



PNG LNG

10
YEARS

PNG LNG Environmental and Social Report
Annual 2019



ExxonMobil

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



Santos



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EXECUTIVE SUMMARY

ExxonMobil PNG Limited has just completed 10 years of creating and growing a significant economic opportunity for Papua New Guinea.



The Hides Gas Conditioning Plant at dusk

In 2019, Papua New Guinea Liquefied Natural Gas (PNG LNG) reached its most significant milestone yet with the completion of 10 years in Papua New Guinea. Over the past decade, PNG LNG has partnered with many government, non-government organisations and communities to position Papua New Guinea as a world-class LNG supplier.

Since the start of production in 2014, some 43 million tonnes of LNG have been loaded and 580 LNG cargoes sold to customers in Asia.

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

This Environmental and Social Report provides a progress update on EMPNG's social and environmental performance from 1 January to 31 December 2019.

PRODUCTION

The LNG Plant achieved numerous production milestones during 2019. This included the 500th LNG cargo loaded in April, a record production week in June and a record production day in August.

The first commercial flight landed at Komo Airfield in 2019 under a user agreement between Link PNG and EMPNG. The Airfield is servicing two commercial flights a week to and from Port Moresby.

SAFETY AND HEALTH

EMPNG has achieved a world-class safety culture with over 57 million work hours recorded without a Lost Time Incident at the LNG Plant. Across all worksites, the company has recorded no Lost Time Incidents for more than two years and no significant process safety events for almost six years.

As part of its commitment to 'Nobody Gets Hurt', EMPNG introduced a Safe Choice program during the year to empower workers to make safer choices in the workplace. Safe Choice was also the theme of the 6th annual Contractor Safety Leadership Workshop held in September.

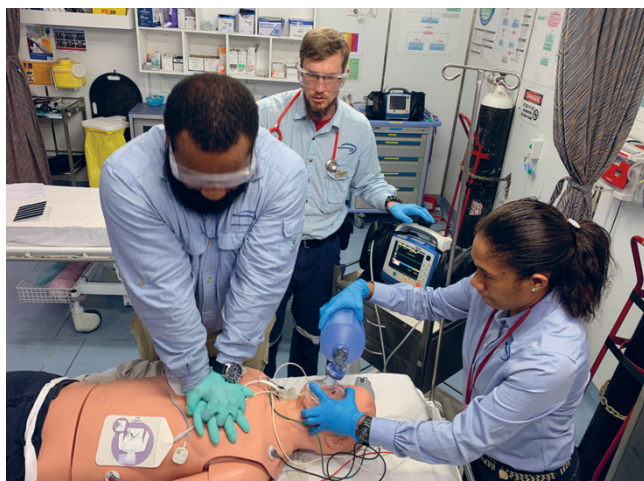
The EMPNG Falck Fire and Rescue team participated in their first Extractive Industries Emergency Response Challenge against other Papua New Guinea-based mining and oil and gas companies in 2019. The team achieved first place in the rope rescue event and third place in the theory session. The Papua New Guinea Chamber of Mines and Petroleum hosted the Challenge.

To help workers proactively manage their health, EMPNG has introduced a Culture of Health program. The program consists of four elements: biometric health screening; health promotion and awareness; nutritional awareness; and physical activities.

In 2019, EMPNG's Medicine and Occupational Health team was recognised with an ExxonMobil Global Health and Safety Award for the second consecutive year.



Workers celebrate the 500th LNG cargo at the LNG Plant Marine Terminal



Clinical education session at the Hides Gas Conditioning Plant clinic

In 2018, the team received the Award for their contribution to raising mental health awareness in the workplace. The 2019 award recognised the team's review of the Malaria Control Program, which involved the adoption of a fit-for-risk approach.

ENVIRONMENT

EMPNG continues to improve its environmental performance, with combined LNG Plant and Hides Gas Conditioning Plant (HGCP) regular flaring reduced to its lowest levels since the start of production. During 2019, EMPNG's environmental initiatives, capacity building efforts and publication of Papua New Guinea's biodiversity data was recognised through a Papua New Guinea Chamber of Mines and Petroleum award.

The biodiversity offset program's capacity building components have progressed and included two Communicating Conservation meetings with more than 150 conservation professionals in Port Moresby during the year. Communities that attended these meetings came from 20 Papua New Guinean provinces.

In April, 10 scholarship recipients from the Enhancing Conservation Capacity Program graduated from the University of Papua New Guinea with a Postgraduate Diploma in Biodiversity Conservation. In December, 42 community conservation practitioners graduated with certificates in Biodiversity Conservation.

Stakeholder feedback with regard to EMPNG's biodiversity offset program indicates that it is delivering value in bringing community conservation efforts to a central place for the exchange of information and helping to build capacity in areas of need at the national level and with community-based conservation organisations. For example, the Lake Kutubu Wildlife Management Area Committee continues to demonstrate improved capacity to support conservation activities, and Upstream area communities in Lower Kikori are coming together to identify areas for conservation.

Multiple field surveys were completed in 2019 and included the biennial biodiversity monitoring, regeneration monitoring and the annual weed survey. Data analysis for these survey efforts will be completed in 2020.

Fifty-two low-level environmental incidents classified Severity Level <0 were reported in 2019, along with 29 Severity Level I non-conformances for which appropriate corrective actions were taken. Most environmental incidents and non-conformances related to wastewater quality criteria exceedances.

WORKFORCE DEVELOPMENT

A total 3964 workers, including employees and third party contractors, were working for PNG LNG in 2019. This is an increase of some 700 workers compared to 2018 because of construction activities related to earthquake repair works and the restart of the Angore Gathering System project.

The PNG LNG workforce includes 3411 Papua New Guinean citizens, comprising 86 percent of the total workforce. Seventeen percent of the Papua New Guinean workforce is female.

During 2019, the equivalent of more than 96,700 hours of training were delivered through more than 2570 courses to more than 37,300 employee and contractor training participants. Ninety-eight percent of all training hours were delivered to Papua New Guinean citizens. Since the start of production, the equivalent of almost 296,000 hours of training have been delivered to more than 14,600 course participants.

EMPNG is piloting an Engineers in Operations development program for newly appointed engineers. This involves one week of orientation and six weeks of the new engineers shadowing operations and maintenance personnel to help the new employees establish working relationships and better understand work activities in the field.

Career development opportunities continue to be provided for Operations and Maintenance technicians. Some 220 Papua New Guinean citizens have been recruited through the Operations and Maintenance training program since 2010, which includes full-time on-the-job training in operations and maintenance trades for roles at the HGCP and LNG Plant. By the end of 2019, 26 out of 32 Control Room Technician positions, or more than 80 percent, were filled by Papua New Guinean citizens, including 10 women, who represent 38 percent of Papua New Guinean Control Room Technicians.

The fifth intake of Operations and Maintenance technician trainees completed their 12-month Junior Technician program at the Kumul Petroleum Academy in December. The sixth intake of Operations and Maintenance trainees attracted more than 2000 applicants, with 18 selected to begin training at the Kumul Petroleum Academy in March 2020.



Newly recruited engineers at the LNG Plant

EMPNG participated in the 39th International Association for Impact Assessment conference in Brisbane, Australia during 2019. EMPNG workers and consultants delivered 11 presentations and chaired three sessions. EMPNG also sponsored 15 Papua New Guinean environment and conservation professionals from government, academia and non-governmental agencies to attend the conference.

SUPPORTING PAPUA NEW GUINEAN BUSINESSES

In 2019, EMPNG celebrated a decade of partnership with Papua New Guinean businesses, including landowner companies (Lancos) such as the Hides Gas Development Company Limited (HGDC), Laba Holdings Limited and Trans Wonderland Limited.

Over the past 10 years, EMPNG has engaged local suppliers for both construction and production-related activities. During 2019, 13 Lancos and some 270 non-Lanco Papua New Guinean businesses provided services such as security, catering, maintenance of light vehicles, rental of heavy equipment, vegetation management, transportation, freight and logistics, surveying, construction material testing and medical services.



EMPNG Managing Director, Andrew Barry, celebrates 10 years of partnership with Lancos HGDC, Laba Holdings Limited and Trans Wonderland Limited

EMPNG's total in-country spend with Papua New Guinean businesses in 2019 was PGK755 million (US\$221.6 million) compared to PGK567.3 million (US\$166.5 million) in 2018. Of this, almost PGK239.3 million (US\$70.2 million) was spent on Lanco services compared to PGK184.3 million (US\$54.1 million) in 2018. Since the start of production, EMPNG has spent almost PGK3.8 billion (US\$1.1 billion) on Papua New Guinean services, with PGK1.1 billion (US\$322.8 million) spent with Lancos.

The Enterprise Centre conducted 24 business assessments, including 14 Lanco assessments, and delivered the equivalent of more than 8500 training days to Papua New Guinean businesses in 2019. The Centre has completed approximately 600 business assessments, provided the equivalent of more than 46,500 training days and supported some 20,000 entrepreneurs since it began operations in 2010.

SOCIAL DEVELOPMENT

EMPNG's support for schools, in partnership with provincial government authorities, in 2019 included: two new staff houses, a double classroom and sanitation facilities for Para Primary School; a new staff house and sanitation facilities for St. Paul's Primary School in Komo; and sanitation facilities for Redscar High School and Boera, Lea Lea and Papa primary schools.



Students and teachers celebrate the handover of a new teacher's house at St. Paul's Primary School in Komo

Thirty-two Papua New Guinean businesswomen have completed a 14-week Academy for Women Entrepreneurs online business course sponsored by EMPNG and the United States Embassy in Port Moresby. The online business course is a pilot program that aims to equip women with the practical skills needed to create sustainable businesses.

The course delivers online educational resources, fosters networking that supports mentorships, and connects women to existing business support programs.

EMPNG has provided PGK230,000 (US\$67,500) to the Papua New Guinea University of Technology to help the Engineering department achieve Washington Accord accreditation. The Washington Accord is an international accreditation agreement that sets a standard for professional engineering degrees to be recognised by signatory countries. The University's Engineering department aims to have its bachelor degree internationally accredited by 2022.

Youth from four Papua New Guinean provinces now have access to a new scholarship with support from the Business and Professional Women's Association and EMPNG.

Spotlight

Hiri Moale tradition returns

EMPNG, through the Advancing PNG: Women Leaders Network, supported a traditional pottery making workshop at Porebada Village in July to revive Hiri Motu pottery that was once used in the Hiri Trade. The workshop served as a precursor to the Hiri Moale Festival, which was held at Ela Beach in Port Moresby in September.

The annual Hiri Moale Festival celebrates the traditional Hiri Trade between the Gulf and Motu Koita People. It begins with the arrival and welcoming of the *lagatoi*, a traditional double-hulled sailing watercraft, and ends with the crowning of the Hiri Queen. The 2019 Hiri Queen received a scholarship worth PGK20,000 (US\$5870) as part of her prize.

EMPNG has sponsored the Hiri Moale Festival for the sixth consecutive year with a PGK67,000 (US\$19,660) donation in 2019. The Festival included the Motu Koita Music Festival and Vanagi (canoe) race.



Performer in traditional costume at the 2019 Hiri Moale Festival

The scholarship, launched in October, supports students from the Hela, Southern Highlands, Gulf and Central provinces to further their education at vocational schools, technical colleges or universities throughout the country. A minimum of 30 scholarships will be awarded each year.

EMPNG has funded the construction of a new health centre facility at Juni in the Hela Province and refurbishments to the existing Para Health Centre, Mananda Health Centre and Benaria Health Centre. These health services were upgraded in partnership with local leaders, churches, local contractor companies, Lancos and provincial health authorities.

A new Porebada Health Centre was opened in 2019. The facility serves Porebada Village and the nearby communities of Papa, Lea Lea, Boera and Roku. The PGK1 million (US\$293,500) Health Centre was funded by landowner royalty payments derived from PNG LNG production, facilitated through the Mineral Resources Development Company Limited and administered through the Community Infrastructure Trust Fund. The Centre includes patient beds, a delivery room, an emergency procedure room, a consultation room, administration offices, a meeting room, a pharmacy and an outpatient area. It provides health services to some 30,000 people who previously had to travel to Port Moresby for treatment. EMPNG provided medical equipment for the new Health Centre.

STAKEHOLDER ENGAGEMENT

Over the past decade, more than 400,000 stakeholders have been engaged through PNG LNG.

In 2019, some 65,000 people participated in 3960 engagements with 178 communities. This included 1737 formal and 2223 informal engagements.

In the Upstream area, engagements focused on community development activities such as fresh produce market days, community events and celebrations including Independence Day. At the LNG Plant site villages, engagements included marine, road and pedestrian safety education sessions with communities and schools.



Members of the Mbelopa Women's Group preparing for a fresh produce market day

Mangrove protection education was also conducted with LNG Plant site communities.

Other engagements included community development support projects and community events across Papa, Lea Lea, Boera and Porebada villages, as well as with more remote communities.

More than 1000 people attended 63 EMPNG advocacy workshops and site tours at the LNG Plant site in 2019. EMPNG's advocacy workshops are increasingly attracting interest from international governments. During the year, government representatives from Germany, Tanzania, China and Japan participated in workshops and site tours. In addition to advocacy events at the LNG Plant site, advocacy workshops were held in the Hela and Western provinces with local and provincial level government representatives. HGCP site tours were conducted for some 250 people from schools, community and youth organisations.

PNG LNG's continued success has been built upon a strong foundation of partnership with the people of Papua New Guinea. Together, EMPNG and Papua New Guinean communities can look forward to another decade of generating even more economic growth and social development opportunities for the nation.

COMMEMORATIVE FEATURE: 10 YEARS OF SOCIAL AND ECONOMIC GROWTH IN PAPUA NEW GUINEA

PNG LNG has just completed its first 10 years of partnership in Papua New Guinea. Work began with government, non-government organisations and local communities in 2009 to develop what has since become a sustained opportunity for economic growth and social development for the country.



PNG LNG is commemorating 10 years of partnership with Papua New Guinean communities

Just some of the many outcomes that PNG LNG, together with communities, have achieved over the past decade are covered in this special commemorative feature.

FROM CONSTRUCTION TO PRODUCTION

Following completion of the Environmental Impact Statement in 2009, construction began on the US\$19 billion PNG LNG facilities in early 2010. PNG LNG spans the Southern Highlands, Hela, Western, Gulf and Central provinces of Papua New Guinea and includes over 700 kilometres of pipeline, a two-train LNG Plant, an LNG Plant Marine Terminal, the HGCP, associated infrastructure and a Port Moresby office.



From left: EMPNG Operations Technician, Ramona Terence; EMIT Asia Pacific Safety Advisor, Faridah Saibon; EMIT Security and Controls Officer, Rita Nale; EMIT Global Safety, Health and Environment Manager, Brenda Short; and Operations Technician, Moale Bae at the LNG Plant site visitors viewing platform

After commissioning of the new facilities, production began on 23 April 2014. Since then, PNG LNG has produced some 43 million tonnes of LNG, with 580 LNG cargoes delivered to customers in Asia.

Since start-up, EMPNG, which manages the operation of PNG LNG facilities, has focused on safely increasing the efficiency of its operations at the LNG Plant. By the end of 2019, PNG LNG's facilities have safely and regularly produced above 8 million tonnes per year of LNG.

DEVELOPING THE WORKFORCE

PNG LNG's achievements showcase the dedication and expertise of its workers.

During construction, PNG LNG's workforce totalled more than 55,000, peaking at 21,220 workers at the end of 2012. Of the peak workforce, nearly 8500 workers, or 40 percent, were Papua New Guinean citizens.

By the end of 2019, 3964 people were working for PNG LNG. This includes 3411 Papua New Guinean citizens, of whom almost 570 were women.

EMPNG provides a broad range of career opportunities, including supervisory roles, for workers across operations, maintenance, engineering, technical, human resources, procurement, information technology, law and safety, health and the environment. Papua New Guinean employees are also given overseas developmental assignments as part of the Operations and Maintenance training program, Early Career Graduate interchange program or through international opportunities.

The company focuses on employing workers from areas near production facilities wherever possible. Of the total Papua New Guinean workforce, 50 percent are employed at worksites in their local area.

To develop the technical skills of workers, EMPNG delivers formal classroom, in-house and on-the-job training, as well as internships and graduate programs. During construction, PNG LNG provided over 2.17 million hours of training through some 12,900 training programs. The aim was to give workers transportable skill sets that would help them develop their careers. Since the start of production, the equivalent of almost 296,000 hours of training have been delivered to more than 14,600 workers.

GROWTH OF PAPUA NEW GUINEAN BUSINESSES

"Through constant training and mentorship, local businesses are now delivering better services at a higher standard and PNG LNG has provided growth opportunities that would otherwise not have existed. These lessons of business development are now being taken back into the local communities and have contributed to transforming local economies."

Joshua Coughran, General Manager of Laba Holdings Limited, Lanco for the LNG Plant communities.

Throughout the construction and production phases, PNG LNG has been committed to the use of local goods and services, as well as building the capacity of Papua New Guinean businesses.

In 2010, PNG LNG helped establish the Enterprise Centre with the Papua New Guinea Institute of Banking and Business Management. The Enterprise Centre has since provided some 600 assessments of local businesses to improve their operations. It has also provided the equivalent of more than 46,500 training days for public and private sector organisations.

Before the construction of PNG LNG, the Papua New Guinean Government provided seed capital so that Lancos representing a geographic area within the PNG LNG area of operations could provide construction-related services and materials to PNG LNG and other customers.

The two umbrella representative Lancos, Laba Holdings Limited and HGDC were pivotal during the construction phase. Laba Holdings Limited is the umbrella representative Lanco for the four LNG Plant site villages of Papa, Lea Lea, Boera and Porebada. HGDC is the umbrella representative Lanco for the Upstream area.

In 2019, EMPNG celebrated a decade of working together with HGDC, Laba Holdings Limited and Trans Wonderland Limited.



Lancos and EMPNG workers celebrate 10 years of partnership

"Supporting local businesses is a priority for us. Building the capacity of Papua New Guinean businesses will result in more opportunities for local citizens and more sustained economic development for the country."

EMPNG Managing Director, Andrew Barry.

During production, Lancos continue to provide goods and services to PNG LNG and expand their customer base across labour hire, maintenance, scaffolding, rigging, fabrication, transportation, fuel distribution, container freighting, catering, housekeeping, food supply and other services. Non-Lanco Papua New Guinean businesses are contracted for services including engineering, security, freight and logistics, food supply, transportation of personnel, customs clearance and medical services.

Since 2010, PNG LNG has spent nearly PGK14.8 billion (US\$4.34 billion) on Papua New Guinean services, including more than PGK3.82 billion (US\$1.1 billion) spent with Lancos.

COMMUNITY DEVELOPMENT

During the past 10 years, PNG LNG has worked with government and non-government organisations to support community development projects spanning health, education, community livelihood support and the advancement of women. For example, PNG LNG and its community development support partners have created economic opportunities for women through livelihood development programs, delivered educational projects such as teacher

training and major school infrastructure works in Upstream area and LNG Plant site communities, and invested in research and training for health care workers.

The Community Livelihood Improvement Project is an example of how PNG LNG has helped to develop the skills and capacity of local farmers through education about seeds and planting techniques, crop management, poultry production and food and health hygiene. The Project has included the supply of seedlings, planting materials, tools, livestock and poultry. It has helped more than 10,000 community members improve their livelihoods and standards of living through generating household and group income from small enterprise development.



Mbelopa Women's Group Leader, Tepele Akilo participating in poultry production as part of the Community Livelihood Improvement Project

PNG LNG continues to provide, training and development opportunities for women. The Global Women in Management (GWIM) program stems from the Women's Economic Opportunity Initiative and aims to empower women leaders across Papua New Guinea. The GWIM program has a proven record for improving the skills and networks of its participants and helps these women to continue making a real difference to their local communities. The program began with building the skills of individual women and has now expanded to provide a train-the-trainer program so that women can take their new skills back to communities more broadly. For example, in April 2019, GWIM alumnae Margaret Harvey travelled to Washington DC for a week-long Designing and Facilitating GWIM Step-Down training program to strengthen her skills in training design and workshop facilitation. The training program is enabling Margaret to use lessons learned from her GWIM experience to strengthen the capacity of other women in Papua New Guinea. She is among 64 GWIM alumni who are part of the Advancing PNG: Women Leaders Network and is the fifth GWIM alumnae from Papua New Guinea to attend the train-the-trainer program in Washington DC.



National Literacy Week activities at the Port Moresby Nature Park

Over the past decade, PNG LNG has worked with locally based stakeholders to improve educational facilities for Papua New Guinean students, from elementary school through to university. This has included the construction of multiple school facilities, the provision of university scholarships and the development of structured school programs, such as the Science Ambassador Program that encourages primary and high school students to consider careers in science, technology, engineering and mathematics through interactive educational activities. More than 5000 students have participated in the Science Ambassador Program during almost 90 classroom visits across Upstream area, LNG Plant site villages and Port Moresby schools since it was introduced to Papua New Guinea in 2013.



EMPNG Operations Technician, Simon Koila, delivers the Science Ambassador Program at Ai'io Primary School

PNG LNG has also partnered with non-government organisations, such as the Port Moresby Nature Park, to build educational school excursion programs for students. More than 80,000 school students have benefited from the Nature Park programs.

EMPNG and Papua New Guinean community-based health organisations have led many initiatives in the past decade to improve health facilities and health outcomes for people living in the Upstream area and the LNG Plant site villages of Papa, Boera, Lea Lea and Porebada. This has included new clinic facilities in areas such as Benaria, Para, Porebada, Juni and Mananda. PNG LNG has also partnered with external organisations, such as the Texas Children's Hospital and Baylor College of Medicine, to support maternal and child health outcomes in Papua New Guinea. Through this program, more than 1200 mentoring hours have been given to Papua New Guinean healthcare professionals by Texas Children's Hospital doctors, and more than 870 undergraduate and 105 postgraduate students have received specialist paediatric education.

SUSTAINABLE PARTNERSHIP

As operator of PNG LNG, EMPNG continues to work closely with communities, government and non-government organisations to build upon the foundations that have been set over the past 10 years. EMPNG is focused on maintaining high quality programs with all development partners and stakeholders to sustain a course of social and economic development for the future of the nation.

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