



Combined Project Information Documents / Integrated Safeguards Datasheet (PID/ISDS)

Appraisal Stage | Date Prepared/Updated: 13-Jul-2019 | Report No: PIDISDSA25730



BASIC INFORMATION

A. Basic Project Data

Country Papua New Guinea	Project ID P167820	Project Name Energy Utility Performance and Reliability Improvement Project	Parent Project ID (if any)
Region EAST ASIA AND PACIFIC	Estimated Appraisal Date 20-Jul-2019	Estimated Board Date 29-Nov-2019	Practice Area (Lead) Energy & Extractives
Financing Instrument Investment Project Financing	Borrower(s) Papua New Guinea	Implementing Agency PNG Power Limited (PPL)	

Proposed Development Objective(s)

To improve the operational performance of the Borrower's national electricity utility and improve the reliability of electricity supply in the project area

Components

Urgent rehabilitation and upgrade of PPL infrastructure
Implementation of key components of PPL's Performance Improvement Plan
Technical assistance on least cost power development plan and implementation
Project management support

PROJECT FINANCING DATA (US\$, Millions)

SUMMARY

Total Project Cost	31.40
Total Financing	31.40
of which IBRD/IDA	30.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	30.00
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Non-World Bank Group Financing

Trust Funds	1.40
GLOBAL INFRASTRUCTURE FACILITY	1.40

Environmental Assessment Category

A-Full Assessment

Have the Safeguards oversight and clearance functions been transferred to the Practice Manager? (Will not be disclosed)

No

Decision

The review did authorize the team to appraise and negotiate

Other Decision (as needed)

B. Introduction and Context

Country Context

1. Papua New Guinea (PNG) is a lower-middle income country with a per capita GDP in 2015 of US\$ 2,745, and arguably one of the most culturally and geographically diverse resource rich countries in the world. Its vast and varied geography includes mountains, tropical forests, grasslands, rivers, deltas, islands, and atolls. It has a wide variety of natural resources including petroleum and mineral deposits such as gold, copper, and nickel, as well as other non-mineral renewable resources such as fisheries, forests, and agricultural products such as coffee, cocoa, and palm oil. PNG ranks 32nd in subsoil wealth per capita globally. With a population of around 7.5 million¹ and 848 languages, it is also one of the world’s most culturally diverse nations.

2. While extractive industries have been the main driver of growth, there is a distinct dichotomy in the economy with the large majority of the population living in rural communities with limited access to public services. Extractives continue to account for an increasing share of exports and output. Natural resources, in 2015, were estimated to account for 47 percent of GDP. This represents an increase over 2013 of 7 percent. The increase in the contribution of natural resources to GDP and revenue receipts is due to the production and export of liquefied natural gas (LNG) in 2014.² Completion of the US\$19 billion ExxonMobil LNG project has changed the structure of the economy. Mining and petroleum now comprise 24 percent of GDP almost the same as all other primary sectors combined. However, while mining and petroleum sectors were estimated to account for closer

¹ World Bank, World Development Indicators, July 2015.

² In May 2014, the first LNG exports were shipped from a massive project, led by ExxonMobil of the US, in the Western and Southern Highlands provinces.



to a quarter of GDP and 75 percent of exports in 2015, these sectors only account for around 7 percent of total employment. In contrast, 87 percent Papua New Guineans live in rural communities, engaging in traditional subsistence and semi-subsistence agriculture in the informal sector. Access to public services in these rural communities, including access to electricity, is extremely limited.

3. PNG has one of the fastest growing populations in the world, at approximately 3.1 percent per year, with most regions facing increasing population pressures. The current high birth and survival rates signal a wide based demographic pyramid, such that a longer term ‘youth bulge’ is set to impact education and employment opportunities over future decades. About 40 percent of PNG’s population is under 15 years of age³ yet entry into the formal labor market is less than 10,000 young people every year.⁴ Unable to find formal work or enter into further study, many school leavers have little choice but to join the informal economy. With economic development focused primarily on urban areas and a dearth of gainful employment opportunities in rural areas, young people are gravitating towards urban centers in pursuit of better jobs and higher standards of living. Opportunities are limited there too, where young people constitute a disproportionate share of the urban poor.

4. Increasing urbanization is contributing to a range of problems threatening social cohesion, consequently undermining the potential for inclusive growth. In Port Moresby, about 40 percent of the population lives in settlements, 80 percent of which are unplanned. The lack of well-functioning inclusive institutions in the urban centers and lack of formal access to land, has contributed to the exclusion of the informal settlements with respect to basic delivery of public services, including electrification, and economic opportunities.

5. The prevalence of extreme poverty in PNG is high, and access to services is weak. According to the latest survey in 2010, the poverty rate is around 39 percent. Life in the rural villages where over 80 percent of the population live has changed little since independence in 1975. Less than 20 percent of households have access to electricity, three quarters of the country’s road network becomes impassable at some point during the year, 60 percent of households lack access to safe drinking water, and 80 percent lack access to improved sanitation. This in part reflects the high costs of building infrastructure and delivering services to communities spread across PNG’s rugged inland terrain and dispersed island populations.

Table 1: Inequality in access to facilities

Percent of households

	All (%)	Poor (%)	Non-poor (%)	Rural poor (%)	Urban poor (%)
Clean water	28	24	30	19	76
Improved sanitation	23	15	27	11	50
Electricity	15	8	19	5	48
Home phone	1	0	1	0	1
Cell phone	46	34	52	29	81

Source: 2010 HIES

6. A number of indicators support the proposition that PNG has relatively weak institutions. For instance, PNG’s Country Policy and Institutional Assessment (CPIA) score (a measure of a country’s institutional strength)

³ ILO (2013) *Youth Employment Policy Brief. Papua New Guinea: Inclusive Growth for Youth.*

⁴ ILO (2010) *Papua New Guinea Decent Work Country Programme.* Port Moresby.



in 2016 is 3.0, which is below the average for International Development Assistance (IDA) countries (3.30).⁵ According to the World Governance Indicator (WGI), across all measures of governance, PNG performs poorly at the 28th percentile across the world and below the average of its comparator countries. These indicators reveal that the quality of governance and institutions in PNG is limited, implying challenges to the formulation and effective implementation of policies for sustainable and inclusive development.

7. Gender disparity is widespread across all sectors of the economy⁶. While PNG has made strides to protect women from discrimination in the workplace, it performs in the bottom 25 percent of economies in the getting a job indicator. Several legal constraints on women's employment persist. Most notably, PNG is one of only seven economies in the world that does not legally establish any form of paid maternity leave. PNG has also been identified as one of the 104 economies that legally restrict women from doing certain jobs solely because of their gender, with some restrictions specifically applying to the energy sector⁷. Gender based violence (GBV) is also widespread⁸ and brings serious health and welfare consequences to victims, as well as to the community, family, workplace and society as a whole. Finally, gender equality in community consultations and decision-making is an aspect considered to present a large potential for improvement of consideration of women's needs and their representation⁹. Of the gender inequalities in the country, three are particularly relevant for this project. First, paid employment is rising in importance, but opportunities for women are particularly scarce and there is a gender gap in access to paid work, in particular in what regards non-administrative support areas¹⁰. Secondly, related to the rate of gender-based violence (GBV) there is a gap for women in their safety and security in and outside of the workplace¹¹. Third, there is gender inequality in representation and voice in decision making, particularly related to changes in land use and potential access to benefits from those changes.

⁵ For each country, their average percentile rank is calculated across Voice and Accountability; Political Stability and Absence of Violence/Terrorism

⁶ The Gender Inequality Index for PNG is 0.741 (ranking 159 out of 189 countries). Women occupy only 18% of all senior management appointments and 7% of all executive appointments in the public service (Haley N (2015) *State of the Service: Women's Participation in the PNG Public Sector*. Canberra: Australian National University).

⁷ Based on the World Bank's *Women, Business and the Law* (2018). Specifically, sections 98 and 99 of the Employment Act of 1978 prohibit all women from employment in heavy labor, working in underground mines and working at night in 'industrial undertakings' (defined as mining, manufacturing, construction, transport, energy and water).

⁸ PNG National Strategy to Prevent and Respond to GBV 2016-2025 (http://www.femilipng.org/wp-content/uploads/2018/10/PNG-GBV_Strategy-2016-2025_150816.pdf).

⁹ This aspect is, for example, related to land use and other land-related issues. In this context, it is important to note the relevance of community consultations on safeguards matters (amongst others) for infrastructure projects, including those related to development or rehabilitation of assets, where empowering women's voice might be a key gender-sensitive approach.

¹⁰ While PNG's overall labour force participation rate for men and women is relatively even (70.8 and 69.0 respectively (UNDP Human Development Report 2018, <http://hdr.undp.org/en/countries/profiles/PNG#>), women are more concentrated in lower level, informal or unpaid work. ILO modelling suggests that just 14.1 percent of female employment is as wage or salaried workers, compared to 33 percent for men; and that 82.1 percent is in the service industry, compared to 61.8 percent of men (World Bank Gender Data Portal, PNG, <http://datatopics.worldbank.org/gender/country/papua-new-guinea>, accessed 15 April 2019). In the public service, women occupy just 18 percent of all senior management appointments and 7 percent of all executive appointments (Haley N (2015) *State of the Service: Women's Participation in the PNG Public Sector*. Canberra: Australian National University).

¹¹ While there is currently no national prevalence data, a number of smaller studies, as well as the multitude of anecdotal reports and observation of incidents affecting individuals, families, communities, and workplaces, indicate that PNG has extremely high rates of family and sexual violence, particularly that directed at women by a male partner. A 2009-2010 study of 200 women in rural and urban areas in coastal, highland, and islands regions, found that 65.3 percent of women had experienced domestic



8. Climate and disaster risks. PNG is exposed to natural hazards such as floods, volcanos, tsunamis, landslides, earthquakes and cyclones. Climate hazards, such as the sea level rise and temperature increase, pose also risks for the country. Historic trends of average annual temperatures and average annual rainfall indicate that the country is exposed to moderate hazard of extreme heat and moderate exposure to extreme rainfall days caused respectively by an increase in average annual temperatures. Water scarcity is considered very low or non-existent in PNG as it is rich in water resource, entailing a low risk of droughts in the country. Conversely, the hazards of sea level rise, flood, landslide, volcano, tsunami and tropical cyclones are considered to pose a high risk in PNG. Only in 2018, a 7.5 magnitude earthquake occurred in February causing significant damage to the Highlands and the volcano on Manam Island forced thousands to flee to the mainland in August. Flooding and landslides can occur frequently, especially in rural areas.

Sectoral and Institutional Context

B.1 – General context

9. Institutional setup of the power sector in PNG. The Government of PNG (GoPNG) has established two key ministries and an independent regulator to administrate the power sector. Policy formulation and approval of all major electricity investments for the power sector is managed by the Ministry of Information, Communication Technology and Energy through its Energy Division. The Independent Consumer & Competition Commission (ICCC) is the principal economic regulator and consumer watchdog, including for the power sector. It regulates the licensing, industrial codes, tariff and service standards, and oversees the competition. The Ministry of Public Enterprises and State Investment manages Kumul Consolidated Holdings Limited (KCH), which is the delegated owner of all state-owned Entities/Enterprises (SOEs) for and on behalf of the state. It also owns PNG Power Limited (PPL), the electricity utility, an SOE licensed under the Electricity Industry Act to generate, transmit, distribute and sell electricity throughout PNG with exclusive right to supply small customers (<10 MW load) in 10 km of its network¹².

violence (Gangster-Breidler M. 'Gender-Based Violence and the Impact on Women's Health and Well-Being in Papua New Guinea', Contemporary PNG Studies 13 (2010). Eighty percent of the men interviewed for the UN multi-country study on male perpetration of violence conducted in Bougainville in 2012-2013 reported having perpetrated physical and/or sexual intimate partner violence, two in five reported having perpetrated non-partner rape, and 14 percent participated in gang rape (Fulu E et al. (2013) Why Do Some Men Use Violence Against Women and How Can We Prevent It?: Quantitative Findings from the United Nations Multi-Country Study on Men and Violence in Asia and the Pacific (Bangkok: UNDP, UNFPA, UN Women and UNV). Over 90 percent of women and 80 percent of men surveyed by UN Women found that reported experiencing some form of violence when using public transport (UN Women (2014) 'Ensuring Safe Public Transport with and for Women and Girls in Port Moresby'. Port Moresby: UN Women). Research conducted in 2015 by the Overseas Development Institute (ODI) and involving three companies in PNG found that 68 percent of survey participants experienced gender-based violence during the previous year, with experiencing an average of 9.4 incidents in that period. This violence has a significant cost to business, including in lost productivity, staff absenteeism, staff turnover, and security and safety risks in the workplace (Darko E et al (2015) Gender violence in Papua New Guinea The cost to business. London: ODI).

¹² It was established with the power and responsibilities to plan, develop, generate, transmit, distribute and sell electricity throughout PNG.



10. The current cost of service delivery is high, the electricity network has limited capacity and reach, and quality of service is low. Electricity services provided by PPL to its customers have poor quality and reliability, and average retail tariffs are very high (US\$ 0.30/kWh), reflecting high costs of service delivery. PNG has about 580 megawatts (MW) of installed generation capacity, including hydropower (230 MW, or 39.7 percent), diesel (217 MW, or 37.4percent), gas fired (82 MW, or 14.1percent), and geothermal (53 MW, or 9.1percent). PPL manages about 300 MW capacity and independent power producers (IPPs) manage 280 MW. The 300 MW managed by PPL include two main grids located in Port Moresby, and in the Lae-Madang-Highlands area (the Ramu grid). In addition, 26 other smaller urban centers are serviced through 19 independent power systems. These independent provincial electricity grids are clustered around the regional population centers and isolated due to the rugged terrain of the country and long distances between centers making interconnectivity uneconomic. PPL has entered into power purchase agreements with a number of IPPs to supply PPL grids. Investment decisions have been ad-hoc and not based on long-term, least-cost planning. Because of the unreliability of the power supply, there is considerable expensive and inefficient self-generation and back-up generation capacity in the urban areas. The network suffers from frequent power cuts, disrupting people's lives and businesses. The utility has also been unable to respond to the growing loads in demand on the main power grids (the Port Moresby and Ramu grids). Large industrial users, particularly mining sites, also operate off-grid self-generation. All these point to the need for better planning in the sector and the need for investment in generation and network capacities.

11. Despite having large energy resources, PNG suffers from low access to electricity and opportunities for economic growth are limited. PNG is in a unique position with a significant endowment in hydropower, natural gas, solar and geothermal resources. However, these resources are underutilized. For example, PNG has a hydropower potential in excess of 15,000MW and less than 250 MW has been harnessed. Currently, the country has one of the lowest per capita consumption of electricity in the world, and it is estimated that only about 20 percent of the population has access to grid and off-grid electricity, concentrated around the main urban centers with very limited access in rural areas. Access to reliable and affordable electricity significantly improves people's lives and enables economic growth¹³.

12. The GoPNG has set the ambitious goal of reaching 70 percent access to electricity by 2030 and becoming fully carbon neutral by 2050¹⁴. With Bank support, the government has embarked on an exercise to prepare a National Electrification Rollout Plan (NEROP) for the country, and concluded the geospatial modelling, to understand how best to approach electrification in an efficient and cost-effective manner. Significant financial resources will be needed to reach these targets: the total cost of achieving electrification to 70 percent of PNG households is likely to cost around US\$1.8 billion. This work also concluded that delivering on the Government's electrification goal will require an increase in generation capacity by about 300 MW by 2030, almost 50 percent of the current capacity installed. In addition, significant additional demand is expected from commercial, industrial and mining projects which would materialize in the next few years.

¹³ Low levels of access to electricity limits the ability of children to study and access school and health services and exacerbates personal security problems. It also hinders economic activities, for example, refrigeration of fish, pumped irrigation, processing of produce and development of the tourism industry. The development of new copper and gold mines has been constrained to some extent by the lack of reliable and cost-effective power, and the same may be true for other industry that could have been developed in remote areas of the country.

¹⁴ Electricity Industry Policy of 2011, Development Strategic Plans (2010-2030) and Vision 2050

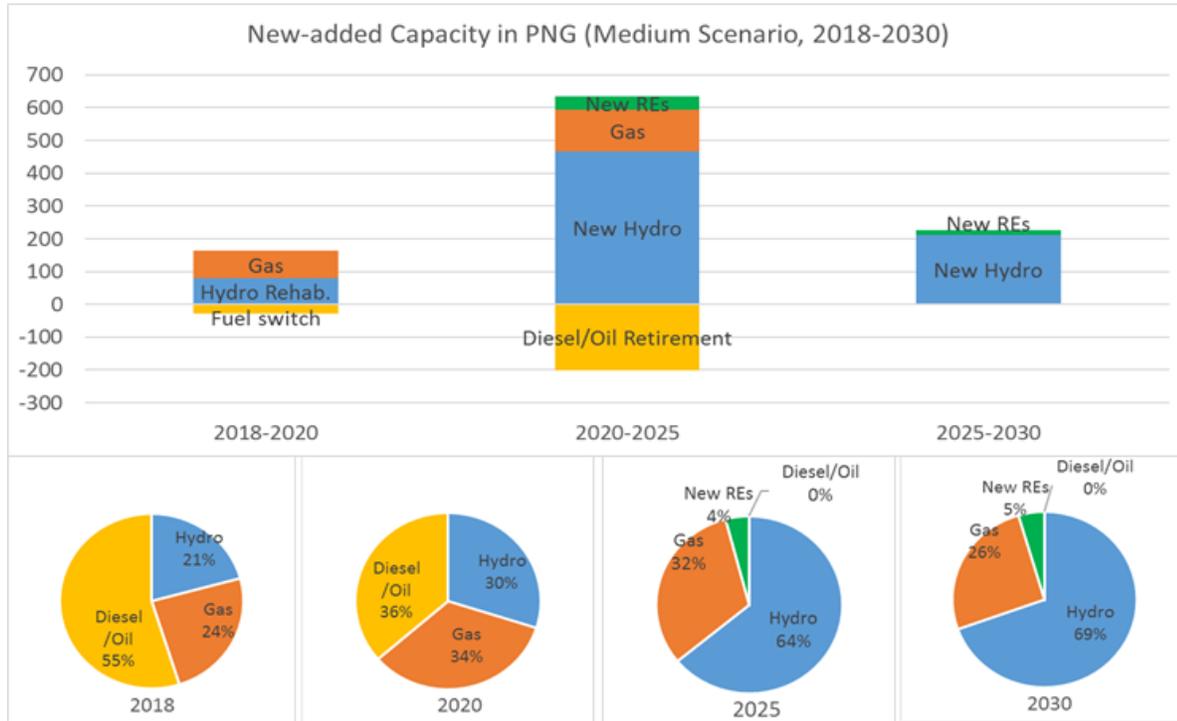


B.2 – Planning

13. A least-cost analysis carried out for PPL identifies opportunities for domestic gas-fired power, hydropower, and other renewable energy. Weak enforcement of sector planning over recent years and poor governance arrangements for the identification and implementation of new generation projects, combined with PPL’s operational inefficiencies, have translated into high current costs of service delivery. The results of the least-cost analysis show that, in the long-term, hydro and other renewables generation will be key to meet the government’s access goals and future demand for industry and mining. Gas generation can play an important role as a transition in replacing liquid fuels (see Figure 1). This could contribute to lower power costs, support the grid expansion and harness the new gas field and infrastructure developments. In the short term, the rehabilitation of existing hydropower to restore generation capacity is a key priority. It will be equally important to implement upcoming projects at the least cost for the country through competitive procurement processes, directly by the utilities (PPL or others to be established) or new entities (such as IPPs, Special-Purpose Companies or others). Systematic and coordinated oversight of project selection and adherence to well-prepared competitive bidding processes will be the essential requirement to lower supply costs and consumer tariffs and drive sustained economic growth in industrial, commercial and residential sectors.



Figure 1: Indicative least cost power generation for 2018-2030



14. An opportunity to underpin power sector development is to harness mining loads which are primarily served by captive generation. Their requirement for reliable long-term supply and ability to pay could help to underwrite new investment in generation, transmission and distribution assets in a variety of grid-based or off-grid solutions, and their demand should therefore be considered in power planning. Incorporating projections of mining loads from existing and planned mines is an important aspect of planning, while recognizing that some of these loads are uncertain. There are ongoing discussions with specific mining companies who could become off-takers for gas-to -power projects (or other) and thereby enable generation investments that could benefit the country as a whole, and electrification goals in particular.

B.3 – PPL performance

15. To achieve the sustainable development of the power sector in PNG, PPL needs to efficiently provide good quality services to all its customers in a sustainable manner. To complement systematic least cost planning and implementation of new investments to expand sector infrastructure, it is necessary to adopt specific actions aimed at improving the operational and financial performance of PPL. Given the geography and settlement patterns of PNG’s population, it is estimated that grid electrification is the least-cost option for providing access to approximately 75 percent of the nation’s future population, while off-grid systems are recommended for the other 25 percent¹⁵. PPL’s operational and financial viability are key to enable private investments in new

¹⁵ NEROP concluded that currently, about 12-13 percent of households in PNG are connected to the grid. An additional 6 percent could be easily connected, as they are within 1 km of existing transformers, representing the lowest hanging fruit for expanding grid-access in the country. Others are more distant, but grid-connection would still represent the best technical



generation projects under the IPP scheme, as the company will be the off-taker in power purchase agreements with those investors.

16. Improvements needed to PPL's financial and operational performance. Currently, PPL is in financial distress. Its costs are high, starting with the costs of generation, losses are high and collection rate is low, resulting in a very poor financial situation. Despite the high weighted average tariff for FY2017 of K0.897/kWh (equivalent to US\$0.279/kWh), EBITDA¹⁶ margin for that period was just 7 percent, due to excessive costs and expenses. The total cost of supply is K0.75/kWh, equivalent to US\$0.23kWh. In addition to optimizing and minimizing costs, financial sustainability of PPL depends on permanent billing (sales) and collection of billed amounts. The utility sold and billed less than 77 percent of the amount of energy injected into its networks in FY2017, meaning total losses above 23 percent due to non-technical losses (low billing rates) and issues related to collection of bills. Effectiveness in billing and collection are issues under the company's control and must be addressed as a matter of urgency.¹⁷

17. Reliability of electricity supply is low and is affected by several factors. Under the current circumstances, PPL is financially unable to carry out any of the investments required to improve the operating condition of the existing plants and networks, build and maintain new infrastructure to meet increasing demand, and reduce the frequent outages, therefore compromising reliability of existing service and the ability to connect new consumers. Poor planning and long-term underinvestment has created several constraints.

18. A high-level assessment of PPL operations was recently conducted to identify the main areas to be addressed to improve its performance, through implementation of a Performance Improvement Plan (PIP). The assessment highlights significant challenges currently faced by the company, but also identifies the main topics to be addressed and concrete actions under PPL's control to be implemented to improve its performance in a sustainable manner. Several proposed actions can be implemented in the short to medium term (less than 3 years), and are expected to have substantial positive impact on the company's performance. For the short term, it is important to focus on implementation of a Revenue Protection Program (RPP), incorporation of information systems to support operations in key business areas, and execution of priority investments to improve the condition of existing transmission and distribution network to achieve better quality and reliability in electricity service provided to customers. PPL needs strong support to implement the PIP, and specific actions for that purpose have been proposed in the scope of the plan.

option for up to 75 percent of the country's population.

¹⁶ Earnings Before Interest, Taxes, Depreciation, and Amortization.

¹⁷ Although uncollected bills are not a permanent financial loss, it is clear that poor collection rates affect the financial situation of the utility. Current collection rate of bills issued by PPL to Government agencies, representing 14 percent of the company's sales, is very low. Amounts of unpaid receivables from those agencies, which are handled by PPL as non disconnectable points of supply, reached (US\$18.7million) in 2017. The increasing trend of this parameter started in 2016, and is growing at a rate above K10 million per month. This issue should be addressed at the broader Government level as a matter of urgency.



Figure 2: Components of the Performance Improvement Plan



19. In the energy sector, and in PPL in particular, women are primarily employed in administrative roles. Forty-two percent of administrative roles at PPL are filled by women. Women are significantly under-represented in management and technical roles, where they represent 11 and 4 percent of staff respectively¹⁸. This stark gender gap is recognized by PPL senior management, who is committed to improve gender equality within the company. As a member of the Pacific Power Association the PPL is thus aligning with the association’s support to increase members employment of women and efforts to continue making the workplace more attractive, accessible and welcoming to talented candidates – regardless of gender or background¹⁹. Furthermore, addressing the gender imbalance at PPL is an effective strategy for improving performance, as recent research shows that a more diverse and gender balanced team is associated with productivity gains²⁰.

20. As a result, the proposed project will support the transformation of women’s employment in the energy sector in three specific ways: (1) The project will support PPL’s senior management to implement actions to increase the representation of women in management and technical roles. This will be done by developing corporate policies and applying corporate practices to identify female talent and strengthen their access, retention and progress within the company²¹, (2) to enhance the working environment for women in PPL, the project will support PPL to develop a workplace response to the threats and impacts of family and sexual violence, and to women’s security and safety concerns within the workplace. This will involve the completion of a gender

¹⁸ In total, 17% of all PPL staff are women.

¹⁹ See PPA Gender Portal here: <https://www.ppa.org.fj/gender-portal/>

²⁰ McKinsey & Co, 2016. *Women Matter - Time to accelerate - ten years of insights into gender diversity*. This work identifies a correlation between the presence of women in top management teams and the organizational performance of companies, including their financial performance, the quality of the leadership team, the company’s ability to communicate a vision and a clear direction, the work environment and values, and the level of innovation. These effects are brought about by bringing in different experiences to discussions and decision making, increasing the talent pool, and breaking down what may have become stale ways of working.

²¹ There is strong support from senior management to working to improve the balance of male and female employees at PPL. This may include addition of specific KPIs, developing and funding an implementation for an action plan for increasing women’s employment, and putting in place a mentor-mentee system. This work will be guided by a more detailed assessment and plan commissioned by the project



safety audit at PPL²². Based on recent research on the cost to businesses of sexual harassment and family violence both inside and outside the workplace, this is expected to improve lost productivity, staff absenteeism, and staff turnover related to security and safety at PPL²³, (3) PPL will provide sectoral leadership by actively promoting opportunities for women and businesses with good gender equality policies and practices in the supply chain, and will actively encourage suppliers to improve policies and practices related to women's employment through the tendering and contracting process.

C. Proposed Development Objective(s)

Development Objective(s) (From PAD)

To improve the operational performance of the Borrower's national electricity utility and improve the reliability of electricity supply in the project area

Key Results

21. Progress will be measured against the following proposed Project Development Objective (PDO) level results indicators:

- Reduction in electricity losses per year in the project area
- Increase in collection for post-paid private customers
- Reduction in average interruption frequency per year in the project area

D. Project Description

22. The proposed IBRD Loan, with an estimated financing of US\$30 million, will include the components described below. This program includes urgent and priority activities for the power sector in PNG. Additional resources in the amount of US\$1.4million (TBC) will be mobilized from the Global Infrastructure Facility (GIF) under Component 3²⁴.

23. With constraints on the IBRD envelope that the government would like use for this project, the components selected for investment in the project represent the most urgent investments that could trigger the transformation of the utility by improving quality, reliability and sustainability of the electricity service in the country. Activities under Component 1 would contribute to improvements of quality and reliability. Activities under Component 2 would provide PPL with the tools to improve management and improve financial sustainability and efficiency. Activities under Component 3 would contribute to decreasing the cost of

²² A gender safety audit considers workplace safety and security from the perspective of both male and female employees. This includes looking at equipment, safety protocols, facilities, policies, and workplace practices. The safety audit results in an actionable plan to address safety and security issues tailored to the organization's particular context. The PNG Business Coalition for Women, for example, has been performing these audits in PNG with positive results (see additional info on <http://www.pngbcfw.org/wp-content/uploads/our-tools/Brochure-GenderSmartSafety-online.pdf>).

²³ Darko E, Smith W, and Walker D (2015) Gender violence in Papua New Guinea: The cost to business. London: ODI.

²⁴ The use of GIF will depend on needs for both the gas-to-power and Naoro Brown hydropower projects and will be subject to a government request. For the time being, an indicative request has been received for the use of GIF for the gas-to-power project on July 19, 2018. The Bank team plans to discuss this with government in a mission in February 2019.



generation, which is an imperative for PPL to become financially sustainable. Providing support to lowering the cost of generation also aligns well and provides continuity to the activities on which the Bank has been providing support to the client.

24. Component 1 — Urgent rehabilitation/upgrade of PPL infrastructure (US\$16.1 million). This component will support execution of urgent investments in rehabilitation/upgrade of facilities for electricity supply needed to improve service quality to acceptable levels, with a focus on (i) improvements and upgrades in the medium voltage distribution network, (ii) rehabilitation and upgrades in selected substations, and (iii) enhancements in control and protection functionality.

25. Component 2 — Implementation of key components of Performance Improvement Plan (PIP) for PPL (US\$9 million). This component will include support for key components of the PIP, which has received broad support by PPL management. The PIP focuses on improving efficiency, transparency and accountability in key operations areas (electricity supply, commercial functions, management of corporate resources) in a sustainable manner, with specific emphasis on better service quality and revenue optimization (loss reduction and maximizing collection). PPL is already implementing some elements of the PIP on its own – notably the component on organizational restructuring and establishment of skilled management team and workforce, and various actions under other components of the plan.

26. This component will provide support for implementation of the following activities in the scope of the PIP, which are believed to be the key tools and most impactful investments to enable PPL management to improve the company's operational and financial performance:

- (i) Incorporation of tools to support management.** The project will support incorporation by PPL of management information systems (MIS) to enable more efficient, transparent and accountable development of processes and activities in all business areas: operation and maintenance (O&M) of assets for electricity supply and attention of customers' claims, commercial functions, and management of corporate resources. Incorporation of the MIS must be complemented with the improvement and update of their respective databases (customers, assets, etc.) supported by a geographic information system (GIS).
- (ii) Revenue protection and optimization.** The project will support the implementation of a revenue protection program (RPP) for sustainable reduction of non-technical losses (unmetered consumption) in supply through systematic remote recording and monitoring of consumption of large users. This will be done by installing Automatic Meter Reading (AMR) systems for those customers. Less than 7 percent of PPL customers (those consuming above 800kWh/month) accounted for 77 percent of the physical sales of the company in 2013. The program will initially target these customers.

27. Component 3 — TA on least cost power development plan development and implementation (US\$3 million, including possible \$1.4m of GIF reimbursable grant). This component will provide TA to support any supplementary planning studies as may be needed to the LCPDP. It will also provide support for implementation of the plan through TA, as may be needed for: (i) any supplementary planning studies as may be needed to the Least Cost Power Development Plan (LCPDP), (ii) to conduct an assessment and any feasibility studies as needed



for rehabilitation options for existing hydropower facilities (notably Ramu 1 rehabilitation and Rouna Cascade rehabilitation); (iii) implementation of the LCPDP through TA as may be needed to support the preparation of projects which have been identified in the LCPDP – this could include gas-to-power projects (most likely in the Southern Highlands)²⁵ and renewable energy projects including Naoro-Brown Hydro Power Plant (HPP)²⁶ or others such as solar or wind projects; (iv) transaction advisors to support the competitive selection of developers to implement selected projects notably the Naoro Brown HPP²⁷, to be financed by a GIF reimbursable grant.

28. Component 4 – Project management support (US\$3.3 million). This component will finance: (i) TA for project management and related technical issues through the recruitment of a project manager, and technical, financial management (FM), procurement and social and environmental safeguards experts as the need may be, (ii) the preparation of project safeguards studies and audits, (iii) office equipment and incremental operating costs, (iv) technical advisory services to PPL for project design, implementation and supervision, (v) capacity building on key areas, including safeguards²⁸ and resilience to climate change and natural hazards and (vi) consultancy services to address and monitor gender-specific targets through the project.

E. Implementation

Institutional and Implementation Arrangements

29. Overall responsibility for oversight and implementation of the Project will lie with PPL, who will also be the single implementing agency for the project. PPL's executive team will act as a Steering Committee for the project, notably to help drive implementation of the project and specifically of the Performance Improvement Plan (PIP) components supported through the project.

30. PPL has been implementing Bank-financed projects for several years. PPL was an implementing agency of a component of a World Bank project, the Energy Sector Development Project (ESDP), mostly a TA project. While PPL implemented projects with the World Bank, and has experience with fiduciary and safeguard policies, its implementation capacity is weak and will be significantly strengthened. Providing adequate TA for project implementation is critical.

31. The project implementation team will be constituted by a core team to be housed under PPL's Department of Strategy and Innovation, whilst other members involved in each project component will be taken from other departments of PPL and work with the core team. The project implementing team will be appointed within or recruited to PPL, and will be responsible, along with other involved colleagues and PPL staff, for the day to day implementation of project activities, as well as for coordinating and executing procurement for the project. The core team will be constituted by a project manager, a procurement specialist, an environment and social

²⁵ Preparation of a gas-to-power project – PPL to select one of two potential options – expansion of the existing Hides Gas Generation Plant (owned by Porgera JV, this could be a brownfield, greenfield or combination of both.); and possible greenfield gas generation plant in the vicinity of the existing Kutubu Gas Conditioning Plant. The TA could include complementary technical studies to make the project ready to go to market (such as preparation of pre-feasibility studies).

²⁶ Development of the Naoro-Brown HPP by continuing the support previously provided under the Energy Sector Development Project (ESDP) to close key remaining gaps (technical, commercial, legal, safeguards).

²⁷ Support would be provided to launch a tender for selecting a developer and taking the project all the way to financial close.

²⁸ Capacity building is needed to cover areas such as community engagement and consultations, to strengthen the capacity of PPL and other stakeholders in the management of environmental and social assessment and mitigation of impacts associated with distribution and substation projects.



safeguard specialist, and a financial management specialist, all with experience and qualifications acceptable to the Bank. It is expected that these positions may need to be externally recruited and financed through the project. The core team will be appointed or recruited by PPL within three months of effectiveness. Experts recruited from outside PPL will also be responsible for training PPL's staff as necessary.

32. Support on fiduciary aspects would include the recruitment of consultants and initial training by Bank staff. It is proposed that the FM of the project be integrated as much as possible within PPL's existing corporate finance system. This will address a number of the shortcomings experienced with the ESDP including weaknesses in internal controls and reconciliations. However, PPL will require the recruitment of a dedicated Finance Officer (FO) to manage the project-specific FM functions and reporting to Project Manager. Additional project FM arrangement will be maintained by the FO to ensure to meet project-specific needs, including budgets, reporting, and subsidiary records tracking of contracts and assets. The latter additional FM arrangements are expected to be required for an interim period whilst PPL is developing a new ERP solution.

33. Adequate TA for project implementation will be critical. Based on experience with other projects implemented by PPL, the team proposed in this section should be adequate to design and supervise project activities. The project will also provide support for the recruitment of consultants and/or an owner's engineer to assist with review of project design, and preparation of bidding documents as well as supervision of the contractors, as needed.

34. A Project Implementation Manual (PIM) will be adopted within three months of project effectiveness. Project implementation arrangements will be further described in the project documents.

35. This operation could be used to establish a strong project management office for future projects, including electrification, that would then be leveraged for future projects to be financed by the Bank and/or other partners.

F. Project location and Salient physical characteristics relevant to the safeguard analysis (if known)

The Project locations are not fully known at this stage. The project comprises a mixture of TA and funding of infrastructure upgrades and repairs.

Component 1 works (urgent rehabilitation/upgrade of PPL infrastructure) are likely to take place within the boundaries of existing power generation and transmission infrastructure in the Ramu grid. The works will likely include 50km of urban transmission network reinforcement focusing on Taraka and Milford areas and 50km of reinforcements in rural areas. Small sections (ranging between 200 and 1000 m long) of new network will be installed. The existing Taraka and Milford substations also require upgrades. Taraka and Milford are both suburbs of the city of Lae, which is the 2nd largest city in PNG and the capital of Morobe Province. It is located near the delta of the Markham River and at the start of the Highlands Highway, which is the main land transport corridor between the Highlands region and the coast. None of these interventions are expected to take place in greenfield areas, let alone sensitive areas.

The range of potential projects that may be supported through TA (Component 3 of the project) are all located in relatively undisturbed forest areas, as follows:



- Rouna Cascade and Ramu 1 HPPs are located on the Laloki (Central Province) and Ramu (Eastern Highlands Province) rivers respectively. Both schemes are exhibiting operational issues and the rehabilitation works are likely to focus on the power house only, introducing systems for better managing power generation. Hence, minimal environmental and social impacts are anticipated to arise from the works
- Naoro Brown HPP is a planned hydropower scheme on the Naoro River in the Central Province. A draft ESIA and ESMP have been prepared for the scheme, including extensive baseline suveys. The surveys characterized the project area as remote and consisting largely of native, dense rain forests and riparian wetlands. The upstream Naoro River sections are set in steep confined valley settings which transition into marshy floodplains widening in a downstream direction towards the village of Madilogo, where the dam will be located. At 1.5km upstream of Madilogo, the Naoro Rive enters into a steep valley which continues downstream to the Brown River confluence. Although the area consists largely of natural habitats, with limited areas of modified habitat (gardens and teak plantations), critical habitats are not present. The area is sparsely populated with only eight mountain villages located within the vicinity of the project area. The project area is also located within the vicinity of the Kokoda Track, which is north east of the project area along with the Owen Stanley Ranges. The track is on the tentative list as a UNESCO World Heritage Site.
- Gas-to-power plants are proposed for either the Hides (Hela Province) or Kutubu (Southern Highlands Province) gas extraction and export facilities. A preliminary rapid E&S assessment found that the project areas are located in one of the most remote/least accessible parts of PNG – low population density due to remoteness, soil infertility and endemic malaria, leading to limited hunting and forest clearing. The sociocultural character is diverse, with numerous tribal and language groupings. Social organisation is mainly based on patrilineal descent. The Kutubu gas-to-power plant is in proximity to Lake Kutubu Wildlife Management Area (24,057ha) which provides habitat for endemic fish and is a wetland of international significance (Ramsar listed).

G. Environmental and Social Safeguards Specialists on the Team

Rachelle Marburg, Social Specialist

Nathalie Suzanna Noella Staelens, Environmental Specialist

SAFEGUARD POLICIES THAT MIGHT APPLY

Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	Yes	The Project has been classified as EA Category A due to the high risks related particularly to some of the proposed TA activities under Component 3. As the decision regarding which investment to support in the form of TA has not been made, and



hence the preparation of an ESIA at this stage was not possible, an ESMF has been prepared for the project, which sets out the requirement for screening, scoping and assessment of environmental and social impacts for the selected sub-projects during implementation.

With regards to Component 1, once the scope and exact locations of urgent repairs / upgrades to power generation and transmission infrastructure are determined, the associated risks and impacts can be assessed and mitigation measures developed. An ESIA/ESMP is likely to be required for these activities. However, as these upgrade activities are taking place within the confines of existing infrastructure (transmission lines, substations of the Ramu grid in and around the city of Lae), the environmental and social risks associated with the works are deemed to be low to moderate, and may include social issues associated with short-term power outages, risk of spills during upgrade works at substations, risk of contamination due to inappropriate waste management, or failure to remove and dispose of asbestos in a safe manner. These repairs/upgrade works are proposed to be undertaken almost entirely on existing facilities and land holdings. Small sections (ranging between 200 and 1000 m long) of new distribution (street-side scale) wiring may be required. The ESMF includes and RPF as a precautionary measure in case any minor land acquisition is required.

Component 3 -The preparation of a selected project (gas to power plant in the Southern Highlands, rehabilitation of an existing hydropower scheme or continued support to the proposed Naoro Brown hydropower scheme) will trigger a requirement for environmental and social assessment, which will be scoped once the nature and location of potential investments are better defined. In order to gain a preliminary understanding of the E&S risks associated with gas-to-power plants in the Southern Highlands, a rapid assessment was carried out for both proposed locations, Hides and Kutubu, by the Consultant who prepared the ESMF. The assessment (refer Annex O of the ESMF) found that the project area is located in one of the most remote/least accessible parts of PNG – low population density due



to remoteness, soil infertility and endemic malaria, leading to limited hunting and forest clearing. The sociocultural character is diverse, with numerous tribal and language groupings. Social organization is mainly based on patrilineal descent. The Kutubu gas-to-power plant is in proximity to Lake Kutubu Wildlife Management Area (24,057ha) which provides habitat for endemic fish and is a wetland of international significance (Ramsar listed).

E&S risks associated with the development of a gas-to-power plant in either location include habitat loss due to vegetation clearance for the power plant and transmission lines respectively, potential impacts on water quality due to erosion and run-off, potential impacts on cultural heritage sites, social risks associated with land acquisition, changes in community structure and subsistence living, in-migration of workers and people seeking employment, etc. A proposed forestry concession was identified surrounding the Hides gas-to-power plant, indicating a potential for cumulative impacts in the Hides area.

E&S risks associated with proposed rehabilitation of existing hydropower plants (Rouna cascade or Ramu 1) are likely to be limited, as they will be limited to electro-mechanical interventions in the power house. However, Bank involvement with existing dams triggers the need for a dam safety assessment and the findings of this assessment could possibly warrant further investigations and dam rehabilitation works.

The project will include assessment and management of broader social risks with each of the components in an appropriate way. These risks could include worker influx, gender based violence, inclusion/exclusion, community health and safety and other issues. For component 1 activities this will include assessing them during preparation of ESMPs for project works and for component 3 activities, the ToRs for TA work will require broader social issues be addressed.

If the project funds are used to further the preparation of the Naoro Brown HPP, the TA will



include further studies/data collection to improve the rigor of the current draft ESIA/ESMP that was prepared under the ESDP project. The main E&S risks identified in the ESIA included habitat loss and fragmentation due to clearing for project infrastructure (power plant, head race tunnel, access roads and transmission lines), flooding of the reservoir and reduced river flows downstream of the dam, introduction of invasive fauna and flora species, impacts on cultural heritage sites, impacts on water quality due to erosion and run-off from cleared areas, etc. In terms of social risks which the TA work will allow more detailed examination of, land acquisition may lead to arguments, loss of community cohesion, and land disputes between and even within clans. Existing land disputes between clans may possibly be exacerbated as a result of any new project and the TA work will examine these risks further and identify mitigation measures. Although physical resettlement is not likely to be required for the purpose of the project, social risks related to economic displacement (e.g. loss of gardens in the inundation area) were identified and may potentially lead to decline in livelihoods (food production, cash sales, availability of building materials), discontent and inconvenience. In-migration of workers and settlers may lead to loss of social cohesion, loss of local way of life and livelihood impacts. Preparation and implementation of a rigorous Benefit Sharing Framework, Livelihood Framework, Community Development Strategy and subsequent programs was identified as a major mitigation measure to ensure the success of the Naoro Brown project and this TA will support further work on this. The current high levels of support from the local communities should be built on in the next phase of development.

Performance Standards for Private Sector Activities OP/BP 4.03	No	
Natural Habitats OP/BP 4.04	Yes	Any investments that flow on from the TA component of the Project (be it hydropower asset upgrades, gas to power plants, or renewable energy projects), are likely to be undertaken in areas characterized by natural habitats (Southern Highlands, existing hydropower dam sites, Naoro



Brown project area). Hence, OP/BP 4.04 applies to these potential future investments. The draft ESIA for the Naoro Brown project confirmed that, although the reservoir, power house, access roads and transmission lines will impact on large areas of native ridgeline, upper and mid slope rainforest and riparian wetlands, the directly impacted areas do not comprise areas of critical natural habitat. However, a rapid E&S assessment of the two potential gas-to-power plant locations concluded that potentially significant risks to natural habitats and biodiversity could be associated with a gas-to-power plant located in Kutubu, due to the presence of native forest and the proximity to the Lake Kutubu Wildlife Management Area, which is a designated Ramsar Wetland.

It is envisaged that all upgrades and repairs to the existing power generation and transmission infrastructure under Component 1 will be within the confines of existing facilities and transmission line corridors. It is unlikely that the upgrade / repairs will involve major civil works which would trigger a requirement for land for laydown areas, material sourcing, extensive construction camps, etc. The works are more likely to be electro-mechanical in nature. Therefore, the policy is not deemed applicable to these works.

Forests OP/BP 4.36

Yes

Any investments that flow on from the TA component of the Project (be it hydropower asset upgrades, gas to power plants, or renewable energy projects), will be undertaken in areas characterized by native forests (Southern Highlands, existing hydropower dam sites, Naoro Brown project area). People in these areas lead subsistence livelihoods and depend on non-timber forest resources for their survival. Apart from loss of large swathes of native forest as a result of these proposed investments, the opening up of these previously inaccessible areas may also lead to increased logging, hunting and extraction of non-timber forest resources. Hence, OP/BP 4.36 applies to these potential future investments.

Pest Management OP 4.09

Yes

The Naoro Brown HPP ESIA has determined that there are a number of invasive fauna and flora species present downstream of the proposed dam at



Edevu, and that there is a risk that these will be transported to the project area during the construction works. Invasive pest species may have to be eradicated using a variety of appropriate methods, which may include chemical pesticides. Hence, this policy has been triggered.

Physical Cultural Resources OP/BP 4.11 Yes

Initial assessment of potential gas-to-power plant locations seem to indicate that physical cultural resources are likely to be present in the impacted areas, which will require further assessment and implementation of appropriate measures to safeguard them from impacts during construction and operation. A detailed assessment of the Naoro Brown project area confirmed that the impacted areas contain a number of cultural resources which require further assessment, and preparation of management plans to mitigate project construction and/or operations impacts. Hence, the policy on Physical Cultural Resources is deemed to apply to the Project.

Indigenous Peoples OP/BP 4.10 Yes

Given the intrinsic linkages between land and indigenous communities in PNG, the risks will be managed in a coordinated manner with those outlined for OP4.10 which will include, among other things, full prior and informed consultation leading to broad community support. An Indigenous Peoples Planning Framework (IPPF) has been prepared as part (Appendix E) of the ESMF.

The works under component 1 and the studies under component 3 will have indigenous communities in their respective project areas. Similarly the capacity support proposed under component 2 will provide an opportunity to build consideration of indigenous peoples into PPL's operating culture and systems. An IPPF (Appendix E of the ESMF) has been prepared which covers all components of the project.

Minimum requirements for any future Indigenous Peoples Plans (if necessary) are also included in the IPPF.

Component 3 Technical Assistance studies will include a requirement for assessment of the potential of future investments resulting in impacts



on indigenous communities including loss of income due acquiring lands currently used as gardens, communal timber forests and harvesting forest products.

The ESIA/ESMP undertaken for the Naoro Brown Hydropower Scheme has included initial extensive consultations with project affected people and other interested stakeholders, most of whom are considered to be indigenous people. The consultations suggested there is broad community support for the project. Ongoing and continued consultation with the affected communities will be required if the Project decides to fund further preparation activities for the NBHPP sub-project.

PPL will ensure that final Terms of References for any TA work includes a requirement for impacts on indigenous peoples to be fully assessed and free prior and informed consultation be undertaken leading to broad community support.

The project will have impacts on land as well as fund studies into larger projects which can be expected to also have land related impacts. Given the intrinsic linkages between land and indigenous communities in PNG, the risks will be managed in a coordinated manner with those outlined for OP4.10 above.

Involuntary Resettlement OP/BP 4.12

Yes

Component 1, which is the only component where physical impacts are proposed, is expected to have very minimal land related impacts as the works are proposed to be carried out largely on existing infrastructure (such as new transformers in existing sub-stations and hanging of new wires on existing poles etc). The locations and details of works will be identified during project implementation, as will the associated land related risks and issues. Because the location and types of investments are not known, a resettlement policy framework (RPF) has been prepared as part of the ESMF to cover the requirements for land access due diligence and acquisition in compliance with OP4.12.

A fundamental part of the project identification process will be ensuring that there is a high level of community demand and “ownership” of the Project.



The bulk of land required is expected to be private or customary land, including land already held under ILGs. Acquisition of these lands is anticipated to be through a process of negotiated arrangement culminating in a “willing buyer-willing seller” transaction, lease/easement, or VLD. Notwithstanding this, it is possible that involuntary land acquisition (and preparation of an abbreviated resettlement action plan (ARAP)) may be required if additional land is needed during project implementation which, for whatever reason, cannot be acquired through voluntary agreement. The RPF established requirements for all land related matters.

Component 3 may support additional assessment work for the Naoro Brown hydropower project. The draft Social Impact Assessment for the project has found that because nobody resides in the reservoir area and the other elements (road, transmission lines etc.) can be located to avoid settlements, no physical displacement is anticipated. Economic and livelihood impacts of the 45 people living in Madilogo (located 1.5km downstream from the dam wall) who use the reservoir area and river for livelihood will be managed via the draft RPF for the project.

Given that studies will be funded into rehabilitation of hydro dams, dam safety will be considered as part of this work.

In the case of continued preparation support for the Naoro Brown Hydropower Scheme, the recently re-convened Panel of Experts will continue to be engaged.

Safety of Dams OP/BP 4.37 Yes

Projects on International Waterways OP/BP 7.50 No

Projects in Disputed Areas OP/BP 7.60 No



KEY SAFEGUARD POLICY ISSUES AND THEIR MANAGEMENT

A. Summary of Key Safeguard Issues

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:

With regards to the rehabilitation works of aging power generation and distribution infrastructure (Component 1), E&S impacts are expected to be minor as most works will take place within the confines of existing facilities. Most impacts, if any, will be social in nature, associated with temporary power outages when upgrade works are being carried out. These will be temporary in nature.

In component 3 of the project, no actual physical investments are proposed, but only TA for the above-mentioned activities. The TA activities may inform and facilitate actual execution of physical works, which would go ahead beyond the project scope. To assist in the preparation of ToRs for this TA work and to provide a high level understanding of the critical issues associated with the potentially selected investments, the ESMF provides a high-level assessment of the possible impacts of the resulting physical works. Physical works associated with upgrading Ramu 1 and Rouna Cascade will be carried out on the existing facilities footprints and, therefore, environmental and social impacts are expected to be quite limited. Work at Ramu 1 will involve upgrading electro-mechanical equipment, which may result in potential loss of lubricants and solvents used as degreasers into the aquatic environment if not properly managed. Rouna Cascade improvements will focus on optimizing dispatching from the four-project cascade, which will be undertaken within existing water licenses with little or no adverse environmental impacts accruing. Rather, benefits will accrue through optimized electricity generation.

The Naoro-Brown HPP has the potential to generate significant environmental and social impacts. A separate preliminary ESIA has been completed. This will be followed by a final ESIA to be prepared and submitted by the selected developer, once design parameters have been finalized. The Project may fund additional data collection and studies to improve the rigor of the current draft ESIA. The main E&S risks identified in the ESIA included habitat loss and fragmentation due to clearing for project infrastructure (power plant, head race tunnel, access roads and transmission lines), flooding of the reservoir and reduced river flows downstream of the dam, introduction of invasive fauna and flora species. Although impacts on cultural heritage sites are likely, the project has been assessed not to have any impacts on the Kokoda Track Initiative. Social impacts associated with land acquisition, economic displacement, changes in livelihood, in-migration, may potentially be significant and need careful management.

Similarly, the investigative TA work for a gas-to-power project with associated gas pipeline(s) and transmission lines to be located in Southern Highlands Province near either Hides or Kutubu, has the potential to generate significant environmental and social impacts. These impacts will potentially arise due to: vegetation clearing, grubbing and earthworks. The proposed 100MW installed capacity generating station would require approximately 20,000m² of cleared and fenced land; excavation and installation of a 10cm diameter gas pipeline from existing gas conditioning facilities to the gas-to-power generating station; construction of a 132kV transmission line to connect the gas-to-power station to the existing Ramu Grid; and construction of access roads where required to connect to the new facilities. A rapid environmental and social risk review undertaken for the two proposed locations, concluded that potentially significant risks to natural habitats and biodiversity could be associated with a gas-to-power plant located in Kutubu, due to the presence of native forest and the proximity to the Lake Kutubu Wildlife Management Area, which is a designated Ramsar Wetland.



2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:

Indirect social impacts may potentially be incurred due to increased development around the new power generation facilities, with outsiders coming into nearby communities looking for work and business opportunities. The power infrastructure upgrade works however, are not expected to incur any indirect impacts.

The main long-term impact from the project overall is expected to be positive. Upgrading electricity generation and distribution, and improving reliability of electricity supply will strengthen the socio-economic integration of the beneficiaries by providing them with the opportunity to access education, improved health outcomes and providing income generating opportunities, amongst others.

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.

This project will fund a number of different activities to improve the operational performance of the Borrower's national electricity utility and improve the reliability of electricity supply in the project area. Alternatives to the proposed upgrade works are not deemed relevant as these are required to keep the current service level and capacity going, which is not negotiable.

The TA will focus on further developing a number of the Least Coast Power Development Plan (LCPDP) options identified during the previous ESDP project. This TA will comprise feasibility studies, E&S risk assessments, etc. which will inform decisions on the need for the consideration of alternatives (from a technical, commercial, as well as an E&S risk perspective) and ultimately, the selection of the preferred alternative(s) to proceed with in order to meet the PDO.

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.

Overall responsibility for oversight and implementation of the Project will lie with PPL, who will also be the single implementing agency for the project. PPL has been implementing Bank-financed projects for several years. PPL is currently implementing a component of a World Bank project, the ESDP, mostly a TA project. While PPL has implemented projects with the World Bank, and has experience with fiduciary and safeguard policies, its implementation capacity is weak and will need to be significantly strengthened. Providing adequate TA for project implementation is critical.

The ESMF has identified the lack of adequate E&S risk management resources as a key project implementation risk, based on previous experience. The core PMU team will comprise an environmental and social safeguards officer who will be tasked with implementing the ESMF requirements throughout the project duration. It is expected that the in-house E&S safeguards officers will need adequate support from the Bank's safeguards team, but also from a part-time, international safeguards specialist who will be expected to mentor and support the local safeguards staff with the management of environmental and social risks associated with the various project components. Early safeguards involvement will be essential in the preparation of the TORs for the TA components, design and supervision contracts and construction contracts for the upgrade works. The preparation of adequate safeguards instruments for each of the project's subcomponents and enforcement of their implementation by consultants and contractors will require a dedicated effort by the national E&S safeguards officers, with the assistance of the international safeguards specialist.



5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.

Key stakeholders for the Project include PPL, other government ministries (Conservation and Environment Protection Authority (CEPA), Dept of Petroleum and Energy, Dept of Lands and Physical Planning, Dept of Provincial and Local Government Affairs, Department of National Planning and Monitoring), local administrators (District Development Authorities), NGOs, Civil Society Organisations, and members of potential subproject communities.

PPL’s Customer Relations Department, which handles both public relations and stakeholder consultation, will undertake a targeted consultation and awareness campaign to reach potential beneficiaries / project affected people and inform them of the objectives and structure of the Project and its four components. Initial consultation on the ESMF has been undertaken at a workshop in Port Moresby on 26 February 2019. The consultation was attended by representatives from a number of government departments, as well as representatives from national NGOs. Due to lack of location details of the selected subprojects, consultation with project affected people and communities was not yet possible at this stage. The consultation process will be expanded during project implementation to ensure that stakeholders are fully engaged in the Project and have the opportunity to participate in its development and implementation and understand that there is a process in place for them to submit any grievances or complaints. A draft Stakeholder Consultation and Engagement Plan (SCEP) has been prepared as part of the ESMF (Annex J), which will be implemented and updated as the Project proceeds through its various stages.

The Government of PNG, through PPL, agrees to disclose relevant information regarding project design and implementation arrangements to IP communities and to the broader public. Specifically, results of the social assessment process, the ESMF, RPF and IPPF, and any subsequently prepared RAP/IPP will be made available in a manner, location and language accessible to IP communities.

Disclosure of the ESMF has been facilitated through the World Bank’s website, the PPL website and in hard copy at locations accessible to the relevant communities.

B. Disclosure Requirements (N.B. The sections below appear only if corresponding safeguard policy is triggered)

Environmental Assessment/Audit/Management Plan/Other		
Date of receipt by the Bank	Date of submission for disclosure	For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors
07-Mar-2019	12-Mar-2019	
"In country" Disclosure		
Papua New Guinea		
21-Mar-2019		
Comments		



Resettlement Action Plan/Framework/Policy Process

Date of receipt by the Bank

07-Mar-2019

Date of submission for disclosure

12-Mar-2019

"In country" Disclosure

Papua New Guinea

21-Mar-2019

Comments

Indigenous Peoples Development Plan/Framework

Date of receipt by the Bank

07-Mar-2019

Date of submission for disclosure

12-Mar-2019

"In country" Disclosure

Papua New Guinea

21-Mar-2019

Comments

Pest Management Plan

Was the document disclosed prior to appraisal?

No

Date of receipt by the Bank

Date of submission for disclosure

"In country" Disclosure

If the project triggers the Pest Management and/or Physical Cultural Resources policies, the respective issues are to be addressed and disclosed as part of the Environmental Assessment/Audit/or EMP.

If in-country disclosure of any of the above documents is not expected, please explain why:



A pest management plan will only be required if the project funds are used to provide continued support to the Naoro Brown HPP project. Pests have been identified in the project area and their eradication may involve the use of chemical pesticides. Although an integrated pest control plan will be recommended, a PMP will need to be developed if further involvement in the project is confirmed.

C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting) (N.B. The sections below appear only if corresponding safeguard policy is triggered)

OP/BP/GP 4.01 - Environment Assessment

Does the project require a stand-alone EA (including EMP) report?

Yes

If yes, then did the Regional Environment Unit or Practice Manager (PM) review and approve the EA report?

Yes

Are the cost and the accountabilities for the EMP incorporated in the credit/loan?

Yes

OP/BP 4.04 - Natural Habitats

Would the project result in any significant conversion or degradation of critical natural habitats?

No

If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?

Yes

OP 4.09 - Pest Management

Does the EA adequately address the pest management issues?

NA

Is a separate PMP required?

No

If yes, has the PMP been reviewed and approved by a safeguards specialist or PM? Are PMP requirements included in project design? If yes, does the project team include a Pest Management Specialist?

NA

OP/BP 4.11 - Physical Cultural Resources

Does the EA include adequate measures related to cultural property?

Yes

Does the credit/loan incorporate mechanisms to mitigate the potential adverse impacts on cultural property?

Yes

OP/BP 4.10 - Indigenous Peoples



Has a separate Indigenous Peoples Plan/Planning Framework (as appropriate) been prepared in consultation with affected Indigenous Peoples?

Yes

If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?

Yes

If the whole project is designed to benefit IP, has the design been reviewed and approved by the Regional Social Development Unit or Practice Manager?

NA

OP/BP 4.12 - Involuntary Resettlement

Has a resettlement plan/abbreviated plan/policy framework/process framework (as appropriate) been prepared?

Yes

If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?

Yes

Is physical displacement/relocation expected?

TBD

Is economic displacement expected? (loss of assets or access to assets that leads to loss of income sources or other means of livelihoods)

TBD

OP/BP 4.36 - Forests

Has the sector-wide analysis of policy and institutional issues and constraints been carried out?

NA

Does the project design include satisfactory measures to overcome these constraints?

NA

Does the project finance commercial harvesting, and if so, does it include provisions for certification system?

No

OP/BP 4.37 - Safety of Dams

Have dam safety plans been prepared?

No

Have the TORs as well as composition for the independent Panel of Experts (POE) been reviewed and approved by the Bank?

NA

Has an Emergency Preparedness Plan (EPP) been prepared and arrangements been made for public awareness and training?

NA



The World Bank Policy on Disclosure of Information

Have relevant safeguard policies documents been sent to the World Bank for disclosure?

Yes

Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?

Yes

All Safeguard Policies

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?

Yes

Have costs related to safeguard policy measures been included in the project cost?

Yes

Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?

Yes

Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?

Yes

CONTACT POINT

World Bank

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Borrower/Client/Recipient

Papua New Guinea

Implementing Agencies



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APPROVAL

Task Team Leader(s):	Mitsunori Motohashi
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Approved By

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Country Director:		