EUROFIMA
ROLLING STOCK FINANCING

ANNEX 3

LIST OF DATA SOURCES & MODEL FOR
AVAILABLE SEATS ESTIMATE

GREEN BOND IMPACT REPORTING

MARCH 2021

DATA SOURCES

List of the data sources EUROFIMA used to produce the Impact Report.

Source of data (1/2)

Factor	Short name	Source	Page	Value
Average Auto Consumption - Motorway	ACM	Ecopassenger Methodology Report	Page 17	
Average Auto Consumption - Rural	ACR	Ecopassenger Methodology Report	Page 17	
% of time traveled in a Motorway	TM%	Assumption		50%
% of time traveled in Rural roads	TR%	Assumption		50%
Average Auto Consumption - Travel	ACT	Calculated		
Average Diesel Auto Consumption – Travel	ACTD	Calculated		4.9 l/100km
Average Petrol Auto Consumption – Travel	ACTP	Calculated		6.7 l/100km
% of Diesel cars in the European Fleet	DC%	ACEA (fleet type)		42%
% of Petrol cars in the European Fleet	PC%	ACEA (diesel vs petrol)		53.9%
Average car weight		European vehicle market statistics	Page 53	1395 kg
Average Auto Consumption	AC	Calculated		5.9 l/100km
Passengers per kilometer by country/mode of operations	pkmC	EU Statistical pocketbook 2019		
Passengers per kilometer by item of equipment	pkmT	Calculated		
Available seats by country/mode of operations	AvSC	SCI Verkher GmbH		
Available seats by specific item of equipment	AvST	Railways/Manufacturer data sheet		
Numbers of specific green items	#ST	Project		
Baseline GhG emissions per pkm, avoided	EBA	EU Taxonomy	Art. 24.1, Page 329	290 gCO2/vkm
Baseline GhG emissions per pkm, reduced	EBR	EU Taxonomy	Art. 24.1, Page 329	90 gCO2/pkm
Passenger per vehicle	PV	Ecopassenger		1.5
Project savings (CO2) as reduced emissions	PSCDR	Calculated		
Project savings (CO2) as avoided emission	PSCDA	Calculated		
CH4 emitted by energy unit- Petrol	CKwhP	UK Gov- GG Reporting- Conversion factors	See table «Conversion factors 2020: condensed set (for most users)»	0.00071 kg/kWh
CH4 emitted by energy unit- Diesel	CKwhD	UK Gov- GG Reporting- Conversion factors	See table «Conversion factors 2020: condensed set (for most users)»	0.00002 kg/kWh
N2O emitted by energy unit- Petrol	NKwhP	UK Gov- GG Reporting- Conversion factors	See table «Conversion factors 2020: condensed set (for most users)»	0.00064 kg/kWh
N2O emitted by energy unit- Diesel	NKwhP	UK Gov- GG Reporting- Conversion factors	See table «Conversion factors 2020: condensed set (for most users)»	0.00331 kg/kWh
Project savings (CH4) as avoided emissions	PSMHA	Calculated		
Project savings (CH4) as reduced emissions	PSMHR	Calculated		
Project savings (N2O) as avoided emissions	PSNOA	Calculated		
Project savings (N2O) as reduced emissions	PSNOR	Calculated		
Diesel Heating Value-by Kg		Heating values		45.5 MJ/Kg
Energy consumption baseline per pkm, car	JBC	Mobitool.ch		1.30 MJ/pkm
Energy consumption baseline per pkm, diesel equipment	JBD	Ecopassenger Methodology Report	Page 18	1.15 MJ/pkm
Average Energy Consumption of the Green Asset per Pkm (CH,AT,DE, FR,IT)	JGA	Mobitool.ch		
Average Energy Consumption of the Green Asset per Pkm (Other country)	JGA	Ecopassenger Methodology Report	Page 18	0.32 Mj/pkm

DATA SOURCES

List of the data sources EUROFIMA used to produce the Impact Report.

Source of data 2/2)

Factor	Short name	Source	Page	Value
Project savings as reduced energy consumption	PSJR	Calculated		
Project savings as avoided energy consumption	PSJA	Calculated		
Heating value by liter -Petrol	HVP	Heating values		33.9 MJ/l
Heating value by liter- Diesel	HVD	Heating values		36.7 MJ/l
Reduction in fuel consumption- Avoided	RFCA	Calculated		
Reduction in fuel consumption- Reduced	RFCR	Calculated		

FS LOCOMOTIVES E403 AND E464 AVAILABLE SEATS ESTIMATION

E464														
Type of coaches	2nd class Seats	1st class Seats	Driving trailer Seats	2nd class coaches - #	1st class coaches - #	% of usage	Seats (whole formation)	Seats weighted by loco Value	Unitary book value - Coaches	Unitary book value - Loco	Formation value	# green loco	# green coaches	# Complete formations
MD	82	72	60	3	2	52.6%	450	250.6	174,777 €	1,318,067 €	2,366,730 €	246		
PR	100		76	5		15.8%	576	348.7	143,212 €	1,318,067 €	2,177,336 €	246		
Vivalto	126	90	90	3	2	31.6%	648	128.6	887,524 €	1,318,067 €	6,643,208 €	246	248	41

Seats of the average formation		532.4	227.6

E403														
Type of coaches	2nd class Seats	1st class Seats	Driving trailer Seats	2nd class coaches - #	1st class coaches - #	% of usage*	Seats (whole formation)	Seats weighted by loco Value	Unitary book value - Coaches	Unitary book value - Loco	Formation value	# green loco	# green coaches	# Complete formations
IC - Gran comfort	74	52	59	5	3	35%	585	399.4	187,057 €	3,623,293 €	5,306,805 €	23		
UIC Z1	66	54	64	5	3	40%	556	316.7	304,211 €	3,623,293 €	6,361,193 €	23		

Seats of the average formation		427.2	266.5

*Assumed that 25% of the loco run during the night and are excluded from the estimation

1) In case of a locomotive pulling/pushing a set of passengers cars (i.e. E464 and E403 of FS), the number of available seats depends on the frequency of use of the specific configurations that are utilized and the on coaches, in terms of type and numbers, which forms the relevant configuration (i.e. the loco E464 carries 52.6% of the time 3 second class (82 seats available each), 2 first class (72 seats available each) and 1 driving trailer (60 available seats) of the coach type MD)

2) As we did not finance always the entire configuration, but only the Locomotive, we weighed the available seats as pro rata of the book values, as provided to us by FS (i.e. for the coach MD: 450*1.318.067/2.366.730=250,6)

3) Starting from this data, provided by FS, we can estimate the seats that the average loco-coaches configuration carries, weighing the available seats of a configuration with the frequency of utilization (i.e.. for the locomotives E464: 250,6*52,6%+348,7*15,8%+128,6*31,6%=227,6)

4) In case we financed also the coaches (i.e. Vivalto), we estimated the numbers of complete configurations (in this case, 41, as we financed 248 Vivalto coaches an and each configuration requires 6 coaches) and use the total available seats for the configuration (648)

5) To avoid a double counting, the savings of the Vivalto coaches are not considered and put to zero

LIST OF AVAILABLE SEATS BY ASSET CLASS

Asset class	Available seats	Notes
CLASS 2400 CFL	334	
M6 SNCB	80	
RABE 511, 6 CARS	526	
RABE 514	384	
RABE 521	161	
RABE 522	161	
RABE 523	161	
RABE 503	422	
CIVIA 465	277	
E464 (Complete configuration with Vivalto coaches, 41 items)	648	See specific table on FS locomotives
E464 (Average configuration, 205 items)	227.6	See specific table on FS locomotives
VIVALTO	-	See specific table on FS locomotives
E403 FS	266.5	See specific table on FS locomotives
RABE 511, 4 CARS	350	
CLASS 449	263	
CIVIA 463	169	
CIVIA 464	223	
GTW2/6 E SBB	106	
GTW2/8 E SBB	162	
S-104	237	
S-114	237	
ETR 324 JAZZ	202	
ETR 425 JAZZ	290	
MINUETTO E	169	