NATURAL GAS AS MOTOR FUEL FOR RAILWAYS

Russian Railways, Gazprom, Sinara Group and Transmashholding outline steps to expand use of natural gas as motor fuel

The Open Joint Stock Company Russian Railways, the Public Joint Stock Company Gazprom, JSC Sinara Group and Closed Joint Stock Company Transmashholding signed at the Russian Investment Forum in Sochi on 15 February 2018 a programme of joint measures to implement the agreement on cooperation between the four companies in the field of natural gas as a motor fuel.

The purpose of the joint activities is to expand the range of operation of locomotives running on liquefied natural gas on non-electrified sections of Sverdlovsk Railways with an increase in the weight of freight trains to 9,000 tons.

The parties to the programme will work together to develop and improve the design of gas-engine locomotives, develop the infrastructure to ensure the supply of liquefied natural gas for gas-powered locomotives, develop the infrastructure for servicing locomotives and prepare a regulatory and legal framework.

In accordance with the programme, Russian Railways plans to increase the fleet of main line gas-turbine locomotives and gas-fuel shunting locomotives operating on liquefied natural gas (LNG) by a total of 3 to 22 units by 2023.

To ensure their constant refuelling, Gazprom proposes to build two small-tonnage LNG production facilities at gas distribution stations in the cities of Tobolsk and Surgut, as well as sites for the placement of mobile refuelling tankers at Voinovka and Surgut stations.

As part of the programme during the pilot phase from 2013–2019, gas turbine locomotives hauling trains weighing up to 9,000 tons are already in operation along the 302 kilometre Yegorshino–Serov-Sortirovochny stretch, while a TEM19 gas-electric shunting locomotive is in use at Yegorshino station.

In accordance with the technical requirements of OJSC Russian Railways, domestic enterprises manufactured two GT1h mainline gas turbine locomotives and one TEM19 gas-turbine shunting locomotive running on liquefied natural gas. These engines are now in operation at the Yegorshino–Serov-Sortirovochny section of Sverdlovsk Railways.

GT1h-002. Photo http://www.rzd-expo.ru/innovation/stock/locomotives_for_alternative_types_of_fuels/

The main advantage of gas turbine locomotives with respect to other types of locomotives is the possibility to develop considerable power (8,300 kW) with relatively small dimensions and weight. Even when hauling the full load for which it was designed, the GT1h can reach speeds of up to 100 km/h.

The gas turbine built by JSC Sinara – Transport Vehicles operates on liquefied natural gas (LNG) – a fuel which meets the highest environmental standards. The exhaust gas emissions of the gas turbine engine are in compliance with the European Euro-5 environmental standard, while its level of external noise lies within the norms of the current health and safety regulations of the Russian Federation.

The pilot model of the TEM19 gas-turbine shunting locomotive is manufactured at the Bryansk machine-building plant, which is part of CJSC Transmashholding. The power of the locomotive, which is fitted with a gas piston engine that operates on liquefied natural gas that obviates the need for diesel fuel, is 880 kW.

Based on Russian Railways news: http://eng.rzd.ru/newse/public/en? STRUCTURE_ID=15&layer_id=4839&refererLayerId=4530&id=107240 ●