

# MANAGING ENVIRONMENTAL IMPACT

Protecting the environment and minimising negative environmental impacts from the Company's operations are among FPC's highest priorities.

## Regulatory and environmental aspects

### Goals

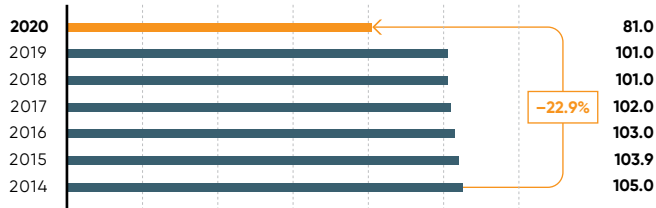
- Minimising negative environmental impacts from the Company's operations
- Caring for human health and the environment

### Initiatives

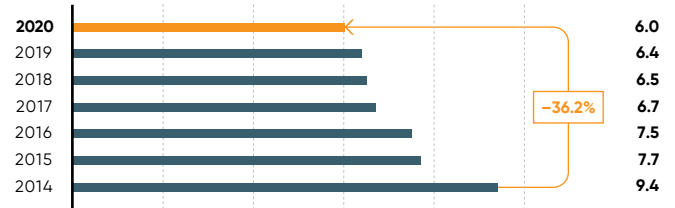
- Equipping carriages with environmentally friendly facilities
- Purchasing carriages with a central power supply
- Installing high-voltage heating points at the turnaround and originating stations
- Revamping treatment facilities
- Retrofitting water recirculation systems to carriage washing facilities
- Converting boilers from liquid fuel to gas
- Upgrading water and sewer networks



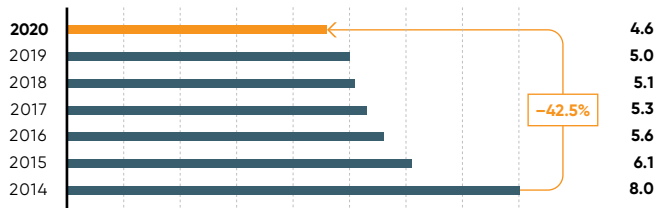
**Waste generation, '000 tonnes**



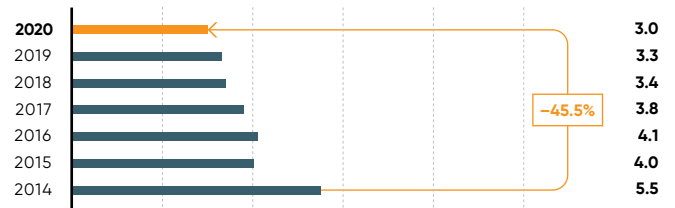
**Water use, million m<sup>3</sup>**



**Air emissions, '000 tonnes**



**Used water discharge, million m<sup>3</sup>**



Protecting the environment and minimising negative environmental impacts from the Company's operations are among FPC's highest priorities. In its environmental activities, FPC complies with Russian laws, the Environmental Strategies of Russian Railways, and the Company's standard 1.16.001–2016 FPC Environmental Management System.

FPC involves investment, CAPEX, and operational resources and initiatives in pursuit of its environmental safety goals.

Overall, since the start of its operations, FPC has consistently reduced its environmental impacts (due to lower figures amid the COVID-19 epidemic, 2020 data were rebased to 2019):

- Production and consumption waste generation decreased from 105,000 tonnes to 101,000 tonnes
- Total used water discharge was down from 5.5 million m<sup>3</sup> to 3.3 million m<sup>3</sup>
- Water use by structural units decreased from 9.4 million m<sup>3</sup> to 6.4 million m<sup>3</sup>
- Air pollutant emissions were reduced from 8,000 to 5,000 tonnes

These results were achieved by optimising operations and processes across the Company's branches, adopting new technology, and maintaining consistent supervision.

To reduce the anthropogenic impact of passenger services, FPC upgraded its rolling stock and facilities across its branches.

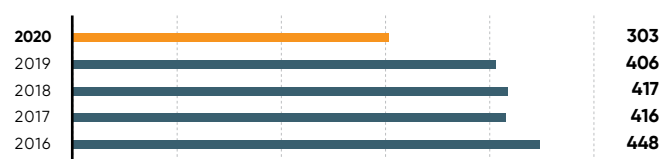
The Company keeps railway tracks from contamination while maintaining an adequate level of sanitation at rail infrastructure facilities by only acquiring carriages equipped with environmentally friendly toilet facilities. Also, existing carriages are retrofitted with environmentally friendly toilet facilities during overhauls.

In total, over 70% of carriages in total fleet were equipped with environmentally friendly toilet facilities by year-end 2020. At the current rate of replacement and upgrade, over 90% of rolling stock will be equipped with such facilities by 2025.

## Air quality improvement

To reduce air pollution, FPC is converting boilers to environmentally friendly fuels and installing high-voltage heating points for its passenger carriages at turnaround and originating stations

### Greenhouse gas emissions, '000 tonnes of CO<sub>2</sub>



### CO<sub>2</sub> emissions per passenger carried

Mode of transport	tonne	kg
Air	0.215 <sup>1</sup> (60.7 million passengers, 13,106,618 tonnes of CO <sub>2</sub> )	215.0
Rail	0.005 (62.4 million passengers, 303,996 tonnes of CO <sub>2</sub> )	4.9

Purchasing carriages with a central power supply: 1,226 carriages.

Installation of high-voltage heating points at turnaround and originating stations for RUB 130.079 million (including high-voltage columns at the Adler and Murmansk stations, Dacha Dolgorukova MC (SD), Togliatti station (CI + C), Nikolayevka PCD (Krasnoselsky Rail Yard), Kislovodsk station (SD), Severobaiikalsk station (SD); Yoshkar-Ola station (CI), Cheboksary-2 station (CI); construction of a high-voltage heating point at the Petrozavodsk

station; installation of charging points at the Nikolayevka station, upgrade of a high-voltage heating point at Moskva-Tovarnaya station (CI), electric grids with charging points at the stabling and servicing yard for M carriages (CI + C) in Bryansk.

Boiler conversion from liquid fuel to gas for RUB 16.821 million (including Saint Petersburg-Moskovsky CY (CI), Perm PCD (Phase 2, C).

<sup>1</sup> PJSC Aeroflot Annual Report 2019 (<https://ir.aeroflot.ru/reporting/annual-reports/>).

<sup>2</sup> Maintenance centre.

<sup>3</sup> Survey and design.

<sup>4</sup> Construction and installation.

<sup>5</sup> Connection to Russian Railways grids.

<sup>6</sup> Passenger carriage depot.

<sup>7</sup> Carriage yard.

## Sustainable water use

Total used water discharge, **million m<sup>3</sup>**

Indicators	2019	2020
<b>Total</b>	<b>3.346</b>	<b>2.999</b>
Wastewater meeting regulatory clean-up levels (surface runoff)	0.0599	<b>0.0442</b>
Contaminated runoff (manual carriage washing)	0.012	<b>0.001</b>
Sent for treatment (sewage)	3.275	<b>2.954</b>

In order to reduce discharge negatively affecting the environment and centralised water disposal systems, FPC implements annual programmes to upgrade its water treatment and carriage washing facilities (CWF), retrofitting them with water recirculation systems and on-site water treatment facilities:

→ CWF upgrades including retrofits of water recirculation systems.

→ Upgrades of water and sewer networks (construction of water supply network for the Samara Passenger Carriage Depot (construction, installation and network connection): RUB 27.952 million).



## Production and consumption waste management

The total amount of waste generated by the Company's activities was 81,000 tonnes in 2020, with 79,000 tonnes sent to contractors, including: 20,200 tonnes for reuse/recycling; 3,100 tonnes for neutralisation; 55,700 tonnes for landfilling.

### Total waste mass by hazard class, '000 tonnes

Indicators	2019	2020
Total	100.533	<b>81.0</b>
Hazard Class 1	0.021	<b>0.020</b>
Hazard Class 2	0.1	<b>0.1</b>
Hazard Class 3	2.03	<b>2.0</b>
Hazard Class 4	64.987	<b>54.7</b>
Hazard Class 5	33.395	<b>24.18</b>

### Total waste mass by disposal method, '000 tonnes

Disposal method	2019	2020
Disposal at the Company's sites (Hazard Class 5)	0.333	0.031
Transferred to contractors, total	100.2	79.0
Includes:		
for neutralisation	2.6	3.1
for recycling	27.9	20.2
for landfilling	69.7	55.7