

# GREEN BOND IMPACT REPORT

## České dráhy, a.s.

October 2023



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## Foreword by the Board Member

Ladies and Gentlemen,

We hereby present to you our first Impact Report concerning the projects of České dráhy, a.s. financed from the first issue of Green Bonds issued in October 2022.

At České dráhy, a.s., we are aware of the fact that sustainability and care for the environment are the basis for the long-term success of our business activities. Railway transport is already now considered to be the most environment-friendly mode of transport in the Czech Republic in terms of energy consumption and emissions, and therefore we consider sustainability as a natural part of the services which we provide and a continuation of the way which we have already started.



In line with our strategy and as a national carrier, we want to be a leader in the development of low-emission railway transport services in the Czech Republic and beyond. We are also pursuing this vision through a strategic investment programme of modernisation and renewal of our rolling stock.

The funds raised from the 2022 Green Bond issue were used to finance the purchase of long-distance railway vehicles. These investments, in accordance with the defined rules of the bond issue, will enable České dráhy, a.s. to contribute to the fulfilment of its objectives in the area of reducing the energy and emission intensity of the transport services provided.

Mgr. Lukáš Svoboda  
Member of the Board of Directors responsible  
for the Area of Economy and Procurement  
České dráhy, a.s.

## About this Report

This Impact Report concerning the projects of České dráhy, a.s. financed from the first issue of Green Bonds issued in October 2022 is issued in accordance with the terms and conditions defined in the approved document entitled "Green Finance Framework of České dráhy, a.s." verified by Moody's independent "Second Party Opinion".

In accordance with these terms and conditions, České dráhy, a.s. provides its investors with information in an agreed structure on the allocation of the funds from the issue in question and on the environmental impacts of the projects financed this way with an objective of the renewal of a part of its railway vehicles. In accordance with the defined terms and conditions, the methodology used to calculate energy and emission savings is verified by an independent expert third-party assessor.

The present Report is issued as at the date of the annual issue of the Green Bonds, i.e., as at 12 October 2023.

# Our approach to sustainable development

Our sustainability strategy respects the vision and objectives of the ČD Group and the expected trends in the development of railway transport. In the area of sustainability, the ČD Group has formulated the following main objectives for the period until 2030:

- to be a leader in the development of clean transport services in the Czech Republic
- to become the railway carrier with the lowest carbon footprint on the Czech market
- to increase the satisfaction of our customers preferring our modernised transport services
- to become an energy-efficient and environmentally responsible organisation
- to strengthen our position as an attractive and responsible employer

## Sustainable Development Goals (SDGs)

Through our activities, we strive to actively contribute to the Sustainable Development Goals. In selecting our goals, we have taken into account not only our activities and sustainability strategy, but also the national priority goals of the Czech Republic. Through our activities and initiatives, we are able to contribute to nine of the seventeen Sustainable Development Goals (SDGs).

By joining the RETHINK project in 2022, the parent company “České dráhy, a.s.” has also committed to develop its business activities in line with the climate goals of the Paris Agreement and the Glasgow Climate Pact.



## European Railway Pact as a climate initiative of railway carriers

The ČD Group's railway carriers are not currently signatories to the European Railway Carriers' Agreement on Sustainable Development of February 2022, however, within the framework of its sustainability strategy, the ČD Group perceives the climate commitments of this pact as a sector benchmark to which it wishes to compare itself.

## Czech Republic 2030 Strategic Framework

As a national railway carrier, we also perceive our potential to support fulfilment of the Czech Republic's commitments to reduce emissions in the transport sector and to meet the objectives of the National Clean Mobility Action Plan 2025-2030. Therefore, the area of development of clean transport and the transition to low-emission operations of our organisations is a key priority of our 2030 sustainability strategy.

# Allocation of Green Bonds proceeds

## Allocation – total figures

Bond issue value (CZK million)	12,118.00	100%
Part of the issue allocated to eligible projects	7,628.07	63%
Unallocated part of the issue	4,489.93	37%

The bond value amounting to EUR 500 million is expressed in CZK consistently with the Annual Report as at 31 December 2022, i.e., converted at the EUR/CZK exchange rate as at that date.

The Company used the unallocated portion of the issue to refinance maturing liabilities.

## Allocation by project and period

Project name	Allocation in the year (CZK million)				Celkem
	2021	2022	2023	2024	
InterJet		3,003.15			3,003.15
ComfortJet	414.11	828.22	414.11	2,527.97	4,184.41
Electric locomotives		440.51			440.51
<b>Total</b>	<b>414.11</b>	<b>4,271.88</b>	<b>414.11</b>	<b>2,527.97</b>	<b>7,628.07</b>

## Project description

**InterJet:** The matter concerns 50 passenger carriages, or 10 five-carriage train sets manufactured by Siemens, respectively. The vehicles are deployed on such lines as Ex6 Prague – Plzeň – Cheb and R15 Prague – Ústí nad Labem – Cheb.

**ComfortJet:** The matter concerns 64 passenger carriages, or 8 eight-carriage train sets manufactured by the Siemens/Škoda Transportation consortium. The total delivery volume is 20 train sets, i.e., 180 carriages. Only trainsets to be delivered within the allowed period of 24 months from the issuance of the Green Bond have been allocated for Green Bond financing. The trains will be deployed on the Ex3 Prague – Břeclav – Austria/Slovakia/Hungary line and on the Ex5 Prague – Děčín – Germany/Denmark line. Allocations in 2021, 2022 and 2023 represent advance payments.

**Electric locomotives:** The matter concerns 18 Siemens Vectron multi-system locomotives. The locomotives are a part of the InterJet and ComfortJet projects as these train sets are non-traction train sets, which means that an electric locomotive is allocated to each trainset to form a complete integral project with it. The amount shown in the table represents the advances paid. The locomotives will be delivered to the ownership of ČD after 2024. Until then, the InterJet and ComfortJet projects are operated with the help of leased locomotives of the same type.

## Environmental impact of allocated proceeds

České dráhy, a.s. reports the environmental impacts of allocated funds through the following impact indicators:

- Annual Green-House Gas (GHG) emissions avoided, measured in tons of CO<sub>2</sub>eq.
- Estimated annual energy consumption reduced measured in GWh
- Reduction of emissions intensity per passenger kilometre (gCO<sub>2</sub>/pkm)

For the purposes of calculation of these indicators, the newly acquired units of Siemens Vectron electric locomotives (18 units) and InterJet (50 units) and ComfortJet (64 units) passenger carriages are grouped into operating train sets corresponding to their future operational deployment.

Calculated environmental impact indicators of the operational units financed by means of the allocated funds:

Evaluated train configuration	Total impact data		
	Annual CO <sub>2</sub> e emissions avoided	Annual energy savings	Emissions intensity reduction
	t CO <sub>2</sub> e	GWh	g CO <sub>2</sub> e/pkm
Train set 1: 8 × Vectron + ComfortJet (8×8)	3 875,83	14,28	3,12
Train set 2: 10 × Vectron + InterJet (10×5)	4 560,68	16,81	5,29
<b>Total</b>	<b>8 436,51</b>	<b>31,09</b>	<b>8,41</b>

The above-mentioned environmental indicators will be achieved when the newly purchased train sets are fully put into operation in the year 2024.

# Methodology overview

For the calculation of the emission and energy intensity of passenger rail transport, the valid technical standard "DIN EN 16258" (Methodology for the calculation and declaration of energy consumption and greenhouse gas emissions in transport services /carriage of goods and passengers/) is used. The EN 16258 standard sets out a common methodology for the calculation and declaration of energy consumption and greenhouse gas emissions associated with transport services (freight, passenger as well as combined transport services). For the needs of this analysis, the following procedures are limited to passenger rail transport only.

The extent of energy consumption and of the GHG emissions from transport services includes train operational processes and energy operational processes throughout the entire operational cycle. Train operational processes include all operation of on-board systems providing propulsion and ancillary services (power unit, lighting, heating/cooling, control system, information system, etc.). In the case of electricity, energy operational processes include extraction, transport and processing of primary raw materials, power generation, transformation losses and conduction.

## INPUT DATA

For the purpose of calculation of emissions and energy intensity of passenger rail transport, a model was set up using the below specified data for each type of train on the specified type railway line:

- Train configuration, including types (series) and numbers of locomotives, units and carriages.
- Total number of seats on the train, or individually for all the carriages used.
- Average number of seats occupied on the train on the specified railway line, if applicable individually for all carriages used.
- Empty weight of the train, if applicable, individually for all carriages used.
- Number of trains deployed on the railway line.
- Length of the railway line.
- Train performance (train-kilometres).
- Traffic output in gross-kilometres, local-kilometres and passenger-kilometres.
- Electricity and fuel consumption of the train, including indication of the type of fuel and the percentage of bio-component where relevant.
- The specific fuel/energy consumption of the train.

A type railway line is a line where a specific type of original train is deployed and performs throughout the calendar year and a new train replaces it on that railway line at identical performance data. The above input data for a type train includes the sum of all operating values, occupancy for a calendar year on the type line. The technical data for each vehicle is based on the data in the technical documentation of the vehicles. In case the original train has been configured in different modifications during the year, the most frequently operated train configuration will be used for the calculation and the other values will be recalculated. The sum of all variants of the original train configuration, including all vehicle modifications, will be used for the recalculation. Data for the original type trains are provided as at 2022. Data for the new trains will be used from the technical documentation, and all performance parameters will be referenced on a 1:1 basis.

## CALCULATION PROCEDURE

The calculation includes all trains in the model under consideration, including those operated by subcontractors. All relevant electricity and fuel consumption is included. In case a train uses a combination of two or more fuels, all fuels are included. The energy and emission factors used to determine the emission and energy intensity of the operation of the model train shall be national as far as possible. If such factors are not available, appropriate European factors or those recommended by ČSN EN 16258 standard shall be used. For electricity, the factors are based on the fuel mix of electricity supplied to traction by the Railway Administration in 2022.

The output of the calculation consists of the following four results:

- Ew – well-to-wheels energy consumption
- Gw – well-to-wheels greenhouse gas emissions
- Et – tank-to-wheels energy consumption
- Gt – tank-to-wheels greenhouse gas emissions



The output of the analysis can be based on one leg per trip (leg) or per passenger-kilometre (at average or maximum occupancy) and per gross-kilometre (at average or maximum occupancy) as appropriate. The outputs will then be compared for each pair of model trains as specified.

## **EMISSION AND ENERGY FACTORS**

Conversion factors from Správa železnic and the JEC Well-to-Tank v5 Report were used for the calculation.

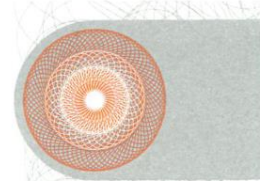
## **MODEL OUTPUTS**

For the reporting purposes, the calculation is supported by a particular train model and by a specific railway line model used for the calculation according to the ČSN EN 16258 standard, to which the input values are related or recalculated. Subsequently, the conversion to seat kilometres and, according to the train occupancy, the conversion per passenger have been performed. The output is then the value of the total energy consumption and greenhouse gas emissions and also their relation per passenger for the original type train and the new train.

# Confirmation letter on the correctness of the calculation of environmental indicators



VÝZKUMNÝ  
ÚSTAV  
ŽELEZNIČNÍ, a. s.



## Confirmation Letter

### Calculation of Emission and Energy Intensity of Personal Railway Transport Comparison of selected model trains for České dráhy, a.s.

#### Supplier Contact Details:

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Dear Customer,

We hereby confirm that we have created a report for you on the Calculation of Emission and Energy Intensity of Personal Railway Transport, Comparison of selected model trains for České dráhy, a.s. dated September 22, 2023. This calculation was performed in accordance with valid national and international standards, specifically according to the Global Reporting Initiative (GRI) standards and the ČSN EN 16258 standard.

We recognize the importance of transparent and accurate carbon footprint calculations and rigorously adhere to all steps and methodologies as prescribed by the above-mentioned standards. With this, we assure you that the provided data and calculation results are accurate, objective, and in line with the latest standards in the field of carbon footprint measurement.

Thank you for your trust in our services, and we look forward to further cooperation. Should you have any questions or need additional information, please do not hesitate to contact our team.

With best regards,

Ing. Martin Bělčík  
General Director

