

CONTENTS

19. GLOSSARY 19-1

19.1 Units and symbols 19-1

19.2 Terms and abbreviations..... 19-3

19. GLOSSARY

19.1 UNITS AND SYMBOLS

Unit or symbol	Definition
%	percentage (proportion out of one hundred)
/	per
<	less than
>	greater than
°	degrees
µm	micrometre
µg/L	micrograms per litre
µg/m ³	micrograms per cubic metre
bbl/d	barrels per day
Bq kg ⁻¹	Becquerel per kilogram
Bq g ⁻¹	Becquerel per gram
°C	degrees Celsius
CFU	Colony forming unit
CO ₂ -e	carbon dioxide equivalent
dB	decibel, unit used to express sound intensity
dBA	A-weighted decibel, unit used to express sound intensity
dbh	diameter at breast height
g	gram
ha	hectare
hPa	hectopascal
hr	hour
in	inch
KBD	thousand barrels per day
kg	kilogram
kL	kilolitre
km	kilometre
km ²	square kilometre
km/h	kilometres per hour
kPa	kilopascals
kPaA	kilopascals absolute
kSm ³ /h	thousand standard cubic metres per hour
kt	kiloton

Unit or symbol	Definition
kt CO ₂ equivalent /annum	kilotonnes of Carbon Dioxide equivalent per year
ktpa	kilotonnes per annum
kV	kilovolt
L	litre
m	metre
m/s	metres per second
m ³ /s	cubic metres per second
m ²	square metres
m ³	cubic meters
m ³ /h	cubic metres per hour
m ³ /month	metres cubed per month
mg/kg	milligrams per kilogram
mg/L	milligram per litre
mL	millilitre
ML	megalitre, one million litres
mm	millimetres
MMscfd	million standard cubic feet per day
MPN / 100 mL	Most probable number / 100 millilitres
Mscf/d	million standard cubic feet per day
mS/cm	milli-Siemens per centimetre
Mt	million tonnes
mtpa	million tonnes per annum
MW	megawatt
Ng/Nm ³	nanograms per normal cubic metre
NTU	Nephelometric turbidity unit
pCi/L	picocuries per litre of air
ppm	parts per million
ppt	parts per thousand
PSU	Practical salinity unit
s	second
t	tonne
t CO ₂ equivalent /100t	tonnes of Carbon dioxide equivalent per 100 tonnes

19.2 TERMS AND ABBREVIATIONS

The following terms and abbreviations are defined in the context of their use in the Papua LNG Project - Downstream environmental impact statement (EIS). Some definitions have been adapted from the Macquarie dictionary, online dictionaries and encyclopaedias, and relevant technical studies.

Terms and abbreviations	Definitions
A	
Accretion	Growth by the gradual accumulation of more layers or matter
ADCP	Acoustic Doppler Current Profiler
AEP	Annual Exceedance Probability
AGX	Associated Gas Expansion
Alluvial plain	A large flat landform created by the deposition of alluvial sediment over a long period of time by running water
Amphipods	Any crustacean from the Amphipoda order. Typically, small shrimp creatures that have no shell
Anthropogenic	Caused by humans or their activities
ANZECC	Australia and New Zealand Environment and Conservation Council
AOI	Area of Influence
APCI	Air Products and Chemicals INC.
API	American Petroleum Institute
APPFL	Application for Petroleum Processing Facility Licence
ARI	Average Recurrence Interval
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
ASS	Acid Sulphate Soils
AWS	Automated weather station
B	
Bathymetric	Study of underwater depth of ocean, river and lake floors (seabed topography).
BCG	Bacille Calmette-Guerin
Benthic	Condition or activity associated with or at the bottom of a body of water
Benthic macroinvertebrate	Small invertebrates living among stones, logs, sediments and aquatic plants on the bottom of streams, rivers and lakes
Bioturbation	The disturbance of sedimentary deposits by living organisms
BOD	Biological oxygen demand
Bombora	An area of large sea waves breaking over a shallow landform

Terms and abbreviations	Definitions
Bommie	A submerged offshore reef
BRUVS	Baited remote underwater video stations
BTEX	Benzene, toluene ethylbenzene and xylenes
C	
C3MR	Liquification process using propane precooled mixed refrigerant to liquify natural gas
Calcareous	Coated with, containing, or like calcium carbonate
CALM buoy	Catenary anchor leg mooring buoy: A chain mounted mooring buoy for mooring and loading cargo ships
Cassava	A root vegetable common in tropical climates
CCDA	Papua New Guinea Climate Change and Development Authority
CCPP	Combined Cycle Power Plant
CCRA	Climate Change Risk Assessment
CDI	Community Development Initiative
CEPA	Papua New Guinea Conservation and Environment Protection Authority
Construction ESMP	Construction Environmental and Social Management Plans
CHMP	Cultural Heritage Management Plan
CIP	Contractor Implementation Plan
CMO	Chief Migration Officer
CO	Carbon monoxide
COD	Chemical oxygen demand
Contiguous	Together or next in a sequence
CPF	Central gas processing facility
CR	Critically Endangered
CSIRO	Commonwealth Scientific and Industrial Research Organisation (Australian)
D	
DBH	Diameter at breast height
DD	Data deficient
Delineation	Process of indicating a precise position
Demersal	Aquatic animal (fish) that lives on the floor of a body of water (sea or lake)
Desalination	Process of removing salt and other minerals from saline water.
DGV	Default guideline value

Terms and abbreviations	Definitions
DHERST	Department of Higher Education, Research, Science and Technology
Dispersive [soil]	Soils that are structurally unstable and disperse in water into basic particles, e.g., sand, silt and clay. Dispersible soils tend to be highly erodible and present problems during earth works.
DO	Dissolved Oxygen
Downcutting	A geological process by hydraulic action that deepens the channel of a stream or valley by removing material from the stream's bed or the valley's floor.
DPE	Department of Petroleum and Energy
Dredging	Process of deepening the bed of a body of water by clearing the bed removing sediment, weeds, rubbish, rocks etc.
DW	Dry weight
E	
EAA	Environmental Aspects Assessment
EC	Electrical Conductivity
EEO	Equal Employment Opportunity
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
EIR	Environmental Inception Report
EIS	Environmental Impact Statement
EITI	Extractive Industries Transparency Initiative
El Niño	A climate pattern that describes the unusual warming of surface waters in the eastern Pacific Ocean.
ELA	Company: EcoLogical Australia
Electro deionisation	A water treatment method using electricity, ion-exchange membranes and resin to remove ions from water that follows the reverse osmosis process
Electroshocking	A fishing survey method which uses direct current electricity to impair the movement of the fish to allow them to be caught for identification
eLNG	Electric liquefied natural gas. Term used to refer to the new eLNG trains that are powered by the new Combined Cycle Power Plant (CCPP)
Emissions intensity	A benchmarking tool defined as the tonnes of GHG emitted (in CO ₂ -e) per tonne of product available to market
Employment of Non-Citizens Act	<i>Employment of Non-Citizens Act 2007</i>
EMEPS	ExxonMobil Engineering Practices System

Terms and abbreviations	Definitions
EMP	Environmental Management Plan
EMPNG	ExxonMobil PNG Limited. EMPNG is the current operator of the PNG LNG Project, including the existing LNG Plant.
EMPNGA	ExxonMobil PNG Antelope Limited: the Project proponent and the ExxonMobil affiliate responsible for the construction of the Project
EN	Endangered
Environment Act	<i>Environment Act 2000</i>
Environmental Planning Act	<i>Environmental Planning Act 1978</i>
EP-L3(210)	Environment permit EP-L3(210) is the current environment permit for the PNG LNG Project held by EMPNG.
EPC	Engineering, procurement and construction
EPFI	Equator Principle Financial Institution
Ephemeral	Lasting only a day or a very short time; short-lived; transitory.
Epibenthic	The flora and fauna living on the surface of the bottom of a sea or lake.
Epibiota	Organisms that live on the surface of another organism.
Epifauna	Aquatic animals that live on the surface of seafloor or are attached to other organisms or submerged rocks.
EPIV	Equator Principles IV
Erosion	The process by which the surface of the earth is worn away by the action of water, glaciers, winds, waves, etc.
ERP	Emergency Response Procedure
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
Estuary	Section of coastal water where the river meets the sea
Expatriate	A person who lives outside their country of origin
ExxonMobil	ExxonMobil PNG Antelope Limited (EMPNGA) and Niugini LNG Operating Company Limited (NLOC)
F	
Facies	The total properties of a sedimentary deposit, including mineral composition, texture, type of bedding, faunal content, reflecting the conditions and environment of formation
FAS	First Assistant Secretary. A role within various government departments

Terms and abbreviations	Definitions
FEED	Front End Engineering and Design
Feed gas	Natural gas delivered to the LNG Plant do be liquefied
FHOS	First Home Owners Scheme
Field condensate	A low-density mixture of hydrocarbon liquids found as gaseous components in raw natural gas
Filamentous	A thin or slender object
Flaring	The controlled burning of process gas when it cannot be processed for commercial use (e.g., during plant upsets, maintenance activities or commissioning)
Fluviatile	Relating to rivers; found in or near rivers
FPIC	Free, prior and informed consent
Fugitive emissions	Emissions of gases or vapours from pressurised equipment due to leaks and other unintended or irregular releases of gases
G	
Gas compressor station	A facility which helps the transportation process of natural gas from one location to another through pressurisation.
Gas processing train	A facility which liquifies and purifies the liquified natural gas so it is viable for transport.
GDP	Gross domestic product
Geotechnical	Area of civil engineering concerned with earthen materials.
GHG	Greenhouse gas
Gilgai	A geomorphological term for flat country (less than 1° gradient) dominated by mounds and depressions on black cracking clays which may contain small ephemeral lakes.
GIS	Geographic Information System
GPCO	Gas Projects Coordination Office
GPS	Global Positioning System
Greenhouse effect	The process of the redirection of radiation emitted from the earth by greenhouse gases
Greenhouse gas	Any gases in the earth's atmosphere that has the ability to redirect (absorbs and emits) radiant energy from the earth's surface.
GTD	Gas turbine driver
GTG	Gas turbine generator
H	
Hardstand	Paved parking area for heavy vehicles.
Hexavalent	A chemical compound with a valence number of 6, Meaning it has 6 available electrons to form a chemical bond. Chromium (Cr ⁶⁺) is a hexavalent element.

Terms and abbreviations	Definitions
HGCP	Hides Gas Conditioning Plant
HIPPS	High Integrity Pressure Protection System
HRLLG	Hiri Rural Local-level Government
HRSG	Heat Recovery Steam Generators
Humic surface horizon	A layer parallel to the soil surface that contains dark organic materials and has different characteristics to the layers above and beneath it
Hydrodynamic	A field concerned with forces acting on or exerted by fluids
Hydrology	The study of the distribution and movement of water, particularly in relation to land
I	
ICOMOS	International Council on Monuments and Sites
ICSS	Integrated Control and Safety System
IESC	Independent Environmental and Social Consultants
IFC	International Finance Cooperation
IFC PS	International Finance Cooperation Performance Standards
ILG	Incorporated Land Groups
Infauna	Animals living in the sediments of the ocean, river or lake floor, e.g., clams, snails, worms
In-situ	Latin phrase translating to "on-site or "in position". Refers to the original location.
Integrated LNG Plant	The operational LNG Plant following commissioning of the Project and its integration with the existing PNG LNG operation
Intertidal	The area of a seashore which is covered at high tide and uncovered at low tide.
IPCC	Intergovernmental Panel on Climate Change
IPIECA	International Petroleum Industry Environmental Conservation Association
IPR	Independent Peer Review
ISO	International Organisation for Standardisation
ITC	Infrastructure Tax Credit
K	
kapa	Hand crafted fabric from plant fibres.
Katabatic winds	A wind that carries high-density air from a higher elevation down a slope under gravity
L	
L&CA	Lands and Community Affairs

Terms and abbreviations	Definitions
La Niña	A climate pattern that describes the cooling of surface-ocean water
LA ₁₀	Arithmetic average of the hourly data for each day / evening / night
LA ₉₀	Arithmetic average of the hourly data for each day / evening / night
LA _{eq}	A-weighted equivalent continuous sound level for the measurement period
Lakatoi (Lagatoi)	A sailing boat originating from Papua New Guinea. It has a distinctive feature of two hulls
LBA	Live basal area
LCR	Local Contextual Region
LFC	Liquid Food Composter
Littoral	Relating to the shore of a lake, sea, or ocean
LLG	Local Level Government Area
LNG	Liquefied natural gas
LNG Plant	The existing PNG LNG Project liquefied natural gas plant
M	
Macroalgae	Aquatic plants (seaweed) that can be seen by the naked eye
Macrobenthic infauna	Animals living in the ocean, river or lake floor that are visible to the naked eye (> 1 mm)
Macroinvertebrate	An invertebrate that is visible to the naked eye such as a crustacean, mollusc, worm
Macrophyte	An aquatic plant growing in or near water that is large enough to be seen by the naked eye
Mangroves	Plant or tree that typically grows in water in coastal or swamp areas
Massif	Section of the earth's crust containing faults or flexures resulting in a compact mountain range
MCHE	Main cryogenic heat exchanger
Megafauna	Large animals that exceed a body weight of approximately 50 kg
Mercaptans	Organic sulphur compounds with corrosive properties. These compounds are a gas contaminant involved with the liquification of natural gas
MesoLAPS	Mesoscale Limited Area Prediction System
Metoccean	Wind, wave and climate conditions
MEZ	Maritime Exclusion Zone

Terms and abbreviations	Definitions
midden	Discarded remains of domestic waste such as bones, shells, plants and home materials
MOF	Material offloading facility
MOU	Memorandum of Understanding
Mudflat	An area of muddy ground covered by water at high tide.
N	
NAGD	National Assessment Guidelines for Dredging
Naphtha	A colourless, volatile liquid distilled and fractioned from LNG
National Cultural Property (Preservation) Act	<i>National Cultural Property (Preservation) Act 1965</i>
NCCC	National Climate Change Committee
NCD	National Capital District
NGA	National Greenhouse Accounts
NGO	Non-Government Organisation
NLOC	Niugini LNG Operating Company Limited (NLOC) is the ExxonMobil affiliate responsible for the operation of the integrated LNG Plant once it has been constructed and commissioned
Non-PASS	non-potential acid sulfate soils
Non-restricted waste	Waste containing materials that do not pose an immediate hazard to human health and safety, or to the environment
Non-volant	Incapable of flying
NO _x	Nitrogen oxides
O	
OCCD	Papua New Guinea Office of Climate Change and Development (now the CCDA)
Oceanography	The study of the ocean. Includes many aspects such as marine life and ecosystems, waves and currents, geology and sediment
Oil and Gas Act	<i>Oil and Gas Act 1998</i>
OIMS	Operations Integrity Management System
OSL	Oil Search Limited
P	
P&GA	Public and Government Affairs

Terms and abbreviations	Definitions
Paris Agreement	The Paris Climate Change Agreement
PACCSAP	Pacific Australia Climate Change Science and Adaption Planning Program
PASS	potential acid sulfate soils
PCB	Polychlorinated Biphenyls
Pelagic	A zone of water that is not near a shore nor the bottom of the floor
Percolation	Filtering of a liquid or gas through a surface or substance
Perennial	A stream lasting or continuing throughout the year
Permeability	A materials capacity to transmit fluids
PFC	Projective foliage cover
PHA	Provincial Health Authority
PIIM	Project induced in-migration
PLEM	Pipeline end manifold
PM	Particulate matter
PM ₁₀	Particles that are smaller than 10 µm in diameter
PMVs	Public motor vehicles
PNG LNG Project	Papua New Guinea Liquified Natural Gas Project
PNGRIS	PNG Resource Information System
PPFL	Petroleum Processing Facility Licence
PPL	PNG Power Ltd
PRL-15	Petroleum Retention License 15
PSA	Pressure-swing adsorption (technique used to separate gas species from a mixture of gases under pressure)
R	
Radiography	A procedure that uses x-rays to take pictures of areas inside an object
RAMP	Risk Assessment and Management Plan
RAP	Resettlement Action Plan
Restricted waste	Waste that is flammable, corrosive, reactive, toxic or capable of causing illness or disease in humans, animals or other organisms
Reverse osmosis	Water purification process using a semi-permeable membrane under constant pressure to remove any unwanted ions or molecules
RL	Reduced level
ROW	Right of Way

Terms and abbreviations	Definitions
RPNGC	Royal PNG Constabulary
RSH	Organic sulphur compound-a thiol R-S-H or its derivatives (R represents an alkyl group and SH is the thiol group)
Rugosity	Measurement of topographic surface complexity and roughness
S	
Salinity	The dissolved salt content of a body of water
Salt flat	A flat expanse of ground covered with salt and other minerals
Sargassum	Genus of brown seaweed that floats in large masses. Never attaches to the seafloor
Savannah	A plain, characterised by coarse grasses and scattered tree growth, especially on the margins of the tropics where the rainfall is seasonal
Scraper station	A facility which cleans the gas pipeline using pressure and equipment called “scrapers”
SDC	Stream day capacity
Sedimentation	The process of moving sediment depositing or remaining stationary as a sediment
Seine netting	A fishing method which involves a net that hangs vertically in the water
SEIS	Socio-economic Impact Study
Seismicity	The frequency, intensity or distribution of earthquakes in a region
SELCA	Social Economics and Land & Community Affairs
Semi-diurnal	Adjective pertaining to half a day or 12 hours.
Sessile	An immobile organism e.g., a barnacle
SEZ	Special Economic Zone
Sheet flow	An overland flow or downslope movement of water taking the form of a thin, continuous film over relatively smooth soil or rock surfaces and not concentrated into channels larger than rills
SLR	SLR Consulting Australia Pty Ltd
SMLI	Social mapping and landowner identification
SMR	Single Mixed Refrigerant
SO ₂	Sulphur dioxide
Socio-economic	The economic factors that develop and affect social processes (and vice-versa)
SPAR	Sector Performance Annual Review
SQG	Sediment quality guideline
SRI	Social Research Institute
SSHE	Safety, Security, Health and Environment

Terms and abbreviations	Definitions
STC	Save the Children
STG	Steam turbine generator
STP	Sewage Treatment Plant
Stratification	Arrangement of an object into groups
Substrate	The surface or material on or from which an organism lives, grows, or obtains its nourishment
Supratidal	Environments that are above the tidal range and are only wet with seawater on hightide or storm events
T	
TAFE	Technical and Further Education
Tectonic plate	A section of the earth's crust and uppermost part of the mantle, which moves in relation to the other plates; there are seven main plates and a number of minor plates and microplates; movement at the boundaries can cause earthquakes, volcanoes, mountain-building and the formation of oceanic trenches
Terrestrial environment	The earth's land area, including its manmade and natural surface and sub-surface features, and its interfaces and interactions with the atmosphere and the oceans
Terrigenous sediment	Sediment from the erosion of land materials
the Gulf	Gulf of Papua
the Project	Papua LNG Project - Downstream
Topsoil	The top layer of fertile soil, including all plant matter that has not been cleared
TotalEnergies	Total E&P PNG Limited. TotalEnergies operates the upstream component of the Papua LNG Project. The Upstream component is being assessed under a separate EIS as the two components of the Papua LNG Project have different operators, geographical locations, and development timelines
Total Kjeldahl nitrogen (TKN)	Composition of nitrogen found in organic substances and nitrogen found in inorganic ammonia and ammonium. A standard nitrogen measurement technique in industry
TRH	Total recoverable hydrocarbons
TSP	Total suspended particulate matter. Particles with a diameter of less than 50 µm, consisting of a mixture of large and fine particles
TSS	Total suspended solids. The dry-weight of suspended particles that are not dissolved in a water sample
U	
Understory vegetation	Comprises plant life growing beneath the forest canopy without penetrating it to any great extent, but above the forest floor
UNEP	United Nations Environment Programme

Terms and abbreviations	Definitions
UNFCCC	United Nations Framework Convention on Climate Change
Upwelling	The rising of nutrient-rich water from the ocean depths to the surface, where it flows outward, caused by wind driven motion and the earth's rotation.
U.S.	United States of America
UXO	Unexploded ordinance
V	
Venting	Discharge of unburned process gases into the atmosphere when it cannot be processed for commercial use (e.g., during plant upsets, maintenance activities or commissioning). In relation to this Project, also includes the reservoir-produced CO ₂ that is vented from the Acid Gas Removal Unit (AGRU) at the LNG Plant
VLOs	Village Liaison Officers
VOC	Volatile organic compounds
VREC	Vaihua River Ecosystem Complex
VU	Vulnerable
W	
WASH	water, sanitation, and hygiene
WBCSD	World Business Council for Sustainable Development
WBG	World Bank Group
WHO	World Health Organisation
WMO	World Meteorological Organisation
WMP	Waste Management Plan
WQ	Water quality
WRF	Weather Research and Forecast
WRI	World Resources Institute
WWF	World Wildlife Fund