



Independent Power Producer and Major Infrastructure Policy

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Abbreviations

FATF	Financial Action Task Force
GoPNG	Government of Papua New Guinea
IA	Implementation Agreement
ICCC	Independent Consumer and Competition Commission
IPBC	Independent Public Business Corporation
IPP	Independent Power Producer
KCH	Kumul Consolidated Holdings
kV	kilo Volt
kW	kilo Watt
kWh	kilo Watt Hour
LOI	Letter of Interest
MW	Mega Watt
PEP	Politically Exposed Person
PPA	Power Purchase Agreement
RFP	Request For Proposals

<i>Abbreviations</i>	<i>ii</i>
1 Introduction	1
2 Structure of the Power Sector	2
2.1 Electricity Management Committee	2
2.2 PNG Power	3
2.3 Other Licensed Operators	3
2.4 Independent Consumer Competition Commission (ICCC)	3
3 Policy Objectives	4
4 Policy Principles	5
4.1 Transparent	5
4.2 Non-Discriminatory	5
4.3 Efficient	5
4.4 Sustainable	5
5 Identifying and Evaluating Proposals	5
5.1 Planning	5
5.1.1 Least Cost Development Plans	5
5.1.2 Five Year Business Plans and Annual Operating Plans	6
5.2 Politically Exposed Persons	6
5.3 Solicited Proposals	7
5.3.1 Feasibility Study	7
5.3.2 Expressions of Interest	7
5.3.3 Request for Proposal (RFP)	7
5.3.4 Subsequent Processes	8
5.4 Unsolicited Proposals	9
5.4.1 Submission of Proposals	9
5.4.2 Evaluation	9
5.4.3 Subsequent Processes	10
6 Project Implementation	10
6.1 Project Ownership and Structure	10
6.2 Project Implementation	11
7 Security Package	11
8 The Environment	11

1 Introduction

Electricity constitutes one of the most important components of infrastructure and plays a key role in national growth and development. With only 13% of Papua New Guineans having access to electricity, significant load growth in key demand centres, and an aging asset base, the expansion of electricity generation is a key factor in the future development of Papua New Guinea. The growing pace of urbanisation and industrialisation also puts a premium on demand for electricity.

The challenges involved in meeting the country's energy demand provide motivation for resource mobilisation, improving efficiency through involvement of the private sector to meet consumer expectations within affordable limits of tariff.

The GoPNG has set a target of 70% access to electricity by 2030 and achieving this target will require massive capital investment. The World Bank estimates that it will cost from US\$1.4 to US\$1.7 billion to connect these households *which does not include the cost of expanding generation and transmission*. The World Bank further estimates that this increase in electricity access will grow demand by about 300MW, which does not include additional commercial, industrial and mining projects which might appear from the country's electrification.

The GoPNG has also set a target of 100% renewables generation by 2050. As recently as 2013, PNG Power generated 70% of its energy from renewable sources. However, due to inadequate maintenance of our hydropower assets, this ratio has dropped to 46%. This shortfall has been made up by thermal generating assets that burn either diesel or fuel oil. Not only has this made it more difficult for PNG Power to achieve the Government's renewables target but it has raised our cost of generation and increased our exposure to international oil price volatility.

Every two years, PNG Power has published its *15 Year Power Development Plan*. However, these plans have not contemplated the 70% access target and the seven-fold increase in our customer base that this target implies. These plans have not been broadly communicated and have not been fundable or investment-ready.

To reach the Government's targets and also meet our mission of delivering safe, affordable and reliable power we recognise the importance of having in place policies that clearly define avenues and extent of participation of our development partners and the private sector.

PNG Power has a history of reacting to supply-driven proposals for new generation and infrastructure projects. We have constantly been engaged by proponents who are submitting their unsolicited projects as solutions to their perceptions of PNG Power's problems. Dealing with these proposals is time consuming and unproductive, since most of them are aligned to the developer's needs rather than PNG Power's requirements. Our challenges have arisen out of a lack of well-communicated, demand-driven development plans from us and the absence of a clearly articulated policy on how we will execute those development plans.

This Policy clarifies the situations and manner in which our private sector partners might participate in implementing PNG Power's Least Cost Development Plan and other strategic and economic enhancing opportunities in the power sector. This will be essential in meeting PNG's long-term objectives of making electricity reliable, safe and affordable to all Papua New Guineans. While we insist that our partners comply with this Policy, compliance alone is not sufficient to get PNG Power's approval on any one project. For every project PNG Power will adhere to its normal Statutory Governance Approval Process.

2 Structure of the Power Sector

There is presently no nationwide power grid in PNG, although there are two main electricity networks serving Port Moresby and the Lae-Madang-Highlands areas. Smaller grids are located around other populated areas and industrial or mining sites. PNG is predominantly a subsistence agriculture nation and this has largely determined the development and growth of our electricity as 85% of our people live in rural areas and do not have access to electricity.

PNG Power is the national government owned, vertically integrated utility that generates, transmits, distributes and retails electricity to the major centres and regions. PNG Power has 390MW of generation capacity and also purchases power from private sector independent power producers, both hydro and thermal.

Industrial and mining companies often supply power to the communities next to their infrastructure or facilities. Ok Tedi mining has 129MW of hydro and diesel generation in the Western Province and the Porgera JV operates power stations (total 85MW) at Hides and Porgera. Newcrest Mining operates a 170MW thermal power plant at Lihir. Agriculture producers and processors such as New Britain Palm Oil Ltd supply power to the community around their oil palm and sugar operations.

The Government, for the purpose of electrifying isolated rural areas, established "C" centres in the 1980s. While these electricity supplies were primarily for government institutions and public service houses, the service was made available to the general public, church and mission organisations, and commercial businesses if the system had spare capacity. Initially PNG Power was subcontracted to provide maintenance and technical support when required. Although most of these centres fell into disrepair when funding became problematic during the 1990s, some "C" centres still continue to operate in some form today.

2.1 Electricity Management Committee

The Electricity Management Committee (EMC), established under the Electricity Industry Policy (EIP 2011), is the overarching coordinating body that ensures proper planning and implementation of the Government's overall objectives within the electricity sector.

One of its key roles is to identify opportunities for private sector in generation activities and make recommendations to the Government. The EMC is made up of representatives from various Government Departments including the Chamber of

Commerce and Industry and is chaired by the Secretary for the Department of Petroleum and Energy.

2.2 PNG Power

PNG Power is the Government-owned utility that:

- supplies 116,000 customers including over 98,000 residential premises - only about 13% of the population is connected to reticulated electricity from PNG Power networks.
- has major transmission and distribution networks in Port Moresby, the Morobe, Momase and Highlands regions and Gazelle Peninsula - supplied by major hydro power plants and various IPPs.
- supplies electricity to 16 regional centres by diesel thermal generation.
- has the exclusive right until 31 December 2019 to sell electricity to consumers with demand less than 10MW within its service area - defined as all the area within 10 kilometres of the distribution network operated by PNG Power as at July 2002.
- has a record of successfully working with the private sector for the provision of some upstream services such as power generation.
- is currently supplied with 38% of its power requirements by the private sector.

There are appropriate legislative, regulatory and policy regimes governing the electricity sector in this country. However, PNG Power has not translated some of these laws, regulations and policies into workable platforms or standard operating procedures to underpin its strategic, operational and technical objectives to guide its business growth to meet demand, notwithstanding its monopoly status in the sector.

2.3 Other Licensed Operators

Apart from PNG Power, Ok Tedi Mining Ltd, Posco Daewoo, ExxonMobil, New Britain Palm Oil, Lihir and PNG Forestry Products have licenses to operate in their respective license areas.

PNG Power needs to work closely with other licensed operators, provincial and local governments, and other stakeholders in the areas where these generation facilities operate to serve their primary interests and also to extend electricity service to the populace within their respective communities.

2.4 Independent Consumer Competition Commission (ICCC)

ICCC is established by the ICCC Act to promote competition and fair trading and to regulate prices of certain goods and services and to protect consumers' interests, and for related purposes.

ICCC as part of its objectives protects the long term interests of the people of PNG with regard to the price, quality and reliability of the electricity supplied by PNG Power as an essential service. ICCC prevents PNG Power from misusing market power and promotes and encourages the efficient operation of electricity industry and efficient investments in the electricity industry.

Under the ICCC Act, PNG Power and ICCC are required to sign an Electricity Regulatory Contract to govern the relationship between them and the services PNG Power provides to its customers. The Electricity Regulatory Contract (ERC) regulates the prices that PNG Power may charge for its regulated services and the standards to which PNG Power must provide those services, the payments, rebates, or price reductions which PNG Power must make for failure to meet those service standards, and the regulation of those service standards and payments, rebates or price reductions. The current ERC allows for PNG Power to adjust its tariffs quarterly to respond to changes in fuel prices.

ICCC issues licences for generation, transmission, distribution and retailing to PNG Power. PNG Power used these licenses to produce, supply and sell power to its legitimate customers.

ICCC also provides for third party access through the Third Party Access Code and the Grid Code. These codes define the rights and obligations for a party other than PNG Power having access to, and use of, PNG Power infrastructure, to either sell power to PNG Power or for PNG Power to wheel power to the third party's customer(s). Further, the Grid Code defines the technical, safety and operational requirements for interconnecting electricity networks. It is through these codes that the ICCC approves and monitors PPAs, including tariffs, with IPPs.

3 Policy Objectives

The main objectives of the Policy are:

- To provide sufficient capacity for power generation at the least cost, and to avoid capacity shortfalls;
- To only commit to new generation, transmission and distribution projects that meet PNG Power's energy needs as well to commit to those strategic and economic opportunities that add value to PNG Power;
- To continually reduce the cost of generation and delivery of electricity to PNG Power customers;
- To maximise the use of domestic energy sources, with an immediate move away from diesel and fuel oil towards gas and, ultimately, to 100% renewables by 2050;
- To diversify the range of energy sources and technologies for power generation;
- To introduce generation technologies that PNG Power may not consider part of its core function which may play a vital role in the future electricity supply options;
- To engage the private sector only when the value proposition is better than if PNG Power were to pursue a project using its own resources;
- To eliminate inappropriate political influence in PNG Power's procurement processes;
- To ensure that all stakeholders' interests are accounted for in the process;
- To be attuned to safeguarding the environment;

- To support economic growth in PNG by encouraging the participation of Papua New Guinean communities, legitimate landholder groups, companies and financial institutions in our development projects;
- To encourage the development of basic socio-economic infrastructure within project areas;
- To make current and future electricity prices as predictable as possible by minimising exposure to international fuel price and exchange rate volatility; and
- To create a level playing field that is fair, transparent and equitable and that will motivate and encourage the participation of the private sector in competitive bidding processes for generation, transmission and distribution projects.

4 Policy Principles

This Policy will be:

4.1 Transparent

The Policy and its components will be simple, clear and well communicated.

4.2 Non-Discriminatory

All private sector participants in PNG's power market will operate on a level playing field, under the same clear and transparent rules and with no unfair discrimination.

4.3 Efficient

The Policy will enable lowering the cost of producing and delivering electricity in PNG through robust planning, competition and diligent execution. It requires all participants to operate efficiently to serve the consumers.

4.4 Sustainable

This Policy will drive and reward projects that recognise the importance of the environment, health and safety, society, and the economy of PNG.

5 Identifying and Evaluating Proposals

5.1 Planning

5.1.1 Least Cost Development Plans

At intervals of no longer than two years, PNG Power will produce Least Cost Development Plans for generation, transmission and distribution that will cover a time horizon of 20 years. These plans will project demand as accurately and realistically as possible and will incorporate the implications of reaching the 70% electrification target by 2030 and any additional commercial, industrial and mining projects. They will also incorporate development plans produced by the National and Provincial Governments and District Development Authorities. These plans will recommend the capacity and locations of additions to generation,

transmission and distribution assets that will meet the expected demand. They will also include approximate capital costs for each of these additions.

PNG Power will communicate its Least Cost Development Plans to all of our stakeholders including KCH, National and Provincial Governments (Ministers, Governors, MPs), National and Provincial Government Departments and Agencies, National and Regional Business Groups (e.g., Chambers of Commerce, Industry Associations), International Development Partners (e.g., WB, ADB, JICA), Financial Institutions, and Private Sector participants. The plans will be communicated via direct individual or group engagement, social media, email and website.

5.1.2 Five Year Business Plans and Annual Operating Plans

Each year, PNG Power will produce a Five Year Business Plan that sets out the company's strategic objectives, projects operational and financial performance, and describes the initiatives and projects that will be executed to achieve its objectives. These plans will describe the technical, operational and commercial details for each generation, transmission and distribution project and will include an execution schedule for those projects.

Each year, PNG Power will produce an Annual Operating Plan that contains details of operational and financial performance for the forthcoming year. It will include the execution details and costs for conducting Feasibility Studies to be initiated and/or completed in that year, as well as identifying tendering processes that may be initiated or will be completed in the coming year.

As part of our normal corporate governance processes, PNG Power's Five Year Business Plans and Annual Operating Plans will be subject to scrutiny and approval by our Executive Team, Board of Directors and Shareholder. The NEC must also approve PNG Power's Annual Operating Plan. In this context, these processes will ensure that all planned development projects will achieve their intended objectives and be operationally and financially viable.

5.2 Politically Exposed Persons

The Financial Action Task Force (FATF) defines a Politically Exposed Person (PEP) as:

- Individuals who are or have been entrusted with prominent public functions domestically, by an international organisation, or by a foreign country, for example Heads of State or of government, senior politicians, senior government, judicial or military officials, senior executives of state-owned corporations, and important political party officials.

In order to minimise or eliminate the likelihood of inappropriate political influence in procurement for generation or major infrastructure projects, PNG Power will require all proponents submitting proposals, whether solicited or unsolicited, to provide a declaration of the identities and details of the individual beneficial owners of the organisation (if a consortium, of each entity within the consortium). PNG Power will determine, at its sole discretion, whether any of these individuals is a PEP, or is a family member or close associate of a PEP. On a case-by-case basis, PNG Power will evaluate the risk associated with these individuals and may, at its sole discretion, take risk mitigation measures, which may include rejection of a proposal.

5.3 Solicited Proposals

The following is a flowchart of the processes PNG Power will follow in the development of generation and major infrastructure projects that are identified and approved in its Least Cost Development Plan, Five Year Business Plan and Annual Operating Plan:



5.3.1 Feasibility Study

PNG Power will conduct a comprehensive Feasibility Study on a project to ensure that it is economically, technically and financially feasible and that potential negative environmental and social impacts can be prevented and/or minimised. This study will also determine whether the project should be pursued by PNG Power using its own resources or that private sector participation would result in overall lower cost. This Feasibility Study will be prepared in close consultation with the appropriate governments and government agencies. If the Feasibility Study concludes that the proposed project is viable and should be developed with the private sector, PNG Power will seek approval from its Board of Directors to proceed to the next two stages.

5.3.2 Expressions of Interest

PNG Power will seek Expressions of Interest from potential bidders to identify those who are qualified to submit proposals for the project. PNG Power will only consider proposals from bidders who meet the following criteria:

- a) Demonstrated experience in the development, construction and financing of similar projects, with particular emphasis on experience in Papua New Guinea;
- b) Provide a declaration of the identities and details of the individual beneficial owners of the organisation (if a consortium, of each entity within the consortium);
- c) Demonstrated technical and financial capability (if a consortium, of each entity within the consortium);
- d) Sign a Non-Disclosure Agreement (if a consortium, signed by each entity within the consortium).

PNG Power will shortlist applicants (each, a “**Qualified Applicant**”) from those that have responded to this request for Expressions of Interest. PNG Power will invite these Qualified Applicants to submit detailed proposals as part of the next stage.

5.3.3 Request for Proposal (RFP)

PNG Power will seek and evaluate detailed proposals from Qualified Applicants by issuing an RFP that:

- Contains technical, operational, commercial and financial requirements for the project (e.g., timing, technology, capacity, and, if for a generation project, operating model, type of power, contract term, and tariff expectations).
- Provides general instructions relating to the RFP including a bidding schedule, responsibilities for costs for preparing proposals, and reasons that PNG Power may reject proposals.
- Provides instructions relating to project agreements, including, if for a generation project, a draft Power Purchase Agreement and Draft Guarantee and Support Agreement, or if for a major infrastructure project, a draft Engineering, Procurement and Construction (EPC) Contract, how Qualified Applicants can comment on the draft project agreements, how and when PNG Power will issue final drafts of the project documents.
- Prescribes how Qualified Applicants can participate in a pre-bid conference and/or project site visits (if any).
- Prescribes how PNG Power will make clarification or amendments to the Request for Proposals.
- Prescribes how proposals should be prepared and should contain, including language, structure and content, proposal letter, proposal security, financial data, technical data, additional supporting data, the bidder's project development schedule, and proposal validity and extension.
- Prescribes how proposals should be submitted, including the deadline for submitting proposals, how PNG Power will deal with late proposals, the sealing and marking of proposals.
- Prescribes how PNG Power will receive and evaluate proposals, including registration and opening, determination of responsiveness, clarification and verification of proposals, and the selection of the winning bidder.
- Defines the criteria against which all proposals will be evaluated.
- Describes what PNG Power expects of tenderers and what tenderers can expect of PNG Power with regard to probity, confidentiality and transparency.
- Reserves PNG Power's rights under the RFP process.

5.3.4 Subsequent Processes

Following evaluation of proposals from bidders and the selection of the winning bidder, PNG Power will:

- Secure approval from the PNG Power Board of Directors to proceed negotiating the appropriate project agreements with the winning bidder.
- Negotiate project agreements with the winning bidder and secure approval from the PNG Power Board of Directors to proceed with obtaining subsequent corporate, legislative and regulatory approvals of the project agreements.
- Execute the appropriate project documents. Note: PNG Power will not execute any project agreement until it has received all the necessary corporate, legislative and regulatory approvals.
- Work with the winning bidder to secure the necessary approvals and other aspects of the project agreements (e.g., financial close).

- Work with the winning bidder according to the terms of the executed project documents for the design, construction and commissioning of the project.

5.4 Unsolicited Proposals

PNG Power recognises that its Least Cost Development Plans may not identify some projects, typically short term, limited scope, or that reflect unanticipated technological advances that may add value to our business and our customers. The following is a flowchart of the processes PNG Power will follow to identify and evaluate unsolicited proposals:



PNG Power will consider unsolicited proposals only if they meet any one or combination of the following criteria:

- Not fit a current investment program for PNG Power.
- Not be a generation or infrastructure proposal that is currently or planned to be competitively bid.
- Be a funding or research opportunity to develop a unique generation proposal for Papua New Guinea.
- Leverage strategic and economic benefit for Papua New Guinea.

5.4.1 Submission of Proposals

Any unsolicited proposals for hydro, indigenous fuel and other renewable generation projects or major infrastructure projects within PNG Power's exclusive supply area will be submitted to PNG Power. Any sponsor wishing to undertake a project must submit a detailed proposal to PNG Power, which must include at least the following information:

- Project name/Identification
- Project location
- Proposed capacity and plant factor
- Basic outline of structures and plant
- Summary program indicating specific milestones and completion date of the feasibility study
- Pre-qualification details as required under Section 5.3.2 above for the proposed sponsors
- Previous history of the project / proposal, etc.

5.4.2 Evaluation

Should PNG Power, at its sole discretion, determine that the proposed project appears to be in the best interests of PNG Power and its customers, PNG Power will issue a Letter of Interest to the project sponsor that sets out:

- A commitment by PNG Power to proceed with further evaluation of the project on an exclusive basis with the project sponsor, subject to certain timeframes.

- Requirements for the sponsor to conduct a feasibility study on the project, including the deadlines and standards of the feasibility study and provisions if deadlines and standards are not met and/or PNG Power decides not to proceed with the project.
- Security requirements (e.g., letter of credit) to demonstrate that the sponsor is committed to the project.

Following submission of the feasibility study, PNG Power will evaluate the feasibility study and, at its sole discretion, determine whether the project is to be pursued.

5.4.3 Subsequent Processes

If the project is to be pursued, PNG Power will:

- Secure approval from the PNG Power Board of Directors to proceed negotiating the appropriate project agreements with the project sponsor.
- Negotiate project agreements with the project sponsor and secure approval from the PNG Power Board of Directors to proceed with obtaining subsequent corporate, legislative and regulatory approvals of the project agreements.
- Execute the appropriate project documents. Note: PNG Power will not execute any project agreement until it has received all the necessary corporate, legislative and regulatory approvals.
- Work with the project sponsor to secure the necessary approvals and other aspects of the project agreements (e.g., financial close).
- Work with the project according to the terms of the executed project documents for the design, construction and (if appropriate) operation of the project.

6 Project Implementation

6.1 Project Ownership and Structure

Ownership of generation projects may include:

- Private power projects where PNG Power is a purchaser of power;
- PNG Power or other public sector development projects;
- Public-private partnership projects with PNG Power involvement; or
- Projects developed by PNG Power or other public sector entity and then divested.

In all instances, sponsors must define clearly the ownership entities and ownership structure (e.g., joint venture, special purpose vehicle, etc.).

Furthermore, private sector projects will be implemented either on a Build-Own-Operate-Transfer (BOOT) basis or a Build-Own-Operate (BOO) basis. PNG Power will stipulate its preference in advance of each project. Projects based on BOOT shall be transferred at the end of contract period to PNG Power.

Under the Electricity Industry Act, all transmission and distribution projects must be owned and operated by PNG Power.

6.2 Project Implementation

The project sponsor will be required to submit to PNG Power a mutually acceptable implementation schedule with specific milestones for progress monitoring and submit periodic progress reports regarding the status of contractual obligations, consents, financial and physical progress.

7 Security Package

A formal State Guarantee is not likely to be available as a security package for projects. PNG Power encourages bidders to submit proposals including types of security packages acceptable to their financiers.

The project sponsor must provide security documents that defines the security arrangements and the rights of its lenders to enforce them or rely upon regarding guarantee support.

8 The Environment

All requirements of the PNG Environment Act 2000, relating to environmental protection, environmental impact and social soundness assessment, must be met.