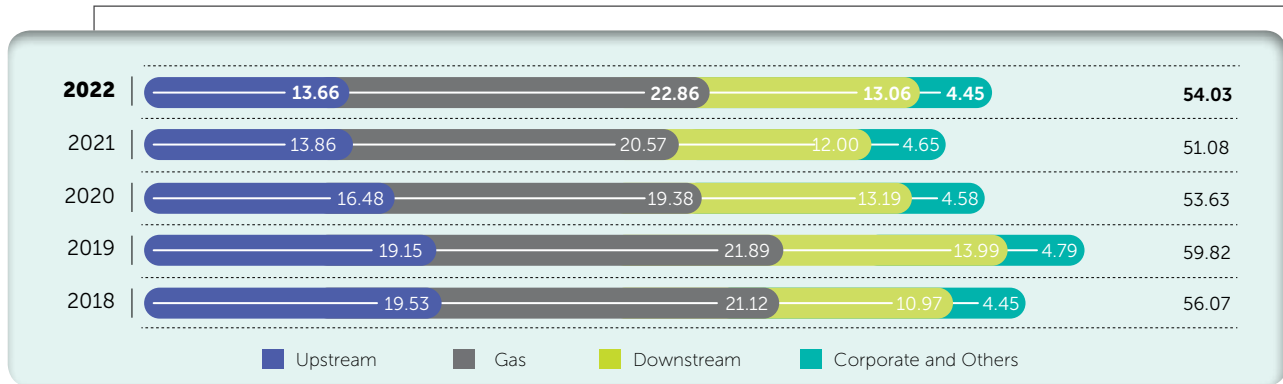


Five-Year Sustainability Key Performance Data

GHG Emissions – Operational Control

Total Greenhouse Gas (GHG) Emissions Breakdown by Business (Million tCO₂e)



Note:

CO₂e = carbon dioxide equivalent. This unit converts all other GHGs into the common denominator of CO₂e using Global Warming Potential (GWP) factors following the Intergovernmental Panel on Climate Change (IPCC) 4th Assessment Report (AR4).

In reviewing and improving our GHG emissions accounting methods, the total GHG emissions for operational control changed from previous disclosures due to the change of organisational boundary during re-baselining activities conducted in FY2022. Changes in scope since 2021 disclosures cover the inclusion of VESTIGO* and Iraq operations and removal of Myanmar because of divestment.

Our emissions in 2022 were higher compared to 2021 due to increased operational activities along the value chain following recovery from the COVID-19 pandemic.

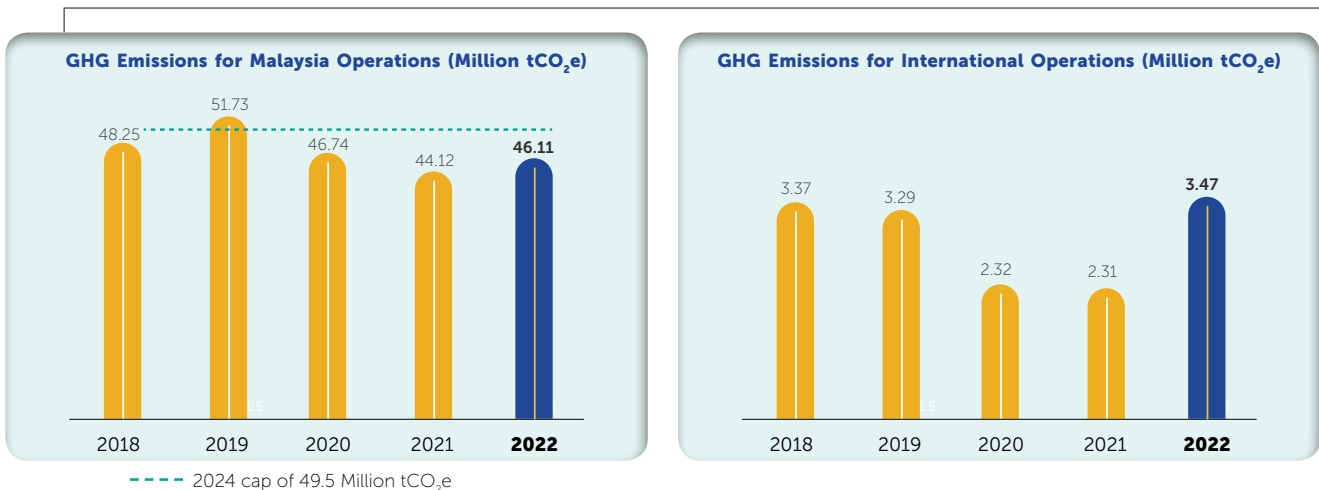
The short-term target of capping GHG emissions at 49.5 Million tCO₂e by 2024, includes the oil and gas value chain where more than 90 per cent of GHG emissions are contributed by activities in Upstream, Gas and Downstream Malaysia operations excluding Corporate and Others** activities. Furthermore, GHG emissions accounting for Corporate and Others require further refinements due to different organisational boundary used previously. Hence, subsequent analysis depicted below exclude Corporate and Others.

* VESTIGO is a wholly owned subsidiary of PETRONAS Carigali Sdn Bhd, focusing on development and production activities.

** Corporate and Others include MISC Group and KLCC Property Holdings.

GHG Emissions Breakdown by Region (Million tCO₂e)

(Excludes Corporate and Others)



In FY2022, total GHG emissions from Scope 1 and Scope 2 for Malaysia and International assets under operational control boundary is 49.58 Million tCO₂e.

In the oil and gas value chain, GHG emissions from Gas business contributed 46 per cent, followed by 28 per cent from Upstream and 26 per cent from Downstream. 96 per cent of emissions were from Scope 1 where the sources were mainly from stationary combustion, flaring and venting. Meanwhile Scope 2 only contributed to 4 per cent of Scope 1 and 2 emissions.

GHG emissions from Malaysia operations have been showing positive improvements, as it remained below the cap of 49.5 Million tCO₂e. This was contributed by ongoing investment in GHG emissions reduction efforts from FY2019 to FY2022 despite economic downturn. For international operations, total GHG emissions from Scope 1 and Scope 2 increased in FY2022 due to the increase in production from Iraq and Canada operations.

GHG Emissions Breakdown by Scope, Gases and Sources for Operational Control

(Excludes Corporate and Others)

Key Performance Indicators	2018	2019	2020	2021	2022
GHG Emissions (Million tCO ₂ e)	51.62	55.02	49.06	46.43	49.58
Breakdown by Scope					
Scope 1 (Million tCO ₂ e)	49.66	53.09	47.14	44.67	47.62
Scope 2 (Million tCO ₂ e)	1.96	1.93	1.92	1.76	1.96
Breakdown by Gas (only Scope 1)					
Carbon dioxide (CO ₂) (million tonnes)	39.65	42.57	38.40	38.71	42.15
Methane (CH ₄) (thousand tonnes)	394.33	413.51	343.49	232.23	215.40
Nitrous Oxide (N ₂ O) (thousand tonnes)	0.53	0.62	0.54	0.59	0.69
Breakdown by Sources (only Scope 1)					
Combustion (Million tCO ₂ e)	31.65	34.93	31.62	31.85	33.53
Flaring (Million tCO ₂ e)	8.98	8.37	7.16	7.33	8.33
Venting (Million tCO ₂ e)	8.28	9.20	7.53	4.81	3.74
Others (Million tCO ₂ e)	0.76	0.58	0.82	0.68	2.01

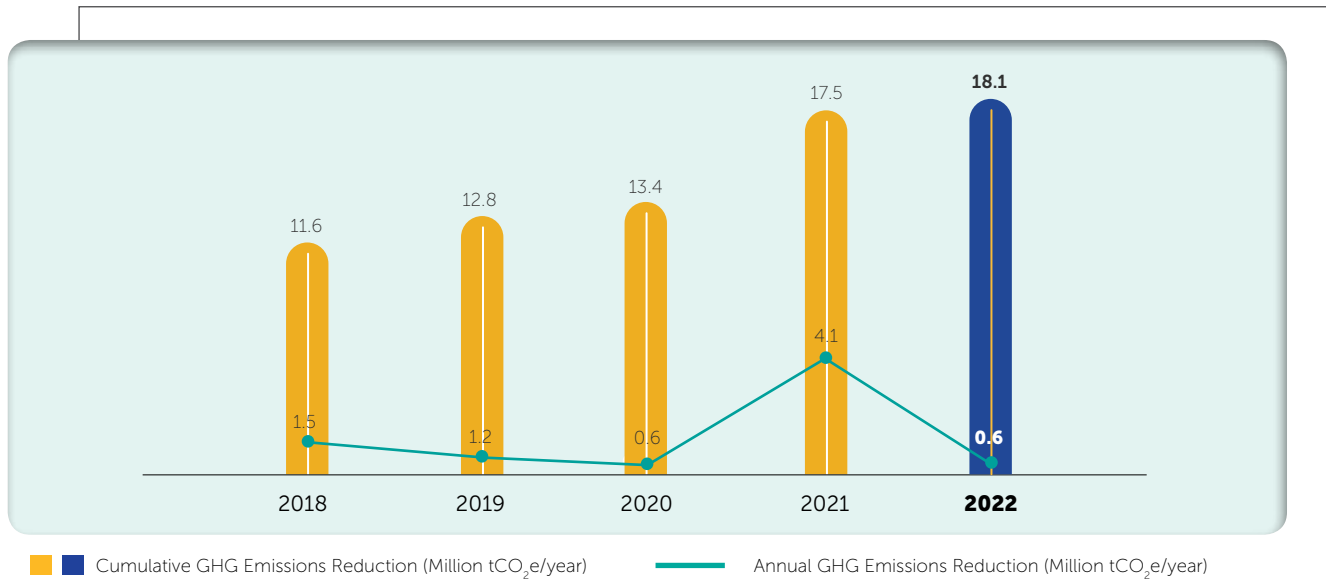
PETRONAS uses the Global Warming Potential values from the Intergovernmental Panel on Climate Change (IPCC) 4th Assessment Report.

GHG Intensity by Business Segments

	2018	2019	2020	2021	2022
Upstream					
Total (tCO ₂ e/kboe)	56.75	51.39	50.30	38.93	34.57
Malaysia Assets (tCO ₂ e/kboe)	75.55	65.83	65.27	47.69	40.15
International Assets (tCO ₂ e/kboe)	21.07	19.28	14.99	19.47	23.92
Downstream					
Refineries (tCO ₂ e/bbl)	0.018	0.018	0.019	0.018	0.020
Petrochemicals (tCO ₂ e/tonnes)	0.68	0.68	0.66	0.67	0.68

Five-Year Sustainability Key Performance Data

GHG Emissions Reduction from Projects (Million tCO₂e/year)

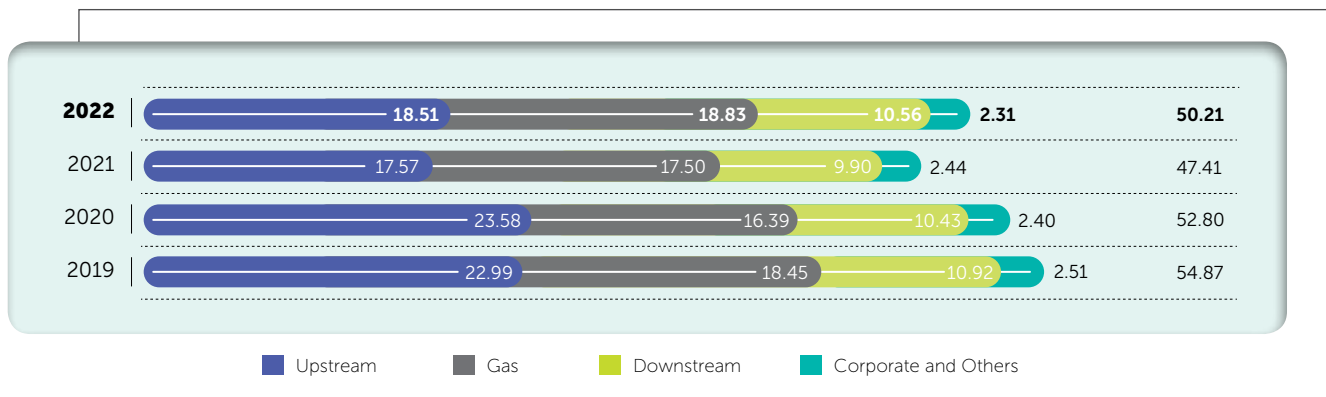


GHG emissions reduction are calculated as per ISO 14064-2: 2019 and do not reflect the year-on-year GHG emissions differences. According to ISO 14064-2, GHG projects are activities that alter the conditions of a GHG baseline and which cause GHG emissions reduction or GHG removal enhancements.

Cumulatively since 2013, we have reduced 18.1 Million tCO₂e of GHG emissions from our operations. Over the years, GHG emissions reduction was achieved through flaring and venting reduction initiatives in Upstream as well as energy efficiency improvements in Gas and Downstream businesses. Moving forward, electrification and CCS efforts will contribute more to meet our short-term and mid-term targets.

GHG Emissions – Equity Share

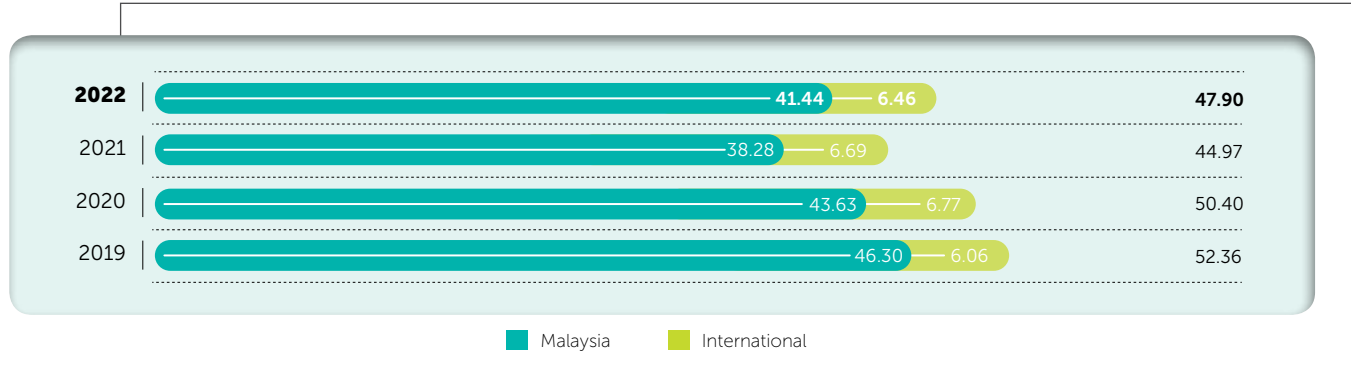
Total GHG Emissions Breakdown by Business (Million tCO₂e)



Equity share reflects economic interest, which is the extent of rights a company has to the risks and rewards flowing from an operation. Hence, PETRONAS has set mid-term and long-term targets by referring to FY2019 as the base year on equity share approach. The GHG emissions for FY2019 is adjusted to be 54.87 Million tCO₂e taking into consideration divestments and changes of equity ownership in Upstream business, as well as new information obtained from equity partners in Gas and Downstream businesses. In 2022, Gas business contributed the highest GHG emissions (37.50 per cent), followed by Upstream business (36.87 per cent), Downstream business (21.03 per cent), and Corporate and Others (4.60 per cent).

GHG Emissions Breakdown by Region (Million tCO₂e)

(Excludes Corporate and Others)



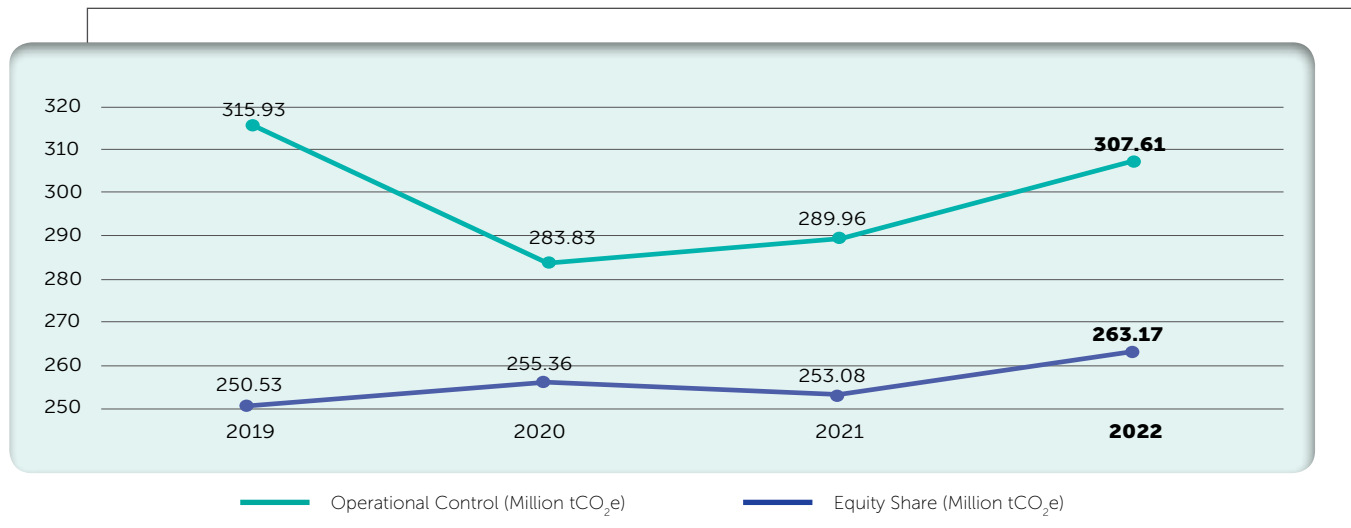
Key Performance Indicators

(Excludes Corporate and Others)

	2019	2020	2021	2022
Total GHG Emissions (Million tCO ₂ e)	52.36	50.40	44.97	47.90
- Scope 1 (Million tCO ₂ e)	50.87	48.87	43.48	46.48
- Scope 2 (Million tCO ₂ e)	1.49	1.53	1.49	1.42

In 2022, total GHG emissions under the Equity Share approach is 47.90 Million tCO₂e, excluding Corporate and Others. A reduction of 10.50 per cent from 2019 levels was recorded for Malaysia operations, while there was an increase of 6.60 per cent for international operations from 2019 levels. This was due to the increase in upstream production as well as new investments.

Scope 3 Category 11 (Million tCO₂e) by Operational Control and Equity Share approaches



PETRONAS has started to calculate and disclose Scope 3 GHG emissions for Category 11: Use of Sold Products. PETRONAS has plans to validate the Scope 3 methodology and conduct external verification in subsequent years. Under operational control and equity share approaches, Scope 3 GHG emissions show a 6.09 per cent and 3.99 per cent increase respectively compared to 2021. This is due to the increase in energy demand post-COVID 19 recovery.

Five-Year Sustainability Key Performance Data

Cumulative Renewable Energy Installed Capacity

Key Performance Indicators	2018	2019	2020	2021	2022
Total Cumulative Renewable Energy Installed Capacity (megawatt)	10	10	644	851	1,086*
Malaysia (megawatt)	10	10	19	29	81
International (megawatt)	n/a	n/a	625	822	1,005

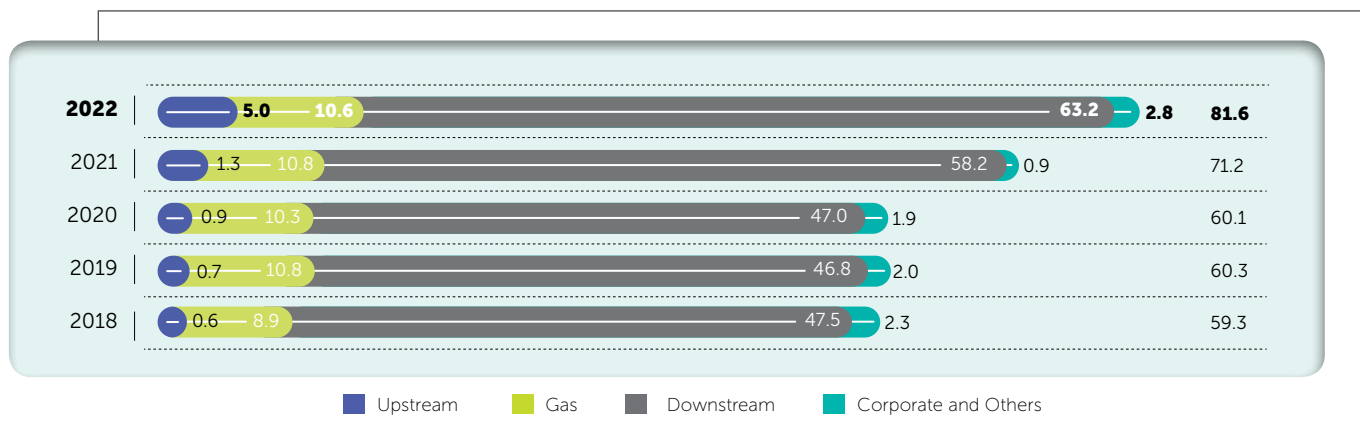
Note:

* Cumulative renewable energy capacity is 1.6GW, including installed and those under development.

Environment

Total Freshwater Withdrawal

(million cubic metres per year)



Water

	2018	2019	2020	2021	2022
Total Freshwater Withdrawal (million cubic metres per year)	59.3	60.3	60.1	71.2	81.6
Malaysia (million cubic metres per year)	56.4	57.0	56.8	70.2	76.8
International (million cubic metres per year)	2.9	3.3	3.3	1.0	4.8
Discharges to Water (tonnes of hydrocarbon)	715	648	532	452	487

Air Emissions

	2018	2019	2020	2021	2022
Total Sulphur Oxides Emissions (tonnes)	113,256	110,214	84,225	47,954	60,116
Total Nitrogen Oxides Emissions ¹ (tonnes)	151,519	148,446	138,035	133,962	62,790

Waste

	2018	2019	2020	2021	2022
Number of Hydrocarbons Spills into the Environment over One Barrel ² (Number of cases)	7	7	5	2	2
Total Hazardous Waste Disposed (tonnes)	34,688	42,121	33,349	59,228	76,485

Note:

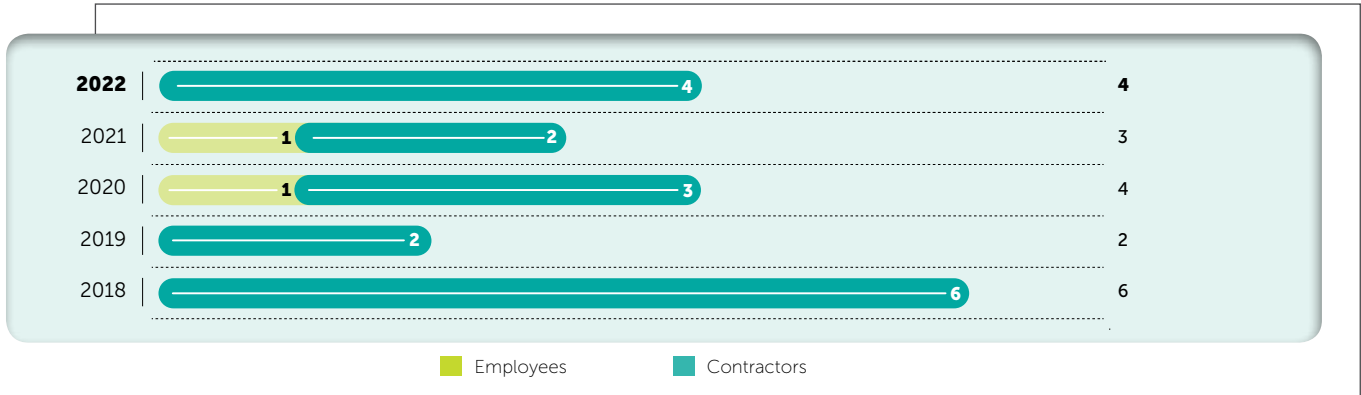
¹ Total nitrogen oxides emissions for 2022 stood at 62,790 tonnes from 133,962 tonnes in 2021, mainly due to omission of emission load data from ships due to ongoing review of reporting method, and revision in calculation methodology for floating Liquefied Natural Gas (LNG) and power plant.

² One barrel is equivalent to 159 litres.

Safety

Number of Fatalities

(Number of cases)



Key Performance Indicators	2018	2019	2020	2021	2022
Total man-hours worked (million hours)	466	355	273	268	292
Employees (million hours)	130	133	120	120	126
Contractors (million hours)	336	222	153	148	166
Fatal Accident Rate (FAR) (Number per 100 million man-hours)	1.29	0.56	1.47	1.12	1.37
Employees (Number per 100 million man-hours)	0.00	0.00	0.00	0.00	0.00
Contractors (Number per 100 million man-hours)	1.79	0.90	1.96	1.35	2.41
Lost Time Injury Frequency (LTIF) (Number of cases per one million man-hours)	0.09	0.11	0.10	0.14	0.13
Employees (Number of cases per one million man-hours)	0.12	0.08	0.09	0.10	0.11
Contractors (Number of cases per one million man-hours)	0.08	0.12	0.11	0.17	0.14
Total Reportable Case Frequency (TRCF) (Number of cases per one million man-hours)	0.38	0.34	0.29	0.41	0.34
Employees (Number of cases per one million man-hours)	0.32	0.28	0.27	0.28	0.26
Contractors (Number of cases per one million man-hours)	0.41	0.37	0.31	0.52	0.40
Total Recordable Occupational Illness Frequency (TROIF) (Number of cases per one million man-hours – employees)	0.22	0.23	0.39	0.24	0.32

Note:

The Fatal Accident Rate (FAR) and Total Reportable Case Frequency (TRCF) for 2021 was updated due to the revision in total man-hours worked.