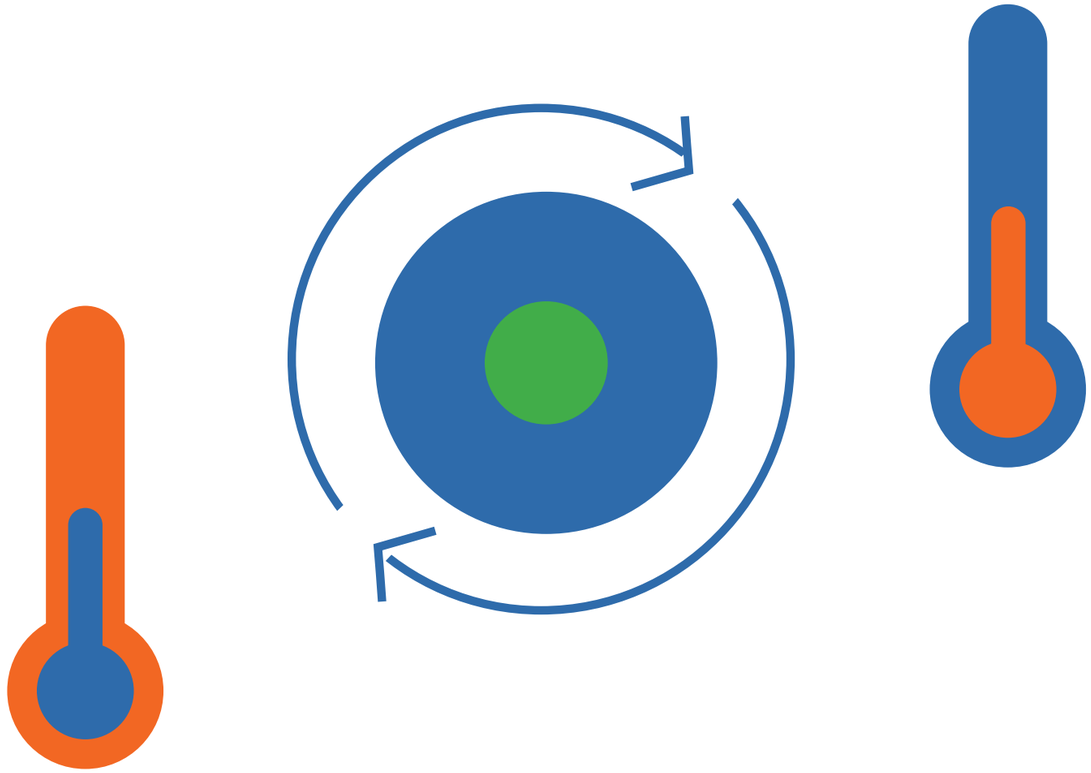
ENERGY EFFICIENCY AND CLIMATE CHANGE

ENKA IS AWARE OF THE NEGATIVE EFFECTS OF CLIMATE CHANGE AND GREENHOUSE GAS EMISSIONS AND CONDUCTS ITS ACTIVITIES WITH EFFORTS TO MINIMISE ITS NEGATIVE IMPACTS ON THE ENVIRONMENT AND CLIMATE.



Climate change risks are assessed by the Early Identification of Risks Committee and Risk Management Working Group at ENKA. Climate change related risks covers multiple high risk types. ENKA implements a risk management approach against climate change related transition risks and physical risks. ENKA carefully follows the legal and technological developments within the scope of transition risks and carries out various practices at the points where there is a risk. Thus, ENKA realizes the importance of good management of all Environmental, Social, Governance (ESG) risks, including climate change, in terms of reputation, foreign investment and financing and it implements appropriate policies and strategies.

Both acute and chronic physical effects of climate change are increasing worldwide day by day. Especially in our country and in all regions where ENKA operates, the intensity of acute effects such as extreme climate events, heatwaves and heavy rains have increased in recent years. Against these risks, scenario analyses are conducted at ENKA İnşaat operations and ENKA Power Plants and weather conditions are carefully monitored. In all ENKA İnşaat projects, assessments are carried out for the environmental and social impacts of the project. Specifically, in the projects where work activities are conducted in close proximity to water bodies, watershed regulations are considered and additional emergency procedures are intently applied against incidents such as flooding.

ENKA keeps regular records of the energy and fuel consumptions of its subsidiaries and it has been regularly calculating its carbon footprint and reduction amounts as a result of improvement efforts and measures undertaken since 2016.

ENKA's fuel and energy consumption in 2019 is summarised in the table below.

REGION/ LOCATION	FUEL CONSUMPTION	ENERGY CONSUMPTION		AMOUNT OF ENERGY SOLD
	FOSSIL FUELS (TJ)	ELECTRICITY (TJ)	HOT WATER CONSUMPTION FOR HEATING & COOLING PURPOSES (TJ)	ELECTRICITY (TJ)
ENKA İNŞAAT	97.47	43.29	-	-
ÇİMTAŞ STEEL & PIPE	32.59	75.12	-	-
ENKA POWER	26,931.18	64.49	-	16,170.56
ENKA REAL ESTATE	146.50	764.96	470.72	403.13
ENKA SCHOOLS KOCAELI	1.58	1.04	-	-
ENKA FOUNDATION	17.57	7.54	-	-
ENKA PAZARLAMA	12.38	3.09	-	-
TOTAL	27,239.28	959.53	470.72	16,573.69

The total energy consumption of the ENKA group companies and projects in 2019 reporting period was 28,669.53 TJ. The distribution of the amounts of primary energy consumed by year is shown in the table below.

TJ	2017	2018	2019
FUEL CONSUMPTION	157,873	146,450	27,239
ELECTRICITY CONSUMPTION	881	893	960
CONSUMPTION FOR HEATING & COOLING PURPOSES	15	16	-
HOT WATER CONSUMPTION	461	482	471
TOTAL	159,230	147,841	28,670

In 2019, the total energy consumption of ENKA group decreased by 81% compared to 2018. The main reason for this decrease was that ENKA Power's natural gas combined cycle power plants, which constitute for the highest energy consumption, stopped their operations in 2019. Within the scope of energy efficiency and saving efforts, ENKA group companies saved 57.86 TJ (4% of the total energy consumption in 2018) of energy in 2019.

In energy intensity calculations, all internal energy expenditure (fuel, electricity, heating, cooling, steam) of all subsidiaries and projects in the scope were included. As indicator of intensity, Terajoules energy expended per US dollars of annual revenue[4] was used. ENKA's energy intensity in 2019 was calculated to as 22.64 TJ / million USD.

■ Energy Intensity by Year (TJ/Million USD)

GREENHOUSE GAS EMISSIONS

ENKA's carbon footprint calculations cover; ENKA Headquarters, ENKA Power Adapazarı, Gebze and İzmir plants, Çimtaş Steel, Cimtas Pipe, ENKA Pazarlama, ENKA Foundation, ENKA Schools Kocaeli, ENKA Sports Club, ENKA TC, CCI, MKH and OMKH and Nizhnekamsk project in Russia and Samawa and Dhi Qar projects in Iraq.

Direct (Scope-1), indirect (Scope-2) and other indirect (Scope-3) greenhouse gas emissions from 2019 activities of ENKA were included in the calculation. Greenhouse gas emissions resulting directly from ENKA's activities are categorised as "Scope-1 – direct greenhouse gas emissions", while greenhouse emissions due to energy consumption from externally sourced electricity, heat and steam are categorised as "Scope-2 – indirect greenhouse emissions due to energy consumption". "Scope-3 – other indirect greenhouse gas emissions" category covers emissions resulting from the purchase of raw and intermediary materials, emissions from procured energy that are not covered by Scopes 1 and 2, disposal of waste (including wastewater), employee transport (shuttles/busses), business travel (flights), delivery of sold products to customers and disposal of sold goods at the end of their life span[5].

Scope-3 emissions were 1,339,682 tCO_2e in 2019. The Scope-1, Scope-2 and Scope-3 greenhouse gas emissions resulting from ENKA's operations in the 2019 reporting period are shown in the table on the right and in the chart on the following page.

[4] Only includes the revenues of the companies covered by this report.

[5] The methodologies used for calculating are the ISO 14064-1 and the GHG Protocol Corporate Accounting and Reporting Standards. For conversion factors IPCC, UNFCC and DEFRA data were used.

■ ENKA 2019 Scope-1 and Scope-2 Emissions

COMPANY/PROJECT	2017 TOTAL	2018 TOTAL	2019 TOTAL
	Scope-1 + Scope 2 tCO_2e	Scope-1 + Scope-2 tCO_2e	Scope-1 + Scope-2 tCO_2e
ENKA POWER	9,358,119	7,993,782	1,525,718
CIMTAS PIPE	5,910	7,698	7,281
CITY CENTER INVESTMENT BV	43,660	41,831	36,741
ÇİMTAŞ STEEL	4,075	6,909	7,274
ENKA GROUP HEADQUARTERS	1,042	931	2,282
ENKA PAZARLAMA	1,239	1,553	1,474
ENKA TC	106,522	112,280	109,918
ENKA FOUNDATION İSTİNYE CAMPUS	2,112	2,086	2,239
ENKA SCHOOLS[6]	909	277	258
MOSKVA KRASNYE HOLMY**	15,821	15,255	19,846
HOTEL MOSKVA KRASNYE HOLMY	8,918	7,812	-
KASHIRSKAYA PLAZA PROJECT	8,707	N/A*	N/A*
SCPX-AREA 81 SITE	2,774	N/A*	N/A*
SCPX-CSG1 SITE	5,132	444	N/A*
SCPX-CSG-2 SITE	9,702	1,203	N/A*
TAIF KAZAN BUSINESS CENTRE PROJECT	-	1,104	N/A***
NIZHNEKAMSK PROJECT	-	-	1,669
SAMAWA PROJECT	-	-	7,022
DHI QAR PROJECT	-	-	6,587
TOTAL	9,574,642	8,193,165	1,728,309

Following footnotes belong to the table on the right:

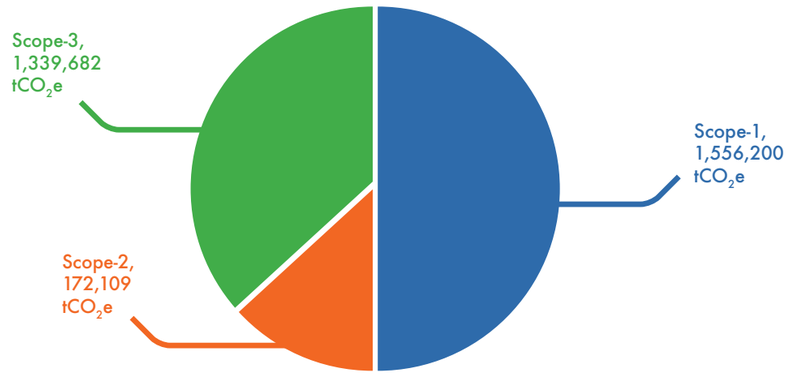
* Project was completed.

** In 2019, Moskva Krasnye Holmy and Hotel Moskva Krasnye Holmy were calculated together.

*** Not included in the scope in 2019.

[6] While the term 'ENKA Schools' denotes the ENKA Schools İstanbul for the 2017 reporting period, for 2018 and 2019 reporting periods ENKA Schools Kocaeli was included in the scope instead.

■ Scope-1, Scope-2 and Scope-3 Greenhouse Gas Emissions (tCO_2e)



The greenhouse gas emission intensity of ENKA activities was measured based on CO_2 equivalent greenhouse gas emissions per annual revenue in million USD (tCO_2e/million USD).

■ Greenhouse Gas Emission Intensity by Company (Scope-1 + Scope-2)

COMPANY	2018 INTENSITY tCO_2e/million USD	2019 INTENSITY tCO_2e/million USD
ENKA POWER İZMİR	6,967.00	4,629.91
ENKA POWER ADAPAZARI	6,900.00	5,201.50
ENKA POWER GEBZE	7,308.00	5,158.16
CIMTAS PIPE	43.00	78.26
CITY CENTER INVESTMENT BV	399.00	318.34
ÇİMTAŞ STEEL	65.30	39.53
ENKA PAZARLAMA	5.60	14.31
ENKA TC	1,076.00	863.10
ENKA SCHOOLS KOCAELİ	35.00	2.66
MOSKVA KRASNYE HOLMY	551.35	420.11
NIZHNEKAMSK COMBINED CYCLE POWER PLANT PROJECT	-	21.15
SAMAWA COMBINED CYCLE POWER PLANT PROJECT	-	69.37
DHI QAR COMBINED CYCLE POWER PLANT PROJECT	-	67.47

Due to the different sectors and activities of the group companies, greenhouse gas emission intensities are also monitored with calculating by operational area (m^2) and number of employees in addition to revenues. In 2019, ENKA group greenhouse gas emission intensities can be examined in the tables below.

■ Intensity of Emissions per Employee (Scope-1 + Scope-2)

COMPANY	2018 INTENSITY tCO_2e/employee	2019 INTENSITY tCO_2e/employee
ENKA POWER	21,260.06	5,735.78
CIMTAS PIPE	9.59	8.47
CITY CENTER INVESTMENT BV	337.35	311.36
ÇİMTAŞ STEEL	8.67	8.50
ENKA HEADQUARTERS	0.09	4.03
ENKA PAZARLAMA	9.19	10.31
ENKA TC	282.82	333.08
ENKA FOUNDATION İSTİNYE CAMPUS	20.25	21.32
ENKA SCHOOLS KOCAELİ	2.80	2.66
MOSKVA KRASNYE HOLMY*	58.84	55.90

■ Intensity of Emissions per Used Area (Scope-1 + Scope-2)

COMPANY	2018 INTENSITY tCO_2e/m^2	2019 INTENSITY tCO_2e/m^2
ENKA POWER PLANTS	13.98	2.67
ÇİMTAŞ STEEL	0.14	0.15
CIMTAS PIPE	0.14	0.13
ENKA TC	0.17	0.17
CITY CENTER INVESTMENT BV	0.26	0.23
ENKA SCHOOLS KOCAELİ	0.02	0.02
ENKA PAZARLAMA	0.06	0.06

*MKH's values are recalculated since MKH and OMKH were calculated separately in 2018 report.

AT ENKA PROJECTS, WE ALWAYS PRIORITISE THE ENVIRONMENT AND WE ALWAYS INCLUDE ENVIRONMENTAL PROTECTION STUDIES IN THE PREPARED RISK ASSESSMENTS AND JOB-SPECIFIC HAZARD ANALYSES.

I have been working as HSE specialist on Bechtel-ENKA joint venture projects, since 2010. I worked for about 8 years at Kosovo Motorway project and 2 years at the Muscat Airport project.

In the projects I worked on, we have constructed transportation facilities and the future of the local communities. While continuing our business in the construction sector in the developing world, I believe that we must also put heart and soul in protecting the environment and minimising any environmental damage. At ENKA projects, we always prioritise the environment and we always include environmental protection studies in the prepared risk assessments and job-specific hazard analyses. Moreover, since there are different environmental factors in the place where the work is conducted, we update these constantly and implement them accordingly.

While we were carrying our work on both Kosovo Motorway project and the Muscat Airport project, we worked hard to minimize the negative impacts on the local community and nature. To this end, we filtered the water we used in our camps, as well as the wastewater we produced and we discharged our wastewater properly. We set up concrete washing pools on the site and built barricades to prevent foreign substances from mixing in the river and in some cases, we carried out projects to clean up the plastic waste left by the local community. We measured the dust which we created on site and used various methods to minimise it. We paid attention to carry out noisy jobs during the hours when the people living around will be disturbed at minimum level possible.

In 2016, we greatly reduced the damage of the 36 hectares of volatile ash to the environment with the "We are Building the Green Corridor" project under which we covered the volatile ash produced by the Kosovo Power Plant with the material from excavations and then we planted seedlings on that cover. In addition to this great project, we minimised the amount of hazardous and non-hazardous waste we produced and ensured that it was recycled through our "Reuse, Reduce and Recycle" programme.

As a result of all these efforts, with our project we were deemed worthy of the Bechtel's Green Footprint Award, the International Road Federation (IRF) 2016 Environmental Mitigation award and "Best Global Motorway Project" award by Engineering News Record (ENR).

Another special task which we undertook, which did not win us any awards but which earned us the appreciation of the local community, was the landscaping of the River Lepenac. After finishing our works on the Kacanik-Hani I Elezit part of the motorway, we landscaped about eight kilometres of the river, setting up benches and fishing spots in places which people had not previously used very much, and arranging nice places where people could go for a picnic. We then opened it up for public use. The brown land in that area now as green as the surrounding hills.

Of course, I would like to state that; when we started these projects, the priority has always been to make sure that the employees are aware of the occupational safety, health and environmental requirements and act in accordance with them. All employees working on a project, regardless of their duties, attend HSE orientation trainings and acquire the necessary basic information. As they continue their work, they also take part in further training activities both environment and occupational health and safety related such as environmental protection trainings, cleaning trainings against oil and diesel fuel leaks and leadership trainings. At our Kosovo Motorway project, we provided more than 100,000 hours of training to ensure that the employees were well informed at all times and become individuals who contribute more to their communities when they return to where they live.

Thanks to all these efforts, these projects, which have been carried out, have been an enormous opportunity not merely to facilitate the transportation of the communities living in the surroundings but also to enhance the training, experience and knowledge level of the individuals in these communities.

▪ Valon Sokoli

HSE Specialist

Kosovo Route 6 Motorway Project

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STAKEHOLDER ASPECT

AIR EMISSIONS

Air-pollutant emissions arising from activities of ENKA Power and Çimtaş Steel facilities are carefully monitored using Continuous Emissions Monitoring Systems (CEMS) in keeping with parameters established by regulations. In accordance with the Regulation on the Control of Industrial Air Pollution, ENKA also monitors and reports SO_2, PM and NO emissions, which are not a part of CEMS system for power plants. In 2019, total SO_2 emissions were 0.016 kg, PM emissions were 0.005 kg, NO emissions were 0.073 kg.

■ Aerial Emissions Resulting from ENKA Operations

EMISSION TYPE	2018	2019
NO_x, TONNES	4,501	755.94
CO, TONNES	261	8.66

SO_2 and PM emissions are not subject to continuous measurement for ENKA Power Plants under the Regulation on Air Pollution Caused by Industry.

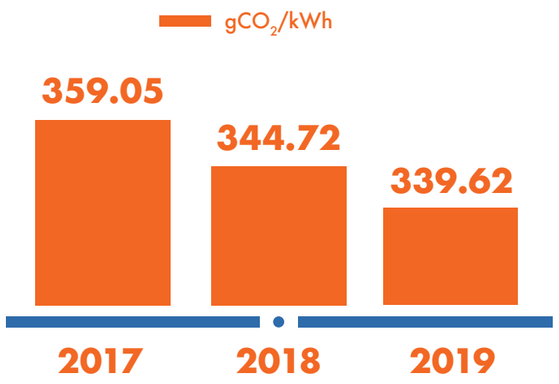
ENERGY EFFICIENCY AND EMISSIONS REDUCTION ACTIVITIES

A reduction of 57.86 TJ was achieved in energy consumption as a result of the savings and efficiency initiatives undertaken by the group companies and the projects in 2019. Compared to the 2018, it was observed that the reduced energy consumption stemming from these initiatives was the equivalent of 4% of the consumption in 2018. Meanwhile, the reduction in greenhouse gas emissions due to savings and efficiency initiatives in 2019 was the equivalent of 0.11% of the previous year's values. As a result of emissions reduction works carried out in 2019, approximately 9 thousand tonnes of carbon dioxide equivalent of greenhouse gas emissions were prevented throughout ENKA.

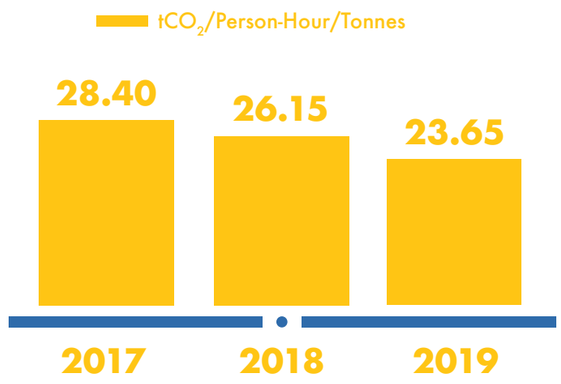
Compared to 2018, total energy consumption at ENKA decreased by 81% and total Scope-1 and Scope-2 emissions decreased by 79% in 2019. The main reason for this significant decrease was that the ENKA Power Plants, which have historically accounted for more than 95% of all Scope-1 and Scope-2 emissions of ENKA, have suspended their operations in 2019. As the operations stopped within the year, Scope-1 and Scope-2 carbon dioxide emissions arising from ENKA Power's activities were 81% less than previous year. With the cessation of the operations of the ENKA Power Plants, approximately 6.5 million tonnes less carbon dioxide equivalent greenhouse gas emissions were released compared to 2018.

Within the scope of ENKA 2027 Sustainability Goals, specific greenhouse gas emissions of ENKA Power Plants and Çimtaş are monitored with company-specific metrics. As a result of efficiency improvement studies in 2019, a reduction of 1.5% was achieved in specific greenhouse gas emissions (grams carbon dioxide released as a result of 1kWh electricity generation) at the ENKA Power Plants.

■ Specific Greenhouse Gas Emissions at ENKA Power Plants by Year



■ Specific Greenhouse Gas Emissions at Çimtaş by Year



Examples from energy saving studies carried out throughout ENKA in 2019 are described in the table below.

■ Energy Saving Efforts Carried Out in 2019

COMPANY	ENERGY SAVING EFFORTS
CIMTAS PIPE	The revision was made on the panel of the lighting fixtures in the halls of the spool facility to allow only a quarter of the fixtures to be lit and the hall lights were started to be used according to the work programme. In this way, 50% energy saving was achieved in this area.
	Another efficiency-enhancing project works has been completed by replacing the existing outdoor lighting projectors with 85 units of 250-Watt and 60 units of 400-Watt halogen bulbs with LED type projectors. By doing so, 65% energy saving was achieved up to 150,000 kWh per year. In addition, the LED panels in Hall-1 and Hall-2 are switched off at night resulting in savings of 175,200 kWh a year.
	An electronic control unit and heat detector sensors were installed in the air conditioning plant used for high hall heating in the existing facility and the conditioning plant unit was set to deactivate when the ambient temperature rises above 16°C.
	The valve of the 18th Hall acid pool scrubber system, whose water supply was previously controlled with an air-controlled valve, was replaced with an electrically controlled valve so that the obligation to operate the compressor was eliminated when there is no work in the hall. Thus, approximately 100,000 kWh electricity was saved annually.
	Unnecessary energy consumption was avoided by preventing the operation of pump motors that enables circulation in the chiller system, when the water temperature is low. This resulted in savings of approximately 18,000 kWh of energy per year.
ÇİMTAŞ STEEL	As part of the ISO 50001 Energy Management System and within the scope of energy efficiency or reduction of energy use; 40 team kaizens, 28 before-and-after kaizens and 16 rapid kaizens; a total of 84 energy-efficient kaizen projects were completed in 2019.
CITY CENTER INVESTMENT BV	Energy savings were achieved with the optimization of time adjustment on heating-cooling and ventilation systems. In addition, the condensers used in the energy filtering equipment were changed and modernised. This led to approximately 300,000 kWh of energy savings in a year even though the occupancy rate of the building is increased compared to 2018.
ENKA INVEST	LED lighting fixtures were renovated and motion sensors were installed in car parking lots to reduce energy consumption. This led to a fall in electricity consumption per m^2 (excluding tenant consumption) from 95.77 kWh/m^2 in 2018 to 90.52 kWh/m^2 in 2019.
ENKA TC	Thanks to the lighting automation, LED transformation, temperature monitoring and improvements in ventilation units, more than 2 million kWh of energy was saved in total.

RENEWABLE ENERGY STUDIES AT ENKA SCHOOLS

Another renewable energy project, which also started in 2019 and was planned in accordance with the ENKA Sustainability Goals, was designed by ENKA Schools Kocaeli students and it will be completed upon the installation of solar panels on the roof of the school cafeteria and meeting the most of the energy needs of ENKA Schools Kocaeli by using solar energy.

RENEWABLE ENERGY STUDIES AT ENKA SCHOOLS

ENKA Schools İstanbul FIRST LEGO League team students have completed their studies and also the prototype of the mechanism that charges rechargeable batteries especially and other rechargeable devices by using solar energy, with the support of ENKA Sustainability Department.

WE HAVE BEEN WORKING WITH ENKA IN RUSSIA SINCE THE END OF 2017 AND DURING THIS TIME WE HAVE ALREADY ACHIEVED IMPRESSIVE RESULTS.

Sphere of Ecology is a part of EcoTechnologies Group of Companies. We provide full cycle services that include waste collection, segregation, transportation, sorting and reprocess of raw materials. Our mission is to create modern and effective waste management system, which guarantees a clean and safe life for us and our children in Russia.

We have been working with ENKA in Russia since the end of 2017 and during this time we have already achieved impressive results. During the past few years, ENKA actively promoted waste separation involving its visitors and tenants of the shopping and business centers. At the moment, ENKA provides us cardboard and paper, plastic, glass and hazardous waste such as power sources and cartridges regularly.

Before sending wastes to reprocessing plant, we perform controls for the wastes at our sites for the quality of separation. We would like to note ENKA shows high awareness in separation process. During the entire period of cooperation with ENKA, no cases of clogging or defective delivery of separated and hazardous waste were detected.

In my view, the fact that ENKA is taking care of its wastes seriously not only because as a company ENKA is responsible for achieving the sustainable development goals, but also as an environmentally responsible business that in practice demonstrates a leading position in the industry. The more large and respected companies will be responsible for the generated waste, clearly and honestly demonstrating their position, the faster and better it will be possible to implement the program of separate collection and processing of waste in all industries.

At the very beginning of our cooperation with ENKA, we were pleasantly impressed by ENKA's approach to the implementation of waste separation system. The main goal of the project was not quantitative or economic indicators, but creating a comfortable atmosphere and eco-friendly environment for both shopping mall visitors and office workers. Proper goal setting, methodical development and involvement of the company's employees at all levels allowed us to take into account all the details and achieve impressive results.

Obviously, this is a confident, worthy approach on the way to success!

Anton Kuznetsov

Deputy General Director
Sphere of Ecology

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STAKEHOLDER ASPECT