

# ENVIRONMENT



We aim to develop our business in a sustainable manner, ensuring our present activities enhance, rather than compromise, environmental conditions and quality of life for future generations. For this reason, in all our programmes and investment decisions we consistently look to address environmental issues and concerns.

#### Priorities:

- Create conditions that facilitate employee involvement in environmental risk mitigation activities, and enable the improvement of our environmental management system and production indicators;
- Allocate relevant financial, engineering, human and other resources for these purposes and ensure their efficient use; and
- Disclose environmental reports, ensuring transparency regarding environmental information, and engage public and local authorities in preparing, discussing, making and implementing environmental decisions.

**Our approach**

SUEK is highly aware of the environmental impact of its operations and the environmental risks inherent in coal mining and processing. Consequently, we view environmental protection as an integral part of our business. When planning our operations, we carefully assess environmental risks and seek to minimise environmental impact. In 2015, we invested \$15m in environmental activities.

Fully committed to the concept of sustainable development, we have implemented a range of projects designed to gradually mitigate our impact on the environment. These include the reduction of hazardous emissions, responsible water usage, waste disposal and processing, land reclamation and energy efficiency. We also participate in global initiatives aimed at averting climate change and preserving biodiversity.

We are guided by international practice in the field of environmental management, including the ISO 14001 environmental management system standards. Our production facilities are regularly audited by independent auditors who assess our compliance with these and other standards. In 2015, our Chernogorsky open pit and washing plant and Vostochno-Beisky open pit in Khakasia were certified ISO 14001:2004-compliant.

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

**Air**

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

In all our mining areas, we carry out comprehensive gas drainage where methane content exceeds 10 m<sup>3</sup>/tonne of coal, 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.

In 2015, as part of our commitment to reduce our environmental impact and support the Kyoto Protocol agreements, we continued to utilise captured methane for power generation to reduce greenhouse gas emissions into the air.

Our Kirova and Komsomolets facilities are equipped with gas recovery systems and gas engine plants that capture gas and use it for the generation of heat and electricity. In 2015, we utilised almost 7.51 million m<sup>3</sup> of methane captured from mined-out areas, including:

- 2.9 million m<sup>3</sup> for electricity generation;
- 1 million m<sup>3</sup> for boiler combustion; and
- 3.6 million m<sup>3</sup> for flare combustion.

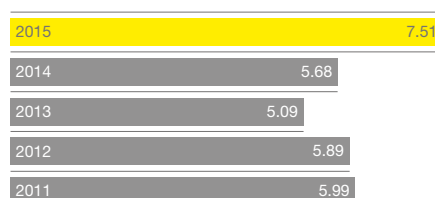
The rest of our air emissions relate to CO, NO<sub>x</sub>, SO<sub>2</sub>, which are below the limits prescribed by legislation.

Additionally, we work to decrease dust pollution across the whole production and transportation cycle – from mine to port. We have recently introduced state-of-the-art technology for the vacuum collection, transportation and discharge of fine coal dust at our washing plants in Khakasia and Buryatia. In 2015, we completed a key stage of the Vanino Bulk Terminal modernisation programme for coal dust suppression; the terminal is now equipped with fog generation units.

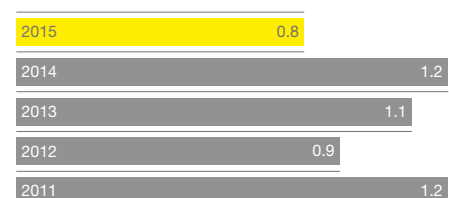
FOR OUR POSITION ON CLIMATE CHANGE SEE PAGE 63.



**Methane utilisation**  
(million m<sup>3</sup> of CH<sub>4</sub>)



**The effect from methane utilisation**  
(\$m)



## Water

The Group's production sites are equipped with industrial wastewater and sewage treatment facilities. Most of our wastewater is natural water that is pumped out of mining areas during mining operations, with characteristics typical of local groundwater.

Through our continuous pollution control and resource conservation efforts, in 2015 our wastewater pollution levels decreased to 0.26 kg per tonne of production, or by 11% year-on-year.

In 2015, we continued efforts to design and construct advanced treatment facilities for mine, open-pit and household wastewater, and overhauled our existing water supply and sewage system. These efforts should further reduce the concentration of pollutants in wastewater at a number of our facilities. During the year, we implemented the following projects:

- Design of a treatment facility for mine and household wastewater at our Taldinskaya-Zapadnaya 1 mine;
- Design of a mine water treatment facility at our Severnaya mine in the Khabarovsk region (Urgal);
- Design and construction of a physical and chemical treatment facility for industrial and household wastewater at our Pavlovsky open pit in Primorye;
- Design of a mine water treatment facility at our Vostochno-Beisky and Izykhsky open pits in Khakasia.

## Energy efficiency

Our 'Energy Saving and Energy Efficiency Programme' is designed to reduce the company's energy consumption and production, thereby minimising our overall environmental impact.

At each of the Group's facilities, we regularly measure and monitor our main energy-consuming equipment, which enables us to plan energy consumption and costs more effectively. In addition, as part of our analysis of the Group's energy balance, we conduct detailed energy audits on a regular basis.

Since 2014, we have been running an energy-saving incentive programme for staff. We have also developed ambitious energy efficiency plans for 2015-2017, when the consumption of key energy resources is expected to be reduced by an average of 4-5% per m<sup>3</sup> of extracted rock.

By implementing this project, we intend to:

- continue to commission modern, highly efficient equipment;
- upgrade our main production and auxiliary equipment;
- introduce an integrated automated system to control electrical equipment;
- equip new machines with fuel consumption metering and performance monitoring systems;
- use additional equipment to reduce the consumption of energy resources;
- introduce energy management systems, including incentive schemes designed to reduce energy consumption by promoting best practice and ensuring staff are engaged and interested; and
- optimise production processes to boost the operating efficiency of energy-consuming equipment through idle time reduction, route optimisation etc.

In 2015, SUEK's electricity consumption rate per unit of output decreased by 6% compared to 2014. This strong decline in energy consumption was driven by the commissioning of modern high-performance, energy-efficient equipment such as excavators and mining trucks. In addition to purchasing new equipment, we have focused on the upgrade of existing equipment to cut down energy consumption. For example, we have upgraded excavators operating at the Borodinsky, Berezovsky, Nazarovsky, Chernogorsky and Vostochno-Beisky open pits.

At our facilities in Khakasia and Krasnoyarsk, we also introduced an energy management system in 2015 that should allow SUEK facilities to systemise and standardise energy efficiency efforts.

We also made considerable efforts to improve the reliability of metering data for energy consumption. Many of the Group's facilities now have automated measuring systems in place that quantify the financial value of electric power consumption. At our high-consuming facilities, these systems are used to clarify and calculate settlements with electricity suppliers.

Across the SUEK Group's facilities, we have a number of systems designed to track energy consumption for commercial purposes. In 2015, we introduced a system that tracks consumption for technological purposes, focusing on individual pieces of equipment in specific production areas. We also set up a single energy control office for the entire Kuzbass region, as well as a single control system for our production units in Khabarovsk (Urgal).

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 fuel consumption management system based on reliable instrumental measurements.

## Total wastewater

(million m<sup>3</sup>)

2015	106.2
2014	103.3
2013	110.1
2012	158.3
2011	168.3

### Land reclamation and biodiversity

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

On lands disturbed by SUEK mining projects, we run extensive reclamation projects, including rock dump levelling, soil remediation, tree planting and landscaping. In partnership with the Research Institute of Agrarian Problems of Khakasia, for many years we have been conducting a unique land reclamation and research project, the aim of which is to develop 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 the spread of plants 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.

Furthermore, as part of our cooperation with the Global Environmental Facility (GEF) and the United Nations Development Programme (UNDP), we are now supporting the implementation of the Mainstreaming Biodiversity Conservation into Russia's Energy Sector Policies and Operations project. We also finance the environmental outreach campaign of the Nature foundation within the Russian Geographic Society Festival intended to defend Far Eastern leopards and Amur tigers and support activities of the Leopard Land Park in the Primorye region.

### Supporting Leopard Land Park

In 2015, SUEK launched a programme of support for the Leopard Land Park in the Primorye region. The Land of the Leopard National Park was founded in 2012, following a decree from the Russian Government. This project focuses on protecting rare feline species, and comes under the patronage of the Chief of Staff of the Presidential Executive Office, Sergei Ivanov.

The Park has been instrumental in saving the Amur leopard, one of the world's rarest feline species, and driving up their numbers. Today, experts believe there are about 80 Amur leopards in the wild, most of them living in Primorye. During 2015, SUEK provided financial support for a number of conservation activities within the Park. We also provided funding for a series of outreach and promotional campaigns for the Nature Foundation and the Russian Geographic Society, also aimed at protecting Far Eastern leopards.

In September, SUEK earned the right to name one of the Primorye leopards following a charity auction at the Eastern Economic Forum, the proceeds from which were donated to the Land of the Leopard National Park. We held a naming competition among SUEK employees and their families, finally deciding on the name Aman, after the Governor of the Kemerovo region, Aman Tuleev.