

# Advancing technology, enhancing environmental safety

**Q:**

**How does SUEK involve stakeholders in its environmental decisions for production facilities?**

**A:**

*We arrange public hearings to present new technology we plan to introduce at any of our production facilities that are subject to state environmental review. We keep our stakeholders informed about any planned projects and the possible impact they might have on the environment. Any suggestions received during public hearings are analysed and, if appropriate, the relevant project documents are adjusted accordingly.*

*In 2019, we held public hearings on a project for the utilisation of ash and slag, generated when processing waste from our power plants, for construction and land rehabilitation purposes. During the hearing, the local community and municipal authorities had no objections to use these types of materials in construction and land reclamation.*

**Konstantin Kushnir,**  
Deputy Technical Director for Environmental Protection, Energy



## Our priorities

- Improving the environmental safety of our production operations and environmental management system
- Engaging employees in environmental risk mitigation, enhancing our environmental management system and environmental performance
- Pursuing a transparent environmental policy, disclosing environmental reporting, engaging communities and local governments in the preparation, adoption and implementation of environmental protection initiatives

## Our regulatory framework

- Russian environmental laws
- Our environmental policy
- Our energy policy
- Our compliance policy
- Our coal quality policy
- ISO 14001 standards
- ISO 50001 standards
- Bettercoal Code
- UN Global Compact
- UN SDG's



## Our approach

Our strategic environmental priorities are closely linked to the UN SDGs and focus on the sustainable development of the regions where we operate.

The importance of environmental safety is enshrined in SUEK's Environmental Policy developed in accordance with Russian and international environmental laws and the precautionary principle. Furthermore, our environmental management strategy is set out in the company's Compliance Regulation of licensed activities and environmental management, and Compliance Policy.

Our corporate environmental safety system covers all operational cycle stages, from coal mining to shipment in ports, along with heat and electricity generation.

See SUEK's environmental measures on our website <http://www.suek.com>

SUEK's coal mining and port facilities in the Republic of Khakassia, Krasnoyarsk and Primorye, Kemerovo and Murmansk regions run environmental management systems that meet the requirements of the ISO 14001 international standards, which is regularly confirmed by external audits. In the future, we plan to certify the company's remaining production assets for compliance with ISO 14001.

# \$48.2 m

invested in environmental protection in 2019

All our policies can be found on the company's website <http://www.suek.com>

## Environmental management structure



- Monitoring the implementation of the environmental safety and environmental protection strategy



- Monitoring environmental safety plans
  - Coordinating the development of environmental protection measures



- Strategic planning
- Development of corporate-wide policies and standards
- Improvement of the environmental management system
- Operational management



- Operational activities

Key areas of SUEK’s environmental activities:

- Development of an integrated environmental management system and an energy management system in accordance with the ISO 14001 and ISO 50001 standards, respectively
- Implementation of programmes to improve environmental safety, including projects for:
  - The responsible use of natural resources
  - Lower atmospheric pollution
  - Wastewater treatment and responsible water consumption
  - More efficient recycling of waste and secondary raw materials
  - Land rehabilitation

Our environmental safety strategy and initiatives are directly overseen by SUEK’s Board of Directors and Industrial Safety Committee of the Management Board. In 2019, we unified our approach to environmental issues across all of our businesses. To improve the control and quality of our environmental programme, in every segment we have a dedicated department focused on refining the environmental management system and supporting operating activities.

Management are given environmental KPIs. The implementation of environmental programmes is also included in the KPIs for the technical directors of our ports.

See more about SUEK’s environmental KPIs in the Strategy section on pages 32.

**GRI**

See detailed environmental indicators in our Sustainable Development Report for 2018-2019 and in the GRI tables on pages 158–168.

**Supplier environmental assessment**

Compliance with environmental requirements is included as a prerequisite in contracts with organisations that operate at our facilities. We monitor their compliance throughout the entire period of their engagement, with non-compliance leading to contract termination. SUEK is currently developing standard regulation of contractor environmental protection standards, which will be included in all contracts.

**Air protection**

**Minimising emissions of SO<sub>2</sub>, NO<sub>x</sub> and other pollutants**

In coal-fired power generation, controlling the level SO<sub>2</sub>, NO<sub>x</sub> and of solid emissions is the main priority when it comes to environmental protection.

To improve the environmental situation in the cities where we operate, we use:

- Advanced dust-collecting equipment (electrostatic precipitators, cyclone collectors), which allow us to catch up over 99% of fly ash and other solids
- CHPPs equipped with the above filters, instead of old boiler houses, for supplying heat to local people
- Upgraded equipment and advanced coal burning technologies
- Tall exhaust stacks (over 120 metres on average)

In the reporting year, we replaced electrostatic precipitator at the Biyskaya CHPP.

Thanks to our efforts, emissions from SUEK’s generating facilities are not increasing and are overall significantly lower than the legal maximum limits.

In coal mining, SUEK’s emissions of CO, NO<sub>x</sub> and SO<sub>2</sub> are insignificant and well below the limits set by Russian law. In 2019, specific pollutant emissions per tonne of coal increased due to a cut in production, while gross emissions decreased.

**Reducing greenhouse gas emissions**

SUEK recognises the need to address climate change and supports global programmes to reduce greenhouse gas emissions into the atmosphere. The co-generation of heat and electricity at our plants helps us to markedly reduce CO<sub>2</sub> emissions per unit of generated energy due to the higher efficiency of the plants. Therefore, one of our main initiatives to reduce GHG emissions is replacing standalone boiler houses with combined heat and power plants.

**Replacing boiler houses with co-generated heat enables SUEK to:**

- Reduce specific fuel consumption for heat generation by 32%
- Reduce CO<sub>2</sub> emissions by about 9 Mt a year compared to separate generation of heat and electricity

One of the most ambitious boiler replacement programmes is now underway in Krasnoyarsk. By 2024, we plan to replace at least 35 boiler houses. At the same time,

In 2018, our mining units were assessed for compliance with the Bettercoal Code. In 2019, we continued to roll out the best practices recognised by Bettercoal experts across our facilities:

- Installation of advanced modular water treatment systems
- Installation of closed water circulation systems

- Increasing of utilisation of waste in economic activities
- Land reclamation

We also continued to progress SUEK’s comprehensive energy efficiency programme aimed at reducing energy consumption.

we reconstruct heat distribution networks to reduce heat loss.

We are also taking additional measures to improve the environmental situation in the city. In 2019, we completed construction of the body for a new stack 275 metres tall at the Krasnoyarskaya CHPP-1. Stack No. 2 is scheduled for demolition in 2020, after which all boilers will be connected to the new stack. Along with the modernisation of outdated equipment, the installation of new high-performance electrostatic precipitators, the reconstruction of city heat networks, the replacement of boiler houses and the use of smokeless briquettes by private households, this will reduce emissions in Krasnoyarsk by 37%.

Coal mining releases methane, which is pumped out of mines to ensure they are safe for mine workers. As part of measures to reduce our environmental impact and contribute to the Paris Agreement, we work to maximise the utilisation of mine methane, and thereby minimise our total emissions. Our Kirov and Komsomolets mines are equipped with methane recovery systems and gas engine plants that capture gas and use it to generate heat and electricity. In 2019, the company utilised 4 million m<sup>3</sup> of methane captured from mined-out areas.

We also plant trees and shrubs to offset CO<sub>2</sub> emissions. In 2019, we landscaped the sanitary protection zone around our industrial sites in Chernogorsk and planted trees in its parks and public gardens and also in the cities of Zabaikalye, and the Krasnoyarsk and Kemerovo regions.

### Suppressing dust

We also work to reduce dust emissions across the whole production and transportation cycle, both to improve working conditions for our employees and protect the surrounding areas from dust.

At our open-pit mines, washing and power plants, we use special equipment to reduce the concentration of dust in atmospheric emissions:

- Cleaning machines in Khakassia and Buryatia
- Sprinkling and spraying equipment and fog-generating units at our open-pit mines
- Advanced automated fog-generating equipment turning water into thick fog, which envelops finest dust particles within a range of 50 metres, preventing the spread of dust clouds. In 2019, this equipment was commissioned in the Zabaikalye and Krasnoyarsk open-pit mines
- Telescopic pipes of CHPPs which enclose coal discharged from belt conveyors to the stockpiles located below

All of SUEK's units carefully monitor the air quality in the sanitary zone using our own environmental laboratories or by engaging third-party accredited laboratories.

At our ports, we have introduced the world's foremost technologies to minimise SUEK's environmental impact when handling dusty goods. As part of our large-scale environmental programme, we have installed:

- Dust control system consisting of stationary and mobile units with a 'winter package'
- Vacuum units
- Automatic spraying of intra-port roads
- Telescopic enclosures on conveyor discharge points

We have continued a project to construct dust and wind shields at all of our ports. We made progress on the necessary design and research work at Vanino Bulk Terminal in the reporting year, while at Maly Port we installed about 100 m of protective shields. The majority of the shields at Murmansk Commercial Seaport were fully installed in 2019 and the whole project is scheduled for completion in 2020.

At the Murmansk and Maly Ports, we replaced the reloading grapples with bigger models, to reduce dust in the areas where coal is handled. At Vanino Bulk Terminal, two shiploaders and a stacker-reclaimer were equipped with dust suppression and spraying systems.

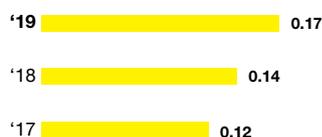
In 2019 we also commissioned the Environmental Dispatching Office at our Murmansk Commercial Seaport, with environmental forecasting functions. We plan to introduce a similar system based on the existing local monitoring system at Vanino Bulk Terminal.

*Read more about Environmental Dispatching Office on page 73.*

### Pollutant emissions per unit of electricity (CO, NO<sub>x</sub>, SO<sub>2</sub>), kg/kWh



### Pollutant emissions per tonne of coal (CO, NO<sub>x</sub>, SO<sub>2</sub>), kg/t



### GHG emissions per revenue, kg CO<sub>2</sub>e/\$

