

ENVIRONMENT

Environmental considerations and commitments underpin all our managerial and production decisions. We are aware of the environmental impact of our operations and the environmental risks inherent in coal mining, washing and shipment. We are also aware of our responsibility to help protect and preserve the environment for present and future generations.



OUR PRIORITIES:

Create conditions that facilitate employee involvement in environmental risk mitigation activities, and improve our environmental management system and performance indicators;

Improve the company's environmental management system and relevant performance indicators;

Allocate relevant financial, engineering, human and other resources for these purposes and ensure their efficient use; and

Disclose environmental reports, ensuring transparency of environmental information, and engage public and local authorities in preparing, discussing, making and implementing environmental decisions.



Wastewater quality control in Khakasia

Our approach

Ensuring environmental safety, minimising ecological risks and maximising environmental protection measures are an integral part of SUEK's sustainable development strategy. Our programmes in the field of environmental protection include measures to reduce emissions, protect water resources, process and dispose of waste, reclaim land and achieve energy efficiency. These initiatives contribute to the sustainable development of the regions where we operate, improve the quality of people's lives, help us reduce operational risks and enhance our overall performance. In addition, we participate in international and Russian projects aimed at the prevention of climate change and biodiversity conservation; among other initiatives, these include the Clean Coal Association, the Russian National Carbon Agreement, the Bureau of Best Available Technologies technical working group, and the Mainstreaming Biodiversity Conservation into Russia's Energy Sector Policies and Operations project.

Our approach to environmental safety is enshrined in SUEK's Environmental Policy. This document defines our principles, commitments and mechanisms for implementation in the field of environmental protection. It provides the foundation for the development and delivery of all our environmental programmes and initiatives. In addition, our Environmental Policy is based on the environmental legislation of the Russian Federation. The company also adheres to international law and the precautionary principle as an approach to environmental risk reduction.

At SUEK's facilities in Khakasia, Krasnoyarsk and Kemerovo, we have an environmental management system in place that meets the requirements of the ISO 14001:2004 international standards. Our sites regularly undergo independent external audits to assess their management systems against these standards. In 2016, SUEK's facilities in Khakasia were certified and recertified for compliance with these standards.

We also provide training so our employees can enhance their environmental knowledge and qualifications. We collaborate with research bodies and expert organisations to introduce innovative and efficient environmental safety technologies. And we regularly publish information relating to the results of our sustainable development projects.

SUEK invested \$11m in environmental activities during 2016.

SEE SUEK'S POSITION ON CLIMATE CHANGE ON OUR WEBSITE WWW.SUEK.COM/EN/SUSTAINABILITY/ENVIRONMENT/



FOR MORE INFORMATION ABOUT ENVIRONMENTAL STRATEGIC PRIORITIES AND KPIS, SEE PAGE 41; FOR RISK MANAGEMENT SEE PAGE 49.

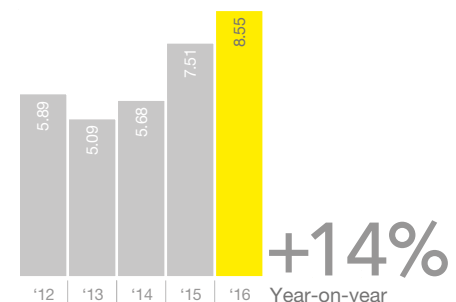


Air

In order to improve mine safety, we regularly conduct gas drainage within our mines. This process results in methane (natural gas) emissions, which account for 88% of SUEK's total air emissions.

In all our mining areas, where methane content exceeds 10 m³/tonne of coal, we carry out comprehensive gas drainage which includes the preliminary removal of gas from working coal seams, and the extraction of gas from mined-out areas. It is achieved via drilled surface holes and mine openings.

Methane utilisation (million m³ of CH₄)



Public recognition in 2016

In 2016, our environmental projects won a number of awards:

Winner of the 'Best Comprehensive Solution in the Field of Green Technologies' category at the Evolution Awards. These Awards recognise achievements relating to environmental aspects of sustainable development within the Russian Federation, including the development and use of green technologies. The key projects presented by SUEK were 'Clean Water' and 'Clean Air'. The core of the 'Clean Water' project is the construction of wastewater treatment facilities at the Rubana mine in Kuzbass. Unique for the coal industry, these facilities treat water used in production processes and return it to the environment cleaner than before being used. The 'Clean Air' project aims to guarantee the full recovery of methane emissions from longwalls, therefore limiting greenhouse gas emissions. This project has been successfully implemented at SUEK Kuzbass mines.

Winner of the 'Clean Production Development' category at the EraEco Awards, for measures aimed at reducing the negative impact of industrial operations on the environment, with support from UNIDO (United Nations Industrial Development Organization) and the Ministry of Natural Resources of the Russian Federation. These measures encompassed initiatives aimed at the reduction of emissions (including methane usage), the management and treatment of wastewater (in particular, the use of clean technologies at the Rubana mine), land reclamation (joint project between the Chernogorsky open pit and the Khakasia Research Institute of Agrarian Problems on biological land reclamation), improving energy efficiency, and the conservation of biodiversity in the regions where SUEK operates.

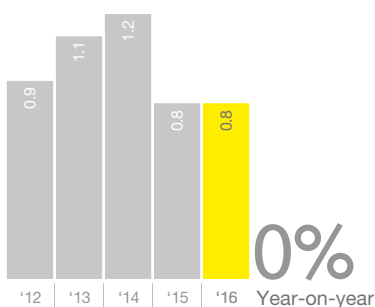
In 2016, as part of our commitment to reducing our environmental impact and supporting the Paris agreement on climate change, we continued to utilise captured methane for power generation and boiler combustion, thereby reducing greenhouse gas (GHG) emissions into the air. Our Kirova and Komsomolets mines are equipped with recovery systems and engine plants that capture gas and use it to generate heat and electricity. In 2016, we utilised 8.55 million m³ of methane captured from mined-out areas.

The rest of our air emissions relate to CO₂, NO_x and SO₂, which are below the limits prescribed by Russian legislation.



Additionally, we work to decrease dust emissions across the whole production and transportation cycle from mine to port. We use state-of-the-art technology for the vacuum collection, transportation and discharge of fine coal dust at our washing plants in Khakasia, Buryatia and Vanino Bulk Terminal. In 2016, we carried out the pre-project modelling of shields that will suppress over 80% of the dust generated at Murmansk Commercial Seaport. The design works are planned to be finalised by the end of 2017. We also launched a fog-generation dust suppression system, which allowed us to reduce dust generation by 49%, along with storm water treatment facilities to be commissioned in 2017.

The effect from methane utilisation (\$m)

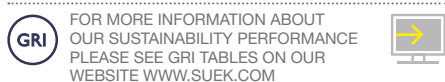


Water

Most of the wastewater used by the company during its production cycle is natural water that is pumped out of mining areas during mining operations, with characteristics typical of local groundwater. The company does not withdraw water from sources believed either to be vulnerable and protected by the state, or especially valuable for local communities and biodiversity.

SUEK production sites are equipped with facilities for treating industrial wastewater and sewage. Through our continuous pollution-control and resource-conservation efforts, in 2016 our suspended and dissolved solids in wastewater level decreased to 0.23 kg per tonne of production, or by 9% year-on-year.

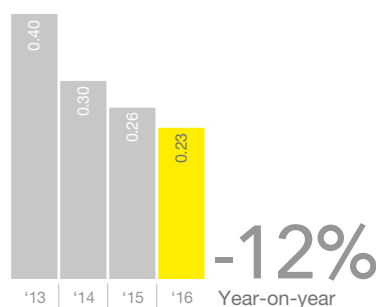
In 2016, we continued to design and construct advanced treatment facilities for mine, open-pit and household wastewater, and we overhauled our existing water supply and sewage system. These efforts should further reduce the concentration of solids in wastewater at a number of our facilities.



Energy efficiency

As part of the Russian government's nationwide energy-efficiency initiative, SUEK has developed and implemented an Energy Saving and Energy Efficiency Programme designed to reduce the company's energy consumption.

Suspended and dissolved solids in wastewater (kg per tonne of production)



In addition to its economic benefits, this programme enables us to achieve an important environmental objective, as reducing our energy consumption helps to minimise our overall impact on the environment.

In 2016, these measures helped us to reduce our rate of electricity consumption per unit of output by 5% compared to 2015. Our electricity consumption rate per m³ of rock extracted decreased by 6% year-on-year.

We also achieved other energy-efficiency targets: utilisation time and the diesel consumption of our dump trucks per tonne-kilometre.

Since 2014, we have been running an Energy Saving staff incentive Programme for energy efficiency performance improvement. In 2015-2017 we plan to reduce the consumption of key energy resources by an average of 4-5% per m³ of extracted rock.

To implement our Energy Efficiency Programme, in 2016 we carried out the following activities:

- Scheduled replacement of eight obsolete excavators with modern, energy-efficient models;
- Upgraded excavator control and power supply systems at the following open pits: Chernogorsky in Khakasia, Vostochny in Zabaikalye and Borodinsky in the Krasnoyarsk region;
- At the Tugnuisky open pit we commissioned an ESh-20/90 dragline, with innovative switched reluctance drives for pull, lift and swing. As a result, the unit power consumption reduced by 55% and productivity increased by 10%;
- Automated pumping stations at the Kharanorsky and Vostochny open pits in Zabaikalye and the Tugnuisky open pit in Buryatia;
- Implemented voltage stabilisation programmes in the Yallevskogo and Rubana mines in Kuzbass;
- Reconstructed power-supply networks at the Yallevskogo and Kotinskaya mines in Kuzbass;
- Scheduled energy audits at our facilities in Buryatia, Khakasia, Khabarovsk, Primorye and Zabaikalye;

- In Krasnoyarsk and Khakasia, introduced energy management systems, including incentive schemes designed to reduce energy consumption by promoting best practices and ensuring staff are engaged and interested; and
- At all sites, optimised production processes to boost the operating efficiency of energy-consuming equipment through reducing idle time and route optimisation.

We also made considerable efforts to improve the reliability of metering data for energy consumption. All the company's energy-intensive facilities now have automated measurement systems in place that quantify the financial value of the electric power we consume. We use these systems to clarify and calculate settlements with electricity suppliers for all SUEK sites.

Across SUEK facilities, we have a number of systems designed to track energy consumption for commercial purposes. In addition, all fuel-consuming machinery has been equipped with automated control systems, including a performance-monitoring system for mine trucks and other transport. This has enabled us to develop an effective system to control fuel consumption based on reliable instrumental measurements.

Land reclamation and biodiversity

None of SUEK's production sites are situated on protected or natural reserve areas; no rare or endangered species of animals, plants and fungi have been identified at our operational sites.

Most of the waste generated from coal mining consists of non-hazardous overburden, which is stored in internal and external dumps. This is used for filling sinkholes, backfilling and reclaiming land disturbed by mining operations, in accordance with approved programmes for the use of mineral-resource deposits.



We run extensive reclamation projects on land disturbed by SUEK mining projects, including rock-dump levelling, soil remediation, tree planting and landscaping. For many years, we have been conducting a unique land-reclamation and research

project in partnership with the Research Institute of Agrarian Problems of Khakasia, with the aim of developing recommendations on biological forestry restoration.

This process involves the creation of 'biodynamical' focal points in the hollows between coal dump ridges. In the autumn, the rock waste in the hollows becomes seeded with grass, bushes and trees, which we treat with bio-fertilisers. During the winter, the seeds are protected by snowfall from wind and solar radiation. They then emerge in the spring to create a humus layer that allows plants to spread across the dump areas, helping to improve floral diversity and grass cover. In seven to ten years, this reclamation method can transform coal dumps into comprehensive ecosystems.

In 2016, SUEK supported the construction of two major projects: the Sable Rehabilitation Centre in the Barguzin State Nature Biosphere Reserve, and the Seal Centre in Zabaikalye National Park.

We also launched a new environmental charity project in Kiselevsk, Kemerovo region. Called 'Save the Leopard Together', this project aims to raise funds for the Land of the Leopard National Park in Primorye. We also encouraged and enabled the town of Borodino, Krasnoyarsk region, to organise a charity fair supporting the rare Far Eastern leopard.

 FOR MORE INFORMATION ABOUT OUR SUSTAINABILITY PERFORMANCE PLEASE SEE GRI TABLES ON OUR WEBSITE WWW.SUEK.COM 

Tyre-recycling in Khakasia

In December 2016, a tyre-recycling project was launched in the city of Chernogorsk (Khakasia), the aim of which is to convert worn dump-truck tyres into new products: tiles for injury-free sports coatings, as well as rubber granules for road surfacing. This recycling unit has enough capacity to recycle all the worn tyres from every SUEK mine and open pit in the region, and the recycling process it uses is completely environmentally safe.

The rubber granules, when mixed into road asphalt, improve grip and make road surfaces more resistant to temperature change. Rubber gives elasticity to the surface and prevents it from cracking through expansion or contraction. Porous rubber tiles, meanwhile, can be used as an injury-free coating for sports grounds. Such an integrated recycling processing is primarily aimed at reduction of the amount of waste and re-using tyres to extend their life cycle.

