



RUSNANO

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RUSNANO and Energy Systems Management Company to Develop Renewable Energy Solutions in Remote Regions

RUSNANO Group and Energy Systems Management Company are starting to establish first renewable energy facilities using the energy service contract system. The plan is to install five autonomous hybrid power systems (AHPS) in a region of decentralized energy supply in the Republic of Sakha (Yakutia). AHPS is to be comprised of a photovoltaic power unit, a diesel power plant and an electricity storage system. It will also include remote automatic monitoring and management systems.

The facilities are expected to put into operation by the end of 2021. The project should help halve the consumption of diesel (a pricey fuel) from the current levels and reduce the impact on the environment stemming from electricity generation.

In July, Integrated Energy Solutions, a joint company between the Energy Systems Management Company and a RUSNANO Group subsidiary, won the tender from Yakut energy company Sakhaenergo (controlled by the RusHydro company) to build hybrid facilities. As part of the project (estimated to cost 1 billion rubles) to install five AHP systems, energy service contracts will be used for the first time in the Russian energy sector. Switching over to AHPS will not increase costs of electricity for consumers in Yakut settlements, and at the end of the 10-year payback period, they could, in fact, decrease.

According to Anatoly Chubais, Chairman of the Executive Board of RUSNANO Management Company: “We see the project as the start of a new phase in the development of the renewable power generation sector in Russia. We started with large solar and wind farms on the wholesale energy market. The next step is reaching remote areas of the Far East. Despite conventional wisdom, solar radiation levels are high in this region. Still, the use of renewable resources to ensure a reliable and, at the same time, environmentally-friendly power supply for consumers was hindered by a lack of instruments to guarantee a return on investments from such projects. The new system of energy service contracts will help with a stepwise implementation of integrated innovative solutions to supply inhabited regions, cut off from the unified transmission grid, with electricity.”

The plan is to use lithium-ion batteries, manufactured by Liotech (a RUSNANO portfolio company), in the construction of AHPS. The possibility of using other Russian made equipment made for the energy sector is also being assessed.

The Far East High Technology Fund (established by RUSNANO, RVC (Russian Venture Company) and the Far East Development Fund as instructed by Vladimir Putin and Yury Trutnev, Deputy Prime Minister and Presidential Envoy to the Far Eastern Federal District) is considering becoming a financial partner in the project.

Diesel power plants are currently used to generate electricity for remote regions of the Far East, which is pricey. The fact that diesel fuel and its delivery to remote inhabited regions is expensive as well as heavy wear and tear of equipment at power plants that are currently in use, all raise the costs of energy generation.

The installation of modern AHPS will help reduce fuel consumption and the number of hours diesel power plants operate owing to an integration of this system with photovoltaic power units into a single facility. The energy storage system will ensure that power supply to inhabited regions is stable and reliable irrespective of weather conditions and during morning or evening hours when demand for electricity peaks. The diesel power plants will be replaced with more up-to-date and energy-efficient units.

The plan is to share the experience gained with the first AHPS for generating and storing energy with other inhabited regions of Yakutia and the Far East in the future. With such an aim in mind, RUSNANO Group and EnergoSystemy (Energy Systems) Management Company are considering the possibility of establishing a joint investment fund. The generation capacity of this future portfolio of renewable energy projects in remote regions is expected to be 500 MW.

According to estimates compiled by partner organizations, the potential capacity of local renewable energy generation facilities in isolated regions of the Far East is 800 MW. And 500 MW is produced by RusHydro and its companies and subsidiaries.

The use of energy service contracts means that all the work will be financed using the money from investors with whom contracts are signed. An investor is to use its own funds as well as loans to design, deliver equipment, install and bring online the energy generation facilities. Money saved on fuel over the course of 10 years guarantees a return on investment, afterwards the ownership of the facility reverts to the client.

***RUSNANO Joint-Stock Company** was founded in March 2011 through reorganization of state corporation Russian Corporation of Nanotechnologies. JSC RUSNANO contributes to implementation of the state policy on the development of the*

nanotechnology industry by investing directly and through investment funds of nanotechnology in financially effective high-technology projects providing the development of new production facilities in the Russian Federation. Its primary investment focus is in electronics, optoelectronics and telecommunications, healthcare and biotechnology, metallurgy and metalwork, energy, mechanical engineering and instrument making, construction and industrial materials, chemicals and petrochemicals. 100 percent of RUSNANO's shares are state owned. Thanks to RUSNANO's investments, there are currently 115 factories and R&D Centers opened in 37 regions in Russia at the end of 2019.

*Management of assets of RUSNANO JSC is carried out by Limited Liability Company established in December 2013, **RUSNANO Management Company**. **Anatoly Chubais** is the Chairman of its Executive Board.*

*Work to establish nanotechnology infrastructure and carry out educational programs is fulfilled by RUSNANO's **Fund for Infrastructure and Educational Programs**, which was also established during the reorganization of the Russian Corporation of Nanotechnologies.*