Russia microgrid energy storage

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Off-grid PV has become a much more viable solution than diesel power generators to bring electricity to Russia’s remotest regions. Furthermore, solar-plus-storage is able to deliver with no interruption 24 hours per day and seven days per week, while fuel availability means diesel power can only ensure between four and seven hours per day.

According to Usachev, the levelized cost of electricity (LCOE) of recently commissioned off-grid solar-plus-storage projects ranges from RUB14-22/kWh ($0.19-0.29), which makes it much more economically viable, compared to net diesel generation.

The development of similar projects is made possible by a specific regulatory framework which enables project developers to conclude an energy service agreement of up to seven years with municipalities that have an obligation to reduce diesel consumption. “Funds are remunerated according to the diesel volumes saved on a quarterly basis,” Usachev stated, adding that diesel can still be used as back-up power in case of shortage.

“Projects that have been in operation for a year show the diesel consumption dropped up to 30% and that electricity is being provided with no interruption during 24 hours per day and seven days per week,” he affirmed. With conventional diesel power generation, fuel supply constraints mean power is currently limited to between four and seven hours per day.

The Far East federal district is the largest and the least populated in Russia. The region has the poorest energy and transport infrastructure in the nation. Russian module manufacturer Hevel Solar and other companies have already built, there, several off-grid solar projects.

Wind power microgrid for rural far-east RussiaMitsui & Co. is reporting that a pilot wind power microgrid project in an isolated Russian township began operations earlier this year. There are several hundred off-grid areas in Russia, many of them in harsh climates, which receive electricity from local power sources. The cost of fuel transportation has continued to mount for many years.

The wind power microgrid project also aims to verify the system"s effect on power and heat balance in the community, and confirm the potential for widespread implementation of such technologies in remote areas, including those with harsh climate conditions.

What happens to capable plug-in electric vehicle (PEV) lithium-ion batteries once they"ve exhausted their vehicle life? It"s not over yet, according to a new report from Navigant Research; they could be reused in stationary energy storage system applications (ESS).

Many traction batteries with Li-ion chemistries used in PEVs are showing less degradation and better performance than initially expected, sparking the interest of stationary ESS stakeholders. The used-but-capable PEV Li-ion batteries are likely to be sold at a low price, but can still provide a useful function. They could solve the problem of new batteries being too expensive in the mid-term, said the report.

"Now that we"ve entered into the modern era of mainstream vehicle electrification, today"s question is what will happen to PEV Li-ion that have exhausted their vehicle life, but still have capable batteries?" says William Tokash, senior research analyst with Navigant Research. "The potential reuse of these batteries is of keen interest to both stationary ESS developers looking to reduce costs and automotive original equipment manufacturers (OEMs) interested in new revenue models that capitalize on the residual asset value."

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