

FACTS

2.8 MILLION TONNES

Processing capacity of the four new waste to energy facilities.

75 MW

Predicted electricity generation from each of the four plants.

17,500

Illegal dumps exist in Russia at present, according to the Federal Service for Supervision of Natural Resources.

>7100

Authorised landfill sites in Russia, of which 30% do not meet sanitary requirements.



A RUSSIAN REVOLUTION IN WASTE MANAGEMENT

Over recent years the issue of waste management in Russia, and particularly Moscow, has been problematic. With landfill space running out, and anger over the situation growing, a consortium including HZI is now set to develop four large-scale waste to energy plants to serve the capital.

By Ben Messenger

The Ministry of Natural Resources and Environment of the Russian Federation estimates that around 60 million tonnes of MSW is generated each year, amounting to more than 400 kg per capita. Over 25 million tonnes of waste is produced each year in Moscow. This includes bulk waste, residential solid waste, industrial and construction site waste as well as waste from water treatment facilities.

In the Soviet era, large-scale recycling programmes were developed during the 1970s. During the 1980s, almost 30% of all paper used was recycled and consumers routinely visited glass recycling centres to return glass bottles. However, the

1990s saw the collapse of most of these programmes and nationally, Russia currently landfills around 96% of its waste.

Between 2000 and 2015 landfilling increased from 151.2 million to 282.3 million cubic metres. In 2012 the World Bank estimated that Russian landfill space was already 65-70% full. If waste generation continued to grow, by 2025 the country would need to double its capacity to accommodate waste.

Predictably, by 2017 space was running out at many key landfill sites and a decision was made to close the Kuchino landfill, one of the largest serving the Moscow region. As a result, the capital was left short of capacity. Protests followed and



With waste backing up and landfill space running out, four large-scale waste to energy plants are to be built to process Moscow's waste.

spread, and the need to properly address the issue of waste became a pressing one.

"In Russia, nobody paid serious attention to waste management or waste disposal and this is why it's a challenge for us and we have to find the best possible way to do it," Andrey Vikharev, the acting head of the Istra District in the Moscow region, told the news outlet New Europe. "Certainly we're lagging behind Europe in this regard but for us, it's kind of an advantage because we can get the experience that Europe has accumulated already and get the technologies that have proved to be most efficient."

WASTE TO ENERGY TO THE RESCUE?

The idea of waste to energy is relatively new to the Moscow region, and Russia in general. However, a consortium consisting of the Swiss clean-tech firm Hitachi Zosen Inova (HZI) and the Russian technology company ZiO-Podolsk was awarded a contract to develop four major facilities by Russian power plant operator Alternative Generating Company-1 (AGC-1). The plants will make a substantial contribution to reducing the number



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The four plants will all be of a similar design and incorporate HZI technology including the grate, the water-steam cycle, and a multi-stage flue gas treatment system.

“THE INTEGRATION OF EFW TECHNOLOGY IS AN IMPORTANT MILESTONE IN THE INTRODUCTION OF A PROGRESSIVE AND SUSTAINABLE WASTE MANAGEMENT ECONOMY IN RUSSIA.”



Andrey Shipelov
CEO of RT-Invest

of landfill sites by treating the residual waste of around 5 million inhabitants, while at the same time delivering some 300 MW of electricity, enough for around 1.5 million people.

The developments are backed by a consortium of investors, including the Russian Direct Investment Fund (RDIF, Russia’s sovereign wealth fund) as well as Middle Eastern sovereign wealth funds.

“The investments made by RDIF and our partners in RT-Invest’s project are aimed at implementing the tasks set out by the national project ‘Ecology’,” says Kirill Dmitriev, CEO of the Russian Direct Investment Fund. “The new plants will help improve the efficiency of waste processing and create additional energy-generating capacity. They will also be able to apply best practices in the sector, with the potential of further deployment across the Russian regions.”

“The urgent need to address environmental issues has led to a growing interest in innovative Russian projects from international businesses,” adds Andrey Shipelov, CEO of RT-Invest. “Cooperation with international partners helps to introduce the most advanced and science-driven technologies to the waste management industry. These investments from our international partners are testament to the project’s quality, highlighting its environmental character-

istics and compliance with international quality standards.”

Construction of the first plant has already begun around 80 km southeast of the city centre. The new plants form part of the Green Tariff, a programme to promote renewable energy that was launched in 2017. In addition to subsidies, the new facility will be funded by waste disposal fees and the sale of electricity and bottom ash.

According to HZI, the waste to energy plants will help the city optimise its waste management by closing and steadily reducing its many landfill sites. Each plant will process some 700,000 tonnes, totalling around 2.8 million tonnes, of residual waste per year.

ADAPTING TECHNOLOGY TO LOCAL NEEDS

The four plants will all feature a similar design and have incorporated HZI technology that is already in use at several hundred sites around the world. This includes combustion with the HZI Grate, the water-steam cycle, and a multi-stage HZI flue gas treatment system that meets all European emissions standards and even falls well below the current limits.

However, geographical factors pose additional challenges in terms of construction and installation. “The weather and climate here are different to Central Europe, for instance, and we have had to take account of this in the structural design,” explains Urs Altenburger, the sales manager responsible at HZI. “Some technical systems that are normally placed outdoors have been moved indoors in order to protect them from the extreme cold in winter.”

Once operational, the four plants will bring benefits to the Moscow region in terms of waste management – the project will help reduce the share of MSW disposal in the Moscow region by 30%. The local economy will also profit, since much of the equipment and materials used will be Russian. A large number of jobs will also be created. Around 130 people will be needed to operate each completed plant, and up to 800 will be working on each site at any given time during construction.

Commissioning of the plants is planned for 2021-2022. Watch this space. —