

Golar LNG ESG methodology statement

Introduction

This document outlines the definitions and the methodologies that have been used to prepare Golar LNG's Environment, Social and Governance (ESG) metrics.

1. General reporting overview

Basis for reporting

The metrics and disclosures in our ESG Report are selected based on our materiality assessment, explained on our website. The metrics reported, which are included in this methodology apply to our operational assets (Hilli & Gimi), the offshore personnel metrics also apply to our MKII Asset (currently in conversion at the yard) are:

- Greenhouse Gas (CO₂) emissions (scope 1)
- Greenhouse Gas (CO₂) emissions (scope 2)
- SO_x emissions total
- NO_x emissions total
- PM emissions total
- CH₄ emissions total
- Energy consumed in MWh
- FLNG emissions per ton produced
- General and Oily waste
- Employee Retention Rate (%) for Onshore staff
- Employee Retention Rate (%) for Offshore personnel
- Diversity – Number of nationalities and % of each gender onshore and offshore
- Number of Marine Casualties – Reportable Injury
- Recordable Injury Frequency (RIF)
- Average training hours per Offshore personnel

Reporting boundary

This report focuses on the operational FLNG assets owned by Golar, as of 31 December 2025. Emissions data will be reported for all operational FLNG assets owned by Golar during 2025. FLNG Hilli was the only FLNG operational in 2024. Emissions from our second FLNG asset, Gimi, are reported from commencement of commercial operations in June 2025. For the calculation of our Greenhouse Gas (CO₂) emissions (scope 1), we calculate the total of our CO₂e emissions from FLNG Hilli and Gimi.

Health & Safety data will be reported for operational FLNG assets during 2025 (FLNG Hilli and Gimi). This includes our waste and spills metrics. FLNG Gimi commenced operations on June 12th 2025.

People data will be reported for all staff employed on and offshore during 2025 which includes project support crew for our MKII asset (currently in conversion at the yard).

This methodology statement is reviewed and updated annually.

Standards and methodology

To facilitate comparability, most of our reporting figures are calculated based on industry-specific standards. Where industry specific standards are not available, we follow an alternative method as described in more detail below, being our view of best practice and the most accurate data available to us.

Uncertainty and estimates

Every effort is made to capture all relevant data, however where we have used estimates or assumptions, we have made this clear and this has been explicitly defined in the specific criteria for each indicator below, where appropriate.

Restatement

Where new information is available, we will restate the prior year's figures using the latest available data to make data as comparable between years as possible. We will clearly outline where restatements for specific metrics have been made.

Our responsibility

We ensure that appropriate procedures are in place to report our performance data, in all material respects, as set out in this document. We further acknowledge and fulfil our responsibilities in:

- establishing objective reporting criteria for preparing the selected information.
- the content of the Environment, Social and Governance Report.

2. Emissions reporting specifics and methodology

2.1. FLNG specifics

General overview

Our FLNG emissions are derived from the following processes: inlet gas handling, amine treating (CO₂ and H₂S removal), dehydration, liquefaction, heavy hydrocarbon separation, product handling, refrigeration, flash gas/fuel gas compression and utility systems.

Standards we follow

Due to the bespoke nature of the two assets, there are currently no industry standards we are able to use to calculate our emissions footprint. We have therefore performed our own studies on the various emission sources on the vessel to determine our emissions footprint and to accurately report on our emissions.

Under the GHG protocol, Golar has adopted the control approach and reports 100% of FLNG Hilli's and Gimi's emissions. Detailed calculation formulas, conversion factors and assumptions used for these calculations can be found in Appendix 1.

Scope and boundaries

The emissions reported are specific to our two operating assets for 2025

Owner information: FLNG Hilli is 100% owned by Golar LNG. Gimi is 70% owned by Golar LNG, with the remaining 30% interest held by First FLNG Holdings, a subsidiary of Keppel Limited (Singapore Pte Ltd Co). The emissions reported are the total emissions for all companies (100% of both Hilli and Gimi's operating emissions).

Source of emissions: Our emissions including CO₂, NO₂ (NO_x), SO₂ (SO_x), PM and CH₄ are derived and calculated from the below sources:

- Fuel combustion (including estimated methane slip)
- Flaring (fuel and refrigerant)
- Amine treating system
- Venting (refrigerant)

Equipment and fuel: The following equipment operates on fuel gas: main boilers and gas engines (with a low-pressure fuel gas stream) and the gas turbines (high pressure fuel gas stream). The main boilers (with a low-pressure fuel gas stream) are dual fuel engines that can also operate on MGO. The generators (which include both essential and emergency generators) operate on MGO. We include all equipment above in our calculations, unless otherwise stated.

Refrigerants: We use ethylene, propane and iso-pentane in our liquefaction train mixed refrigerant loops, and Freon, specifically R407C, R407F and R134A, in our air conditioning units. We include refrigerant in our calculations, unless otherwise stated.

Venting: CO₂ venting occurs in our amine treating system in Hilli FLNG, but these acid gases are burnt in a Thermal Oxidizer/Flare on Gimi due to higher concentrations of BTEX components. We include all emissions from venting in our calculations, unless otherwise stated.

Freon Seepage: Freon used in air conditioning units is lost to the atmosphere through flange leaks.

Flaring: The flare system combusts the gases and safely disposes gases to the atmosphere in situations that require evacuation of such, and otherwise could pose a risk to the plant, equipment and personnel. The gases from the independent sub systems are disposed to the atmosphere via flare stacks. We include emissions from flaring in our calculations unless otherwise stated.

Emission factor selection hierarchy

For combustion-related emissions calculations, Golar applies emission factors and conversion factors that are intended to be as representative as practicable of the relevant fuel, equipment type and operating conditions. Where available, the preferred basis for emission calculations is direct measured emissions data or fuel-specific analysis, including actual fuel composition, carbon content, sulphur content, density and heating value.

Where measured or fuel-specific data is not available, Golar applies recognized regional, national or international standard emission factors from accepted sources such as IMO, Lloyd's Register, UK Government GHG Conversion Factors, EPA, IEA or other relevant industry/regulatory references. Equipment manufacturer emission factors may also be used where they are considered representative of the actual equipment configuration, operating load, fuel type and operating conditions.

Stoichiometric or engineering calculation factors are used only where more representative measured data, fuel analysis data, recognized standard factors or manufacturer data are not available. These factors represent theoretical conversion assumptions, typically based on complete combustion, and are therefore treated as fallback/default factors rather than preferred data sources.

Calculation, conversion factors and assumptions

The table below sets out the details behind our FLNG reporting items:

Calculation	Conversion factors and assumptions
Emission figures	
CO2e: The sum of CO2 emissions from the total fuel consumed, vented, flared and refrigerant consumed and flared multiplied by its respective conversion factors. CO2e = (fuel consumed x relevant CO2 conversion factor) + (venting and flaring x relevant CO2 conversion factor) + (refrigerant x relevant CO2 conversion factor) + venting of CO2 from feed gas through the amine treating system (CO2 material balance based on feed gas composition) + (freon seepage x CO2e conversion factor) + (methane slip x relevant CO2e conversion factor) + (total N2O x relevant CO2e conversion factor)	Fuel consumption: The conversion factors used for equipment that consume gas fuel are based on direct calculation of CO2 emissions based on carbon content and take into account the following for each of the different streams of gas fuels: fuel gas volume flow, fuel gas mole weight and carbon content. Our calculations are based on an assumption that we combust 100% of the carbon in the fuel. We calculate gas compositions each year based on the average fuel composition for the year. The conversion factors used for equipment that consume MGO are based on manufacturers data (main boiler) and Industry standards¹ (generators). Refrigerant: The conversion factors used for ethylene, propane and iso-pentane are based on stoichiometric conversions for complete combustion. Venting: The quantity of CO2 vented from the Amine treating system is calculated based on material balance for the feed gas quantity and its molar concentration. Freon Seepage: Freon's conversion factor is based on the UK Government GHG Conversion Factors for Company Reporting. Flaring: The conversion factors used are based on the carbon content, the flare efficiency (% carbon combusted), the gas density and CO2/C "molecular" weight ratio².
SOx: the sum of Sox emissions from the total fuel consumed and its sulphur content multiplied by its respective conversion factors. SOx= Fuel consumed x relevant Sox conversion factor from Sulphur content in fuel	Fuel consumption: The conversion factors used for equipment that consume MGO are based on direct calculation based on the sulphur content in the fuel. We use the maximum sulphur content limits in MGO for the sulphur content with an assumed 100% combustion of the sulphur.
NOx: the sum of NOx emissions from the total fuel consumed multiplied by its respective conversion factors. Nox = Fuel consumed + gas flared x relevant NOx conversion factor.	Fuel consumption: The conversion factors used for our equipment that operate on fuel gas, excluding main boilers, are based on manufacturers' data which also takes into account the average fuel gas parameters for the different stream types. The conversion factors used for the main boilers are based on manufacturers data which also considers the density and the Lower heating value of the fuel gas. The conversion factors used for our equipment that operates on MGO are based on manufacturers' data. For the generators we use emission data for 75% of the engine load. Flaring: The conversion factors used are based on manufacturers data and use the Highest Heating value.

1. Lloyds Register emission factors (Table C5)

2. CO2/C "molecular" weight ratio = One Carbon atom is giving one CO2 molecule when the gas is combusted.

Calculation	Conversion factors and assumptions
PM: the sum of PM emissions from the total fuel consumed multiplied by its respective conversion factors. PM= Fuel consumed + gas flared x relevant PM conversion factor.	Fuel consumption: The conversion factors used for our equipment (gas turbines) that operate on high pressure fuel gas are based on manufacturers data which also takes into account the average gas parameters for the fuel gas flow. The conversion factors for the gas engines & main boiler are based on IMO data³ and take into account the fuel density and the relevant PM conversion factors. The conversion factors used for our equipment that operates on MGO are based on manufacturers data, where we assume 75% engine load (generators). Whereas our conversion factors for the main boilers are based on IMO data.
CH4: the sum of CH4 emissions not combusted multiplied by its respective conversion factors. CH4 = Methane not combusted x relevant conversion factor	The amount of methane that is not combusted through combustion engines and through flaring is based on the gas composition and manufacturers performance data. The non-combusted methane is then converted to CO2e by applying the industry standard conversion factors, which means that each tonne of non-combusted methane equals 28 tonnes of CO2.
Energy consumed in MWh: The energy consumed to produce LNG is the energy of the retainage of the total gas utilised. Retainage = (feed gas, MMBTU + displaced gas, MMBTU - LNG produced, MMBTU) / (feed gas, MMBTU + displaced gas, MMBTU)	(Feed gas + displaced gas) x retainage % x 0.293071 (source - https://www.inchcalculator.com/convert/million-btu-to-megawatt-hour/) Retainage shall mean the amount of LNG and/or gas (expressed in MMBTUs) that is retained by Hilli and Gimi operations as compensation for any LNG or gas that is required for operation of the FLNG Facility (including for use as fuel); and/or lost or unaccounted for as a result of ordinary operational losses during operations at the FLNG Facility.
Intensity figure	
Carbon intensity (Emission per tonne produced): this indicator measures the average GHG emissions for each tonne of LNG produced.	CO2e emissions follow the same methodology as stated above, although we remove the CO2 emissions from the Amine treating systems because we do not have control over the quality (CO2 content) of feed gas received from our customer. The amine system removes this CO2 from the feed gas prior to liquefaction. The indicator is the numerator divided by the denominator, as described below. The numerator: Total CO2e excluding CO2e emission from the amine treating system. The denominator: Total tonnes of LNG produced

Data collection and quality

Vessel performance data, which includes fuel consumption, LNG exported, gas flared etc. is captured daily. The sources of the information are from flow meters and our inventory records onboard. Capturing performance data allows real-time analysis of the data. The data captured is subjected to internal reviews to validate the accuracy and completeness of the data captured. Our results also get audited by an external party on an annual basis. We have procedures documenting how we calculate our emissions figures and how we have determined the relevant conversion factors.

3. IMO data/document: MEPC 67/INF.3: REDUCTION OF GHG EMISSIONS FROM SHIPS. (Table 67).
4. IMO Calculation MEPC.1/Circ684
5. Fourth IMO GHG Study 2020

3. Health, Safety and Security reporting specifics and Methodology

General

Golar strives to maintain an organizational culture based on openness and learning. At Golar we see failure as an opportunity to learn, and we always focus on what we can learn from any failure.

Unwanted outcomes will be reported in Maximo which is our incident reporting tool. The incident will be root cause analyzed and system corrective actions are implemented.

Standards and Methodology followed

Golar has changed from a more traditional shipping company to a pure FLNG operator. In order to align with our industry peers, it has been decided to move away from reporting in accordance with the voluntary OCIMF reporting scheme, and to report externally according to formal Flag State reporting requirements. We use the DNV MSCAT model for root cause analysis of any registered incident. For incidents with serious potential, we also do a more thorough investigation based on the Kevin Top-Set methodology.

Scope and boundaries

We register all incidents that happen from the point where an employee enters the workplace until they leave the workplace. For the purposes of our ESG metrics, the workplace is a FLNG, and we count 24 exposure hours per day.

We differentiate between leisure time and worktime incidents. The reason is that we allow for higher risk exposure during leisure time than during work hours. Playing basketball or exercising in the gym will always involve a certain risk for smaller injuries like a twisted ankle or similar.

However, we consider the benefits of physical activity to be greater than the disadvantage related to a small number of RWCs caused by work out and physical activity.

H&S data has been reported for the period we operated the FLNGs in 2025. Training hours are reported for the full calendar year.

Calculation, conversion factors and assumptions

The below table sets out the details behind our reporting items:

Calculation	Conversion factors and assumptions
Number of Marine Casualties – Reportable Injury	A Marine Casualty – Reportable Injury is an event or a sequence of events that has occurred directly in connection with the operation of a vessel documented under the Act or a vessel operating in the navigable waters of the RMI. Marine Casualties – Reportable Injury include: a. the death of, or serious injury to, a person; b. the loss of a person from a vessel; It does not include a deliberate act or omission, with the intention to cause harm to the safety of a vessel, an individual or the environment. Reference: MI-260 ‘Rules For Marine Investigations And Administrative Proceedings’ (Section 2.0 - Definitions)
Reportable Injury Frequency (RIF)	The number of lost time injuries that occurred during the reporting period calculated per 1-million-man hours worked. This is calculated as follows: $RF = RIs \times (1,000,000 / \text{Exposure Hours})$. (Ref. MI-260 and MI-108). *RI: Reportable Injuries are the sum of Marine Casualty – Reportable Injury: • Fatalities: A death directly resulting from a work injury regardless of the length of time between the injury and death. Also includes loss of a person from a vessel. Serious Injury causing any person(s) to remain incapacitated for a period in excess of 72 hours, including occupational accidents and occupational injuries and diseases, which may not be limited to accidents or incidents involving a vessel.

Calculation	Conversion factors and assumptions
Number of hours per offshore personnel spent on training, towards safe and efficient operations, in the year	The ~~average~~ total number of hours for Hilli, Gimi and Project Support crew (MKII) Offshore personnel spent on training, towards safe and efficient operations, in the year, divided by the total number of offshore personnel by the end year. Safety training is the sum of the following training: • Company trainings (including BOSIET): This is classroom or web-based safety training by either internal or external providers. Golar run about 40 such courses every year. • E-learning courses: Golar subscribe to e-learning courses from the company ‘Seagull’. All are included in the calculations. • On board safety drills: the number of weekly safety training drills each seafarer/worker has attended during their stay onboard. Normally 50 minutes per week. • STCW: Mandatory safety training for seafarers to maintain proficiency certificates. Training is provided by accredited training centres.

Data collection and quality

Safety, security and environment related incidents are reported, and root cause analyzed in our Maximo application. Maximo reports are quality checked by the senior officers onboard and the onshore support team.

Exposure hours are collected from our personnel system OCS and number of incidents are collected from Maximo. The results are displayed in our BI system Power BI.

4. Waste reporting specifics and methodology

General

Waste reporting is based on what is being generated onboard our operational FLNGs. Waste generated by our offices is not included in this report as this is considered immaterial.

Standards and Methodology followed

The Company has established an Environmental Management System (EMS) in compliance with the ISO 14001:2015 Standard. The ESG reporting of waste is based on our existing, and approved, environmental practices in line with this standard.

Scope and boundaries (Waste as Environmental Aspect Identification)

Environmental Aspect Elements are the organization's footprints that can impact the environment. Environmental Aspects are identified in workshop sessions and the outcome is the Golar Environmental Aspect Register. Waste is an Environmental Aspect Element that is reported and monitored as part of the ESG KPIs.

Waste data has been reported for the commercial operations period of both FLNGs for 2025.

There were no environmental fines in 2025.

Calculation, conversion factors and assumptions

The below table sets out the details behind our reporting items:

Calculation	Conversion factors and assumptions
FLNG general waste: Amount of garbage discharged to sea, incinerated and disposed ashore	Unit: m ³ Definition: Amount of garbage discharged to sea, incinerated and disposed ashore, by garbage type (in accordance with MARPOL Annex V garbage types). Data source and calculation: Figures should be extracted from the Garbage Record Book (GRB) for the period. Cooking oil disposed should be extracted from the Oil Record Book (ORB). Figures should match the figures entered in the GRB/ORB and the waste receipts from the garbage disposal contractor. Figures for garbage discharged to sea and incinerated are expected to be zero (it is not permitted to discharge garbage to sea except in emergencies, and onboard incinerators have been decommissioned).

Calculation	Conversion factors and assumptions
FLNG oily waste	Bilge water pumped through OWS, Disposed Ashore, Evaporated and Incinerated: Unit: m³ Definition: Bilgewater collected in bilge holding tank. Does not include rainwater run-off. Data source and calculation: Figures should be extracted from the Oil Record Book for the period. For reference, volumes pumped through the oily water separator (OWS) are read from the OWS control panel at every discharge. Volumes disposed ashore are calculated manually from electronic tank level readings. Bilgewater evaporated / incinerated is expected to be zero (there is no evaporator on the bilge system and onboard incinerators have been decommissioned). Bilge disposed ashore should normally be zero, except when failure/ repair of bilge system requires onshore disposal. Waste Oils not processed through the bilge or sludge holding tank are not currently reported on as these numbers are only held in the oil record book onboard. Sludge pumped through OWS, Disposed Ashore, Evaporated and Incinerated: Unit: m³ Definition: Sludge collected in sludge holding tank. Data source and calculation: Figures should be extracted from the Oil Record Book for the period. For reference, sludge separation water is pumped through OWS – volumes are read from the OWS control panel at every discharge. The remaining sludge is pumped onshore via a supply vessel – the volume is calculated manually from electronic tank level readings. Sludge evaporated /incinerated is expected to be zero (there is no evaporator on the sludge system and onboard incinerators have been decommissioned)

Data collection and quality

All vessels are ISO 14001 certified to ensure compliance with relevant regulations and consistent management of environmental improvements.

The actual figures are reported monthly in dedicated web-based software.

Each vessel 's general waste discharge to shore is quality checked by the office including proper segregation and quantity. For the latter we use photos and "Advance Notification of Delivery of Waste" Golar HSE 3405 forms.

The HSE 3405 form quantities are checked against the receipt from the local collecting facility.

Garbage is stated on the PSV cargo manifest and MARPOL Certificates are then received from the waste management service provider.

In case of any environmental quarterly KPI breach, vessels are instructed to raise a non-conformity that is analyzed for causes - remedials and re-occurrence prevention, fleetwide.

Golar's Power BI system is used to analyze the KPI's during the quarterly Operations Committee Meetings.

After the meeting, the quarterly Operations Committee Meeting minutes are shared with the fleet for their info/guidance.

At the end of quarter four, the Operations Committee issues a new “Company Environmental Program”, based on the last years achievements, which is shared with the FLNG units.

5. People reporting specifics and methodology

General

We are proud to have multiple nationalities working for us off and onshore.

Standards and Methodology followed

We use the Intertanko model and formula for calculating retention rate. This is an acknowledged standard in the maritime industry.

Scope and boundaries

Our offshore metrics are specific to Hilli, Gimi and Project

Support Crew only.

Calculation, conversion factors and assumptions

The below table sets out the details behind our reporting items:

Calculation	Conversion factors and assumptions
People and Community	
Number of office staff employed as at 31 December of reporting year.	Number of permanent employees, temporary employees and consultants “registered” in Simployer as at 31 December of the reporting year.
Number of offshore staff employed as at 31 December of reporting year (Hilli, Gimi and Project Support Crew (MKII))	Number of employees with activity registered in OCS during the reporting year. “Activity” can be onboard, training, leave etc.
Employee Retention Rate (%) for Office staff	Proportion of year end work force comprised of employees present at the start of the year: (# employees present as at 1 January of the reporting year who remained employed as at 31 December of the reporting year / # of employees as at 1 January of reporting year) x 100. This is specific to permanent employees.

Employee Retention Rate (%) for Offshore personnel (Hilli, Gimi and Project Support Crew (MKII))	Intertanko model for calculation of Retention: $\% \text{ Retention Rate (RR)} = 100 - \left[\frac{\{S - (UT + BT)\}}{AE} \right] \times 100$ Where: RR = Retention rate 24 months (in line with TMSA best practice guidance). S = Total number of terminations for whatever cause UT+BT= Unavoidable Terminations (retirements and long-term illness) and Beneficial Terminations (ex: redundancies, under-performers). AE = The average number of employees working for the company during the same period as calculated, this should be any period of 12 months.
Calculation	Conversion factors and assumptions
Diversity - Number of nationalities and % of each gender onshore/offshore (Hilli, Gimi and Project Support Crew (MKII))	Gender: Divided the number of females/males as at 31 December of the reporting year by the total number of onshore/offshore employees at Golar as at 31 December of the reporting year. Gender data used in the calculation was confirmed by all employees and was extracted from Simployer/OCS. Nationalities: Sum of the total number of nationalities recorded in employee profiles in Simployer/OCS.
Board attendance %	(The total number of attendees recorded in the minutes of each board meeting during the reporting year divided by the total number of board members multiplied by the total number of board meetings) x 100

Data collection and quality

For onshore staff, we use a common personnel system called Simployer for the Golar Group. Joiners and leavers are entered with start and leave dates. The turnover/retention calculation is based on these start and leaver dates as well as tagging of people not to be included in the calculation.

We use a Crew Management System (OCS) for offshore personnel where all data connected to hiring and leaving is entered. The same system is also used to register the various certificates and training needed to fulfil the requirement given in the STCW and the ISM Code.

6. Greenhouse Gas (CO2) emissions (scope 2)

Data collection and quality

Our Scope 2 emissions which relate to our five leased office spaces are calculated following the GHG Protocol. For each office we either obtained our energy usage from our electricity supplier or made a best estimate based on other information provided.

London and Oslo – These are our main offices that collectively host around 90% of our onshore staff and account for around 57% of our Location based Scope 2 emissions. All energy usage for both is included.

Bermuda – This small office hosts around 2% of our onshore headcount and represents approximately 35% of our Location based Scope 2 emissions. All energy usage is included.

Cameroon – This is small office hosts around 6% of our onshore staff and contributes approximately 4% of our Location based Scope 2 emissions. Prior years have involved significant energy usage estimates; however, energy bills have become more regular and reliable in 2025. All energy usage is included.

Mauritania – this is a small office hosting around 2% of our onshore headcount and contributing to approximately 4% of our Location based Scope 2 emissions. Metering and billing is unreliable and infrequent. Our base manager has provided an informed estimate.

Under the location-based method, for each office we have previously multiplied our energy usage by emission factors directly purchased from the International Energy Agency (IEA). The cost of the IEA emission factor data sets materially increased from 2024 to 2025. Given scope 2 emissions make up less than 0.0005% of our Scope 1 emissions, we cannot justify this expense and have therefore applied 2025 emission factors sourced free of charge from the following:

- UK emission factor source: UK Government GHG Conversion Factors for Company Reporting (DESNZ/DEFRA, 2025), accessed via aggregator Carbon Footprint Ltd.'s CaDI database, 2025.
- Norway emission factor source: derived from IEA electricity emissions factors (country-specific grid intensity), accessed via aggregator Carbon Footprint Ltd.'s CaDI dataset, 2025.
- Bermuda emission factor source: estimated from fuel mix and international electricity emissions datasets (no official national grid factor available), accessed via aggregator Carbon Footprint Ltd.'s CaDI dataset, 2025.
- Cameroon emission factor source: estimated from IEA electricity emissions factors (country fuel mix-based), accessed via aggregator Carbon Footprint Ltd.'s CaDI dataset, 2025.
- Mauritania emission factor source: estimated from IEA electricity emissions factors (country fuel mix-based), accessed via aggregator Carbon Footprint Ltd.'s CaDI dataset, 2025.

For our main London and Oslo offices we were able to obtain renewable energy certificates/qualifying guarantees of origin from our suppliers. Therefore, under the GHG protocol we are required to calculate our Scope 2 emissions under both the location and market-based methods.

We do not have renewable energy certificates or similar guarantees of origin for the remaining 3 offices, which collectively host around 10% of our onshore workforce and make up around 43% of our total Location based Scope 2 emissions. The suppliers have not provided emission factors or product specific attributes, and contractual instruments are not

used. Residual mix data for these three locations is not provided by CaDI and no other publicly available data could be found. We have therefore applied the same location-based emission factors to our Bermudan, Cameroonian and Mauritanian consumption when calculating Market-based Scope 2 emissions.

Appendix 1

FLNG

General overview

Our FLNG emissions are derived from the following processes: inlet gas handling, amine treating (CO₂ and H₂S removal), dehydration, liquefaction, heavy hydrocarbon separation, product handling, refrigeration, flash gas/fuel gas compression and utility systems.

Scope and boundaries:

Source of emissions: Therefore, our emissions including, CO₂, NO_x, SO_x and PM are derived and calculated from the below sources:

- Fuel combustion (including methane slip)
- Flaring (fuel and refrigerant)
- Amine treating system
- Venting (Refrigerant)

Equipment and fuel: The following equipment operates on fuel gas: Main Boilers and Gas Engines (with a low-pressure fuel gas stream) and the Gas turbines (high pressure fuel gas stream). The Main Boilers (with a low-pressure fuel gas stream) are dual fuel engines that can also operate on MGO. The Generators (which include both essential, emergency generators and fire water pumps operate on MGO. We include all the equipment above in our calculations, unless otherwise stated.

Refrigerants: We use Ethylene, Propane, Iso-pentane in our mixed Refrigerant loops in our liquefaction trains. Freon, specifically R407C, R407F and R134A, in our air conditioning units. We include refrigerant in our calculations, unless otherwise stated.

Venting: CO₂ venting occurs in our Amine Treating System on FLNG Hilli, but these acid gases are burnt in a Thermal Oxidizer/Flare on FLNG Gimi due to higher concentrations of BTEX components. We include all emissions from venting in our calculations, unless otherwise stated.

Freon Seepage: Freon used in air conditioning units is lost to the atmosphere through flange leaks.

Flaring: The flare system combusts the gases and safely disposes gases to the atmosphere in situations that will require evacuation of such, and otherwise could pose a risk to the plant, equipment, and personnel. The gases from the independent sub systems are disposed to the atmosphere via flare stacks. We include emissions from Flaring in our calculations unless otherwise stated.

Calculation, conversion factors and assumptions

The below table sets out the details behind our FLNG reporting items:

Calculation	Conversion factors and assumptions
CO2e: The sum of CO2 emissions from the total fuel consumed, vented, flared and refrigerant consumed and flared multiplied by its respective conversion factors. CO2e = (Fuel consumed x relevant CO2 conversion factor) + (Venting and flaring x relevant CO2 conversion factor) + (Refrigerant x relevant CO2 conversion factor) + Venting of CO2 from feed gas through Amine treating system (CO2 material balance based on feed gas composition) + (Freon seepage x CO2e conversion factor) + (methane slip x relevant CO2e conversion factor) + (total N2O x relevant CO2e conversion factors)	Fuel consumption: The conversion factors used for equipment that consume gas fuel are based on direct calculation of CO2 emissions based on carbon content and took into account the following for each of the different streams of gas fuels: Fuel gas volume flow, fuel gas mole weight, Carbon content. Our calculations are based on an assumption that we combust 100% of the carbon in the fuel. We calculate gas compositions each year based on the average fuel composition for the year. The conversion factors used for equipment that consume MGO are based on manufacturers data (main boiler) and Industry standards¹ (Generators). Refrigerant: The conversion factors used for Ethylene, Propane and Iso-pentane are based on stoichiometric conversion factors for complete combustion. Venting: The quantity of CO2 vented from the Amine treating system is calculated based on material balance for the feed gas quantity and its molar concentration. Freon Seepage: Freon's conversion factors is based on the UK Government GHG Conversion Factors for Company Reporting. Flaring: The conversion factors used are based on the carbon content, the flare efficiency (% carbon combusted), the gas density and CO2/C "molecular" weight ratio².
SOx: the sum of SOx emissions from the total fuel consumed and its sulphur content multiplied by its respective conversion factors. SOx = Fuel consumed x relevant SOx conversion factor from Sulphur content in fuel	Fuel consumption: The conversion factors used for equipment that consume MGO are based on direct calculation based on the sulphur content in the fuel. We use the maximum sulphur content limits in MGO (Specific to Cameroon) for the sulphur content with an assumed 100% combustion of the sulphur.
NOx: the sum of NOx emissions from the total fuel consumed multiplied by its respective conversion factors. NOx = Fuel consumed + gas flared x relevant NOx conversion factor.	Fuel consumption: The conversion factors used for our equipment that operates on fuel gas, excluding Main boilers, are based on manufacturers data which also takes into account the average fuel gas parameters for the different stream types. The Conversion factors used for the Main boilers are based on manufacturers data which also takes into account the density and the Lower heating value of the fuel gas. The conversion factors used for our equipment that operates on MGO are based on manufacturers data. For the Generators we use emission data for 75% engine load. Flaring: The CF used are based on manufacturer data and use the Highest Heating value.
PM: the sum of PM emissions from the total fuel consumed multiplied by its respective conversion factors.	Fuel consumption: The conversion factors used for our equipment (Gas turbines) that operates on high pressure fuel gas are based on manufacturers data which also takes into account the average gas parameters for the fuel gas flow. The CF for the Gas engines & Main

¹ Lloyds Register emission factors (Table C5)

² CO2/C "molecular" weight ratio = One Carbon atom is giving one CO2 molecule when the gas is combusted.

PM= Fuel consumed + gas flared x relevant PM conversion factor.	boiler: are based on IMO data³ and takes into account the fuel density and the relevant PM conversion factors. The conversion factors used for our equipment that operates on MGO (Marine Gas Oil) are based on manufacturers data, where we assume 75% engine load (Generators). Where our CF for the Main boilers and engines are based on IMO data. Flaring: The CF used are based on manufacturer data and uses the Higher Heating value (HHV).
Carbon intensity (Emission per tonne produced): this indicator measures the average GHG emissions for each tonne of LNG produced. The indicator takes into account: The numerator: Total CO₂e excluding CO₂e emissions from Amine treating system. The Denominator: Total tonnes of LNG produced	CO₂e emissions follow the same methodology as stated above, although we remove the CO₂ emissions from the Amine treating systems because we do not have control over the quality (CO₂ content) of feed gas received from our customer. The amine system removes this CO₂ from the feed gas prior to liquefaction.

Retainage:

Retainage shall mean the amount of LNG and/or Gas (expressed in MMBTUs) that is retained by operations as compensation for any LNG or Gas that is required for operation of the FLNG Facility (including for use as fuel); and/or lost or unaccounted for as a result of ordinary operational losses during operations at the FLNG Facility.

Retainage: (Feed Gas, MMBTU + Displaced Gas, MMBTU - LNG Produced, MMBTU) / (Feed Gas, MMBTU + Displaced Gas, MMBTU)

Collecting quality data:

Vessel performance data, which includes fuel consumption, exported LNG, gas flared etc. is captured daily. The sources of information include flow meters and our inventory records on board. Capturing performance data allows real-time analysis of the data. The data captured is subjected to internal reviews to validate its accuracy and completeness. Our internal processes also get audited by an external party on a regular basis throughout the year.

We have robust procedures documenting how we calculate our emissions figures and how we have sourced our conversion factors. Our procedures have been audited by external parties.

³ IMO data/document: MEPC 67/INF.3: REDUCTION OF GHG EMISSIONS FROM SHIPS. (Table 67).

CONVERSION FACTORS:

For Hilli and Gimi, conversion factors will be the same. However, carbon content and compositions for fuel gas will differ.

Conversion factors applied for Refrigerants:

Ethylene, Propane and Iso-pentane are imported refrigerants used in each Mixed Refrigerant loops of natural gas liquefaction trains. Refrigerants lost in Mixed refrigerant loops are combusted in flare systems.

Following combustion CO₂ conversion factors are used for each refrigerant:

- Ethylene: 3.138
- Propane: 2.994
- Isopentane: 3.050

Freon (R407C, R407F, R134A) is used to cool the airconditioned rooms on the FLNGs as well as the provision cold rooms. Freon is used in the accommodation block, Engine control room, all local equipment rooms (LER's) in port and starboard sponsons as well as the bow area, and in the 45- and 12-ton crane cabins. Freon is mainly lost to the atmosphere through flange leaks.

The following CO₂e factors are used for freon leaks (Ref:

<https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2024><https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2019>):

- R407C: 1624
- R407F: 1674
- R134A: 1120

Calculation of CO₂ from venting through Amine Treating System:

The Amine Treating System on Hilli is designed to remove up to 3 mol% CO₂ from the feed gas stream for all 4 liquefaction trains at full feed gas capacity to 50ppmv. During 2024, CO₂ content in the feed gas is about 0.44 mol% and only 2 trains are running at full capacity with intermittent running of a 3rd train. Since CO₂ in the feed gas is much lower than CO₂ removal capacity of the Amine treating unit, 96% CO₂ removal and venting is considered in the calculations.

The Amine Treating System on Gimi is designed to remove up to 3 mol% CO₂ from the feed gas stream for all 4 liquefaction trains at full feed gas capacity to 50ppmv. Gimi commercial operation date (COD) was mid-June 2025 and based on ca. 6 months operation CO₂ content in the feed gas is about 0.32 mol% but daily weighted average CO₂ concentration in the feed gas is considered in the CO₂ from amine system is considered in the calculations. Since CO₂ in the feed gas is much lower than CO₂ removal capacity of the Amine treating unit, 96% CO₂ removal and combusting in Thermal Oxidizer /Flare tip is considered in the calculations.

$$CO_2 \text{ from Amine Treating [Tonne]} = \frac{\left(\frac{\text{Feed Gas [Sm}^3\text{]}}{23.645} \times \frac{\text{Feed Gas CO}_2 \text{ [mol\%]}}{100} \right) \times 44.01 \times 0.96}{1000}$$

Calculation Formula for CO₂ from Amine Treating

Conversion factors applied for combustion:

CO, CH₄, NO_x and PM emissions from the gas combustion through operation of the Main Boilers, Gas Engines, Gas Turbines and the Flare onboard are derived from Fuel gas consumption with average gas compositions, which then are calculated with specific conversion factors from either manufacturers data or IMO recommended conversions.

The CO₂ emissions are calculated directly based on carbon content in the fuel gas.

CF x Sm³ Gas Fuel = kg Pollutant emission.

The CO₂e derived from non-combusted CH₄ and N₂O emissions apply the following conversion factors;

- CH₄ CO₂e: CH₄kg Non combusted x 28 = Kg CH₄ CO₂e
- N₂O CO₂e :N₂O kg x 1.19161 /100 tonnes = --Tonne N₂O CO₂e

(sources - <https://climatechangeconnection.org/emissions/co2-equivalents/>

<https://assets.publishing.service.gov.uk/media/6846a4e6d25e6f6afd4c0180/ghg-conversion-factors-2025-condensed-set.xlsx>)

CO₂, CO, NO_x and PM emissions from the MGO combustion through operation of the Main Boilers, Essential and Emergency Generators and Fire Water pumps on MGO are derived from MGO fuel consumption, which then are calculated with specific conversion factors from either manufacturers data or IMO recommended conversions.

The SO_x emission from combustion of MGO is calculated based on the Sulphur weight content in the MGO (% S w/w).

CF x tonne MGO = kg Pollutant emitted

Direct calculation of CO₂ emission from combustion of gas based on fuel Carbon Content:

The CO₂ emission from combustion of gas can be calculated directly when the Carbon content (kg C / kg fuel) for the fuel gas is known.

For each Carbon atom (atom weight =12) a CO₂ molecule (mole weight = 44) is formed. Assuming 100% combustion of the carbon in the fuel:

Weight (kg) of gas x Carbon content x 44/12 = Weight (kg) of CO₂ emitted

Weight(kg) of gas = Volume of gas (Sm³) * Density (kg/Sm³)

A mole of (ideal) gas has a specific Molar volume = 23.645 m³ at 288.15 °K, 101.3 kPa (Standard Condition)

We may substitute: Density fuel gas (kg/Sm³) = (1/23.645) x Fuel gas mole weight (kg/kmole)

Volume of gas (Sm³) x (1 / 23.645) x Fuel gas mole weight x Carbon content x 44/12 =

Weight(kg) of CO₂

CO₂ Conversion Factor based on gas Carbon content:

$$CF (CO_2) = (1/\text{Molar volume}) \times \text{fuel mole weight} \times \text{Carbon content} \times 44/12$$

The below table summarises the direct calculation of the CO₂ conversion factors for the gas fired consumers on the FLNGs.

GT CO ₂ Conversion factor (Based on Fuel Gas Carbon Content)					
Equipment	CF Calculation (Note)	Conversion Factor	CF Units		
Gas Turbines (HP Fuel Gas)-Hilli	$(1/23.645) \times 17.836 \times 0.75 \times 44/12$	2.074	Kg/Sm ³ of fuel	Molar Weight: 17.836 kg/kmole	
Gas Engines (LP Fuel Gas)-Hilli	$(1/23.645) \times 17.388 \times 0.62 \times 44/12$	1.672	Kg/Sm ³ of fuel	Molar Weight: 17.388 kg/kmole	
Main Boilers (LP Fuel Gas)-Hilli	$(1/23.645) \times 17.388 \times 0.62 \times 44/12$	1.672	Kg/Sm ³ of fuel	Molar Weight: 17.388 kg/kmole	
Flaring (LP Fuel Gas)-Hilli	$0.735 \times 0.98 \times 0.62 \times 44/12$	1.637	Kg/Sm ³ of fuel	Density LP Fuel: 0.735 kg/Sm ³	
Gas Turbines (HP Fuel Gas)-Gimi	$(1/23.645) \times 17.27 \times 0.75104 \times 44/12$	2.011	Kg/Sm ³ of fuel	Molar Weight: 17.27kg/kmole Carbon content: 75.104%	
Gas Engines (LP Fuel Gas)-Gimi Main Boilers (LP Fuel Gas)-Gimi Flaring (LP Fuel Gas)-Gimi	$= (1/23.645) \times 16.2951 \times 0.68698 \times 44/12 \times 0.98$	1.7012	Kg/Sm ³ of fuel	Molar weight kg/kmole = 16.2951 Carbon Content = 68.698% Combustion efficiency : 98%	

Notes:

- The calculated gas fuel CO₂ conversion factors (CFs) are assuming 100% combustion of the fuel gas, except for Flaring – where 98% efficiency is applied.
- The specific molar volume at reference standard conditions (temperature 15 °C, pressure 101.3 kPa) is 23.645 m³ / kmole.
- HP gas fuel, Molar weight g/mole (Hilli) = 17.836
- HP gas fuel, Carbon Content = 75%
- LP gas fuel, Molar weight g/mole-Hilli = 17.388
- LP gas fuel, Molar weight g/mole-Hilli = 17.388
- LP gas fuel, Carbon Content-Hilli = 62%
- The ratio 44/12 equals kg CO₂ created per kg C combusted

We have two different streams of gas fuel:

- High pressure fuel gas (HP Fuel gas): Gas Turbines
- Low pressure fuel gas (LP Fuel gas): Main Boilers, Gas Engines, flaring

Gas Turbines (HP fuel gas)

Direct calculation of CO₂ Conversion Factor based on carbon content, for combustion of HP fuel gas, (100% Carbon combustion):

$$CF \text{ for Hilli} = (1/23.645) \times 17.836 \times 0.75 \times 44/12 = 2.074 \text{ kg/Sm}^3 \text{ HP fuel gas}$$

- HP gas fuel, Molar weight g/mole = 17.836
- HP gas fuel, Carbon Content = 75%

$$CF \text{ for Gimi} = (1/23.645) \times 17.27 \times 0.75104 \times 44/12 = 2.011 \text{ kg/Sm}^3 \text{ HP fuel gas}$$

- HP gas fuel, Molar weight g/mole = 17.27
- HP gas fuel, Carbon Content = 75.104%

The conversion factors for Pollutant emissions from the Gas Turbine (GT) manufacturer's standard fuel gas calculation have been converted for the properties (LHV and mol weight)

of the HP Fuel gas composition.

Conversion Factors - Pollutant emission reporting for GTs		
Pollutant	Unit	CF
NO _x (NO ₂) emissions	kg/Sm ³ fuel	0.00153
CO emissions	kg/Sm ³ fuel	0.00093
UHC (CH ₄) emissions	kg/Sm ³ fuel	0.00033
VOC emissions	kg/Sm ³ fuel	0.00012
PM ₁₀ emissions	kg/Sm ³ fuel	0.00021

Note: Above Hilli conversion factors are used for Gimi -2025.

GT (HP) Fuel gas data:

Dec-20		
HP Fuel Gas		Unit
Standard Density	0.75	kg/Sm ³
Normal Density	0.80	kg/Nm ³
HHV (Composition Feed Gas Dec. 2020)	1083.4	BTU/scf
HHV Conversion	53322	kJ/kg
LHV est. from HHV: LHV= HHV/1.108	48125	kJ/kg
Mole weight	17.84	kg/kmole

Gas Engines (LP fuel gas)

The CO₂ Conversion Factor for the LP fuel gas combustion calculated directly based on carbon content (100% Carbon combustion):

CF for Hilli= $(1/23.645) \times 17.388 \times 0.62 \times 44/12 = 1.672$ kg CO₂/Sm³ LP fuel gas

- LP gas fuel, Molar weight g/mole = 17.388
- LP gas fuel, Carbon Content = 62%

CF for Gimi = $(1/23.645) \times 16.2951 \times 0.68698 \times 44/12 \times 0.98 = 1.7012$ kg/Sm³ LP fuel gas

- LP gas fuel, Molar weight kg/kmole = 16.2951
- LP gas fuel, Carbon Content = 68.698%
- Combustion efficiency : 98%

The conversion factors for pollutant gases received from the Gas Engine manufacturer (RR) have been converted for the Dec. 2020 average LP fuel gas parameters. We assume the same factors can be used for Gimi, as we do not have data from the new Gas Engine manufacturer.

CFs to use for LP gas fuel:	(LHV) 30500 kJ/Sm ³			
RR Gas Engine 85% Load	Pollutants			
	Unit	NO _x	CO	CH ₄
Pollutant CF	g/kJ	0.00016	0.00018	0.00051
LP Fuel	kJ/Sm ³ (LHV)	30500	30500	30500
Pollutant CF	kg/Sm ³	0.00487	0.00555	0.0154581
Pollutant Conversion Factor	kg/Sm³	0.005	0.006	0.015

For NMVOC on the Gas Engines, there is no manufacturer data available.

A NMVOC Conversion factor of CF = 0.00018 kg VOC / Sm³ LP Fuel gas is based on USEPA AP-42 3.2 Natural Gas-fired Reciprocating Engines. This has an average Emission Factor (quality) Rating (E).

A PM₁₀ (Particles) Conversion factor of 0.00018 g PM₁₀/g fuel gas is found in IMO document MEPC 67/INF.3: REDUCTION OF GHG EMISSIONS FROM SHIPS. (Table 67).

Measured in units of kg/Sm³ fuel gas, the PM₁₀ CF becomes:

The LP fuel has density (kg/Sm3) =	0.74	(Dec. 2020 LP fuel gas))
PM emission Conversion Factor :	0.00018	kg PM10/kg LP fuel gas
PM emission Conversion Factor :	0.000133	kg PM10/Sm3 LP fuel gas

Main Boiler (LP fuel gas)

The direct calculation of CO₂ Conversion Factor (CF) based on LP fuel gas Carbon content (100% Carbon combustion) gives:

CF for Hilli = $(1/23.645) \times 17.388 \times 0.62 \times 44/12 = 1.672$ kg/Sm³ LP fuel gas

- LP gas fuel, Molar weight kg/kmole = 17.388
- LP gas fuel, Carbon Content = 62%

CF for Gimi = $(1/23.645) \times 16.2951 \times 0.68698 \times 44/12 \times 0.98 = 1.7012$ kg/Sm³ LP fuel gas

- LP gas fuel, Molar weight kg/kmole = 16.2951
- LP gas fuel, Carbon Content = 68.698%
- Combustion efficiency : 98%

The Pollutants conversion factors received from the Hamworthy Boilers have been converted to reflect the density (kg/Sm³) and the LHV for the LP Fuel gas (December 2020):

Main Boiler on LP Fuel Gas - CFs			Conversion Factor
Pollutant / GHG gas	Lean Natural Gas Conv. Factors	Lean Nat. Gas Conv. Factors	LP fuel gas LHV convert.
	kg/tonne of Gas	kg/Sm ³	kg/Sm ³
CO	0.733	0.00054	0.0007
CO ₂	1880.5	1.38781	1.6723
CH ₄	0.008	0.000006	0.000007
NO _x (as NO ₂)	3.011	0.00222	0.0027
SO ₂		0.00000	0
Non Meth VOC	0.041	0.00003	0.000036
LP fuel Density		0.74	
LHV fuel corr.			1.205

Same conversion factors are used for GIMI except for CO₂.

The CO₂ emission of 1.6723 kg/Sm³ LP fuel gas for 100% combustion of LP fuel has been directly calculated based on carbon content (62%). The ratio between LP fuel LHV and "Lean Natural Gas" LHV is taken as equal to: $1.6723 / 1.38781 = 1.205$, and applied to convert the Hamworthy pollutant Lean Natural Gas CF values to the LP fuel gas LHV level.

The PM₁₀ (Particles) Conversion factor of 0,000133 kg PM₁₀ / Sm³ LP fuel gas is based on IMO document MEPC 67/INF.3: REDUCTION OF GHG EMISSIONS FROM SHIPS. (Table 67). (See above Gas Engine PM₁₀ for conversion from g PM₁₀/g fuel gas to kg PM₁₀/ Sm³ fuel gas.)

Flaring

The Greenhouse gas CO₂ Conversion Factor is calculated directly based on LH fuel gas carbon content and 98% flare efficiency (% carbon combusted):

CO₂ CF = Density gas (kg/Sm³) x Flare efficiency x fuel gas Carbon Content x 44/12 = kg CO₂ / Sm³ LP fuel gas

CO₂ CF for Hilli = $0.735 \times 0.98 \times 0.62 \times 44/12 = \underline{\underline{1.637}}$ kg CO₂/Sm³ LP fuel gas

- LP gas fuel, Density kg/Sm³ = 0.735

- LP gas fuel, Carbon Content = 62%
- Flare efficiency = 98% (% fuel Carbon combustion)

CF for Gimi = $(1/23.645) \times 16.2951 \times 0,68698 \times 44/12 \times 0.98 = 1.7012 \text{ kg/Sm}^3 \text{ LP fuel gas}$

- LP gas fuel, Molar weight kg/kmole = 16.2951
- LP gas fuel, Carbon Content = 68.698%
- Flare efficiency: 98%

The conversion factors received from ZEECO, the manufacturer of the Flare Tips, have been used for CO, CH₄, NO_x (as NO₂) and Non-Methane VOC emissions. See Table below.

Flare Emissions - (LP fuel gas - HHV= 915.33 BTU/SCF)				
	Zeeco's Conv. factor	Zeeco's Conv. factor	LP Fuel gas HHV= 915.33 BTU/SCF Conv. Factor	LP Fuel gas HHV= 915.33 BTU/SCF Conv. Factor
Pollutant	lb/MMBTU	kg/MMBTU	kg/SCF	kg/Sm ³
CO	0.31	0.14061	0.000129	0.00455
CH ₄	0.14	0.06350	0.000058	0.01810
NO _x (as NO ₂)	0.068	0.03084	0.000028	0.00100
(NM)VOC	0.57	0.25855	0.000237	0.00836
PM10	0.0325	0.01474	0.000013	0.000048

Conversion factors for CO, CH₄, NO_x, SO_x and PM emissions from combustion of MGO:

Main Boilers fired on MGO fuel

The below table of conversion factors received from Hamworthy Boilers has been used for Main boilers on MGO fuel for CO₂ and the pollutants CO, NO_x (as NO₂), and Non-Methane VOC.

Main Boiler - MGO Fuel	
Pollutants	Conversion Factor
	kg/tonne MGO
CO	0.85
CO ₂	3120.3 (Hilli) 3120 (GIMI)
CH ₄	0
Nox (as NO ₂)	6.982
SO ₂	7.39 (2.00 for Gimi)
Non Meth VOC	0.047
PM10	0.97

Direct calculation of SO₂ based on sulphur w/w content in fuel:

Based on early info. of "max Sulphur limit": " 0.37 % (wt.) in the MGO available in Cameroon", this Sulphur content became the MGO Sulphur content used in the initial direct SO₂ calculations.

Hilli "Bunker Notes":

Marine Gas Oil is the alternative fuel to LP process gas for the main Boilers (and the only fuel for the Essential and Emergency Diesel Generators). The highest Max. Sulphur limit seen referred to in bunker notes for delivered MGO is 0.35%wt.

Actual Sulphur content stated in Bunker notes for the MGO has been from below 0.1% to 0.3%w/w.

Golar will maintain the assumption of 0.37% w/w Sulphur in the MGO as a conservative value for the direct SO₂ calculations of SO_x (SO₂) emissions for Hilli.

Molecular weights: S = 32.065; SO₂ = 64.066 (kg/kmole)

MDO Sulphur Content: 0.37% S (w/w)

Calculation of Sulphur CF for MGO in Hilli:

Fuel in tonnes x 0.0037 x 64.066/ 32.065 = Emissions SO₂ in kg

CF = 7.39 kg SO₂/tonne MGO

For Gimi, <0.1% w/w Sulphur in the MGO is used as the value for the direct SO₂ calculations of SO_x (SO₂) emissions.

Molecular weights: S = 32.065; SO₂ = 64.066 (kg/kmole)

MDO Sulphur Content: 0.1% S (w/w)

Calculation of Sulphur CF for MGO in Gimi:

Fuel in tonne x 0.001 x 64.066/ 32.065 = Emissions SO₂ in kg

CF = 1.998 kg SO₂/tonne MGO

The PM₁₀ (Particles) Conversion factor of 0.97 kg PM₁₀ / Tonne MGO is taken from IMO document MEPC 67/INF.3: REDUCTION OF GHG EMISSIONS FROM SHIPS. (Table 67):

Table 67: PM emission factors (g/g fuel).

Region	Fuel type	year		
		2012	2030	2050
Global	HFO	0.00728	0.00728	0.00728
	LSFO	0.00426	0.00426	0.00426
	MGO	0.00097	0.00097	0.00097
	LNG	0.00018	0.00018	0.00018

Essential and Emergency Diesel Generator (MGO fuel)

The conversion factors for pollutants CO, NO_x, Total HC and Particular matter (PM₁₀) are calculated based on manufacturer's (Caterpillar) Performance Data sheets and Emission Data sheets.

Essential & Emergency Diesel Generators - Diesel Fuel (MDO)						
	Pollutant	NO _x	NO _x	CO	Total HC	PM ₁₀
% Load		100%	75%	75%	75%	75%
Brake Engine Power (BKW)	BKW	2351.0	1763.0	1763.0	1763.0	1763.0
Brake Spec. Fuel Cons. (BSPC)	G/BKW	200.3	203.1	203.1	203.1	203.1
Fuel Consumption	G/HR	470905.3	358065.3	358065.3	358065.3	358065.3
Pollutant Emission	G/HR	18053.0	12593.0	2218.0	497.0	166.7
g Pollutant/ g Fuel	g /g	0.03834	0.03517	0.00619	0.00139	0.00047
Kg Pollutant / tonne Fuel	kg /tonne	38.34	35.17	6.19	1.39	0.47

The Performance and Emissions Data for 75% Engine load has been used (the NO_x Emissions at 100% load is included for info). The 75% load data is closest to the actual operational mean load, expected to be at about 85%.

For Diesel engines, being subjected to a high focus on NO_x emissions, it may be discussed whether one should always apply the 100% load NO_x data in order to be conservative. For the other pollutants the 75% load emission CFs are higher than they are at 100% load.

The conversion factor for SO₂ is calculated directly based on MGO Sulphur content. See above for identical calculation for MGO (0.1% C) under Main Boiler (MGO fuel). **CF = 2.00 kg SO₂/tonne MGO consumed.**

The Diesel engine MGO conversion factor for CO2 emission:

We are using the industry standard, Lloyds Register Engineering Services emission database, of 3170 kg CO2 per tonne of fuel (MGO) consumed. (Table C5 Lloyds Register emission factors in g/kwh (660) and kg /tonne (3170))

Reference:

https://ec.europa.eu/environment/archives/air/pdf/chapter3_end_ship_emissions.pdf

(Table C5 Lloyds Register emission factors in g/kwh (660) and kg /tonne (3170))
Summary
Table Conversion Factors

Emissions from MGO Consumption									
Emissions Source	MGO Consump	Conversion Factors							Calculation
		CO	CO2	CH4	NO2 (NOX)	SO2 (SOX)	(NM)VOC	PM10	
Main Boilers	Tonnes	0,85	3120,3	0	6,982	7,39	0,047	0,97	kg/tonne of fu Value from Apex in tonnes * CF = emissions in kg
Essential & Emergency Generators	Tonnes	6,19	3170	0	35,17	7,39	1,39	0,47	kg/tonne of fu Value from Apex in tonnes * CF = emissions in kg
Fire Water Pumps	Tonnes	5,88	3170,00	0,00	38,66	7,39	1,39	0,47	kg/tonne of fu Value from Apex in tonnes * CF = emissions in kg
Emissions from Natural Gas Consumption									
Emissions Source	Natural Gas Con	Conversion Factors							CF Units
		CO	CO2	CH4	NO2 (NOX)	SO2 (SOX)	(NM)VOC	PM10	Calculation
Gas Turbines (HP Fuel)	SCF	0,00093	2,074	0,00033	0,00153	0	0,00012	0,00021	kg/Sm3 of fue Value in Apex in SCFs / 35.3147 * CF = emissions in kg
Gas Engines (LP Fuel)	SCF	0,006	1,672	0,0016	0,005	0	0,0018	0,000137	kg/Sm3 of fue Value in Apex in SCFs / 35.3147 * CF = emissions in kg
Main Boilers (LP Fuel)	SCF	0,0007	1,672	0,00007	0,0027	0	0,000037	0,000133	kg/Sm3 of fue Value in Apex in SCFs / 35.3147 * CF = emissions in kg
Flaring (LP Fuel)	SCF	0,00455	1,637	0,00205	0,001	0	0,00836	0,000048	kg/Sm3 of fue Value in Apex in SCFs / 35.3147 * CF = emissions in kg

Same conversion factors used for GIMI except SO2, which is equal to 1.998 kg/tonne of diesel fuel.

Fuel Gas

Inlet feed gas is used as the main source of HP Fuel Gas. Periodically, condensate separated into the Heavies separators of each liquefaction train is injected into HP Fuel gas.

Condensate quantity injected is low (about 1,000kg/day) and its effect on the HP fuel composition is low. HP Fuel Gas composition is quite stable, during 2020 and average December 2020 compositions and properties are used in the calculation of CO2 and pollutant emission conversion factors.

Feed Gas Composition 2020 (used as HP Fuel Gas)												
Mol. Wt.	28.0134	16.04	30.07	44.1	Density	58.12	58.12	72.15	72.15	78.11	44.01	HHV
Comp.	N2	CH4	C2H6	C3H8	kg/Sm3	i-C4H10	n-C4H10	iC5H12	nC5H12	C6+	CO2	BTU/scf
Full year (366 days)												
Avg day full year 2020	0.48	92.36	3.79	2.30	0.749	0.247	0.307	0.040	0.026	0.012	0.431	1084
30 first days of 2020												
Avg 30 first days 2020	0.51	92.47	3.73	2.23	0.749	0.247	0.313	0.043	0.028	0.013	0.429	1083
30 last days of 2020												
Avg 30 last days 2020	0.48	92.36	3.82	2.32	0.749	0.226	0.276	0.039	0.026	0.011	0.440	1083

Low pressure Fuel gas is extracted just after flash gas compression before the flash gas is used for regeneration purposes. LP Fuel Gas is used in Gas Engines, Main Boilers and Flare systems. Average LP fuel Gas composition during December 2020 is used in calculation of CO2 and pollutant emissions conversion factors for Hilli.

LP Fuel Gas Compositions 2020												
Mol. Wt.	28.0134	16.04	30.07	44.1	Density	58.12	58.12	72.15	72.15	78.11	HHV	Sp. Gr
Comp.	N2	C1	C2	C3	Std. Density,	iC4	nC4	iC5	nC5	C6+	BTU/SCF	
Full year (366 days)												
Avg day full year 2020	8.23	90.41	0.46	0.53	0.738	0.109	0.170	0.036	0.026	0.013	950.7	0.60
30 first days of 2020												
Aver. 30 first days	8.62	89.67	0.38	0.73	0.746	0.175	0.286	0.065	0.047	0.022	955.6	0.61
30 last days of 2020												
Aver. 30 last days	10.23	89.41	0.17	0.13	0.735	0.021	0.034	0.008	0.006	0.003	915.3	0.60

For Gimi, the low-pressure fuel gas compositions differ somewhat. See the table below.

LP Fuel Gas Composition Gimi (based on last 30 days in August 2025)							
Components	N2	C1	C2	C3	C4	C5	C6+
Compositions	1,909951	98.0425	0.024799	0.011202	0.007	0.002347	0.0022

MGO Consumption

Sounding

Soundings are obtained by the sounding of storage and service tanks supplying the individual consumers. Port/ starboard boiler, A/B essential generator, emergency generator and A/B fire pump each have individual service tanks to be sounded.

Sounding is achieved by measuring the height of diesel levels in tanks, which is entered into a sounding table for volume. The sounding table will account for a ships trim but not movements due to wind and sea state. Some amount of inaccuracy is expected due to this way of measuring. Especially large deep storage tanks such as 5P will be affected the most. For the emergency generator and A/B fire pump each service tank has a level gauge fitted with direct volume readout.

A Sounding table is available as part of a ships stability calculation program.

Volume derived from table is for entering into a daily report.

Soundings are collected once a day by utilities operators.

Reporting

Numbers are entered into the daily report by a UT-CRO (Utility Control Room Operator) (document owner) who will confirm if consumption has taken place or the readings stem from a discrepancy during sounding.

For the emergency generator and A/B fire pump there is only a standard weekly test run of approx. 30 min. For this consumption we estimate 50 liters of consumption per week per unit. This is seen over a 52-week period if all units are tested weekly.

UT-CRO will update the daily log with consumption for boilers and generators based on new volumes received from tank sounding. Consumption will be entered in metric tons (MT) for values to be transferred to environmental report format.

End of month calculation will be reviewed according to actual running of consumers. Any recordings obtained on days where no consumption is recorded will be discarded in the overall consumption for the current month.

Bunkering of MGO must be recorded in a separate column and added to the total inventory. Bunker volume is not to be added as negative consumption in the monthly reporting.

Operational procedures

For the emergency generator and A/B fire pump there is only a standard weekly test run of approx. 30 min. For this consumption we estimate 50 liters of consumption for each week for each unit. This is seen over a 52-week period if all units are tested weekly.

Transfer of MGO between deep storage tank and consumer service tanks must be avoided during running of the units. If transfer is required in order to ensure safe operation, then a separate sounding of the deep tank is to be obtained before and after transfer.

Due to the size of service tanks for each consumer it is considered very unlikely that the need for transfer will arise.

Appendix 2

Abbreviation	Long form
FLNG	Floating Liquified Natural Gas Vessel
SO_x	Oxides of Sulphur
NO_x	Nitrogen oxides
PM	Particulate Matter
CH₄	Methane
MWh	Megawatt hour
LTIF	Lost Time Injury Frequency
TRCF	Total Recordable Case Frequency
CO₂e	Carbon dioxide equivalent
H₂S	Hydrogen sulphide
MGO	Marine Gas Oil
MDO	Marine Diesel Oil
R407C	Hydrofluorocarbon refrigerant
R407F	Hydrofluorocarbon refrigerant
R134A	Hydrofluorocarbon refrigerant
N₂O	Nitrous oxide
IMO	International Maritime Organization
LNG	Liquified Natural Gas
MMBTU	Metric Million British Thermal Unit
OCIMFs	Oil Companies International Marine Forum
DNV	Det Norske Veritas
MSCAT	Marine Systematic Cause Analysis Technique
RWCs	Restricted Worst-Case scenario
H&S	Health and Safety
PTD	Permanent Total Disabilities
PPD	Permanent Partial Disabilities
LWC	Lost Workday Cases
MTCs	Medical Treatment Case
BOSIET	Basic Offshore Safety Induction and Emergency Training
STCW	Standard for Training, Certification and Watchkeeping
OCS	Crew Management System
EMS	Environmental Management System
MARPOL	International Convention for the Prevention of Pollution from Ships
GRB	Garbage Record Book
ORB	Oil Record Book
OWS	Oily Water Separator
PSV	Platform Supply Vessel
Simplifier	HR system for onshore employees
RR	Retention Rate
UT	Unavoidable Termination
BT	Beneficial Termination
AE	Average number of employees
IEA	International Energy Agency
LER's	Local Equipment room
mol	Molar mass
ppmv	part per million by volume

CF	Conversion Factor
-----------	-------------------

Sm3	standard cubic meters of oil equivalents
HP	High Pressure
LP	Low Pressure
GT	Gas Turbine
LHV	Lower Heating Value
HHV	High Heating Value
NM -VOC	Non-Methane Volatile organic compounds
VOC	Volatile organic compounds
USEPA	U.S. Environmental Protection Agency
HFO	Heavy Fuel Oil
LSFO	Low Sulphur Fuel Oil
UT-CRO	Utility Control Room Operator
MT	Metric Tons
BTEX	Benzene Toluene Ethylene and Xylene