



Climate Change Data

ERM Sustainability Report 2020

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The business of sustainability

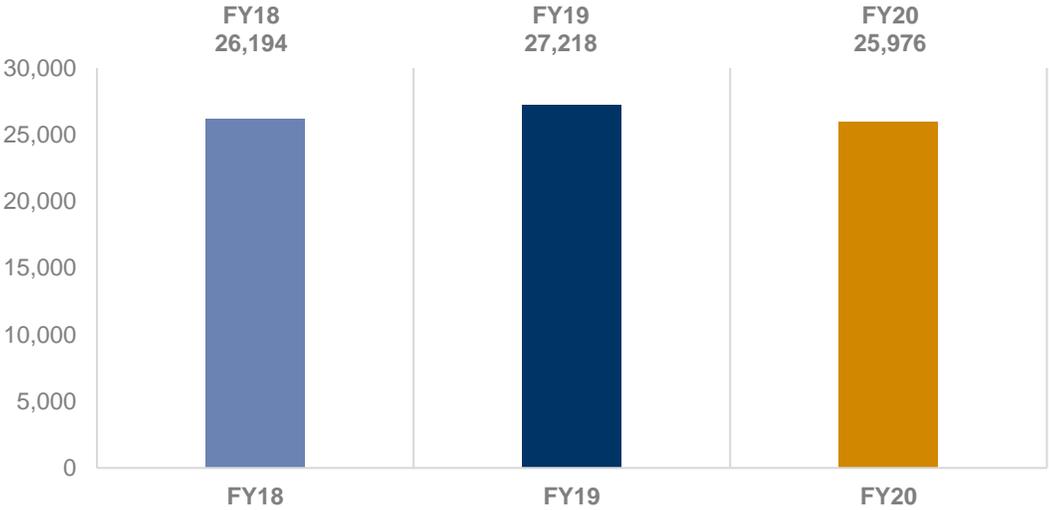


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Total GHG emissions

GRI 305-1, GRI 305-2, GRI 305-3

Total GHG emissions FY18 – FY20 (tCO2e) ¹



¹ Total GHG emissions include Scopes 1, 2 and 3 emissions.

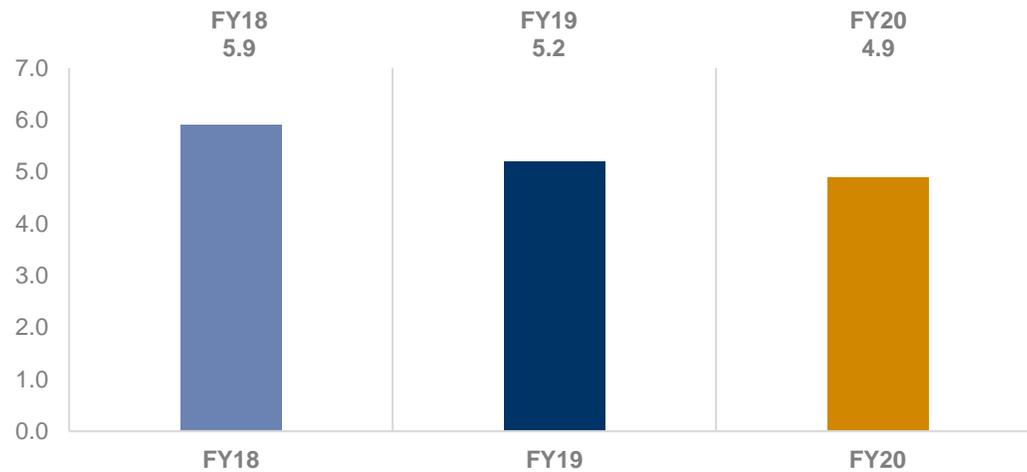
Total GHG emissions by region FY18 – FY20 (tCO2e) ¹

	FY18	FY19	FY20
Asia Pacific	4,168	4,102	3,570
Europe, Middle East and Africa	4,852	4,694	4,531
Latin America and Caribbean	1,364	1,475	1,273
North America	14,381	15,386	15,361
Global Business	434	563	503
Group	995	998	738
Total	26,194	27,218	25,976

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Total GHG emissions intensity

GRI 305-4

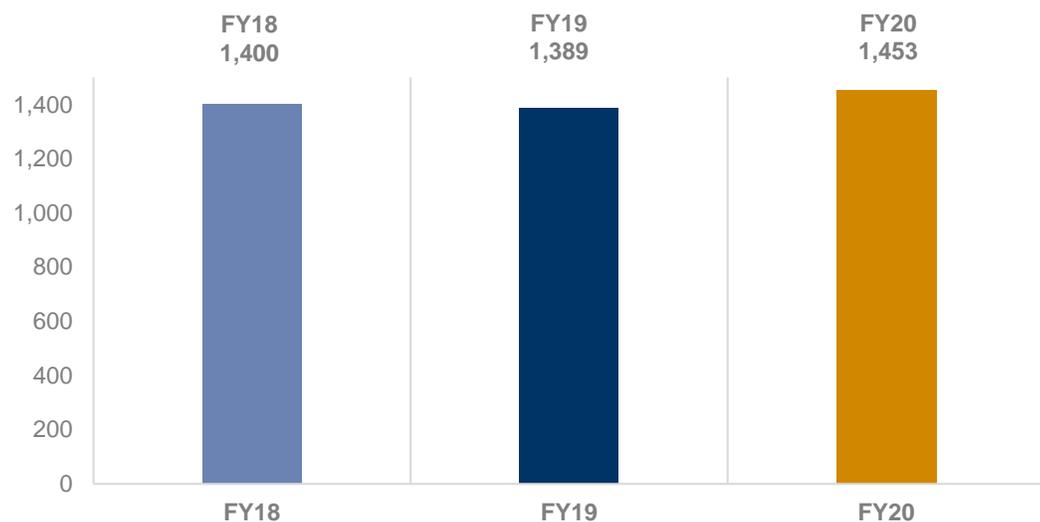
GHG emissions intensity FY18 - FY20 (tCO₂e/FTE) ¹

¹ Total GHG emissions normalized by average full-time equivalent employees (FTEs).

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Scope 1 emissions GRI 305-1

Scope 1 emissions FY18 – FY20 (tCO₂e) ^{1 2}



Scope 1 emissions by region FY18 – FY20 (tCO₂e) ^{1 2}

	FY18	FY19	FY20
Asia Pacific	54	80	77
Europe, Middle East and Africa	553	512	445
Latin America and Caribbean	35	36	27
North America	759	760	903
Total	1,400	1,389	1,453

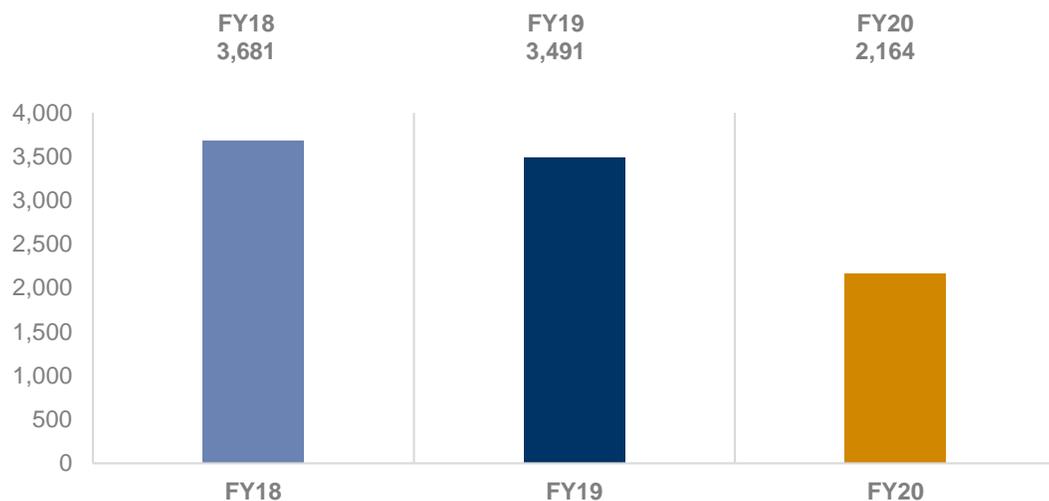
¹ Scope 1 includes direct emissions from operations we own or control.

² Emissions from Global Businesses and Group are included in the data for the ERM region in which employees' home offices are located.

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Scope 2 emissions GRI 305-2

Scope 2 emissions FY18 – FY20 (tCO2e) ^{1 2 3}



Scope 2 emissions by region FY18 – FY20 (tCO2e) ^{1 2}

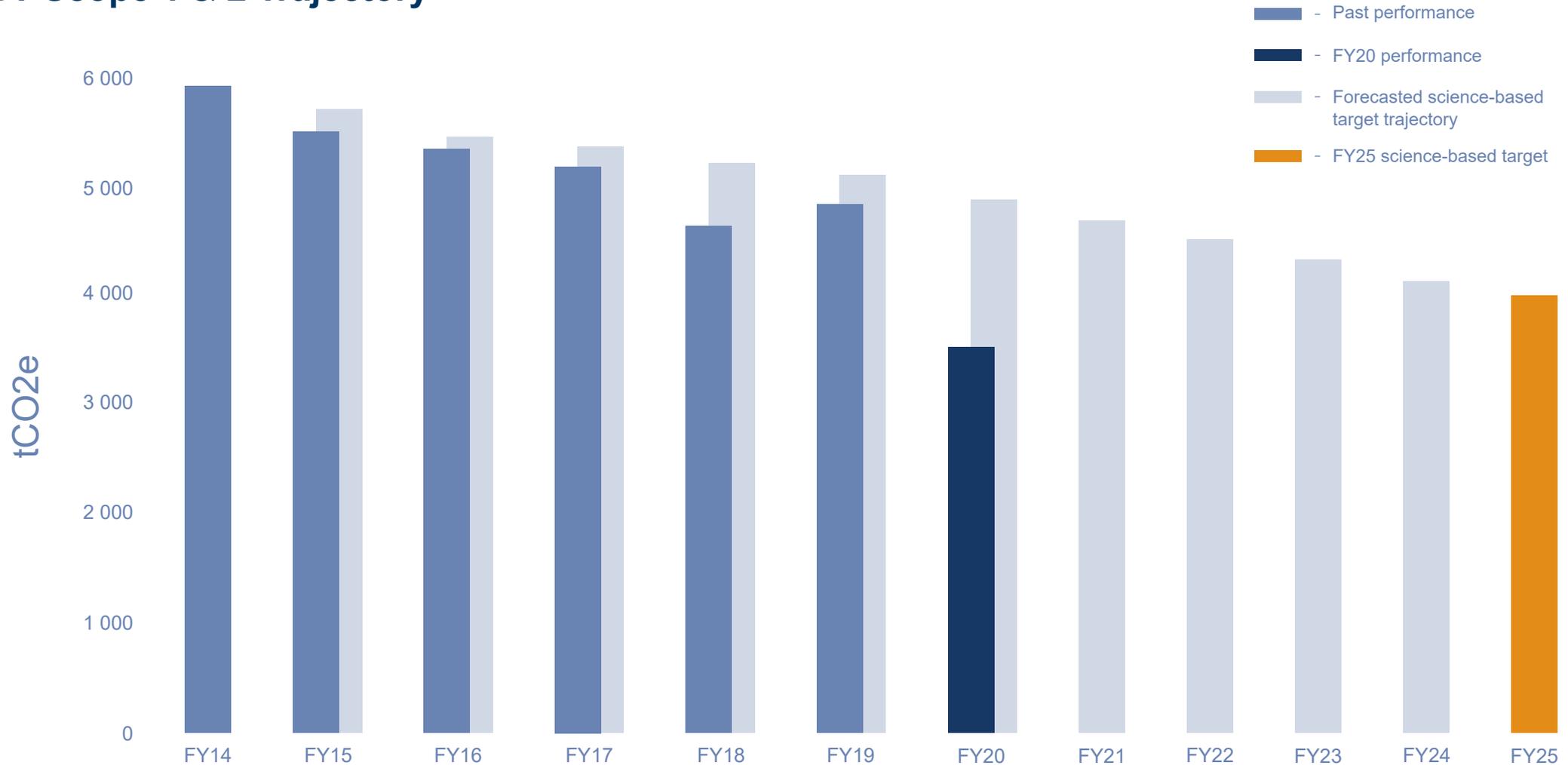
	Location-Based			Market-Based		
	FY18	FY19	FY20	FY18	FY19	FY20
Asia Pacific	711	733	667	711	733	667
Europe, Middle East and Africa	517	427	416	517	414	271
Latin America and Caribbean	91	98	81	91	98	81
North America	2,362	2,245	2,179	2,362	2,245	1,145
Total	3,681	3,503	3,344	3,681	3,491	2,164

¹ Scope 2 includes indirect emissions from purchased electricity.

² Emissions from Global Businesses and Group are included in the data for the ERM region in which employees' home offices are located.

³ All data has been calculated using a market-based approach, unless otherwise stated. For further information on market-based methods, please refer to <http://www.ghgprotocol.org>

SBT Scope 1 & 2 Trajectory



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Scope 3 emissions GRI 305-3

Scope 3 emissions FY18 – FY20 (tCO2e) ¹

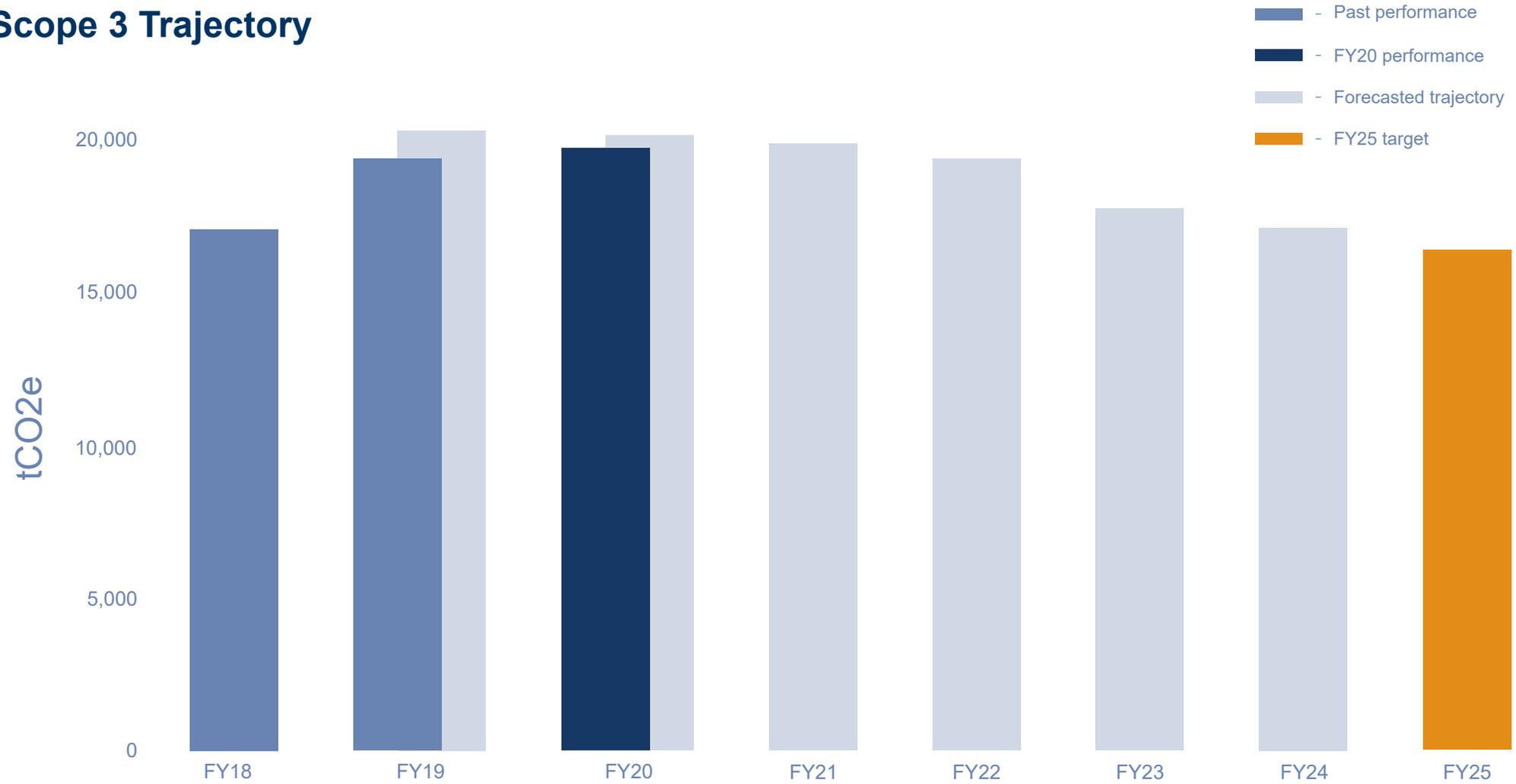


Scope 3 emissions by region FY18 – FY20 (tCO2e) ¹

	FY18	FY19	FY20
Asia Pacific	3,404	3,288	2,826
Europe, Middle East and Africa	3,782	3,857	3,815
Latin America and Caribbean	1,238	1,340	1,165
North America	11,260	12,381	13,313
Global Business	434	563	503
Group	995	998	738
Total	21,112	22,427	22,360

¹ Scope 3 includes other indirect emissions that occur outside ERM (business travel, employee commuting, shared space electricity, and transmission and distribution losses).

SBT Scope 3 Trajectory

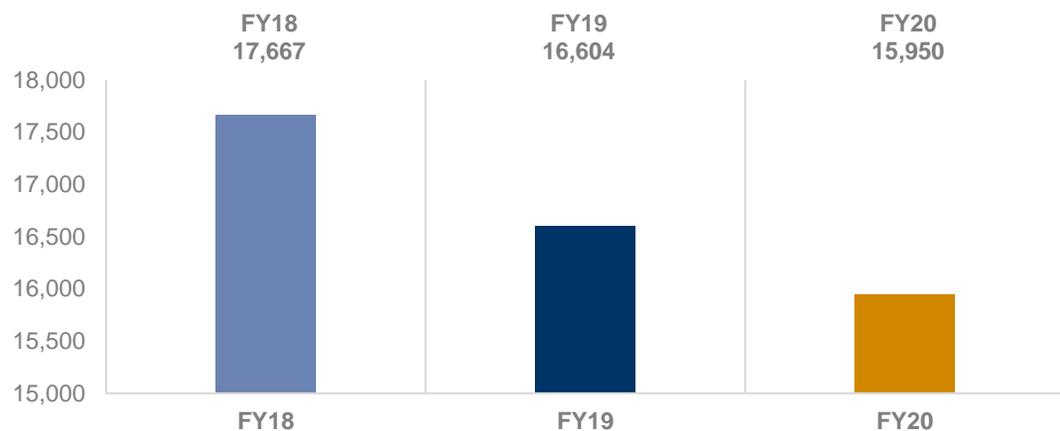


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Global office energy use

GRI 302-2

Global energy use FY18 – FY20 (MWh) ^{1 2}



Global energy use FY18 – FY20, by type (MWh) ^{1 2}

	FY18	FY19	FY20
Office electricity from non-renewable sources	7,996	7,649	4,677
Electricity from renewable sources	139	302	3,089
Fuel consumption	3,034	2,954	3,283
Scope 3 other electricity	6,508	5,699	4,901
Total	17,667	16,604	15,950

¹ Employees from Global Businesses and Group are included in the data for the ERM region in which their home offices are located.

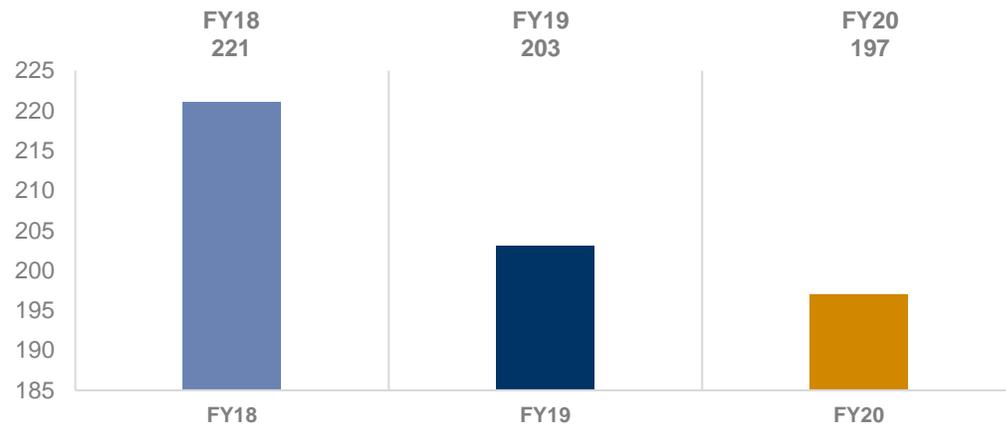
² For reporting purposes, only MWh using the regular method are included and upstream MWh are excluded.

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Global energy use intensity

GRI 302-2

Global energy use intensity FY18 - FY20 (KWh/M2) ¹



¹ Total global energy use normalized by total office floor space.

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References

Data presented here supports the climate risk section of this report. All emissions data presented is expressed as carbon dioxide equivalent (CO₂e) and includes all Kyoto gases and refrigerants. ERM uses the Fifth Assessment Report as a source of global warming potential (GWP) without climate feedback. The detailed reference table can be found below.

All data has been calculated using a market-based approach, unless otherwise stated. For further information on market-based methods, please refer to <http://www.ghgprotocol.org>.

Gas	Activity	Geography	Reference
CO ₂ , CH ₄ , N ₂ O	Passenger car (all sizes and fuel types)	Europe	Department for Business, Energy and Industrial Strategy (2019). 2019 Government GHG Conversion Factors for Company Reporting.
CO ₂ , CH ₄ , N ₂ O	Passenger car (all sizes and fuel types)	North America and countries outside Europe	EPA (2018). GHG Emission Factors Hub. Center for Corporate Climate Leadership. March 2018. https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf and EPA (2019). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2017. United States Environmental Protection Agency.
CO ₂ , CH ₄ , N ₂ O	Gasoline car	Canada	EC (2019). National Inventory Report. Greenhouse Gas Sources and Sinks in Canada: 1990 - 2017. Environment Canada.
CO ₂ , CH ₄ , N ₂ O	Gasoline and Diesel cars	Australia	Commonwealth of Australia 2019 (Department of the Environment and Energy). National Greenhouse Account Factors (NGA) - Australian National Greenhouse Accounts. August 2019. Online: http://www.environment.gov.au/system/files/resources/cf13acc9-c660-445e-bd82-3490d74e9d09/files/national-greenhouse-accounts-factors-august-2019.pdf
CO ₂ , CH ₄ , N ₂ O	Petrol and diesel use	Europe	Department for Business, Energy and Industrial Strategy (2019). 2019 Government GHG Conversion Factors for Company Reporting.
CO ₂ , CH ₄ , N ₂ O	Gasoline and Diesel use	North America and countries outside Europe	EPA (2018). GHG Emission Factors Hub. Center for Corporate Climate Leadership. March 2018. https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf
CO ₂ , CH ₄ , N ₂ O	LPG	South America	GHG Protocol Brazil (2019). Ferramenta GHG Protocol 2019. Versão 2019.3. Programa Brasileiro GHG Protocol. Available online: https://www.ghgprotocolbrasil.com.br/ .
CO ₂ , CH ₄ , N ₂ O	Motorcycle	World	Department for Business, Energy and Industrial Strategy (2019). 2019 Government GHG Conversion Factors for Company Reporting
CO ₂ , CH ₄ , N ₂ O	Taxi	Europe	Department for Business, Energy and Industrial Strategy (2019). 2019 Government GHG Conversion Factors for Company Reporting.
CO ₂ , CH ₄ , N ₂ O	Trucks	US and countries outside Europe	EPA (2018). GHG Emission Factors Hub. Center for Corporate Climate Leadership. March 2018. https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf and EPA (2019). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2017. United States Environmental Protection Agency
CO ₂	Auto-rickshaw	Asia	India GHG Program, India Specific Road Transport Emission Factors (2015).
CO ₂ , CH ₄ , N ₂ O	Bus	Europe	Department for Business, Energy and Industrial Strategy (2019). 2019 Government GHG Conversion Factors for Company Reporting.

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References

Gas	Activity	Geography	Reference
CO2, CH4, N2O	Bus	North America and countries outside Europe	EPA (2018). GHG Emission Factors Hub. Center for Corporate Climate Leadership. March 2018. https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf
CO2, CH4, N2O	Light rail	World	Department for Business, Energy and Industrial Strategy (2019). 2019 Government GHG Conversion Factors for Company Reporting.
CO2, CH4, N2O	National rail	Europe	Department for Business, Energy and Industrial Strategy (2019). 2019 Government GHG Conversion Factors for Company Reporting.
CO2, CH4, N2O	National rail (intercity)	North America and countries outside Europe	EPA (2018). GHG Emission Factors Hub. Center for Corporate Climate Leadership. March 2018. https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf
CO2	AVE Train	Spain	RENFE (2017). Informe Anual de Responsabilidad Social, Empresarial y Gobierno Corporativo, available online at: http://www.renfe.com/EN/empresa/RSE/InformesRSEyGobiernoCorporativo.html
CO2e	TGV train	Europe	SNCF (2018). INFORMATION SUR LA QUANTITE DE GAZ A EFFET DE SERRE EMISE A L'OCCASION D'UN PRESTATION DE TRANSPORT.
CO2e	Thalys train	Europe	Thalys (2016). Thalys Carbon Footprint 2016. https://www.thalys.com/img/1505743154/pdf/developpement.../bilan-carbone-en.pdf Accessed August 2018
CO2, CH4, N2O	Eurostar	Europe	Department for Business, Energy and Industrial Strategy (2019). 2019 Government GHG Conversion Factors for Company Reporting.
CO2, CH4, N2O	Underground	World (except North America)	Department for Business, Energy and Industrial Strategy (2019). 2019 Government GHG Conversion Factors for Company Reporting.
CO2, CH4, N2O	Transit rail	North America	EPA (2018). GHG Emission Factors Hub. Center for Corporate Climate Leadership. March 2018. https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf
CO2, CH4, N2O	Ferry	World	Department for Business, Energy and Industrial Strategy (2019). 2019 Government GHG Conversion Factors for Company Reporting.
CO2, CH4, N2O	Flights – all hauls and classes	World	Department for Business, Energy and Industrial Strategy (2019). 2019 Government GHG Conversion Factors for Company Reporting.
CO2, CH4, N2O	District heating (natural gas CHP)	World	IPCC (2006). Revised IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual. Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge.
CO2, CH4, N2O	District heating (steam)	North America	EPA (2018). GHG Emission Factors Hub. Center for Corporate Climate Leadership. March 2018. https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf
CO2	District heating	Germany	AGFW (2017). Liste der CO2-Bescheinigungen nach FW 309-6 nach Städten sortiert.
CO2, CH4, N2O	Electricity (incl. T&D losses)	UK	Department for Business, Energy and Industrial Strategy (2019). 2019 Government GHG Conversion Factors for Company Reporting.

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References

Gas	Activity	Geography	Reference
CO2, CH4, N2O	Electricity (incl. T&D losses)	US	EPA (2020). eGrid2018v2. Release : 3/9/2020. Online: https://www.epa.gov/energy/emissions-generation-resource-integrated-database-egrid . Accessed March 11, 2020.
CO2, CH4, N2O	Electricity (incl. T&D losses)	Canada	EC (2019). National Inventory Report. Greenhouse Gas Sources and Sinks in Canada: 1990 - 2017. Environment Canada. Online: https://unfccc.int/documents/194925
CO2, CH4, N2O	Electricity (incl. T&D losses)	World (except UK, US and Canada)	IEA (2019). Statistics. http://www.iea.org/stats/index.asp# IPCC (2006). Revised IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual. Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge.
CO2e	Electricity (incl. T&D losses)	Australia	Commonwealth of Australia 2019 (Department of the Environment and Energy). National Greenhouse Account Factors (NGA) - Australian National Greenhouse Accounts. August 2019. Online: http://www.environment.gov.au/system/files/resources/cf13acc9-c660-445e-bd82-3490d74e9d09/files/national-greenhouse-accounts-factors-august-2019.pdf
CO2e	Electricity residual mix	Europe	AIB (2019). European Residual Mixes 2018. Version 1.1, 28th May 2019. Association of Issuing Bodies.
CO2, CH4, N2O	Natural gas	Canada	EC (2019). National Inventory Report. Greenhouse Gas Sources and Sinks in Canada: 1990 - 2017. Environment Canada. Online: https://unfccc.int/documents/194925
CO2, CH4, N2O	Natural gas	Europe	Department for Business, Energy and Industrial Strategy (2019). 2019 Government GHG Conversion Factors for Company Reporting.
CO2, CH4, N2O	Natural gas	Australia	Commonwealth of Australia 2019 (Department of the Environment and Energy). National Greenhouse Account Factors (NGA) - Australian National Greenhouse Accounts. August 2019. Online: http://www.environment.gov.au/system/files/resources/cf13acc9-c660-445e-bd82-3490d74e9d09/files/national-greenhouse-accounts-factors-august-2019.pdf
CO2, CH4, N2O	Natural gas	US	EPA (2018). GHG Emission Factors Hub. Center for Corporate Climate Leadership. March 2018. https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf And EPA (2019). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2017. United States Environmental Protection Agency. Online: https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2017
HCFC123, R11, R12, R401a, HFC134a, R407c, R410a	Refrigerants	World	IPCC (2013). IPCC Fifth Assessment Report: Climate Change 2013. Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge.