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RUSNANO, Russian Railways and Transmashholding sign agreement on creating hybrid locomotives

RUSNANO, Russian Railways and Transmashholding JSC signed a tripartite agreement on the creation of environmentally friendly shunting locomotives using a hybrid drive based on domestic lithium-ion storage batteries for operation at passenger stations of large cities. The signed document provides for the possibility of supplying 131 locomotives to Russian Railways within 6 years after the first machine is accepted.

The agreement was signed by Chairman of the Management Board of RUSNANO Management Company **Anatoly Chubais**, Director General and Chairman of the Management Board of the Russian Railways **Oleg Belozеров** and Director General of Transmashholding JSC **Kirill Lipa**.

Locomotives based on storage batteries are designed specifically for operation at large city depots. Their main purpose is to operate at passenger stations and in the resort areas most sensitive from the environmental perspective. In comparison with traditional locomotives, they show a significant reduction in emissions, a radical reduction in noise during operation and a lower impact of the traction fleet on the environment. The use of a hybrid drive on locomotives will allow rolling stock operators to significantly reduce costs over the life cycle.

Transmashholding JSC will develop and manufacture locomotives, while RUSNANO's subsidiary LIOTECH will supply lithium-ion traction batteries.

Shunting locomotives with hybrid drive and traction lithium-ion energy storage batteries are developed and put into operation by many advanced manufacturers of traction rolling stock in Europe, Japan, China and other countries. This is a new and actively developing direction. The locomotives manufactured by Transmashholding JSC and RUSNANO Group will become the first production machines of this type in our country. The development of hybrid locomotives is a complex and complicated project involving the development, production, certification, performance verification and subsequent maintenance throughout the life cycle, including disposal of the locomotive and storage batteries after their service life.



Transmashholding JSC has considerable experience in the development and production of innovative rolling stock and is ready to apply it in practice when creating environmentally friendly, low-noise and energy-efficient shunting locomotives. Novosibirsk Plant “LIOTECH” is the only Russian industrial manufacturer of lithium-ion storage batteries. The company’s batteries are used in autonomous electric buses and trolleybuses, electric forklifts and mining electric locomotives.

Chairman of the Executive Board of MC RUSNANO **Anatoly Chubais** said:

“A large order for hybrid locomotives from Russian Railways will allow LIOTECH and Transmashholding JSC to develop and manufacture the first batch of pilot machines highly demanded on the Russian market. According to our estimates, the Russian fleet of shunting locomotives operated by both Russian Railways and industrial enterprises includes some 18 thousand machines. In case of a transition to hybrid technology, RUSNANO estimates the market of lithium-ion storage batteries for locomotives at RUB 8 billion annually.”

Director General of Transmashholding JSC **Kirill Lipa** said:

“In the wake of the latest global trends, Transmashholding JSC is ready to create an innovative rolling stock that will not only significantly reduce atmospheric emissions, but also reduce energy consumption, thus increasing economic efficiency. We are confident that a modern shunting locomotive with a domestic hybrid drive on lithium-ion storage batteries will be in demand by our partners.”

Joint Stock Company “RUSNANO” was founded in March 2011 following the reorganization of the state corporation “Russian Corporation of Nanotechnologies”. RUSNANO supports the state policy for the development of nanoindustry by investing directly and through investment nanotechnology funds in financially effective hi-tech projects providing development of new productions in the territory of the Russian Federation. The main areas of investment are electronics, optoelectronics and telecommunications, healthcare and biotechnology, metallurgy and metalworking, energy, machine and instrument making industry, construction and industrial materials, chemistry and petrochemistry. Thanks to RUSNANO investments, there are currently 97 factories and R&D Centers opened in 37 regions in Russia. The company has been generating profit for 5 years.



The RUSNANO's asset management function is carried out by the Limited Liability Company "**RUSNANO Management Company**" established in December 2013. The Chairman its Management Board is Anatoly Chubais. The tasks of establishing nanotechnology infrastructure and implementing educational programs are carried out by the **Fund for Infrastructure and Educational Programs**, also created as a result of the reorganization of the state corporation.

Russian Railways is one of the largest railway companies in the world with huge volumes of freight and passenger traffic, possessing high financial ratings, qualified specialists in all areas of railway transport, a large scientific and technical base, design and construction capacities, and significant experience of international cooperation. The company operates one of the largest railway systems in the world with a length of 85.6 thousand km, occupying a leading position in terms of the length of electrified lines totaling 43.8 thousand km. In the Russian transport system, Russian Railways accounts for 46% of the total freight turnover (including pipeline transport).

Transmashholding JSC (TMH) is the largest Russian manufacturer of equipment for railway and urban rail transport. The company is one of the world's largest manufacturers of rail equipment. Transmashholding JSC is the core of the group creating a modern integrated transport product, which includes the development and production of rolling stock; its maintenance, repair and modernization; digital technologies in production and operation; motion control systems.

TMH creates a safe and comfortable environment for passengers, an effective and profitable cargo transportation system. The strategy of the company's presence in the world market is based on Russian experience and technologies that are used for the development of national transport engineering in other countries.

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