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*Project Status: This paper provides a detailed overview and business case of the financing proposal as at the time it was received and endorsed by the AIFFP Board. Some aspects of the proposal may have changed following subsequent negotiations or during implementation.*

*Note: Sensitive and confidential information has been removed to enable publication*



Australian Government  
Department of Foreign Affairs and Trade

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# Power Sector Development Project Papua New Guinea

Business Case

Considered by the AIFFP Board on 20 April 2021

## Key Issues, Risks and Recommendations

The Government of Papua New Guinea (PNG Government) has requested financing of up to **USD66.0 million** to the Independent State of Papua New Guinea (PNG) to support PNG Power Limited (PPL) to expand the distribution grid in Lae and East New Britain (Project). The investment will connect an additional 30,000-40,000 households, schools and clinics to the electricity grid for the first time. This will increase PPL's existing customer base by approximately 25 per cent. The investment will co-finance part of a broader Asian Development Bank (ADB) led investment for transmission and distribution across PNG. The Project will assist PNG to meet its 2030 target of 70 per cent electrification.

### Key Issues

1. **Strategic considerations.** Firstly, the Project will demonstrate Australia's lead in delivering the PNG Electrification Partnership (PEP) which supports PNG's 70 per cent energy access targets. PEP is Australia's flagship strategic partnership in the PNG energy sector and a core priority of the PNG Government. The Project will be the largest single investment in grid expansion PNG has ever undertaken and will increase current connections by an estimated 25 per cent. Secondly, the provision of electricity to 30,000-40,000 households, schools and clinics for the first time will have a visible and transformative impact on living standards for approx. 150,000-200,000 Papua New Guineans, support for which will be directly attributable to the Government of Australia. This responds directly to the commitment made by Prime Minister Morrison in mid-2019 to increase energy access in PNG, given only an estimated 12 per cent of households currently have access to the grid (a rate comparable only to sub-Saharan Africa).
2. **Procurement.** Partnering with ADB on this investment will provide AIFFP with an opportunity to promote quality procurement by emphasizing value for money (VfM) approaches over simply lowest cost and the benefits of local contractor and labour participation. This provides an opportunity for Australia to advocate at the project level for quality procurement and construction outcomes in PNG.
3. The Project will be co-financed with ADB and procurement will follow ADB guidelines.
4. **COVID-19 Response.** The Project will support Australia's response to COVID-19 through increased economic stimulus resulting from the proposed construction activities, enhanced through fast tracking part of the distribution expansion and focusing on local procurement.



Key Risks	Mitigating Factors
<p><b>PNG Debt.</b> International debt management agreements and PNG Government policy allow Australia to undertake project lending to PNG, however the PNG Government's debt sustainability situation is deteriorating, and will very likely be negatively impacted by the deteriorating COVID-19 situation. For example, in June 2020 the World Bank-IMF downgraded PNG's risk of debt distress rating from Moderate to High.</p>	<p>While PNG is unlikely to default on external debt, as a responsible lender it is important that AIFFP prioritises the provision of highly concessional loans to PNG and for projects that have a positive impact on future Government revenues. This has become increasingly important due to the deteriorating COVID-19 situation, which will very likely have a negative impact on Government revenues. PNG's current fiscal pressures have been factored into the financing for the Project with the inclusion of a 5-year grace period for principal repayments. The Project is projected to have strong economic benefit for the PNG economy.</p>
<p><b>PNG approval and implementation delays due to COVID-19.</b> Obtaining PNG Government approvals, particularly given the current increase in COVID-19 cases poses a risk to implementation and timelines.</p>	<p>The current developing COVID situation poses risks to project approval timelines and implementation schedules. Short term risks to schedule are from potential delays in Project approvals. Medium term risks to schedule delays will be partly mitigated through a focus on local procurement, which does not require mobilisation of international contractors. Some impacts to schedules may be unavoidable if the current COVID-19 situation continues in the medium term or deteriorates.</p>
<p><b>Capacity Constraints.</b> PPL is embarking on a significant broader capital expenditure program and has limited internal capacity.</p>	<p>This risk will be addressed through increased capacity supplementation through external staff engaged to support the Project Management Unit (PMU).</p>

5. AIFFP management has reviewed the Project risks and proposed mitigation measures carefully and is comfortable with the residual risk (moderate) following mitigation.

### Recommendation

6. We recommend that the Board endorses:
- the provision of the AIFFP financing package of **USD62 million** to the PNG Government to finance the Project, which includes:
- (i) a loan of up to **USD50 million**;
  - (ii) a grant of up to the equivalent of **USD12 million** (exclusive of GST); and

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## Project Overview

INVESTMENT DETAILS					
<b>Investment Objective</b>	For PPL to extend the medium and low voltage electricity grid to new customers in urban and peri-urban areas in Morobe Province (Lae City) and East New Britain Province.				
<b>Investment Benefits</b>	The Project will: <ul style="list-style-type: none"> <li>(i) facilitate new connections to support PNG's target of 70 per cent electrification by 2030;</li> <li>(ii) provide significant social benefits to households, schools and clinics connected to the grid for the first time;</li> <li>(iii) support economic growth in urban and peri-urban areas, and</li> <li>(iv) assist PPL to extend its revenue base.</li> </ul>				
<b>Country</b>	Papua New Guinea				
<b>Geographic Location</b>	Morobe Province (Lae) and East New Britain Province.				
<b>Borrower / Grant Recipient</b>	Independent State of Papua New Guinea				
<b>Proponent</b>	PNG Power Limited				
<b>Debt Sustainability</b>	High-risk of debt distress				
<b>IPFA Assurance</b>	Yes				
FINANCIAL OVERVIEW					
<b>Proposed AIFFP &amp; DFAT Investment (Note broader ADB-led investment detailed in Table 2)</b>	AIFFP Loan	USD50.0 million			
	AIFFP Grant	USD12.0 million			
	<b>Total AIFFP Financing</b>	<b>USD62.0 million</b>			
<b>Other sources of funds</b>	PNG Government and PPL	USD7.0 million			
	<b>Total Project Value</b>	<b>USD73.0 million</b>			
<b>Proposed Execution Date</b>	May 2021				
RISK ASSESSMENT					
<b>Risk Category:</b>	<b>Reputational</b>	<b>Country</b>	<b>Financial</b>	<b>Compliance</b>	<b>Implementation</b>
<b>DFAT Category Risks</b>	Moderate	High	High	Moderate	Moderate
<b>DFAT Risk Weighting</b>	20%	15%	15%	30%	20%
<b>Overall DFAT Risk Rating</b>	Moderate				

### Project Description and Background

1. **Overview.** The proposed investment will increase access to electricity in PNG through expansion of the electricity medium and low voltage distribution network. It is estimated that the investment will connect 30,000-40,000 households (approximately 150,000-200,000 persons), schools and clinics to the electricity grid for the first time. The AIFFP financing will cover medium and low voltage powerlines, transformers, and household connections (including household meters but not including internal wiring of individual households). AIFFP financing will target Morobe Province (Lae City) and East New Britain Province. The Project will increase the existing number of Papua New Guineans connected to the national electricity grid by approximately 25 per cent

and include construction of approximately 670 km of new medium and low-voltage distribution lines and installation of over 1,000 transformers.

**Figure 1: AIFFP investment locations in Lae and East New Britain**



2. **PNG has low energy access.** PNG has the lowest electricity access rate in the Pacific, and one of the lowest rates in the world, with only an estimated 12 per cent of households having access to grid connected electricity. The only comparable area worldwide is sub-Saharan Africa. In PNG, grid-connected power is still primarily restricted to the main urban areas with distribution grids generally not extending far into peri-urban areas.
3. PPL, the national state-owned utility, manages generation, transmission and distribution through three main grids (Port Moresby, Ramu grid including Lae City and the highlands, and East New Britain), which serve the main urban centres, and 19 geographically isolated unconnected power grids servicing provincial centres. The country's mountainous terrain and geographically dispersed population compound the challenge to developing rural electrification infrastructure in the country. Extending the transmission grid between the provincial centres into a national grid is generally not financially viable.
4. In order to address the low energy access rate, the Government has an ambitious target of connecting 70 per cent of the population by 2030 (Development Strategic Plan 2010-2030). Achieving this target will require (i) extending distribution grids to infill urban areas and extend grids to peri-urban areas, (ii) extending grids along heavily populated economic corridors, (iii) developing mini-grids for off-grid population centres, and (iv) developing sustainable household power solutions. PSDP is focusing

on extension of distribution grids to infill urban areas and extending grids to peri-urban areas.

5. **Benefits.** The proposed investment in distribution extensions will have a range of benefits, including the following:
- (i) improved livelihoods for newly connected households,
  - (ii) increased ability for study in the evenings resulting in improved education outcomes,
  - (iii) improved opportunities for income generating activities,
  - (iv) strengthened opportunities for female headed and vulnerable households through connection targets and usage subsidies and/or low interest-no collateral credit scheme,
  - (v) better delivery of health outcomes through power connection to clinics in peri-urban areas,
  - (vi) improved education outcomes through connection to schools,
  - (vii) improved security for women due to increased street lighting, and
  - (viii) increased revenue for PPL due to expanded customer base.
6. **Alignment with Government Priorities.** The Project aligns closely with (i) the Development Strategic Plan 2010-2030 (DSP) which identified a target of 70 per cent electrification by 2030, (ii) the Electricity Industry Policy 2011, (iii) the PPL Fifteen Year Power Development Plan 2016, and (iv) the National Electrification Roll Out Plan (NEROP). The project also aligns closely with the PEP – refer text box below.

#### **Box 1. PNG Electrification Partnership**

At the November 2018 APEC Leaders' Meeting in Port Moresby, PNG, Australia, Japan, New Zealand, and the United States announced their intention to join together in a PNG Electrification Partnership (PEP) to support the PNG objective to achieve 70 per cent electrification by 2030 (currently around 12 per cent). As one initiative under the PEP, on 22 July 2019, the Prime Ministers of Australia and PNG made a joint statement committing to jointly deliver a suite of new investments in the energy sector, valued at up to AUD250 million, including expansion of the electricity grid. Partners fund individual activities that will contribute to the overarching target and coordinate assistance.

7. **Component of broader ADB-led investment.** The AIFFP investment will co-finance part of a broader Power Sector Development Project (PSDP), led by the ADB. The PSDP is a



USD305 million (AUD407 million) investment which will finance a range of transmission and distribution investments across various provinces in PNG<sup>1</sup>.

8. ADB has been preparing the PSDP since 2018, with funding assistance from DFAT (USD2 million). Following discussions in late 2019 between PPL, ADB and DFAT, it was proposed that AIFFP would provide USD62 million co-financing to support the broader PSDP. From the broader PSDP investment, AIFFP selected financing of distribution extensions due to its alignment with the objectives of the PEP support for 70 per cent electrification and potential to support local procurement. Further, AIFFP selected funding of distribution contract packages in Morobe Province (Lae) and East New Britain. AIFFP will not provide finance to the remaining subprojects in the PSDP. Distribution extensions were specifically selected in the second and third largest grids in PNG (Lae and East New Britain respectively) due to the following:
- (i) Lower connection costs per household,
  - (ii) Increased potential for economic activity as households have access to supporting infrastructure such as roads to markets, telecommunications etc,
  - (iii) Improved financial viability from PPL's revenue perspective due to higher income levels of customers in urban and peri-urban areas, and
  - (iv) Improved revenue for PPL as both grids are primarily hydropower supplied which has lower generation costs.
9. **Co-financing mechanism.** There are broadly two alternative mechanisms for AIFFP to loan co-finance with ADB:
- (i) Partial loan administration. Under partial administration Export Finance Australia (EFA) would sign financing agreements directly with the PNG Government and have direct fund flow arrangements, however ADB will manage contractor procurement and implementation. The ADB fee for partial co-financing is 0.15%. ADB advise that the majority of loan co-financing is conducted on a partial administration basis.
  - (ii) Full loan administration. Under full administration, ADB negotiates and signs financing agreements on behalf of the Australian Government, and fully manages fund flow, procurement and implementation. Full administration requires a detailed loan management agreement between ADB and the Government of Australia. The ADB fee for full administration is 2%.

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<sup>1</sup> The overall project will include approximately 120 km of transmission lines, construction and upgrade of 11 substations and switchyards, 1,185 km of MV distribution lines, 1,089 km of LV lines and 56,000 household connections.

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10. Partial administration was selected as (i) AIFFP has existing financing agreements with the PNG Government which can be used with minimal additional effort, (ii) lower fee structure, and (iii) avoidance of a loan management agreement which has high transaction costs and potential time delays.
11. Details of relative responsibilities under partial administration are summarised below:
  - (i) EFA and DFAT will negotiate and sign loan and grant financing agreements directly with the PNG Government.
  - (ii) The Project will follow AIFFP (grant) and EFA (loan) drawdown and repayment processes.
  - (iii) ADB will manage procurement of all consultants and contractors using ADB procurement systems.
  - (iv) ADB will manage Project implementation through the Project Management Unit (PMU), which will be embedded within PPL and staffed with PPL staff and international Design and Supervision Consultants (DSC) contracted using ADB procurement processes.
  - (v) The DSC will provide milestone payment verification in accordance with AIFFP/EFA drawdown requirements.
  - (vi) ADB will provide regular progress reporting on Project implementation.

### ***Rationale for AIFFP's Involvement***

12. **PNG Electrification Partnership.** The investment will demonstrate Australia's direct support for the increased energy access priorities of the PEP (refer Box 1). The PEP is Australia's flagship strategic partnership in the PNG energy sector and a core priority of the PNG Government.
13. **Increased Australian presence on the ground.** The Project provides an opportunity for AIFFP to finance visible, transformative infrastructure with immediate impact at the local community level.
14. **COVID-19 Response.** The Project would support Australia's response to assist PNG respond to COVID-19 challenges through the following:
  - (i) The economic stimulus from construction of the distribution lines will be an important component of post-COVID-19 recovery.
  - (ii) The investment will focus on procurement of local contractors, which will provide additional economic stimulus at the provincial level.
  - (iii) Parts of the distribution construction will be fast tracked to ensure rapid delivery of benefits to local communities.

## Strategic Assessment

15. The Project meets the AIFFP's investment mandate and strategic goals in the region.  
**The proposed project is located in one or more countries in the Pacific Islands Forum region or in Timor-Leste**
16. PNG is within the AIFFP's geographic mandate and is part of Australia's geographic arc of stability across Melanesia. Geographic proximity and historical links have given PNG a special place in Australia's foreign relations and the bilateral relationship is one of our most complex and wide-ranging. As Australia's closest neighbour, Australia's aid, defence and security programs with PNG are Australia's largest programs with any other country, and Port Moresby hosts Australia's largest foreign diplomatic presence. There is a high level of Ministerial engagement and officials of both countries are in close and regular contact.  
**The proposed project demonstrates a broad public benefit and/or transformative effect to the economic development of host countries**
17. Increasing access to electricity is key to PNG's economic growth. Electricity lifts the living standards of communities in cities, towns and remote villages. It allows schools and hospitals to deliver essential services. It is also an essential precursor for the growth of the private sector and industry, including small and medium enterprises.
18. The provision of electricity to 30,000-40,000 households, schools and clinics for the first time will have a broad public benefit and a transformative impact on Lae City and East New Britain.  
**The proposed project reinforces Australia's relationships with host countries and supports a stable and prosperous region**
19. On 18 November 2018, Papua New Guinea, Australia, Japan, New Zealand and the United States signed a joint statement in support of PNG's objective to connect 70 per cent of its population to electricity by 2030 and formed the PEP at the 2018 APEC Leaders' Meeting in Port Moresby. The PEP is an important strategic partnership that will to provide visible and active investments in PNG.
20. The Prime Ministers of both Australia and PNG have made the PEP a central part of the bilateral relationship between the two countries, committing up to AUD250 million in investments in their joint statement on 22 July 2019. Notwithstanding the change to PNG's Prime Minister since the signing of the PEP, the PEP remains a priority for the PNG Government. In August 2020, during the virtual summit between Prime Ministers Morrison and Marape, the importance of the PEP to Australia's bilateral relationship with PNG was reinforced as part of pillar 3 (economic partnership for prosperity) of

the Comprehensive Strategic and Economic Partnership. This Project is part of PNG's sector plan and is a direct response to the PNG Government priorities.

21. The proposed investment in distribution expansion directly contributes to the PEP objective of supporting Government's target of 70 per cent access to energy by 2030. AIFFP financing is in response to specific requests from PPL and the PNG Government and builds on the significant assistance that DFAT through the bilateral program is providing to PPL (current commitments of over AUD40 million). DFAT has directly funded USD2 million towards consulting services to prepare the investment.

## Debt Sustainability Assessment

22. The International Monetary Fund (IMF) and World Bank undertook a Debt Sustainability Assessment of PNG's public debt in June 2020 and downgraded the rating from "moderate" to "high-risk" of debt distress but maintained "sustainable" over the next decade.
23. PNG's high-risk of debt distress rating does not prevent Australia from lending to PNG. The World Bank, ADB and IMF will continue to lend to PNG with this rating because of PNG's economic growth potential and the ongoing commitment to reforms.
24. PNG is a 'blend' country eligible for a combination of both concessional and non-concessional financing from both the World Bank and the ADB. As a 'blend' country, PNG is not eligible for grants from the multilateral development banks, despite the recent increase in the risk of debt distress rating.
25. The international debt management architecture may constrain Australia's lending in 2021.
  - The current IMF SMP for PNG places a cap on non-concessional external borrowing. Australia was free to lend on concessional terms to PNG in 2020. For 2021, there are ongoing discussions between the IMF and PNG on PNG's borrowing capacity.
  - From October 2020, the World Bank's new Sustainable Development Finance Policy (SDFP) will create Policy and Performance Actions (P&P Actions) (i.e. debt triggers) for PNG to meet in order to receive World Bank and ADB concessional financing (IDA and ADF).
26. PNG's debt sustainability should not be a constraint to the loan going ahead but the situation should be monitored. Given the deteriorating COVID-19 situation and uncertainties regarding economic impact, lending on highly concessional terms should be prioritised.

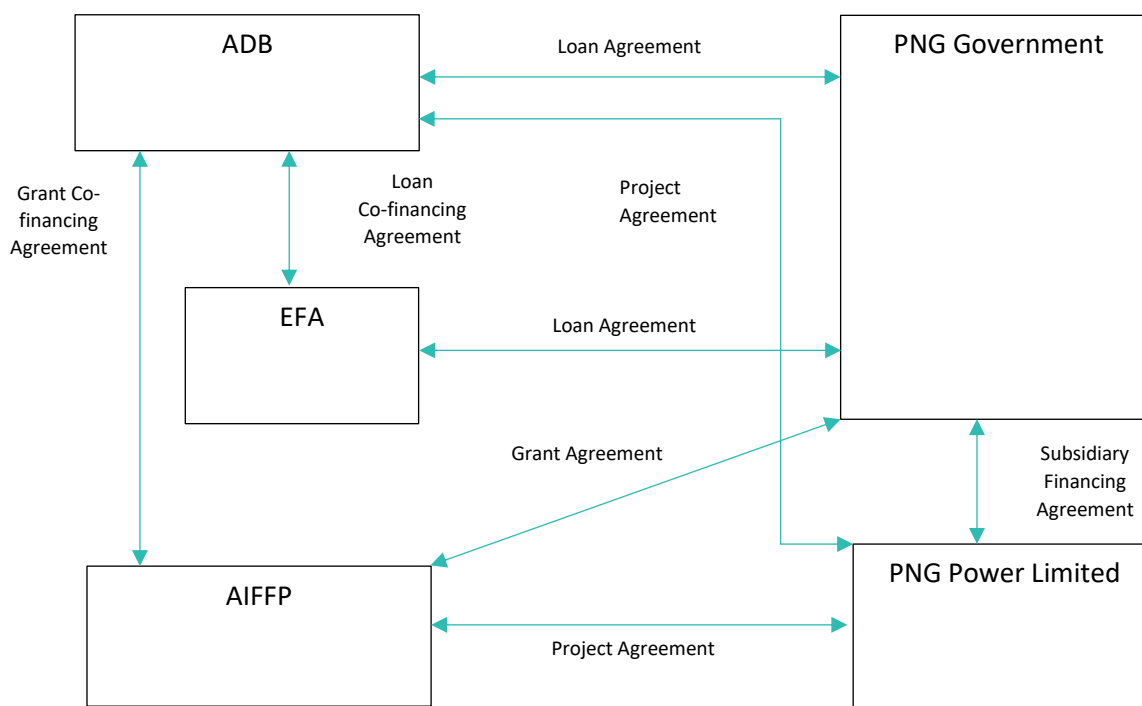


# Financial Overview

## Investment Capital Structure

27. The proposed financing structure is presented in Figure 4 below. Loan and grant funds will be provided to the PNG Government and will be on-lent to PPL. AIFFP is currently working with ADB to draft the loan and grant agreements.

**Figure 4: Proposed Project Financing Arrangements**



## AIFFP Financing Package

28. The indicative financing plan for the overall PSDP investment is presented below:

### Sources of funds

SOURCES	USD million	AUD million <sup>c</sup>	%
AIFFP Loan	50.0	66.7	16.4
AIFFP Grant	12.0	16.0	3.9
ADB (OCR) – Loan	188.6	251.5	61.8
ADB (COL) – Loan	20.0	26.7	6.6
PNG Government <sup>a</sup>	20.0	26.7	6.6
PNG Power Ltd <sup>b</sup>	14.4	19.2	4.7
<b>TOTAL</b>	<b>305.0</b>	<b>406.7</b>	100.0

ADB = Asian Development Bank, AIFFP = Australian Infrastructure Financing Facility for the Pacific, COL = Concessional OCR Lending, OCR = Ordinary Concessional Resources

a. Consisting of taxes and duty exemptions.

b. Consisting of (i) USD7.4 million land/project prep costs

c. Exchange rate of AUD/USD 0.75.

29. **Terms and Conditions.** The proposed AIFFP financing includes **USD62 million** (AUD82.7 million equivalent) consisting of **USD50 million** loan (AUD66.7 million equivalent) and **USD12 million** grant (AUD16.0 million equivalent). The AIFFP loan will have a 24-year term, including a grace period of 5 years.
30. **Fund flow.** All construction contracts related to the Project will be signed between PPL and the contractor. All funding from AIFFP will be disbursed using the direct payment method, where contractors will be paid directly by the AIFFP and/or EFA, except for relatively minor disbursements using reimbursement procedures. As a result, funds will generally not flow directly to PPL, with the minor exception of reimbursement procedures which will require auditable evidence that payments have been made to third party contractors prior to disbursement. The PMU will oversee the reimbursable fund flow mechanism.

## Project Financial Analysis

31. **Weighted average cost of capital (WACC).** The WACC has been calculated to provide an indicative benchmark for comparison against the project financial rate of return. WACC has been estimated at 0.99% per annum for Lae and 0.82% per annum for Gazelle based on the proposed funding plan. The nominal cost of fixed USD denominated debt used in the estimate was 1.95% per annum. The nominal cost of PNG Government equity was 8.15% per annum using the current market price of PNG Government SGX listed 2028 USD bonds as a proxy.
32. **Methodology.** Operation and maintenance costs in the analysis comprise wholesale electricity generation costs incurred to service the new customers as well as the regular costs incurred in operating and maintaining the distribution network assets. New customer electricity consumption has been estimated based on historical customer averages in each grid and is based on an assumed split of domestic to general supply (commercial) customers of 85:15. New customer connections are conservatively assumed to generate revenues only after completion of all distribution network investments by the end of 2025. New customers are projected to connect to the grids progressively over the subsequent 5 years so that all new connections are in place by 2030. Revenues for financial analysis purposes are based on PPL's published customer tariffs for each customer category being PGK 0.70/kWh for domestic customers and PGK 0.99/kWh for general supply customers. Annual revenues are derived by multiplying consumption by the relevant customer tariff. Tariffs are assumed to increase in line with the Consumer Price Index.
33. **Financial Internal Rate of Return (FIRR).** The financial analysis indicates that FIRR exceeds the estimated WACC including in the sensitivity cases. The Project FIRR is

calculated at 21.1% and 8.6% for the Lae and East New Britain (ENB) investments respectively, which both exceed the WACC of 0.99% and 0.82% respectively. The sensitivity analysis also indicated that FIRR continues to exceed WACC for 10% increase in cost, 10% increase in operation and maintenance costs, 10% reduction in revenue as well as the combined scenario for these cases occurring simultaneously.

## Investment Impact

34. The Project contributes to Sustainable Development Goals 7 (affordable and clean energy), 9 (industry, innovation and infrastructure) and 11 (sustainable cities and communities).

### Project Economic Analysis

35. Project economic analysis indicates that the project is economically viable, with an economic internal rate of return (EIRR) of 38.3% and 26.1% for Lae and ENB components respectively. The estimated EIRRs comfortably exceed the target hurdle rate of 9.0% per annum. Quantified benefits included new beneficiaries' willingness to pay for improved and expanded electricity services (incremental benefits). WTP data was derived from household surveys undertaken in the sub-project areas. Project economic viability remains strong under individual and combined scenarios of 10% increase in cost, 10% increase in generation and maintenance costs, 10% reduction in willingness to pay and 10% decrease in demand.

### Improved Local Labour and Employment

36. PNG faces a significant challenge in providing enough jobs for its rapidly expanding young workforce. A lack of human capital – skills, qualifications, experience and knowledge – will remain a key barrier to economic development over the coming years unless addressed. The global COVID-19 pandemic has sharply exacerbated many of the challenges for example by imposing limitations on government training and education budgets, TVET trainer and student mobility, and job opportunities. In response, the Australia Pacific Training Coalition (APTC) 'Pacific Regional Labour Market Analysis – Snapshot' (Oct 2020) suggests regional Governments should focus on promoting the longer-term economic benefits of jobs and training in areas less contingent on international travel, such as energy.

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37. Local procurement will be a key focus of the proposed investment. Construction of distribution lines and household connections is suited to local contracting<sup>2</sup>. This will be incorporated through the following measures:
- (i) Preparation of a strategic procurement plan which will align bid package sizes to capacity of local contractors.
  - (ii) Outreach to local contractors to gauge local contractor capacity.
  - (iii) Capacity building of local contractors to bid for ADB procurement, including licensing (where required), training on bidding process and encouraging joint ventures where required to meet minimum bidding eligibility criteria.
38. ADB has agreed to support the above process. AIFFP is currently working with ADB to design consulting services to meet the above objectives (funded separately by DFAT). Consulting services will be procured and work will commence in Q1 2021.

## Climate Change and Disaster Resilience

39. A Climate Risk and Vulnerability Assessment (CRVA) was prepared by ADB to assess climate change risks to 2070 (50 year asset lifetime) to comply with ADB's Climate Risk Management Framework (ADB, 2014) and the ADB Guidelines for Climate Proofing Investment in the Energy Sector (ADB, 2013). The Australia Pacific Climate Partnership (APCP) provided review of the CRVA, and considered variables such as wind speeds, rainfall, air temperature and extreme events. APCP advice led to AIFFP commissioning an Independent Climate Risk Assessment to finalise climate risk assessments for the project.
40. The CRVA assessed the available climate science, conducted a climate/vulnerability assessment and looked at adaptation options. Overall the level of resilience of current and planned infrastructure to these climate hazards are considered to be high, primarily due to the adoption and implementation of the AS/NZS 7000: 2010 Detailed Design Standards for Electrical Energy Networks, Construction and Operation in Papua New Guinea. This Joint Australian/New Zealand Standard specifies the general requirements that are to be met for the design and construction of new overhead lines to ensure that the line is suitable for its intended purpose, and provides acceptable levels of safety for construction, maintenance and operation. As a result of the CRVA and AIFFP review, no alterations to the engineering design and construction aspects of the distribution expansion were recommended, apart from what is already required under relevant design standards.

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<sup>2</sup> As opposed to high voltage transmission lines and substation construction which usually requires international contractors with capacity not available domestically in PNG.



## Gender Equality, Disability and Social Inclusion

41. The Project will promote women's proactive involvement in decision-making committees at all levels (institutional, national, provincial, community and Project) to influence gender equality and women's empowerment outcomes during project design and implementation stages. Women and girls will be encouraged to participate in job opportunities and enhanced livelihood activities which is captured by activities, policies, and targets in the Gender Action Plan (GAP) developed by ADB and AIFFP for the Project.
42. The GAP includes measures such as a target of 10 per cent of new connections to female headed and vulnerable households through use of connection subsidies; paid internships for women in project management or in technical/STEM areas; prioritised connections to all government schools (primary and high) and health clinics within the project area; compliance with DFAT policies on PSEAH and Child Protection; the involvement of both women and men in training, business and livelihood development programs. During design and construction, women's participation will be ensured in community consultations meetings and discussions (target: 50-100 per cent), and by promoting opportunities for the employment of women in construction, business and market development and other associated livelihood opportunities. The performance will be monitored by incorporating specific performance indicators of the GAP into the project's monitoring framework of project implementation. Additional measures are included to extend the benefits of electrification, including provision of public lighting at Project sites and surrounding areas of public use that enhances the safety and security of women. The PMU Safeguards Officer will oversee the GAP implementation and monitoring.
43. Other aspects considered under the GAP include (i) local procurement opportunities including priority for employment in construction, support and maintenance works, (ii) training in small enterprise management and marketing, (iii) anti-sexual harassment and discrimination recourse mechanisms during employment, and (iv) gender sensitive, safe and equitable working conditions.
44. GESI elements will also leverage and benefit from AIFFP's comprehensive organisation-wide support to PPL agreed as part of the Edevu Transmission and Smart Meters Project, including work to strengthen PPL's 'Gender Equality, Social Inclusion and Domestic Violence and Abuse Policy', 'Administration Guideline', 'Workplace Harassment – Policy and Administration Guidelines Assessment', 'Employee Conduct – Policy and Administration Guidelines' and the 'Code of Ethics and Conduct for Directors.'

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45. Targeted approaches are necessary to ensure people with disabilities are actively engaged in and benefit from the investment, to ensure people with disabilities are not left further behind and to minimise risks and unintended negative consequences. AIFFP is working with ADB to ensure the GAP's connection targets and usage subsidies and/or low interest-no collateral credit scheme to women and vulnerable households establishes specific measures for households where people are living with disability. In addition, the project contractor will be required to implement a workforce management plan and confirm arrangements to manage priority themes which include disability inclusion. The workforce management plan will also establish protocols for engagement with local communities and training and reporting processes, which will include attention to people living with disability. AIFFP are identifying additional opportunities to integrate disability inclusion awareness into current activities in the PAM.

## Environmental and Social Safeguards

46. Residual environmental and social risks for the Project are assessed by AIFFP as being **Moderate**. Potential environmental impacts arising from design, construction, operation and maintenance of the distribution subproject will be minor, localised and acceptable provided that the mitigation measures set out in the Environmental Management Plan (EMP) are incorporated into the design and implemented properly. Potential social impacts arising from the distribution subprojects include **Moderate** risks pertaining to OH&S, Child Protection, Displacement and Resettlement, and Sexual Exploitation, Abuse and Harassment.
47. SMEC prepared for PPL an Initial Environmental Examination (IEE) for the PSDP in accordance with ADB safeguards requirements; specifically the Safeguards Policy Statement (SPS), and PNG Government environmental requirements for Schedule 2 'Prescribed Activities' Regulation 2002, under the Environment Act 2000. An initial environmental examination (IEE) is the appropriate level of assessment for a category B project. Given that the nature and extent of impacts associated with the PSDP subprojects will be similar in the two provinces, and taking account of the relatively minor civil and other types of work as well as scale of impacts associated with these works, it was agreed with ADB that one IEE would be prepared which covers the transmission lines (66kV), substations/switchyards, and the 22kV distribution lines and household connections at the three grid system locations. Appropriately, analysis and management measures in the IEE and Resettlement Plans focus on higher risk project elements. A scheduled community Consultation and Participation Program (CPP) is

ongoing with communities to address risk and enhance benefits for the AIFFP-financed distribution component.

48. The IEE and Resettlement Plans (RP) adhere to the environment safeguard policies of DFAT and EFA and are subject to additional safeguard contractual requirements in an updated EMP for bidding documentation. Specific measures have been negotiated to ensure compliance with DFAT Policy on Child Protection and Policy on Prevention of Sexual Exploitation, Abuse and Harassment. To ensure all impacts are mitigated, the PMU assisted by the Design Supervision Consultant (DSC), shall update the IEE based on detailed design and the updated IEE will be included in the bid and contract documents. An Independent Environmental and Social Consultant (IESC) review to assess the project for compliance with IFC Performance Standards is ongoing.
49. The PMU includes dedicated international and national consultant roles to manage and oversee compliance with both environment and social safeguards standards.

## Environmental Safeguards

50. The potential environmental impacts arising from design, construction, operation and maintenance of the Project will be minor, localised and acceptable provided that the mitigation measures set out in the EMPs are incorporated into the design and implemented properly. The examination of the subprojects under this Project indicate that the potential environmental impacts are largely minor and restricted to the construction phase of the subproject components. Public consultations were carried out at all subproject locations to document any issues/concerns and to ensure that such concerns are addressed in the project design. No significant environmental concerns were raised during consultations and the local communities were generally very supportive of the proposed project activities.
51. Any potential impacts arising from the design, construction and operation can be readily mitigated through engineering design and the incorporation or application of recommended mitigation measures and procedures set out in the EMPs and monitoring plans under the IEE. Impacts associated with construction disturbances such as dust, noise, traffic disruptions, erosion and sedimentation, and public and worker safety can be managed effectively with standard construction practices (e.g., IFC/World Bank 2007).
52. An EMP has been prepared which describes the responsibilities, procedures and specific environmental mitigation measures to be applied for each subproject. The AIFFP financed subprojects will be mostly undertaken in highly disturbed locations.

## Social Safeguards

53. The potential displacement and resettlement risks for the AIFFP financed low voltage lines and household connections are considered **Moderate**. PPL has prepared 4 Resettlement Plans (RP) in compliance with existing PNG Laws and policies and the ADB's safeguard requirements on involuntary resettlement under the Safeguard Policy Statement (2009). The RPs describe the mechanisms, procedures and compensation entitlements for planning and implementing land acquisition and voluntary resettlement tasks, and will be updated during detailed design, including distribution extensions, with complete census, inventory of losses and detailed measurement surveys.
54. RP's will be presented to ADB and AIFFP for review and clearance prior to any land acquisition, compensation and displacement activities, as well as prior to the commencement of any civil works. This is considered appropriate as the physical location of individual village connections will only be identified during construction roll-out.
55. Stakeholder consultation meetings were conducted in villages where the distribution lines components are planned. Due to the flexibility of positioning low voltage connections, there is no physical resettlement anticipated.
56. During implementation, consultation will be ongoing and managed by the PMU safeguards staff. As part of the development of the project works to ensure safeguards compliance, the PMU will implement a community Consultation and Participation Program (CPP) with communities located along subproject roads. The CPP will be organised with the collaboration of provincial, district and local-level government (LLG) authorities; and, following detailed engineering design by the DSC for a subproject, the PMU will involve affected person participation in screening subprojects particularly regarding the AIFFP-financed distribution component, collecting data for the socio-economic survey (SES) and in other activities related to enhancing benefits for communities and mitigating adverse environmental and social impacts
57. There is **Moderate** residual risk with regard to health and safety, both to workers and household members and occupants of premises where installations occur. While PPL's Occupational, Health and Safety (OHS) Policy and Reporting are compliant with standards outlined in IFC Performance Standards, DFAT Safeguards Policy and PNG Environment Act and Regulations and best practices, this Project will benefit from previous AIFFP commitment to supporting PPL to improve organisational OHS policy and practices. AIFFP have agreed with ADB for a dedicated Safety Adviser position to be established within the PMU to assure safety measures in the Project and



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practicable application of Australia's Work Health and Safety Act. Contractors will be required to implement a health and safety plan, compliance of which will be monitored during implementation. A public electrical safety campaign targeting new domestic users will be conducted in each project location. The objectives of the campaign include to: (i) raise awareness of electrical safety and educate households about the risks associated with the distribution and use of electricity; (ii) raise awareness of electrical safety amongst 'at risk' target groups such as women, who are the primary users of electricity in the domestic setting, and children, who may play near electrical equipment, appliances and power cords etc (iii) raise awareness of the safe use of electrical equipment; and (iv) remind the public of hazardous situations involving electricity. During consultations women expressed concern about children and others inappropriately using electricity and injuring themselves or causing fires. This measure responds to those concerns. AIFFP continues to liaise with DFAT WHS Team and DFAT Infrastructure Adviser to assure proportionate WHS mitigants are identified.

58. Residual risks to children and vulnerable groups are assessed as being **Moderate**. Under the Project Gender Action Plan (GAP), PPL and project contractors will be required to demonstrate compliance with DFAT's Child Protection Policy and implement measures to prevent situations whereby children or disadvantaged groups may be placed at risk. These risks will be mitigated by leveraging previously agreed AIFFP support to PPL to develop a Child Protection Policy that outlines child protection principles and approaches, compliance mechanisms, risk assessments, management and reporting procedures.
59. Risks associated with sexual exploitation, abuse and harassment are assessed as being a **Moderate** residual risk. PPL and project contractors will be asked to adopt contractual provisions which stipulate employee expectations and labour and recruitment policies that forbid gender-based discrimination and workplace harassment. PPL has previously agreed and is being supported to upgrade its 'Workplace Harassment – Policy and Administration Guidelines Assessment' to align with DFAT's 'Policy on Prevention of Sexual Exploitation, Abuse and Harassment'.
60. Under the GAP, a gender sensitive grievance redress mechanism (GRM) will be established early in implementation to receive, evaluate and facilitate the resolution of affected people's concerns, complaints and grievances about any aspect of the Project including environmental and social performance. The GRM is based on accepted and standard practices in PNG and will provide an accessible, time-bound and transparent mechanism for the affected persons to voice and resolve social and environmental concerns linked to the Project.

## Procurement Approach

61. Since the AIFFP financing will be co-financed with ADB on a partial co-financing basis, ADB will manage procurement of the AIFFP financed contract packages following the ADB Procurement Policy and Procurement Regulations for ADB Borrowers<sup>3</sup>. The PMU will carry out the procurement of goods, works, and related services under PSDP. The Project Management Unit (PMU) will be assisted with procurement by the consultant, SMEC, who have extensive experience in procuring goods, works, and services following ADB policies and regulations. Procurement of AIFFP funded packages will be through Open Competitive Bidding (OCB).
62. **AIFFP funded contracts.** The following measures will be undertaken to ensure satisfactory procurement outcomes.
- (i) **Local Procurement.** A robust series of activities has been included in project design to ensure the local contracting market will bid for the AIFFP funded contracts. This includes (a) market outreach to map available contractor capacity, (b) preparation of a strategic procurement plan to match bid criteria (package size, financial capacity, project experience etc) to capacity of local contracting market, and (c) training for local contractors on how to bid for ADB contracts. Initial market sounding indicates there is adequate capacity (and interest) within the local market as long as the contracts are sized appropriately. Development of the local contractor market is also important as this is the first major investment in distribution roll-out and it will be important to establish a strong local market to support future expansions. ADB has successfully undertaken similar local market capacity building approaches in other countries.
  - (ii) **Value for Money procurement (VfM).** AIFFP funded contracts will follow VfM procurement, which will prioritise quality contractors. AIFFP will have input into the VfM selection criteria and will fund the consultants who will oversee the procurement of the AIFFP funded contracts.

## Implementation

63. To implement the Project, a PMU will be established within PPL. In order to address PPL capacity constraints, in addition to PPL full time staff, the PMU will include individual project management consultants (PMCs) and a construction supervision consultant

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<sup>3</sup> ADB Procurement Policy & Regulations (2017, as amended from time to time) and their associated Staff Instructions will apply. These include the improved incorporation of value for money in contractor selection.

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(CSC). The PMU structure, terms of reference to consultants and budget have been included in the Project design. The PMU will be responsible for contracting all consulting services, equipment, and civil works. The PMU will be responsible for ensuring quality detail design and managing implementation. The PMU will verify construction is completed (in accordance with contracted design) to support EFA/AIFFP milestone payments. A project steering committee (PSC) will oversee implementation, monitor progress, and provide guidance to the executing agency. The PSC will meet at least quarterly and will be chaired by the Department of National Planning and Monitoring (DNPM). ADB and DFAT will be invited to attend the PSC with observer status. The PMU will host the steering committee and act as the secretariat.

64. **Operation and Maintenance (O&M).** Prior to completion of construction, the contractors will prepare an O&M program and manual for PPL to implement during the O&M phase. Consulting budget has been allocated to review the O&M program/manuals and assist PPL during the initial O&M period. This approach is considered adequate as distribution assets have relatively low O&M requirements (e.g. vegetation clearance and periodic transformer replacement), and this is part of PPL's ongoing activities.

## Key Risks

65. The AIFFP has assessed the investment to have an overall risk rating of **Moderate**. A summary of assessed residual risk, by each risk category, is provided in the table below. The sections below provide further analysis on only the key risks identified by the AIFFP and how they have been mitigated. Compliance, safeguards and implementation risks are covered in sections above and are not repeated below.

### Residual Risk Assessment

Risk Category:	Reputational	Country	Financial	Compliance	Implementation
DFAT Category Risks	Moderate	High	High	Moderate	Moderate
DFAT Risk Weighting	20%	15%	15%	30%	20%
Overall DFAT Risk Rating	Moderate				

## Key Reputational Risks

66. Residual reputational risk is rated as **Moderate**.

## Key Country Risks

67. Country risk is rated as **High**.

## **DFAT Country Risk Assessment**

68. The AIFFP has been established to provide financing in developing economies in the Pacific region and must engage effectively with country risk to do this. While political risk in PNG is high, PNG is an important neighbour and AIFFP was established and designed to respond to Pacific countries' need for infrastructure financing that goes beyond limited grant funds.
69. Country risk would be partly mitigated by AIFFP's and ADB's project implementation oversight arrangements, strong and ongoing engagement with project stakeholders and the presence of the Australian High Commission in Port Moresby. Post provides representative and reporting functions for the AIFFP including on macroeconomic issues, the political economy, governance and infrastructure issues.

## **Key Financial Risks**

70. Financial risk is rated as **High**.

## **Key Compliance Risks**

71. Residual compliance risk is rated as **Moderate**.

## **Proponent due diligence**

72. The assessed pre-mitigation financial management risk is high, given institutional capacity constraints, lack of reliable financial reporting, and external macroeconomic challenges. The financial management assessment for PPL included a review of the accounting and reporting system, internal and external auditing, fund disbursement, and information system. While the Auditor General's Office has issued disclaimed audit opinions for PPL since 2013, there has recently been a significant emphasis placed on improving the financial function of PPL. The financial management action plan is outlined in the ADB Project Administration Manual (PAM), which highlights the necessary steps to strengthen systems. To best manage financial risk, the loan and grant will be provided through the PNG Government and funds will flow directly to contractors (with the exception of minor reimbursable expenses for which fully auditable receipts will be required for disbursement).
73. Risk mitigants will be built into the Project in relation to financial and fiduciary risks. PPL is currently working through its audit issues and is utilising donor funded reports to restate past financial statements. Additionally, there is significant donor support being provided to PPL as part of PEP and the ADB-led state-owned enterprise reform.

## **Fraud and anti-corruption**

74. There are challenges to ensuring DFAT's fraud and anti-corruption requirements are met in PNG. A 2019 fiduciary risk assessment of PPL recommends that DFAT takes a

strong and effective risk-management approach to any use of PPL partner systems to administer Australian aid funds.

75. Based on the ADB's Country Partnership Strategy Report, PNG 2016-2020 on Risk Assessment and Risk Management Plan, past internal audits of PPL in relation to similarly structured ADB loan-financed projects with PPL found no clear indications of fraud or corruption.
76. AIFFP is currently undertaking a further, more detailed assessment of PPL's systems in line with DFAT's Aid Risk Management requirements. If additional risks are identified in relation to fraud or corruption, AIFFP will provide additional oversight in consultation with Post.

## Key Implementation Risks

77. Residual implementation risk is rated as **Moderate**.
78. A key risk for the investment includes potential implementation delays due to COVID-19. This will be mitigated through a focus on local procurement. The risk of inadequate implementation capacity within PPL will be addressed through increase capacity supplementation through consultants embedded in the PMU.

## Monitoring & Evaluation

79. Since the Project will be implemented by ADB, the ADB Design and Monitoring Framework (DMF) will be used to monitor and evaluate the Project. ADB has revised the DMF to include additional monitoring indicators required by DFAT. ADB will regularly report to DFAT on progress against the agreed indicators on a quarterly basis. Additionally, AIFFP will commission an independent evaluation of the overall investment, within three years of implementation being completed. This may be packaged as part of a broader sectoral review of assets delivered through AIFFP financing. The findings of the M&E activities will feed into the AIFFP's annual report as well as DFAT performance and quality reporting and may be included in AIFFP or broader DFAT media and communications products.

## Key Project Milestones

KEY MILESTONES	
March 2021	AIFFP Board Date
TBD	National Executive Council, PNG
TBD	EFA Board Date
Q2 2021	Loan and Grant Negotiations
Q2 2021	Australian Government Approval
Q2 2021	ADB Board date

<b>Q3 2021</b>	Loan Agreement Execution
<b>Q4 2021</b>	First contract procurement
<b>2026</b>	Expected project completion