



PNG LNG Environmental and Social Report – **Annual 2023**





ExxonMobil

PNG LNG is operated by a subsidiary of ExxonMobil in co-venture with:

Santos



KUMUL PETROLEUM
HOLDINGS LIMITED



JX Nippon Oil & Gas Exploration



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For the purposes of this Report, the currency conversion rate used, between Papua New Guinea Kina (PGK) and United States Dollars (USD) is 0.2683 [PGK1 = USD0.2683]. This rate is as published by the Bank of Papua New Guinea as at 31 December 2023.



EXECUTIVE SUMMARY

ExxonMobil PNG Limited has achieved more than 125 million hours of work since the start of production, with 21 million hours worked in 2023.

The Papua New Guinea Liquefied Natural Gas (PNG LNG) completed its 1000th LNG cargo shipment in 2023 and maintained a reliable energy supply for customers across Asia. At the same time, PNG LNG continued to help Papua New Guinea realise career, business, and community development opportunities for its people.

ExxonMobil PNG Limited (EMPNG), a subsidiary of Exxon Mobil Corporation, manages the operation of PNG LNG facilities on behalf of its co-venture partners: Oil Search (PNG) Limited (Santos), Kumul Petroleum Holdings Limited, JX Nippon Oil and Gas Exploration Corporation, Mineral Resources Development Company Limited (MRDC) and their affiliates.

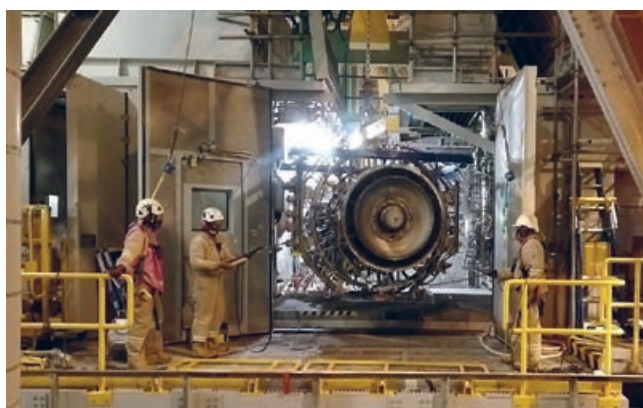
This Environmental and Social Report provides an update on EMPNG's environmental and social performance from 1 January to 31 December 2023.

Production

In addition to the 1000th LNG cargo shipped to China on the LNG carrier *Gigira Laitebo* in September, a second major production milestone was achieved during 2023 with the completion of the Angore Gathering System pipeline installation from Wellpad C to the Hides Gas Conditioning Plant (HGCP). By the end of 2023, PNG LNG safely produced 8.5 million tonnes of LNG, with 113 LNG cargoes and a record 13 naphtha cargoes loaded. More than 77.8 million tonnes of LNG had also been produced since the start of production, resulting in 1035 LNG and 99 naphtha cargoes loaded for customers in Asia.

In March, a remotely operated vehicle survey was conducted of the PNG LNG subsea pipeline to confirm its integrity. The survey was undertaken by co-venturer Santos using Shelf Subsea's vessel *Southern Star*.

In May, the largest maintenance scope of work was completed at the HGCP since the PNG LNG construction phase. This was achieved through a planned curtailment in the production volume (rate reduction) enabling the first major maintenance to be conducted on HGCP top-tier machinery. A rate reduction for major maintenance was also completed at the LNG Plant during the year.



Workers conducting maintenance on the LNG Plant Train 2 mixed refrigerant compressor turbine as part of the rate reduction scope

2023 PERFORMANCE HIGHLIGHTS

PRODUCTION

113 cargoes

of LNG loaded in 2023 bringing the total loaded since the start of production to 1035 cargoes of LNG

13 cargoes

of naphtha loaded in 2023 bringing the total loaded since the start of production to 99 cargoes of naphtha

8.5 million

tonnes per year equivalent of LNG produced in 2023 bringing the total to 77.8 million tonnes per year equivalent of LNG produced since production began

National content

EMPNG maintains a firm commitment to national content, with Papua New Guinean citizens representing 88 percent of PNG LNG's 3714 employees. Papua New Guinean women account for 20 percent of the Papua New Guinean workforce and also represent 96 percent of all women working on PNG LNG operations.

Ongoing training and career development opportunities are provided through both face-to-face and online methods. During 2023, EMPNG and its contractors delivered training opportunities to more than 12,300 participants over the equivalent of 225,900 hours through some 2600 courses. Papua New Guinean citizens accounted for 93 percent of training participants, of whom 29 percent were women.

The highly successful Operations and Maintenance training program entered its second decade after celebrating the program's tenth year in 2022.

During 2023, 18 Papua New Guinean citizens, comprised of 13 men and five women, became the ninth intake of trainees and started their training at the Kumul Petroleum Academy. Six of the trainees are completing the instrumentation discipline, while the remaining 12 are studying the operations discipline.

Papua New Guinean university and college graduates are recruited for full time employment with EMPNG and receive on-the-job training to help them develop their careers with the company.

Recruitment is conducted through three annual programs: the Graduate Engineering Program, Graduate Management Development Program, and Intern Engineering Program.

In 2023, 14 engineers were recruited through the Graduate Engineering Program, including 13 new graduates and one experienced engineer. The recruits consisted of four civil and integrity engineers, four surveillance engineers, three machinery engineers, one instrumentation engineer, one electrical engineer, and one measurement engineer. In addition, nine third-year engineering interns joined the Intern Engineering Program in 2023.

The Graduate Management Development Program selects graduates from across multiple subject disciplines and rotates them through different departments over a three-year period to obtain a broad understanding of EMPNG's business. EMPNG currently has 15 workers who are part of the Graduate Management Development Program and four who have graduated from the Program.



Graduate Management Development Program participants arrive at the Upstream area for a tour of facilities

In addition to providing training programs for its workforce, EMPNG continues to invest in supporting the development of Papua New Guinean businesses.

During 2023, EMPNG engaged nine landowner companies (Lancos), each representing a geographic area within the PNG LNG area of operations, and 146 other Papua New Guinean businesses for production-related activities. In-country spend with Papua New Guinean businesses was almost PGK883 million (USD237 million) in 2023 compared to PGK633 million (USD170 million) during 2022. Thirty-eight percent of this spend was for Lanco services, which equates to PGK358 million (USD96 million) compared to PGK292 million (USD78 million) spent on Lanco services in 2022. EMPNG has spent almost PGK6.8 billion (USD1.8 billion) on Papua New Guinean services since the start of production. Of this, PGK2.25 billion (USD604 million) was spent on Lanco services.

EMPNG also participated in the Papua New Guinea Chamber of Resources and Energy Incorporated (formerly the Papua New Guinea Chamber of Mines and Petroleum Incorporated) inaugural Community Affairs and National Content Conference and Exhibition (CANCONEX). As Papua New Guinea's first ever conference and expo that included national content on its agenda, CANCONEX provided an opportunity

for the resource industry, government, Lancos, Papua New Guinean suppliers and community-based organisations to share ideas regarding community affairs and national content best practice. The event enabled participants to identify opportunities for Papua New Guinean citizens and businesses to participate in existing and emerging mining and petroleum projects in the country.



EMPNG National Content Advisor, Zillar Miro (right), greets Papua New Guinea Prime Minister, the Honourable James Marape, at the EMPNG exhibition booth at CANCONEX

Lanco Laba Holdings Limited started construction on eight major infrastructure projects for the four LNG Plant site villages of Papa, Lea Lea, Boera and Porebada during the year. The projects, funded by EMPNG and to be completed in 2024, include: a two-storey double classroom and staff administration building for Porebada Primary School; a double classroom with a dedicated computer laboratory for Boera Primary School; a two-storey double classroom with a dedicated computer laboratory along with a three-bedroom staff house for Papa Junior High School; and a double classroom with a dedicated computer laboratory and a three-bedroom staff house for Lea Lea Primary School. A new Village Court House has been scheduled for construction at Papa Village in 2024.

A new science laboratory for St Pauls Komo Secondary School was constructed by HGDC Energy Services Limited (HESL) in collaboration with Lanco Komo Airfield Development Company Limited in 2023 with funding support from EMPNG. As a result of the new laboratory, which cost approximately PGK1,338,000 (USD359,000) to build, Papua New Guinea's education board approved the school's application to be elevated to a secondary school, catering for Grades 11 and 12 from 2024. This means that Komo students no longer need to travel to Tari to access secondary education.

Three staff houses have been constructed by HESL at Undupi Primary School with funding support from EMPNG. Double classrooms are being constructed for Juni and Hupikini primary schools and will be handed over in 2024. In the Upstream area, EMPNG funded the construction of a new Komo Rural Local-Level Government chamber building. Built by Lancos HESL and Komo Airfield Development Company Limited, the chamber provides a meeting and conference room, along with an administrative hub for 24 ward counsellors of the Komo Rural Local-Level Government.

As well as projects delivered by Lancos, EMPNG donated three first aid units constructed from 20-foot shipping containers to Lea Lea Primary School, Papa Junior High School, and Redscar High School in 2023. These units comprised a first aid kit, bathroom, waiting area, and air conditioning. They were designed as sick bays to support the provision of first aid for students and staff at these schools. The units will be managed by teachers who received basic first aid training through St John Ambulance with support from EMPNG.

EMPNG continues to organise weekly fresh produce markets at Hides, Komo and Angore. These markets attract some 100 local vegetable farmers who sell their produce to the HGCP and Angore camp caterers and earn additional income from sales to community members. About 85 of these markets were held during the year, generating more than PGK265,000 (USD71,100) in the sale of local produce to catering contractors for use in EMPNG camps.



EMPNG Information and Management System Data Analyst, Annie Soli, purchasing fresh produce from community members at a 3 Ways Junction market

EMPNG also supported the Motu Koita Assembly with their redevelopment project at Baruni Primary School. The project included the construction of two buildings that each contained three classrooms. In addition, EMPNG provided desks and chairs for 120 students who will use the classrooms.

The Boera Women's Resource Centre, together with local non-government organisation the Centre for FutureNau Incorporated, has launched an entrepreneurial community gardening pilot project with funding from EMPNG and support from Papua New Guinea's Department of Agriculture. The project involves training local women and their families to grow crops for healthy lifestyles and to generate income. The first training was conducted in 2023 and covered topics such as using non-biodegradable waste for gardening.

EMPNG worked with the Rural Women's Development Foundation Incorporated during the year to provide food donations to eight *safe haus* or 'safe houses' in the Hela Province to support 64 survivors who were displaced primarily due to violence. These *safe haus* helped protect victims with safe accommodation at a discreet location, food and other essentials, and legal support.

Thirty students received scholarships funded by EMPNG as part of the 2023 Business and Professional Women's Association PNG LNG In-Country Scholarships Program for Higher Education in Papua New Guinea. The Program, which supports students with completing secondary and tertiary education, was also extended to provide 40 scholarships for vocational education students from Hela Province. Since EMPNG began working with the Business and Professional Women's Association in 2019, 190 students have been funded through these scholarships.

2023 PERFORMANCE HIGHLIGHTS

NATIONAL CONTENT

3255 PNG citizens

comprise 88% of the PNG LNG workforce (including EMPNG employees, staff contractors, and third-party contractor personnel) as at 31 December 2023

PGK883 million

spent in-country with Papua New Guinean businesses in 2023 bringing the total to PGK6.8 billion spent since the start of production

225,900 hours

of training delivered through some 2600 EMPNG and third-party contractor courses in 2023

PGK30.6 million

of contributions, sponsorships, in-kind support and community projects in 2023

320+ volunteers

spent 400 hours in 2023 on volunteer projects

In 2023, a total 1404 Grade 8 and 10 students from nine schools near the LNG Plant site participated in the ExxonMobil Science Ambassador Program with support from EMPNG volunteers. The Program aims to encourage students to consider careers in science, technology, engineering, and mathematics through interactive educational experiences.



LNG Plant Land and Community Affairs Officer and EMPNG volunteer, Shadrach Jaungere, delivers a Science Ambassador Program lesson to students at Papa Junior High School

The Science Ambassador Program is among numerous community-based activities that received some 400 hours of volunteer support from more than 320 EMPNG workers during the year. About 180 volunteers participated in activities organised by the Employee Resource Group from ExxonMobil Haus in Port Moresby, and over 140 volunteers participated in support activities in communities near the LNG Plant, HGCP, Moro, and Angore facilities.



EMPNG workers and their families volunteer to clean up Lea Lea beachfront

Environment

A key environmental milestone was achieved in October, with more than 100 clans across two local-level government areas in the Lower Kikori region signing 11 community conservation deeds, which is the largest number of conservation deeds ever signed at one time in Papua New Guinea. It is the culmination of more than 10 years of community engagement in the Kikori Delta area regarding conservation. Some 1000 community members witnessed the event.

As a result of these conservation deeds, more than 20,000 hectares of land in the Lower Kikori region has been committed by Papua New Guinean landowners for conservation efforts.

In addition to community-based conservation, EMPNG consistently works to improve its environmental management processes. This includes ongoing waste management initiatives that are being implemented to improve long-term waste management solutions at all EMPNG worksites.



Signing of community conservation deeds at Kikori Station

ExxonMobil conducts assessments of new facilities using an experienced independent contractor before determining whether they will be utilised. Additionally, existing waste management facilities are re-assessed every four years to confirm they can continue to be used. In October, EMPNG assessed and engaged a new Papua New Guinean waste contractor, Carbon Recycling PNG, which opened the nation's first onshore waste oil recycling facility at Lae.

2023 PERFORMANCE HIGHLIGHTS

ENVIRONMENT

11 deeds signed

for community conservation, which is the largest number of conservation deeds ever signed at one time in Papua New Guinea

~1000 people

representing more than 100 clans across two local-level government areas in the Lower Kikori region witnessed the signing of conservation deeds

>20,000 hectares

of land in the Lower Kikori region has been committed by Papua New Guinean landowners for conservation efforts

Following an 18-month trial period and environment permit process, this facility achieved its Environment Permit through the Conservation and Environment Protection Authority and became compliant with ISO14001 standards. During the trial period, more than 270,000 litres of waste oil was processed. The facility has the capability to process up to 21 million litres of waste oil per year. In addition to Carbon Recycling PNG, EMPNG re-assessed two existing waste contractors that were approved for continued use for PNG LNG operations.

As part of the annual invasive weeds monitoring survey conducted in 2023, the New Guinea Binatang Research Centre surveyed an additional 52 plots for invasive weed species, bringing the total number of transects surveyed to 785. With each transect measuring 100 metres, this is equivalent to 78.5 kilometres of the pipeline Right of Way surveyed. Monitoring data indicated that, generally, Priority 1 weed species diversity had not changed compared to the 2022 survey.

Social

Several safety milestones were achieved in 2023, including the safest year recorded since the start of production with a Total Recordable Injury Rate of 0.03. Contractor Wood achieved 10 years of work without a Lost Time Incident at both the LNG Plant site and Upstream area.

Fifty-one Upstream area workers and 21 LNG Plant site workers were recognised as Safety and Fair Play Champions in 2023. This program encourages and rewards safe behaviour to help build a safety culture across all worksites. Workers selected as Safety and Fair Play Champions exhibit safe workplace behaviours and influence others with 'Nobody Gets Hurt' objectives.

In accordance with ExxonMobil Emergency Preparedness and Response guidelines, all 22 EMPNG Tactical Response Plans were reviewed and updated in 2023 to match the corporate standard. This global standard helps provide clarity around responses to critical first hours activities and provides consistency across business units to optimise EMPNG's emergency response.



Responders celebrate the successful completion of the annual marine weather drill at the LNG Plant Marine Terminal

EMPNG's revised global Industrial Hygiene exposure assessment strategy was implemented in 2023.

The strategy involves the use of both local and global data in exposure ratings and assessments. It provides a more fit-for-risk approach to how exposure assessments are conducted, ensuring effective controls are in place and validated as required. More than 350 workplace health inspections were conducted during the year to confirm health requirements were met for food, water, public health, chemical and respiratory safety.

More than 8140 engagements were conducted with communities throughout the PNG LNG area of operations in 2023. These included some 2415 formal engagements and 5725 informal engagements that involved almost 32,300 stakeholders. Fewer community engagements were recorded in 2023 than 2022 due to the completion of Angore Gathering System pipeline installation. In addition to community engagements, some 560 representatives from national government agencies, provincial level governments, and co-venture partners participated in 35 EMPNG advocacy workshops held in 2023. Advocacy workshops provide participants with information about EMPNG's operations, community development work, biodiversity programs, national content initiatives, and financial benefits paid to the Papua New Guinean Government and landowners.

Through a combination of its world-class production facilities, career development and business opportunities for Papua New Guinean citizens, and investment in a broad range of community support programs in collaboration with the Papua New Guinean Government and local communities, EMPNG is well on its way to realising a positive and long-lasting impact of PNG LNG on the whole country.

2023 PERFORMANCE HIGHLIGHTS

SOCIAL

0.03 TRIR

or 'Total Recordable Incident Rate' recorded for 2023, making it the safest year since the start of production

PGK24.4 billion

has been distributed from PNG LNG revenues to landowners and the Papua New Guinean Government since the start of production

>8K engagements

conducted with communities in 2023 involving almost 32,300 stakeholders

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Image captions:

- Cover** A New Guinea dainty treefrog (*Litoria auae*), which is found only in the forested lowlands and foothills of southern New Guinea and is commonly encountered during EMPNG biodiversity surveys in the Kikori Delta
- Executive Summary** Members of the Operations Leadership and LNG Plant Operations and Maintenance teams on the LNG Plant Marine Terminal jetty as the *Gigira Laitebo* is loaded with the 1000th cargo



*Energy for the World. Opportunity for Papua New Guinea.
Eneji Bilong Wol. Luksave Bilong Papua Niugini.*