, as a result, high operating lifecycle (up to 5 years);
- Possibility to work in the cogeneration regime;
- Using natural gas as a fuel (directly from the pipe line, without any preliminary purification).

In comparison, the efficiency coefficient of thermoelectric power sources, which are used as independent power sources, is not more than 2.5 %. Joint participants of the work were the “Ural innovative technologies” CJSC and Federal state budgetary scientific organization the Institute of High-Temperature Electrochemistry of the Ural Branch of the Russian Academy of Sciences (Yekaterinburg), the leading scientific organization in production of solid oxide fuel cells in Russia.

The first sample of electrochemical **power source** based on solid oxide fuel cells with the power of 1.5 Wt was presented at Offsite meeting “Application of innovative corrosion protective systems in severe exploitation conditions of the Linear Section of Main Gasline objects of “Gazprom Transgaz Ekaterinburg LLC” at IHTE UB RAS and received many positive responses on 28<sup>th</sup> November 2013.

Block-container of electrochemical power source based on solid oxide fuel cells, made by “Progress” LLC (Saratov) by the order of “Uralintekh” CJSC, was presented and assembled at Gas separation station №4 of Maloistok local operation and maintenance department for main gas pipelines of “Gazprom Transgaz Yekaterinburg” LLC on the 6<sup>th</sup> of June 2014. The “IPS COFC-1500-220” electrochemical power source was assembled inside the block-container.

From that time, several meetings with workers of “Gazprom transgaz Yekaterinburg” and “Gazprom gaznadzor” were held. During these meetings some mistakes in the block-container construction were improved. Finally, on the 26<sup>th</sup> of November 2014, “Gazprom gaznadzor” allowed to give gas to the independent power source.

The power installation was tested for its robustness in the “winter-summer” cycle on 10<sup>th</sup> of December 2014. According to the preliminary testing regulation, the power installation had to provide the cathode protection installation and internal systems with energy supply during 1500 hours.

At present, the power supply installation has been successfully plumbed in. It has been operating already for 1500 hours in continuous way mode (without stops) without any deviations from the specified parameters. Monitoring and operation is carried out in distant mode by the employees of “Plant of electrochemical converters” LLC and IHTE UB RAS.

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