



REPUBLIC OF NAMIBIA

MINISTRY OF MINES AND ENERGY

**ELECTRICITY SUPPLY INDUSTRY
NATIONAL POLICY FOR INDEPENDENT POWER
PRODUCERS (IPPs) IN NAMIBIA
(Revised Version - July 21, 2016)**

July 21, 2016

Developed by the Electricity Control Board for the Ministry of Mines and Energy in
consultation with the Electricity Supply Industry Stakeholders

July 21, 2016

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Acknowledgements

The development of this National IPP Policy is guided by Namibia's development goals and commitments as embodied in the Vision 2030, the national Development Plan – 4, and the Harambee Prosperity Plan. The Government of Namibia recognizes that the provision of reliable and affordable energy services to all segments of the economy is essential for the Country to meet its goal of a robust economic growth and the transformation of Namibia to an industrialized economy. This National IPP Policy provides a roadmap for Namibia to mobilize private sector investment in the Country's power sector not only become energy self-sufficient but also to ensure that the consumers receive reliable and affordable energy in order to ensure their economic and social progress.

The Ministry of Mines and Energy (MME) like to acknowledge the various contributors to the development of this National Independent Power Producer (IPP) Policy.

First and foremost, the Ministry would like to express its appreciation to the Electricity Control Board of Namibia for spearheading the entire process for the development of the National IPP Policy.

Specifically, the Ministry wishes to acknowledge the guidance, support and input provided by a large number of stakeholders including the Ministry of Finance, the Ministry of Environment and Tourism, Ministry of Land Reform, Ministry of Trade, Industrialization & SME Development, Ministry of Labor Relations and Employment Creation, the Namibia Investment Center, Namibia Energy Institute, the Electricity Supply Industry (NamPower, Erongo RED, CENORED, NORED, and the City of Windhoek), the financial sector (Development Bank of Namibia, Standard Bank, and Rand Merchant Bank), the Namibia Chamber of Commerce and Industry, and the Citizens Trust.

In addition, a large number IPPs active in Namibia offered their inputs based on their experience in the Namibian power market. These inputs formed a valuable basis for the design of the National IPP Policy.

The Ministry co-sponsored a National IPP Policy Workshop at the Ministry on June 10, 2016. The Ministry wishes to express its appreciation to all the participants at the day-long workshop and their comments both during the workshop and their input after the workshop. All of these valuable inputs were taken into consideration in the finalization of this Policy Document.

During the process of developing the National IPP Policy, we drew upon the international IPP experience in the IPP industry worldwide. The IPP industry is a truly a global industry and the lessons learned in many countries including the SADC countries; many Asian countries (large and small) including Indonesia, India, Nepal, Sri Lanka, the Philippines, Vietnam, Myanmar, and others; and several countries in Latin America. The successes and failures of the IPP regimes globally provided our team valuable information to ensure that the National IPP Policy adapted elements to make the Policy robust and effective and avoid elements clearly not in the best interest of Namibia.

Finally, the Ministry acknowledges CORE International, Inc., USA to provide technical support to the ECB for the drafting of the policy and facilitating extensive stakeholder engagement through scores of meetings and discussions.

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Foreward

To be updated after all stakeholder input.

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Acronyms and Definitions

- **Capital Investment Cost (Capex):** Total investment required for the construction of a facility
- **Conventional Energy:** Typically involves fossil fuels such as coal, natural gas, oil, nuclear, and diesel
- **Electricity Control Board:** The national electricity regulator of Namibia
- **Electricity Supply Industry (ESI):** The industry involved in the generation, transmission, supply and distribution of electricity to consumers
- **Grid Connection Charges:** Charges paid by the IPP to the transmission company for using the transmission network for evacuating power to supply to the off-taker
- **Grid Stability:** A measure of the power evacuation capacity of the transmission network and its capacity to withstand sudden power surges
- **Harambee Prosperity Plan (HPP):** Government of Namibia's Action Plan towards Prosperity for All.
- **IPP License:** A license granted by the national regulator, ECB, to an IPP to generate and supply power to the off-taker
- **Independent Power Producer (IPP):** A private power developer developing and implementing a power generation project fully financed through the mobilization of debt and equity from private investors and commercial financial institutions on the basis of a Power Purchase Agreement with an off-taker of the generated power
- **Large IPP Projects:** IPP projects with a generation capacity of more than 100 MW
- **Medium-sized IPP Projects:** IPP projects with a total generation capacity between 5 MW and 100 MW
- **National Development Plan (NDP):** National Development Plans developed every five years in Namibia to guide the economic and social development strategy of the country
- **National Integrated Resource Plan (NIRP):** A plan developed by the Government to guide the development of the power sector through a least-cost plan
- **National IPP Policy Board:** A governing body to be established by the Government to oversee the National IPP implementation process and modify the policy, as required
- **Off-Taker:** A buyer of electricity from an IPP
- **Operation and Maintenance Cost (Opex):** Annual cost of operating a facility
- **Power Grid:** The national transmission grid in the country either operated by the vertically integrated power utility or by an unbundled national transmission company
- **Power Purchase Agreement (PPA):** An agreement between the IPP and an off-taker for the sale of power by the developer to the off-taker typically over a 15-20 year period
- **Regional Electricity Distributors (REDs):** Regional electricity distribution companies organized under the Namibian laws as autonomous companies to distribute power to their consumers in a specified region of the country

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- **Renewable Energy Feed-in-Tariff (REFIT):** Tariff designed by the national regulator, ECB, for various renewable energy resources (solar, wind, biomass, etc.) for all IPPs below a certain threshold capacity generation facilities, currently limited to 5 MW in total capacity
 - **Renewable Energy:** Typically defined as energy from a renewable energy resource such as solar, wind, geothermal, and biomass. In some countries, hydropower is also included as renewable energy
 - **Small IPP Projects:** IPP projects with a total generation capacity of 5 MW
 - **Transmission Connection Agreement (TCA):** A contract between the IPP and the national power transmission company for the connection with the national grid in order to evacuate power to the off-taker
 - **Vision 2030:** A document prepared by the Government of Namibia to set the Government's vision and goals for the development and transformation of the Namibian economy

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Executive Summary

Overall Development Goals of Namibia

The economic and social development goals of Namibia are embodied in (i) Vision 2030 and (ii) the National Development Plan 4 (NDP 4) 2012/2013 – 2016/2017. In addition, the Government has developed the Harambee Prosperity Plan (HPP) 2016/2017 – 2019/2020, which complements the Vision 2030 and NDP 4. All of the three plans set the goals, targets, and strategy for Namibia to move on a path to economic prosperity through a concerted strategy for the development of Namibia's economic growth. These Plans also include specific growth targets, milestones and strategies for the sustainable deployment of Namibia's resources to achieve that stated economic and social development goals.

The Government recognizes the importance of developing the country's energy sector in order to fuel the targeted economic growth and the transformation of Namibia to an industrialized nation. Availability of reliable electricity service is central to the development of all sectors of the economy and to achieve the country's economic and social development goals. Namibia continues to face energy shortages. For example, in March 2015, NamPower recorded the country's peak demand at 524 MW against a peak supply of 300 MW from domestic generation sources. The shortfall between peak demand and peak supply in Namibia continues to be supplemented by imports from the neighbouring countries in the Southern Africa Power Pool (SAPP) system. This represents an untenable dependence on imports that must be addressed in the near term in order to ensure Namibia's energy supply security.

The National Integrated Resource Plan of Namibia

The National Integrated Resource Plan (NIRP) developed by the Government has projected a significant growth in the country's electricity demand and estimated that an investment in the range of N\$90-97 billion (2016 N\$) will be needed over the next 20 years. Given other sectoral priorities in the country, the Namibian Government cannot meet such a significant investment requirement in a single sector of the economy. Accordingly, private sector investment sources must be deployed through the acceleration of IPPs for the development of the Power Sector in the country.

Rationale for the National IPP Policy

Based on recent developments in the IPP regime and the experience gained thus far, the Government has recognized the need for promulgating a clear, fair, and transparent National IPP Policy in order to streamline the IPP regime in the country and open the Namibian power market to domestic and international investors. This National IPP Policy outlines the key provisions of the Government's commitment to encourage private investment in Namibia's power sector and outlines the power market model, pricing regime, procurement approach, and the requirements for the IPPs to develop power generation projects and seek licenses for implementing the projects.

IPP Investment Market in Namibia

Specifically, the National IPP Policy lays out the provisions of classifying the IPP market into three categories and establishes the approach to be followed to promote private sector investments in power generation through IPP projects consistent with the NIRP Least Cost Investment Plan. The IPP market is categorized as follows:

- Small-Scale (< 5 MW in capacity) IPPs Covered under the REFIT Scheme
- Medium-Sized (5 MW – 100 MW) IPPs
- Large (>100 MW) IPPs

The National IPP Policy also establishes the approach for the procurement of IPP projects. Small-scale IPPs are licensed under the REFIT scheme and the investment is governed by standardized PPAs and TCAs signed by the IPP and the off-taker and approved by the ECB. Medium-sized IPPs shall be procured through competitive tenders under the supervision of a Tender Board. Large IPPs, consistent with the NIRP Least Cost Plan shall be implemented through a “negotiated Approach” depending upon the needs of Namibia.

Current and Modified Market Model

Current Single Buyer Model

Based on inputs from the stakeholders and international best practices for designing and implementing an IPP regime, the Government has recognized that there is an inherent conflict posed by the Single Buyer Model in Namibia in that it limits appropriate competition in the sector and deters many IPPs in more aggressively participate in Namibia’s power market.

International experience is mixed on the Single Buyer Model power markets. On the one hand, such a structure can minimize the duplication of effort in market operation and commercial arrangements. That is the strongest selling point for a Single Buyer Model. On the other hand, a Single Buyer Model sets the incumbent in a situation where it is subject to significant conflicts of interest and incentives that may not be conducive to least cost generation options for the ESI. In its role as the largest (usually) generating company the Single Buyer entity (NamPower) is able to obtain all of its competitors’ cost information, without symmetric transparency on their part. It is also, as the System Operator, able to determine the operational parameters of plants owned by competing companies, potentially reducing their profitability. These conflicts of interest, in turn, lead to calls for highly structured power purchase agreements that limit the flexibility of the Single Buyer to affect adversely the profitability of the IPPs. However, since the Single Buyer is usually also the largest retailer of electricity its ability to adjust retail tariffs will directly affect the ability of the IPP to recover costs.¹

¹ Another overlooked element in the success or failure of a Single Buyer restructuring is whether and to what extent the existing electricity market is adequately supplied when market arrangements are changed. A number of markets, including South Korea, Indonesia, and California, have experienced a slowdown in generation investment after implementing a Single Buyer Model, exacerbating existing supply inadequacies. In some cases, this has been due to the Single Buyer’s insistence on forcing a cost-plus model on IPPs, when a more market-oriented pricing régime would have been warranted. In other cases, the IPPs will try to get their temporary pricing power enshrined in a long-term contract. Both of these fall short of the willing-buyer willing-seller ideal.

The Single Buyer Model suffers from several major flaws that are discussed later in this IPP Policy.

The current attributes of the Single Buyer Model in Namibia make it inherently unstable since the best customers are always prepared to leave, and without them, expensive new generation plants by the utility or PPAs with independent generators look increasingly risky. Namibia's experience since its loss of firm supply from Eskom is typical of the difficulties encountered by countries adopting a Single Buyer Model approach.

In summary, the Single Buyer Model, especially when implemented during a period of insufficient generation capacity, often initiates or reinforces a cascade of events in the ESI that result in underinvestment, declining service quality, high costs, inappropriate generation technology and ever-greater government liabilities to cover losses. This may well be the case for a lack of IPP investment in Namibia despite the fact that Namibia implemented an IPP investment market framework as early as 2006-2007.

Modified Single Buyer Model

In Namibia a *de facto* Modified Single Buyer Model is now in effect, one that allows other downstream participants, REDs and municipal utilities, to directly contract for generation, especially that embedded within that RED. As such, Namibia is evolving to something of a multi-seller/multi-buyer system (MSMB), which may be more stable given sufficient generation and transmission capacity. While current arrangements are sufficient to induce smaller, mostly embedded generation companies, eventually the country will need larger generation units, too large for embedding in a single RED. In fact, given the current supply and demand imbalance and an excessive dependence on electricity imports, Namibia is quite in need of medium to large size IPPs.

Therefore, to better meet future electricity needs and accommodate new technologies, the Government of Namibia, through this National IPP Policy shall adapt the market model to a broader array of transactions and electricity sources. These modifications, which are termed the Modified Single Buyer Model (MSBM), shall be implemented in order to conform the development of the ESI in Namibia to transaction types already under way between IPPs and the REDs. The key differences between this Modified Single Buyer Model and the existing Single Buyer Model is the acknowledgement of bilateral trading agreements. Such transactions, already a fact in the Namibian power system, would be formally acknowledged in this modified model. Generators would not be forced to sell output only to NamPower Trading but also have the opportunity to sell directly to REDs and other large customers.

Through this Modified Single Buyer Model, this National IPP Policy, shall ensure that there is sufficient competition at the supplier level (amongst IPPs) and a reasonable level of balanced competition at the off-taker level (among NamPower, the REDs, the Municipalities, and large industrial off-takers such as the mining companies). This level of competition will result in benefits to both the ESI and the consumers.

A number of changes in the structure and functions of various sector institutions will be required in order to implement the Modified Single Buyer Model. These are further discussed in the National IPP Policy.

Electricity Pricing in Namibia

Namibia is a price taker in electricity markets. That means for all aspects of its electricity supply system – fuels, generation plants, networks, and imports – Namibia cannot control the prices paid for either the inputs to electricity supply or the electricity itself. For pricing of electricity, therefore, Namibia must then resort to the iron law of markets – charge prices for resale of electricity that cover all costs of supplying that electricity.

In addition to its primary role in covering costs, electricity pricing in Namibia should also provide signals/incentives to both suppliers and consumers. On the supply side this shall involve decisions with respect to choice of technology, location and size of new IPP plants, and optimization of the cost of supply and quality of service. On the consumers' side the role of prices is to make consumers aware of the true cost of the electricity that they use. Once costs can be fully recovered then the role of electricity prices is to ensure that consumers understand the importance of where and when electricity is consumed most efficiently. Only after full cost recovery pricing is in place can programs to increase the efficiency of electricity use can be introduced with greater success.

In addition, this National IPP Policy shall ensure that the electricity prices take into account the growing role of renewable energy technologies. In a small market, such as that in Namibia, the potential role of some renewables, especially solar, may well be great enough to affect system operations and stability in the future.² Namibia must make sure that its incentives for intermittent sources of energy are not “too effective”, leading to large swings in output relative to total consumption.

With respect to electricity pricing, Namibia currently sits somewhere between too high and too low, but has not yet found a way to turn this pricing policy into additional generation from private investors. Generally, the right prices cannot guarantee a good outcome, but the wrong ones will almost certainly guarantee failure.

Accordingly, the National IPP Policy provides further guidance of the construction of wholesale and retail electricity prices.

Wholesale Electricity Tariffs

At almost any point in time there is a single “best” combination of fuel and technology for the expansion of a country's electric power system. What appears to be the optimal and least cost choice at any point in time may prove to be less so over time. Future investments in generation can reduce the economic benefits of certain generation technologies. For example, in the last decades innovations in solar and wind power technologies have reduced the prices for these technologies significantly, making them more attractive. The net effect of these innovations is that there is no single optimum solution for power systems and that technological innovation continues to make the deployment of diverse energy technologies a net benefit to most power systems.

² Recent system simulation work in Baja California, similar in climate and population to Namibia, by the authors has found that significant penetration of wind energy technology (>15%) can place burdens on the system operator to maintain service quality. While not dispositive as a barrier to renewables, this need to maintain system stability entails tangible costs at both the generation and transmission stages and must be accounted for in the FITs for renewables or in the uplift charges to be paid by such generators.

The import of this for Namibia is that wholesale electricity prices need to reflect a diverse collection of primary energy sources, as relative prices are bound to change. The wholesale power situation in Namibia will continue to require price-taking for wholesale power. Namibia's reasonable approach therefore, is to employ renewable energy in limited volumes, with most of the wholesale power generated using a least cost combination of generation, imports, and efficiency measures, as stipulated in the Revised NIRP.

Namibia's wholesale power market will face world prices and concomitant fluctuations for the greatest share of generation. Accordingly, pricing policy in Namibia shall be governed by the least-cost solutions in the NIRP that combine varying proportions of domestic gas (Kudu), imported LNG, imported coal, fuel oil, imports, and renewables, primarily wind and solar. The wholesale electricity prices shall accommodate these energy sources by implementing a weighted average cost of generation, varying by time of day or season, accounting for fluctuations in domestic demand, and hydro system operations in Namibia and in other SAPP countries.

Retail Electricity Tariffs

NamPower remains the primary electricity supplier to final consumers as well as to the REDs. NamPower must meet certain financial covenants to maintain its ability to finance both ongoing operations and future expansion. A large proportion of NamPower's costs are denominated in the U.S. Dollar.

An obligation to cover costs with retail electricity sales provides little room for elaborate cross-subsidy schemes at the retail level. Accordingly, the current structure of retail prices is quite simple. Smaller customers, those without KVA transformers, pay one uniform price per kWh, the KVA customers pay a lower, uniform price, plus a demand charge. This translates to rather consistent pricing system for the final consumer.

One implication of the relatively inflexible tariff calculus currently used in Namibia is that consumers will generally feel the impacts of utility investment and power purchase decisions rather immediately. As a result, the potential for disastrous investment or import decisions is limited, as long as there is reasonable freedom to invest in new supply.

The Electricity Control Board (ECB), the Namibian Electricity Regulator, shall continue to ensure that all implementing regulations conform to this National IPP Policy.

National IPP Policy Implementation

In order to oversee the implementation of the National IPP Policy, this Policy shall establish a National IPP Policy Board (NIPB) with membership from all key stakeholders – representatives from the public sector, the regulator, the ESI, the local governments, the IPP community, and the industry and consumer organizations. The NIPB shall convene twice a year to review the impact of the National IPP Policy and make decisions to modify the Policy as warranted.

The ECB shall be responsible for developing and enforcing all implementing regulations with due consultations with the stakeholders.

Monitoring and Evaluation and Continued Policy Reform

Given that the Namibian Electricity Supply Industry (ESI) is evolving and the global IPP industry is rapidly undergoing transformation, the Government recognizes the need for (i) monitoring the economic and social impact of the IPP regime and (ii) a periodic review and revision of this National IPP Policy and the corresponding implementing regulations, as warranted by the changing power sector landscape in the Country.

Accordingly, the National Policy Commission shall institute a function to continuously monitor the impacts of the evolution of the IPP investments on the Namibian economy.

This National IPP Policy shall be updated, as required, based on further experience with the deployment of IPPs in Namibia and as directed by the NIPB.

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1 Introduction

1.1 Economic and Social Development Goals of Namibia

The economic and social development goals of Namibia are embodied in (i) Vision 2030 and (ii) the National Development Plan 4 (NDP 4) 2012/2013 – 2016/2017. In addition, the Government has developed the Harambee Prosperity Plan (HPP) 2016/2017 – 2019/2020, which complements the Vision 2030 and NDP 4.³ All of the three plans set the goals, targets, and strategy for Namibia to move on a path to economic prosperity through a concerted strategy for the development of Namibia's economic growth. The Plans also include specific growth targets, milestones and strategies for the sustainable deployment of Namibia's resources to achieve that stated economic and social development goals.

While the details of the specific goals, objectives, and strategies can be found in the individual documents incorporated by reference, all plans are designed based on a set of overriding principles to guide the development of the Namibian economy.

1.1.1 Vision 2030

- The key provisions of the Vision 2030 are as follows:
 - ◆ A prosperous and industrialized Namibia, developed by her human resources, enjoying peace, harmony and political stability
 - ◆ Transformation of Namibia into an industrialized country of equal opportunities which is globally competitive realizing its maximum growth potential on a sustainable basis, with improved quality of life for all Namibians
 - ◆ Transformation of Namibia into a knowledge-based, highly competitive, industrialized and eco-friendly nation, with sustainable economic growth and a high quality of life

1.1.2 National Development Plan 4

- The key provisions of the NDP 4 are as follows:
 - ◆ The NDP 4 has three overarching goals – High and Sustained Economic Growth, Employment Creation, and Increased Income Equality
 - ◆ In order to achieve these goals, the NDP 4 has placed a high priority on key economic sectors including logistics, tourism, manufacturing, and agriculture
 - ◆ The NDP 4 clearly lays out Namibia's strategy for achieving its overall goals and objectives and explicitly recognizes the need for reliable and affordable energy sector availability to fuel the country's targeted economic growth

1.1.3 The Harambee Prosperity Plan (HPP – 2016/17 – 2019/20)

- The key provisions of the HPP – 2016/17 – 2019/20) are as follows:
 - ◆ The HPP focuses on the Namibian Government's Action Plan toward prosperity for all

³ Vision 2030

National Development Plan 4, May 2012,

Harambee Prosperity Plan (HPP), National Planning Commission, Government of Namibia

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- ◆ The HPP is targeted to accelerate development in clearly defined priority areas for the development of the Namibian economy. This plan does not replace, but compliments, the long-term goal of the NDPs and The Vision 2030.
 - ◆ The key driver for the Harambee Prosperity Plan is to focus on the most effective way to address poverty through wealth creation. This is to be achieved by growing the economy in a sustainable inclusive manner and through the creation of decent employment opportunities. Effective governance and efficient service delivery in the country are at the centre of the Harambee Plan.
 - ◆ The HPP clearly recognizes the relevance and importance of the availability of reliable and affordable energy to fuel economic growth in the country and transforming Namibia into an industrialized, economically thriving, and stable society.

The achievement of these development goals will require a concerted effort by all stakeholders to ensure that Namibia is put on a path to mobilize sufficient new generation capacity in the country to meet its growing demand, reduce its import vulnerability, enhance the ESI efficiency, and ensure the provision of reliable and affordable electricity to all segments of the country's economy including rural consumers.

1.2 The Role of Energy Sector in Namibia's Economic Development

The planning principles embodied in all of the plans developed by the Government recognize the importance of developing the country's energy sector in order to fuel the targeted economic growth and the transformation of Namibia to an industrialized nation. Availability of reliable electricity service is central to the development of all sectors of the economy and to achieve the country's economic and social development goals.

Currently, Namibia's installed electricity capacity is 507.5 MW and the generation peak is 597 MW⁴. In order to meet the economic development goals targeted by the Government of Namibia, the current National Integrated Resource Plan (NIRP) has forecasted that the generation peak would reach approximately 1,328.5 MW by 2035, the planning horizon for the NIRP. This represents approximately more than doubling of the peak demand for electricity in Namibia.

In March 2015, NamPower recorded the country's peak demand at 524 MW against a peak supply of 300 MW from domestic generation sources. The shortfall between peak demand and peak supply in Namibia continues to be supplemented by imports from the neighbouring countries in the SAPP system. This represents an untenable dependence on imports that must be addressed in the near term in order to ensure Namibia's energy supply security. With the decline of the Namibian dollar against the U.S. dollar, the current high level of dependence on imported sources of electricity supports further efforts to develop a robust strategy to accelerate the country's domestic power supply.

In addition to addressing its current large energy shortfall as well as the country's overall economic goal to transform Namibia to an industrialized nation with a GDP growth rate in the range of 4-5% annually, Namibia needs to make sizable investments in the development of its indigenous power capacity. The NIRP analysed five different alternatives to meet Namibia's project demand for electricity in 2035. Of these, three alternatives were analysed

⁴ Based on the Reference Case in the current NIRP (June 2016)

in substantial detail as they represented the lowest cost scenarios. The NIRP has forecasted that these alternatives would require an overall investment in the range of N\$90-97 billion. Given other sectoral priorities in the country, the Namibian Government cannot meet such a significant investment requirement in a single sector of the economy. Accordingly, private sector investment sources must be deployed through the acceleration of IPPs for the development of the Power Sector in the country.

1.2.1 The Electricity Supply Industry in Namibia

Introduction of IPPs in the Namibian the Electricity Supply Industry (ESI) is crucial in order for the IPPs to be able to participate in adding to the generation capacity of Namibia in a sustainable manner. The ESI in Namibia needs to keep pace with the changing energy requirements and the regional and global developments in the power sector including the global nature of the IPP industry. Exhibit 1 provides the current and evolving structure of the ESI. This Exhibit also shows transactional pathways for bilateral contracting, already a feature for smaller IPPs and a likely future attribute for both large IPPs and imports.

Namibia has a well-developed ESI and the reforms introduced by the Government of Namibia, including the establishment of the REDs, place the Namibian ESI at par with some of the best-run power systems internationally. NamPower, as the Government-owned utility, continues to be the dominant player in Namibia's ESI. Currently, NamPower acts as a single buyer with the responsibility for both indigenous power generation as well as power trading with the neighbouring countries. As more and more IPPs enter within the Namibian ESI, the role of NamPower will evolve. As a single buyer, NamPower is currently responsible for negotiating all Power Purchase Agreements (PPAs) and Transmission Connection Agreements (TCAs) with any power generators in the country. In an evolving power sector market, the current Single Buyer Model needs to be modified in order to introduce competition in the power sector while preserving NamPower's status as the "Supplier of Last Resort".

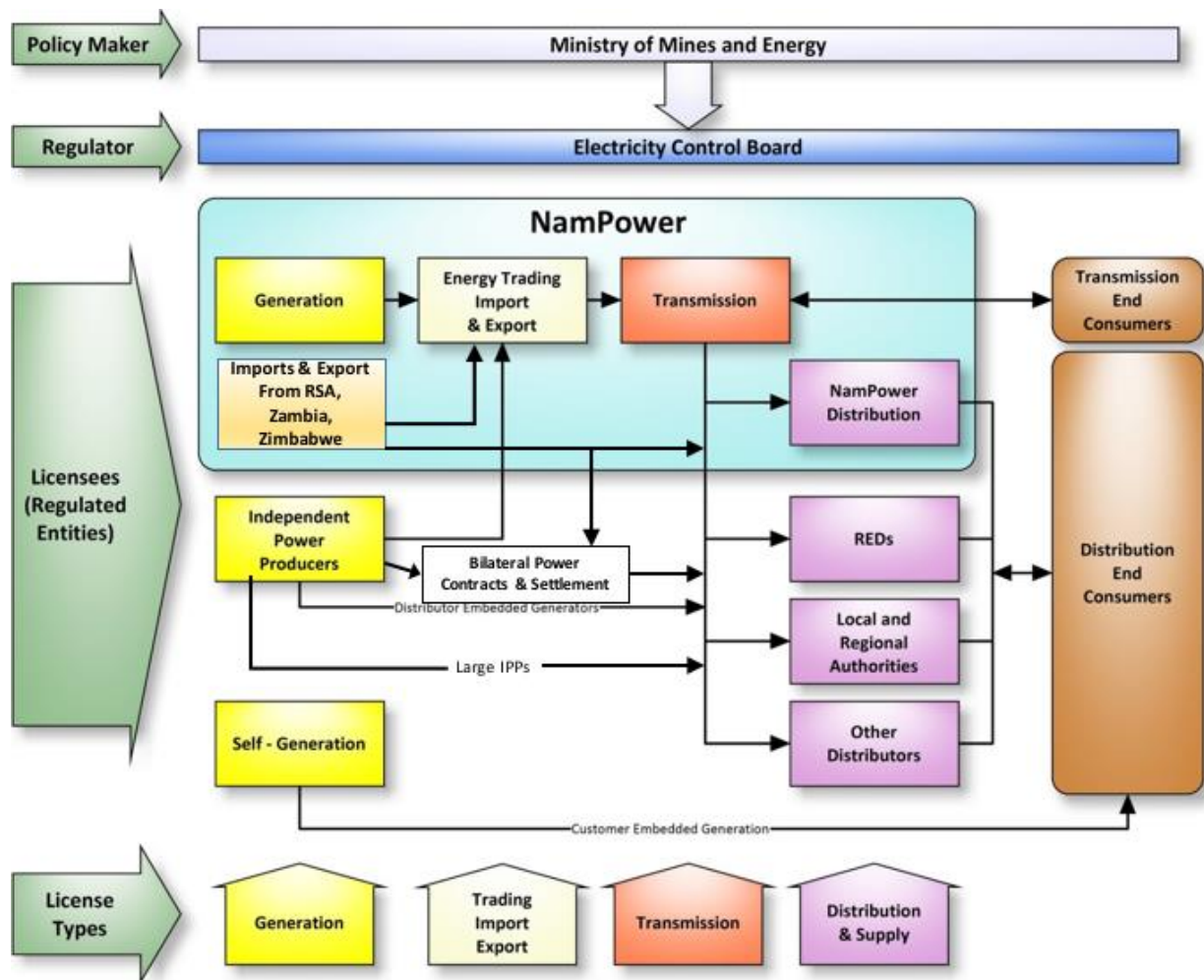
Experience indicates that both the national economy and the consumers benefit when there is competition both among the suppliers and buyers of electricity and this is more apparent as the IPPs begin to enter the electricity market. At the same, it is the Government's responsibility to ensure that the introduction of domestic and international competition in the power sector in Namibia does not unduly pose risks to the major suppliers in the country, especially the national utility -- NamPower. Accordingly, any reform in the current power sector policy must balance the Government's goal to protect its national entities while introducing competition in order to deploy foreign investment and achieve overall ESI efficiency.

1.2.2 Electricity Sector Market Model in Namibia

Currently, for all practical purposes, Namibia is operating on the basis of a Single Buyer Model whereby all IPPs must sell their power to a single buyer, the national utility (NamPower). Discussions with stakeholders within the ESI have indicated that both the REDs and the Municipalities are currently engaged in negotiations with various IPPs for the direct purchase of power. In this sense, the Namibian power market has already begun to operate as a Modified Single Buyer Model. Based on extensive consultations with stakeholders, this National IPP Policy for Namibia formally institutes a Modified Single Buyer

Model to introduce competition in the power sector and streamline the process for the entry of IPPs in the Namibian power generation market.

Exhibit 1: Electricity Supply Industry (ESI) in Namibia⁵



1.2.3 Electricity Sector Regulatory Regime

In addition to having a sound electricity sector policy, including the National IPP Policy, the Government is committed to ensuring that it has a sound, transparent, and fair regulatory regime whereby all market participants in the country's power sector play on a level playing field and under the same rules. The ECB shall continue to be responsible for developing and enforcing implementing regulations that directly and completely support the Government's energy sector policy. Specifically, ECB shall develop and implement the following key regulations:

- Rules and regulations required under the Modified Single Buyer Model;
- A transparent, fair, and equitable tariff regime including approval of tariff filings by the ESI including IPPs;
- A financially sustainable and fair market model to introduce competition within the ESI both among the suppliers and among the off-takers;

⁵ Updated based on the ESI description in the NIRP developed by Hatch, Canada

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- Review and Issuance of licenses to the ESI including the IPPs based on a clearly articulated process for a transparent and fair licensing regime;
 - Implementation of the Government REFIT Policy
 - Regulations related to Quality of Supply and Service (QoSS); and
 - Other parallel regulations

As the ESI transforms and more and more IPPs enter the Namibia power market, the ECB shall continue to evolve in order to ensure that all aspect of the Government's energy sector policy are implemented based on fair and transparent regulations. Furthermore, based on experience with the IPPs, the Government would periodically revise and update this National IPP Policy and the ECB shall revise the implementing regulations, as appropriate.

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2 Rationale for the National IPP Policy

2.1 National IPP Policy for Grid-Connected IPP Investments

Given Namibia's vast energy resource potential – coal, natural gas, solar, wind, and biomass – it is incumbent upon Namibia to forge a robust energy sector policy and strategy to (i) reduce and eventually eliminate the country's dependence on imports and (ii) ensure the availability of reliable and affordable electricity to all consumers throughout the Namibian economy, including the country's rural population.

To this end, the Government recognizes the need for an accelerated development of the country's indigenous energy resources and is committed to introduce a private sector led program to deploy private power generation. The Government introduced an IPP regime in early 2000 to deploy investments by IPPs to develop new power generation capacity based on the Kudu gas, solar, wind, and biomass. While there has been considerable interest by the IPP industry in developing the country's energy resources, the program has not succeeded in accordance with the Government's expectations. In order to promote small-scale power generation IPP projects based on renewable energy, the Government instituted a Renewable Energy Feed-in-Tariff (REFIT) scheme in 2014. While several licenses have been issued and many IPPs are in the developmental stage, the pace of IPP development is not at par with the significant power sector investment opportunities in the country.

Accordingly, the Government is taking a fresh look at the country's overall energy sector policy and strategy. Currently, the Government has embarked upon multiple parallel efforts to design an overall energy sector development policy and strategy including (i) the development of a National Energy Policy drawing upon the May 1998 White Paper on Energy Policy, (ii) an updated National Integrated Resource Plan (NIRP) to develop least-cost energy sector development priorities and targets, (iii) a Renewable Energy Policy, and (iv) a National IPP Policy.⁶ These policies together will drive the overall energy sector development strategy of the country.

In order to achieve an economic growth rate targeted in the Vision 2030 and the NDP 4, Namibia would need to develop its energy resources at a fast pace. As mentioned earlier, even under a modest growth scenario, Namibia would require an investment in the range of N\$ 90-97 billion during the period 2016 - 2035. It is not feasible for the Government alone to finance this level of investment in a single sector of the economy and it is imperative that private investors are motivated and encouraged to meet a large share of this investment requirement. Accordingly, this National IPP Policy is designed by the Government with the express goal of encouraging private sector investment in Namibia's power generation sector.

This National IPP Policy of Namibia is designed to expressly address Namibia's (i) energy supply security, (ii) efficient operations of the ESI, (iii) fair and equitable services to the consumer, and (iv) the availability of sufficient new, reliable, and affordable electricity to meet the development goals of Namibia embodied in (1) Vision 2030, (2) the National Development Plan 4 2012/2013 – 2016/2017, and (3) the Harambee Development Plan.

The implementation of any policy requires an institutional process including a clear articulation of the roles and responsibilities of various stakeholders in ensuring that the

⁶ All of these efforts are currently underway and will be completed soon.

policy is effectively and efficiently implemented in order to meet its stated goals. Therefore, this IPP Policy also provides an institutional framework for the implementation for the National IPP Policy, including the roles and responsibilities of various stakeholders. Specifically, with respect to the IPPs, this National IPP Policy includes the various requirements for the IPPs to become active members of the power market in Namibia.

2.2 National IPP Policy for Off-Grid Investments

The Government has a commitment to increasing access of modern commercial energy to the Country's rural and isolated populations that do not have easy access to the national grid through creating an enabling environment for accelerating private sector led investments in off-grid projects.

To this end, the Government has embarked upon a parallel initiative to develop and implement a National Renewable Energy Policy. This policy will not only focus on the overall goals and commitments of the Government to increase the share of renewable energy based clean electricity in the generation mix but also, in parallel, focus on establishing a policy and a regulatory framework to expand off-grid investments. Some 25 percent of Namibian households are not close to the grid and only off-grid solutions can provide them with reliable and affordable access to clean energy. The National Renewable Energy Policy will also include a dedicated institutional arrangement for implementing the off-grid electrification policy of Namibia.

3 Objectives of the Independent Power Producer (IPP) Policy

3.1 Vision Statement

“To establish a financially viable and sustainable ESI with private sector participation in order to fuel Namibia’s economic growth and the transformation of Namibia to an industrialized nation.”

3.2 Mission Statement

“To devise a National Independent Power Producer (IPP) Policy aimed at equitable utilization of Namibia’s energy resources in order to achieve energy supply security and adequate supply of reliable and affordable electricity for all consumers.”

3.3 Overall Objective

The overall objective of the National IPP Policy is to create an enabling environment for IPPs to enter Namibia’s power market, allowing IPPs to invest in the development of Namibia’s power generation capacity, in order to achieve the following overall national objectives:

- Achieve energy security;
- Improve ESI efficiency through competition;
- Increase access of reliable and affordable electricity to all consumers; and
- Support Namibia’s economic growth and employment creation targets.

3.4 Specific Objectives

The specific objectives of the National IPP Policy of Namibia are as follows:

- Opening the Namibian power market to private investors and encouraging the investors to participate in the growing Namibian power generation opportunities
- Designing a level playing field and a transparent, fair, and equitable policy to guide the entry of private investors in the Namibian power market
- Providing a governance structure to address all issues related to the IPPs including the establishment of a structure for the Government to effectively coordinate the entry of IPPs in the Namibian ESI
- Reforming the Electricity Supply Industry (ESI) and supporting ESI growth and efficiency through introducing competition in the sector
- Establishing clear guidelines and regulations for a transparent, fair, and equitable regulatory regime for regulating all aspects of the ESI
- Delineating the requirements of all IPPs desiring to enter the Namibian power market including applicable Namibian policies, laws, and regulations

3.5 Scope of the National IPP Policy

The National IPP Policy covers the following areas:

- Instituting an enabling environment for the entry of IPPs in Namibia’s power market

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- Developing a fair and transparent framework and a level playing field for the introduction of competition in the Namibian ESI
 - Delineating the process and the requirements for the entry of IPPs in Namibia's power market
 - Establishing a power market based on fair and transparent rules and regulations for ensuring financial viability and sustainability of the IPPs within the overall ESI
 - Ensuring equitable energy resource utilization and efficient and sustainable power sector development

3.6 Guiding Framework

The National IPP Policy is based on the key guiding policies established by the Government of Namibia including the following:

- Vision 2030
- National Development Plans (NDP 4 and successive NDPs)
- Harambee Prosperity Plan
- Energy Sector White Paper 1998
- Energy Act 2000

4 National IPP Policy Principles

4.1 Equality

This principle requires that there is no unfair discrimination among participants in the Namibian power market and that all participants including prospective IPPs operate in a level playing field and compete under the same clear and transparent rules.

4.2 Efficiency

This principle requires that the ESI operate efficiently in order to serve the consumers. This often requires competition both among the power producers and power off-takers based on fair and transparent market rules and a clearly defined market model and a power tariff regime. Specifically, in order to protect consumers on one hand and the suppliers on the other, the policy and the implementing regulations must conform to the following principles:

- Bulk electricity prices are based on cost of supply
- Retail power supply prices are based on cost of service
- Consumers are charged a fair price based on full transparency of cost of supply and service
- The entire electricity supply and distribution system operates efficiently based on compliance with all regulatory requirements consistent with the country's national energy policy and the National IPP Policy

4.3 Simplicity

The National IPP Policy is designed to be simple in that the policy is fair, transparent, and easily understandable. Specifically, the National IPP Policy embodies the following elements:

- Ease of understanding of the provisions contained in the policy by the IPP community, the ESI, and consumers
- Clarity of the institutional structure and the roles of various parties in the IPP process
- Integrated coordination among the various government ministries and enterprises rather than fragmented and vague governance
- Clarity of specific requirements for applications to obtain a generation license from the regulator
- Simplified and clearly stated legal and regulatory requirements for compliance by the IPPs
- Minimal burden on the IPPs to minimize the cost of obtaining a license while ensuring that the process is fully consistent with and in compliance with all Namibian Laws and Statutes

5 Applicability of the National IPP Policy

The National IPP Policy shall apply to all power generators, those currently present and new IPPs planning to enter the Namibian electricity market.

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6 National IPP Policy Components

The key components of this National IPP Policy include the following:

- Creating an enabling environment to foster private sector investment in Namibia's power generation sector
- Clear policy regarding small, medium and large IPP projects
- A clearly established power market model and fair and transparent market rules
- Listing of all environmental compliance and various permit requirements based on current Namibian Laws and regulations
- Clearly defined land access and acquisition policy requirements based on Namibian laws
- IPP licensing requirements
- Conformance to and compliance with all other prevailing Namibia Laws, policies, and regulations

6.1 Creating an Enabling Environment for IPP Deployment

The National IPP Policy is developed in response to the Government's recognition of the critical importance of ensuring the availability of reliable affordable electricity in order for the Government to meet its national economic and social developed goals embodied in Vision 2030, the National Development Plan 4 and successive NDPs, and the Harambee Prosperity Plan.

The investment required for developing the required power generation capacity over during the next 20 years, the planning horizon of the NIRP is estimated to be N\$ 90-97 billion. This is approximately 7 times the Gross Domestic Product (GDP) of Namibia in 2015. Government alone cannot meet this level of investment requirement; private sector led power generation through IPPs must be mobilized. Therefore, one of the key components of this National IPP Policy is to create an enabling environment that would directly address the perceived and real risks that IPPs face in Namibia.

Namibia is a politically stable country operating under the Rule of Law with an independent judiciary and no political risk to foreign investors. The Foreign Investment Act and its amendment established the policy and processes for encouraging foreign investment in the Namibian economy.⁷

This National IPP Policy shall ensure the following:

- All IPPs are afforded equal access to the Namibian power generation market under a clear policy framework and a market structure.
- All IPPs operate under the same fair and transparent rules and regulations.
- The power sector regulations including licensing requirements are independent, transparent, and non-discriminatory.

⁷ The Foreign Investment Act No. 27 of 1990, as amended in 1997, is currently under review. The Act establishes the Namibia Investment Centre (NIC), which operates as a department within the framework of the Ministry of Trade and Industry (now the Ministry of Industrialization, Trade, and SME Development) and has the major responsibility of promoting foreign direct investment in Namibia.

- All IPPs are afforded the opportunity to compete in the market under fair and consistent procurement policies, rules, and procedures.
- All IPPs are afforded equal access to redress under a transparent and fair judiciary system.
- The roles and responsibilities of various government ministries and regulatory entities are clearly articulated and that an effective institutional coordination process is in place for simplifying the IPP licensing process under the leadership of the Electricity Control Board, the national electricity regulator
- All of ministries and regulatory agencies shall work harmoniously to reduce the burden on the IPPs through the implementation of a simplified licensing process and the processes for related requirements – land access/acquisition, various permits, compliance requirements, and business support and investment promotion processes.
- The provisions of this National IPP Policy shall be consistent with Namibia's Energy Policy, Renewable Energy Policy, the NIRP, and other relevant policies.
- All IPP projects shall be evaluated in accordance with the priorities of the NIRP and based on their conformance to supporting Namibia's economic and social development goals embodied in the National Development Plans, Vision 2030, and the Harambee Prosperity Plan.

6.2 Policy Regarding Small, Medium and Large IPPs

6.2.1 Small-Scale IPPs Under the REFIT Scheme (< 5 MW)

This National IPP Policy defines small-scale IPP projects as private power generator projects with a generation capacity of up to 5 MW. The Government is implementing a Renewable Energy Feed-in-Tariff (REFIT) scheme under which any IPPs desirous of developing a renewable energy-based IPP project with a generation capacity of up to 5 MW can apply for a license. The scheme is being implemented by Namibia's independent electricity sector regulatory agency, the ECB. In order to implement the REFIT scheme, ECB has issued standardized Power Purchase Agreements (PPAs) for solar PV, wind, biomass, and Concentrated Solar Power (CSP).

To implement its standardization policy with respect to transmission connections, the ECB has also published a Transmission Connection Agreement (TCA) to ensure that all IPPs play in a level playing field with common regulations and requirements for obtaining a license.⁸

Some key features of the REFIT scheme and TCA for small-scale IPPs include:

- IPPs do not have responsibility for providing any ancillary services;
- Different primary energy sources are subject to a range of initial energy payments;
- The range of payments is significant, with a low of N\$1.08 per kWh for wind up to N\$1.90 per kWh for concentrating solar panels;

⁸ All standardized PPAs, TCAs, and licensing requirements can be obtained from the Electricity Control Board, Namibia and are published on ECB's website (<http://www.ecb.na>). Currently the Government is in the process of developing and issuing Namibia's National Renewable Energy Policy. Prospective IPPs should monitor the development and issuance of this policy which will provide further policy guidance with respect to the deployment of renewable energy in Namibia.

- The energy payment is 100% indexed to N\$ CPI;
- There are no penalties for failure to deliver due to primary energy intermittency (e.g., no wind)

The roof-top systems and individualized mini and micro grid projects shall also be covered under the REFIT scheme.

6.2.2 Medium-Sized IPPs (5 – 100 MW)

This National IPP Policy defines medium-sized IPP projects as private power generator projects with a generation capacity between 5 MW and 100 MW. Namibia is a politically stable country with well-articulated foreign investment policies and electricity tariffs are close to cost reflectivity. In addition, Namibia is well endowed with renewable energy resources. Namibia presents an attractive investment opportunity for domestic and international IPPs. Namibia also has well-established contract laws, procurement policies, and a competitive market. Therefore, this National IPP Policy clears the way for competitive selection of medium-sized IPP projects that best support the Government's goals to achieve energy self-sufficiency, ensure the availability of reliable and affordable electricity service, and achieve the Government's overall economic and social development goals and objectives.

Based on lessons learned from the IPP regimes in many other countries, the National IPP Policy shall ensure that the most attractive medium-sized IPP projects are competitively selected and awarded licenses to best support the Government's goals consistent with the Government's national Integrated resource Plan (NIRP)⁹. Accordingly, the National IPP Policy shall be to procure medium sized IPPs through competitive tenders.¹⁰

Successful bidders will need to show that their proposed plants are cost effective for the duty cycle identified in the tender. This is a more complex matter than simply assessing raw estimated costs per kWh. Medium sized IPPs will often need to provide capacity to the system during Standard and Peak times and there may be requirements for availability and dispatch by the system operator. All of this implies that instead of one uniform solicitation for energy and capacity, ECB and NamPower are more likely to solicit capacity and energy in some bids and energy only in others.

6.2.3 Large IPPs (> 100 MW)

The National IPP Policy defines large IPP projects as private power generator projects with a generation capacity above 100 MW. The international body of knowledge and the experience gained in the large IPP regimes confirms that large IPP projects should be selected through a negotiated process. Under this process large IPPs typically submit unsolicited project proposals to the governments and enter into negotiations to develop the projects.

Therefore, the National IPP Policy with respect to large IPP projects shall be to open Namibia's power market and encourage international IPPs to submit unsolicited proposals for projects larger than 100 MW in capacity.

⁹ The NIRP is currently being finalized and should be issued by the Government in the coming weeks and months.

¹⁰ Prospective medium-sized IPPs should refer any inquiries to the Electricity Control Board of Namibia for detailed licensing requirements and model templates for various agreements and permits required as part as licensing applications.

The NIRP provides additional guidance for large IPP solicitations and evaluation. Since these projects can affect the financial and operational viability and stability of the ESI there may well be some limitations on the range of acceptable technologies, fuel cycles, and operational modes for larger plants. For example, a 150 MW wind farm is unlikely to be acceptable given the system stability and cost implications of such a project. On the other hand a large gas-fired CCGT, say 500 MW, may well be less costly per kWh than a smaller plant. However, a commitment to a plant so large relative to the overall system may be financially risky without offsetting export sales. These and other criteria will form a part of the evaluation environment for larger IPPs and the NIRP results provide useful boundaries for initial screening of proposals.

Accordingly, the National IPP Policy regarding large IPPs shall be for the Government to evaluate each IPP project proposal on a case-by-case basis and make decisions based on the ability of a proposed project to support the Government's overall goals and its overall energy sector priority.

6.3 Electricity Market Model and Market Rules

Since the reorganization and privatization of the U.K. electricity system in 1989-90 a large number of competing market models have proliferated. Each of these market models operates in an environment that is constrained by the physical and economic characteristics of the country, the assets and characteristics of the country's ESI in generation and transmission, and the ability of the country's economy to support investments in new electricity supply technology.

In many countries where a state-owned integrated utility dominated all segments of the ESI, the chosen successor initially has usually been the "Single Buyer Model", an apparently simple extension of the previous arrangements. The Single Buyer Model permits the incumbent utility to retain substantial operational and financial control of the electricity market. Indeed, if the incumbent is able to separate its role as a generator and system operator from its role as an energy trader the single buyer model can be quite effective and attractive.

Experience is mixed on the Single Buyer Model power markets. On the one hand, such a structure can minimize the duplication of effort in market operation and commercial arrangements. That is the strongest selling point for a Single Buyer Model.

On the other hand, a Single Buyer Model sets the incumbent in a situation where it is subject to significant conflicts of interest and incentives that may not be conducive to least cost generation options for the ESI. In its role as the largest (usually) generating company the Single Buyer entity is able to obtain all of its competitors' cost information, without symmetric transparency on their part. It is also, as the System Operator, able to determine the operational parameters of plants owned by competing companies, potentially reducing their profitability. These conflicts of interest, in turn, lead to calls for highly structured power purchase agreements that limit the flexibility of the Single Buyer to affect adversely the profitability of the IPPs. However, since the Single Buyer is usually also the largest retailer of electricity its ability to adjust retail tariffs will directly affect the ability of the IPP to recover costs. At the same time, a money losing state-owned utility will generally be able to claim payments from the government, an option not available to IPPs, and one that gives rise to the general demand by IPPs for government guarantees.

Another overlooked element in the success or failure of a Single Buyer restructuring is whether and to what extent the existing electricity market is adequately supplied when market arrangements are changed. A number of markets, including South Korea, Indonesia, and California, have experienced a slowdown in generation investment after implementing a Single Buyer Model, exacerbating existing supply inadequacies. In some cases, this has been due to the Single Buyer's insistence on forcing a cost-plus model on IPPs, when a more market-oriented pricing régime would have been warranted. In other cases, the IPPs will try to get their temporary pricing power enshrined in a long-term contract. Both of these fall short of the willing-buyer willing-seller ideal.

To sum up, the Single Buyer Model, especially when implemented during a period of insufficient generation capacity, often initiates or reinforces a cascade of events in the ESI that result in underinvestment, declining service quality, high costs, inappropriate generation technology and ever-greater government liabilities to cover losses. This is not what was envisioned when utility restructuring was first mooted. This may well be the case for a lack of IPP investment in Namibia despite the fact that Namibia implemented an IPP investment market framework as early as 2006-2007.

The Single Buyer Model also contains within it the seeds of its own dissolution. Unless implemented without bias and with complete efficiency, experience has shown that many of the best customers, large industrials, as well as the IPPs, will find that an imperfectly implemented Single Buyer model provides an almost irresistible incentive to engage in bilateral and other alternative market arrangements. In Namibia the analogous customer category to large industrial users would be the mining customers, large, steady demand, with earnings in hard currency.¹¹

Experience with the limitations of the Single Buyer Model, many countries have evolved and adapted other options. Sometimes these arrangements are formalized and other times they simply become a practice. In Namibia a *de facto* Modified Single Buyer Model is now in effect, one that allows other downstream participants, REDs and municipal utilities, to directly contract for generation, especially that embedded within that RED. As such, Namibia is evolving to something of a multi-seller/multi-buyer system (MSMB), which may be more stable given sufficient generation and transmission capacity. Such a system places relatively less responsibility on NamPower to provide new generation and allows the state-owned company to focus on transmission and trading.

Market rules are downstream of the actual market structure and the rules in Namibia still reflect a Single Buyer Model. While current arrangements are sufficient to induce smaller, mostly embedded generation companies, eventually the country will need larger generation units, too large for embedding in a single RED. In fact, given the current supply and demand imbalance and an excessive dependence on electricity imports, Namibia is quite in need of medium to large size IPPs. Namibia's evolving small-scale MSMB model, while not always either superior to all the others or stable for long periods of time, has, at a minimum, provided various market participants with enough breathing room to keep the lights on. More generally, though, our experience with different approaches shows that the

¹¹ Bilateral trades can also save an otherwise teetering Single Buyer Model. In 2012-15, IPPs in Ghana were forced to sell to the state-owned Single Buyer without the adjustments for fuel prices that were warranted. What prevented these IPPs from entering bankruptcy were their sales to industrial users on a bilateral basis, where higher fuel prices were fully accommodated. In California in 2000 only those buyers able to use bilateral contracts were spared load shedding.

management of the system, asset management, regulation, and the characteristics of the transactions management system are critical in determining the ultimate success of any power market model.

6.3.1 Existing Electricity Model

Currently, Namibia operates *de jure* on the basis of a Single Buyer Model whereby NamPower Trading acts as a single buyer and all IPPs must sell their power to NamPower Trading. Exhibit 2 provides an illustration of the current Single Buyer Model in Namibia.

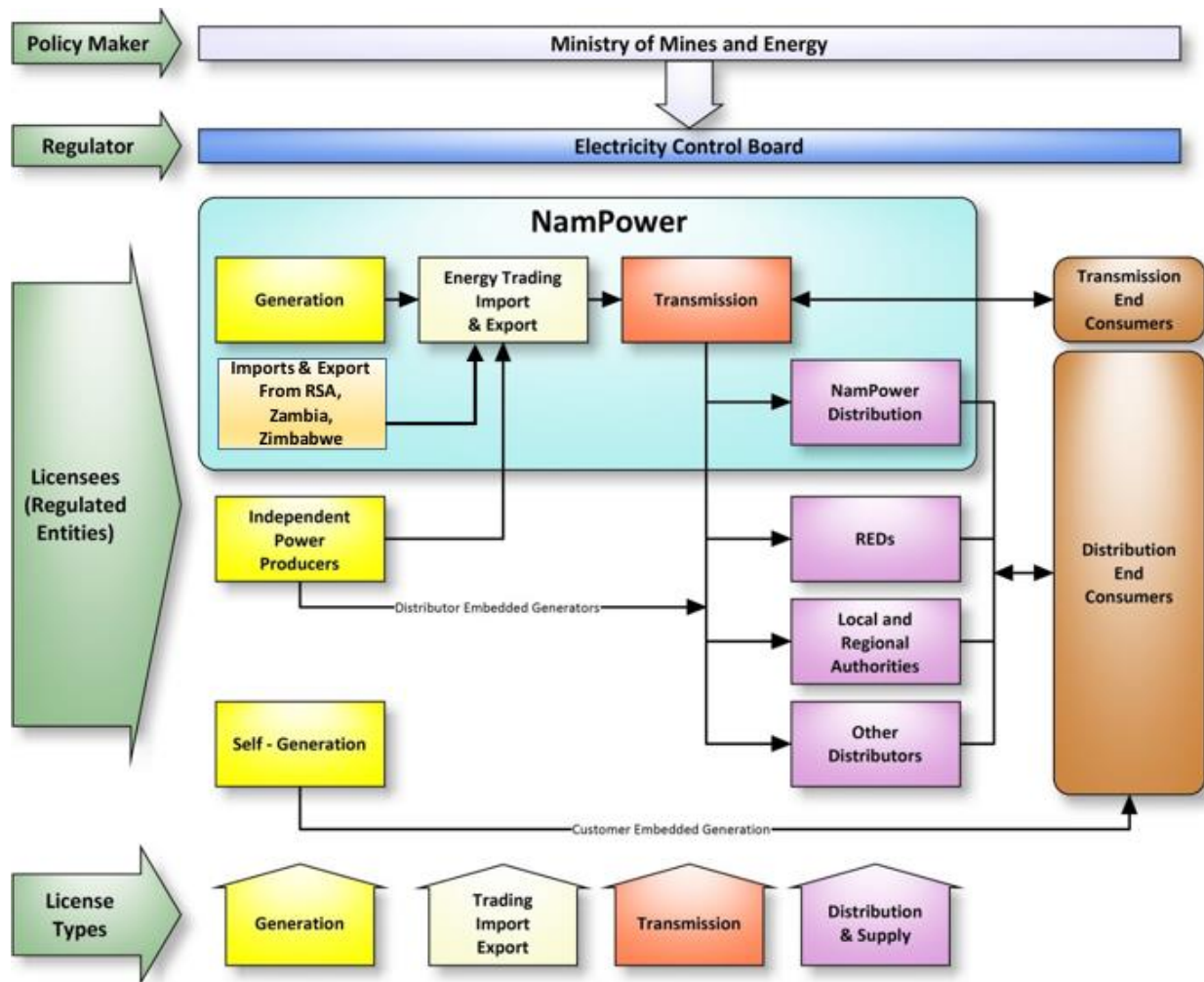
One of the difficulties inherent in any single buyer system is that consumers must see the system as (i) reliable, (ii) low cost, and (iii) the best available option. In many countries that have restructured their formerly vertically integrated ESIs, adoption of a Single Buyer Model has led to deterioration in service to consumers and higher prices, while simultaneously discouraging private sector investments in new generation. The Single Buyer Model suffers from several major flaws including the following:

- Inherent conflict of interest between the utility's role as a generator and its role as a buyer, as well as between its role as the System Operator and Single Buyer;
- Unwillingness on the part of either the utility or the IPPs to invest in new generation given the uncertainty about whether a generation investment can pay;
- Higher prices for consumers as the utility exhausts its reserve generation resources and must turn to more expensive generation sources or imports; and
- Loss of the "best" customers as industrial users seek to make bilateral arrangements with IPPs or other sellers.

These attributes of the Single Buyer Model make it inherently unstable since the best customers are always prepared to leave, and without them, expensive new generation plants by the utility or PPAs with independent generators look increasingly risky. Namibia's experience since its loss of firm supply from Eskom is typical of the difficulties encountered by countries adopting a Single Buyer Model approach.

Consumers facing an increasingly costly, and less reliable supply of electricity, naturally start to look for their own options. Correspondingly, a number of small-scale IPPs are in discussions with the REDs and the Municipalities to supply power to them directly. Such transactions usually involve a small plant, less than 5-10 MW, embedded in the RED's or the Municipalities' sub-transmission system. Facing shortages in electricity supply from NamPower, the Municipalities and REDs have shown considerable interest to enter into power purchase agreements directly with the small-scale IPPs, as evidenced in the Country's power market. This burgeoning interest in bilateral arrangements has put just the type of pressure on the Government as was described above. The apparent need to adapt has generated calls for the Government to review the current Single Buyer Model and propose further reforms to ensure that the ESI in Namibia functions efficiently. While a fully competitive wholesale market is not currently feasible in Namibia, given the relatively small domestic market, reforms that encourage greater initiative on the part of all of the market participants can move the ESI toward improved quantity and quality of supply, while introducing some competitive elements into the system. The Government is committed to ensuring adequate balance between encouraging private power investment in the Namibian economy on the one hand and safe guarding consumer interests on the other.

Exhibit 2: Existing Single Buyer Power Market Model in Namibia



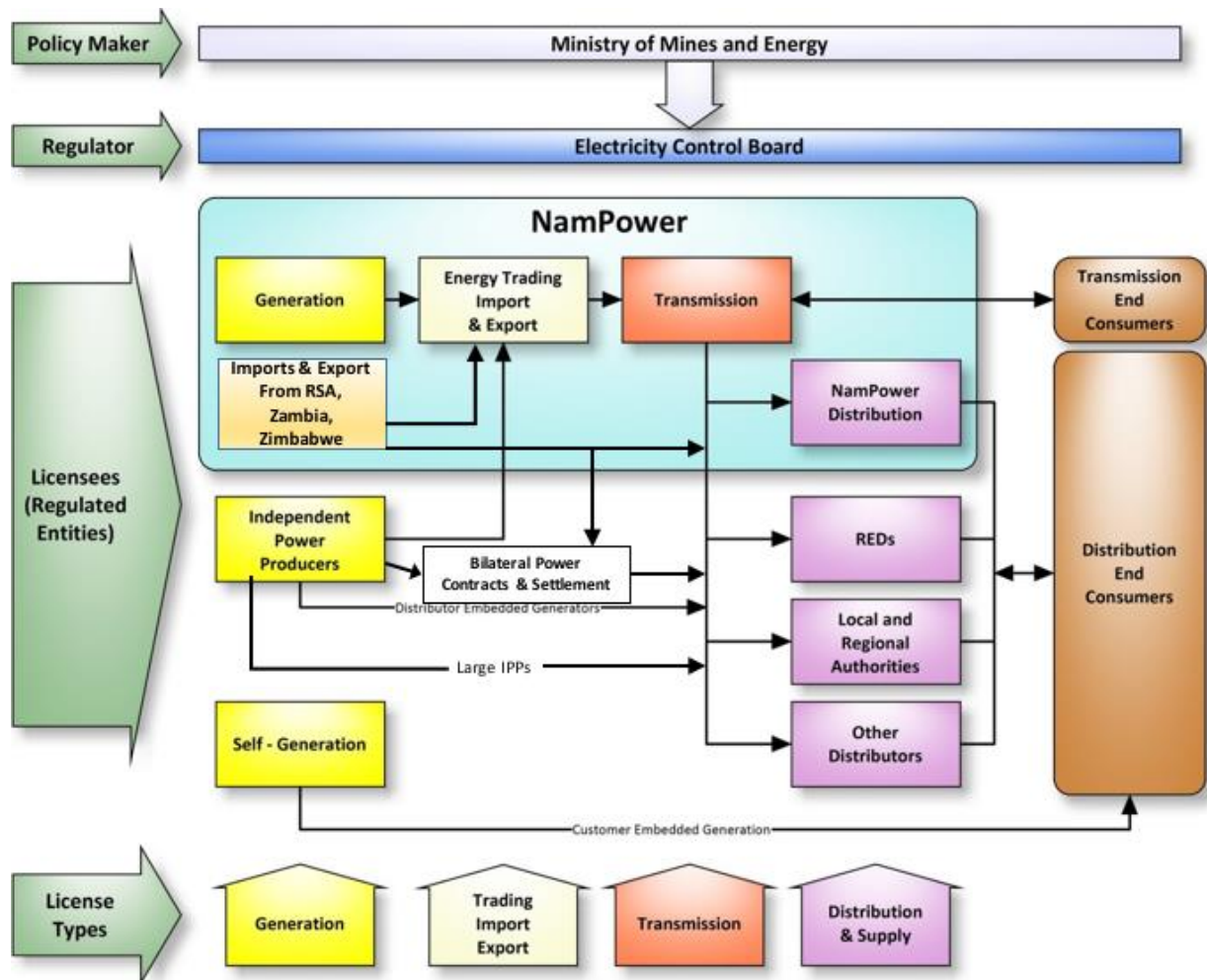
In order to address the inherent deficiencies in the Single Buyer Model, the national IPP Policy shall implement a Modified Single Buyer Model.

6.3.2 Modified Power Market Model

To better meet future electricity needs and accommodate new technologies, the Government of Namibia, through this National IPP Policy shall adapt the market model to a broader array of transactions and electricity sources. These modifications, which are termed the Modified Single Buyer Model (MSBM), shall be implemented in order to conform the development of the ESI in Namibia to transaction types already under way between IPPs and the REDs. Exhibit 3 provides the illustration of the Modified Single Buyer Model that shall be implemented as a key provision of the National IPP Policy.

The key differences between this Modified Single Buyer Model and the existing Single Buyer Model is the acknowledgement of bilateral trading agreements. Such transactions, already a fact in the Namibian power system, would be formally acknowledged in this modified model. Generators would not be forced to sell output only to NamPower Trading but also directly to REDs and other large customers. As other countries have learned, a variety of market arrangements can, if properly implemented, induce additional investments in supply, desperately needed by Namibia at the present time.

Exhibit 3: Modified Single Buyer Power Market Model



Since markets do not always organize themselves and financial coverage of contracts is essential to any bilateral arrangement, the National IPP Policy shall establish a “Bilateral Contracts and Settlement Entity” that would register contracts and coordinate with NamPower Transmission and system operation. This move would not eliminate NamPower Trading, but would establish an entity to carry out the coordination role with non-affiliated entities.

Through this Modified Single Buyer Model, this National IPP Policy, shall ensure that there is sufficient competition at the supplier level (amongst IPPs) and a reasonable level of balanced competition at the off-taker level (among NamPower, the REDs, the Municipalities, and large industrial off-takers such as the mining companies). This level of competition will result in benefits to both the ESI and the consumers.

A number of changes in the structure and functions of various sector institutions will be required in order to implement the Modified Single Buyer Model. These shall include the following:

- Market participants shall be granted access to the transmission network – this means that REDs and others will be able to contract directly with IPPs, purchasing firm transmission capacity from NamPower;

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- System operation shall become a fully transparent entity, publishing its supply and demand balance on a near real-time basis;
 - Imports and exports of energy and power will become more transparent as power flows through SAPP as well as bilaterally will be published on a near real-time basis; and
 - IPPs will be able to spread risk across a number of consuming entities, reducing their market and regulatory risk, thereby encouraging more generation investments.¹²

These proposed changes that comprise the Modified Single Buyer Model provide a balanced approach to managing the electricity market in Namibia and, while short of full-scale wholesale competition in the power sector, provide both generators and users with more options in a still-structured environment.

6.4 Electricity Pricing in Namibia

Namibia is a price taker in electricity markets. That means for all aspects of its electricity supply system – fuels, generation plants, networks, and imports – Namibia cannot control the prices paid for either the inputs to electricity supply or the electricity itself. For pricing of electricity, therefore, Namibia must then resort to the iron law of markets – charge prices for resale of electricity that cover all costs of supplying that electricity.

In addition to its primary role in covering costs, electricity pricing in Namibia should also provide signals/incentives to both suppliers and consumers. On the supply side this generally means:

- What types of generation technologies, and fuel cycles are the most efficient and cost effective?
- Where should the plants be constructed to best integrate with the transmission network and emerging demand centers?
- Who should build these plants?
- What is the tradeoff between generation and transmission in regard to service quality and cost of supply?

On the consumers' side the role of prices is to make consumers aware of the true cost of the electricity that they use. Once costs can be fully recovered then the role of electricity prices is to ensure that consumers understand the importance of where and when electricity is consumed most efficiently. Only after full cost recovery pricing is in place can programs to increase the efficiency of electricity use can be introduced with greater success.

Finally, electricity prices need to take into account the growing role of renewable energy technologies. In a small market, such as that in Namibia, the potential role of some renewables, especially solar, may well be great enough to affect system operations and stability in the future.¹³ Unlike Germany, which can lay off its excess wind generation on

¹² For example, one of the long-standing problems with large IPPs, leading to proposed project suspensions, is the use of fuel supplied at international prices. This creates a large foreign exchange risk for a Namibian currency purchaser, such as NamPower. However, if the forex part of the PPA can be provided through waterfall arrangements with mining companies, who sell in dollars as well, then the risk to a putative IPP can be reduced.

¹³ Recent system simulation work in Baja California, similar in climate and population to Namibia, by the authors has found that significant penetration of wind energy technology (>15%) can place burdens on the system operator to maintain service quality. While not dispositive as a barrier to renewables, this need to maintain system stability entails tangible

neighboring Poland, Czech Republic, and Austria, while balancing insufficient wind output with Norway's hydro, Namibia is not large enough to impose costs on neighboring countries. Consequently, Namibia must make sure that its incentives for intermittent sources of energy are not "too effective", leading to large swings in output relative to total consumption.

In addition, as a nation heavily dependent on mining and services, Namibia's electricity costs cannot lead Namibia's economy to be uncompetitive. However, prices need to be high enough to support reliable supply from a variety of sources, generation technologies, fuel types, and trade. This is the balancing act that electricity prices must play in Namibia. Therefore, electricity prices in Namibia shall generally follow these principles:

- High enough to enable producers, network operators, and sellers to cover reasonable costs;
- High enough to encourage additional domestic sources of supply;
- Low enough to permit electricity generators to sell at a price that is within the framework of regulated tariffs; and
- Low enough to discourage inefficient or outlandish energy supply options.

Namibia currently sits somewhere between too high and too low, but has not yet found a way to turn this pricing policy into additional generation from private investors. Generally, the right prices cannot guarantee a good outcome, but the wrong ones will almost certainly guarantee failure.

Accordingly, the National IPP Policy provides further guidance of the construction of wholesale and retail electricity prices.

6.4.1 Wholesale Electricity Tariffs

At almost any point in time there is a single "best" combination of fuel and technology for the expansion of a country's electric power system. For example, in the 1990s the combination of low natural gas prices, efficient and low cost equipment, short construction times, and low emissions combined to make gas-fired combined cycle power plants (CCGT) the top choice of power systems worldwide. In the US more than 90% of installed generation capacity from 1990-2005 was based on CCGT technology. Many other countries, including much of Western Europe, had similar rates of deployment of CCGT.

However, what appears to be the optimal and least cost choice at any point in time may prove to be less so over time. In countries with high market prices for natural gas CCGT plants became increasingly uneconomical after 2005. During the 2006-2014 period, countries with access to low-cost coal, including, South Africa, Indonesia, India, and China, once again placed a higher priority on deploying that primary source of energy in their respective power sectors. Now, with prices moderating, gas fired plants are once again competitive with other generation technologies. The riskiness of investments in generation can reduce the economic benefits of certain generation technologies. Work on this aspect of

costs at both the generation and transmission stages and must be accounted for in the FITs for renewables or in the uplift charges to be paid by such generators.

generation planning is ongoing with several projects in Latin America, among other countries.¹⁴

It is not only changing prices that can alter the attractiveness of different generating technologies over time, it is also changes in technology itself. Since the middle of the 1990s, there have been significant advances in a number of generation technologies, both conventional and renewable. The use of coal has become more cost effective as a result of two technologies, supercritical (very high pressure) boilers and integrated gasification combined cycle (IGCC) technologies.¹⁵ With total system efficiencies of ~43-45% for supercritical and ~47-48% for IGCC, the consumption of fuel for a specific level of generation will fall by 15-20% as compared with standard (sub-critical) coal-fired plants. These fuel cycles promise to make coal-fired plants more efficient, cleaner, and smaller in size, thereby reducing the potential adverse environmental impacts of the use of coal as a fuel.

In the case of large wind power projects, newer and more effective turbine units give higher outputs per unit of land and make better use of existing wind resources. Ongoing improvements such as the integration of wind power with storage hydroelectric plants can smooth out the temporal variations in wind power, thereby making that technology contribute more to capacity than has been the case in the past.

Solar technologies have been advancing steadily, especially solar PV, and the costs have been continuously coming down. Fabrication costs per peak watt have fallen considerably, making solar more competitive with other options, especially if full grid extension costs are taken into account.

The net effect of these innovations is that there is no single optimum solution for power systems and that technological innovation continues to make the deployment of diverse energy technologies a net benefit to most power systems.

The import of this for Namibia is that wholesale electricity prices need to reflect a diverse collection of primary energy sources, as relative prices are bound to change. The wholesale power situation in Namibia will continue to require price-taking for wholesale power. Unlike, for example, Germany and Denmark, which have market power within the EU, Namibia cannot arbitrarily set prices and cannot resolve either its deficits or surpluses of electricity due to wind variation by either importing excess power from Scandinavia or “dumping” surplus power on Central European nations. Namibia’s reasonable approach therefore, is to employ renewable energy in limited volumes, with most of the wholesale power generated using a least cost combination of generation, imports, and efficiency measures, as stipulated in the Revised NIRP.

According to the NIRP, prepared by Hatch, the least cost electricity supply solution must meet normal criteria for reliability and compliance with environmental regulations, including those of the SAPP. The NIRP went one step beyond the rules currently in force and added

¹⁴ Namibia’s current NIRP does not account for this type of correlated risk, as it is the norm with IRP exercises. The initial work on accounting for risk in power system planning can be found in D. Hertzmark, “Risk Assessment Methods for Power Utility Planning,” World Bank, 2007. Subsequent efforts in this vein have been undertaken for Jordan (2009), Honduras (2012), Ghana (2013-14), Indonesia (2015), Dominican Republic(2012), Germany (2014), and Mexico (2016).

¹⁵ If Carbon Capture and Sequestration is to be mandated for coal-fired plants the IGCC currently represents the only technically feasible pathway to meet that requirement.

a carbon price of N\$60/tonne. This carbon price, which is equivalent to N\$0.05/kWh, will raise the wholesale price of electricity slightly in a coal-dominated system and create a small tilt in favor of non-carbon supply and generation resources, including efficiency.

Namibia's wholesale power market will face world prices and concomitant fluctuations for the greatest share of generation. According to the NIRP the least-cost solutions will combine varying proportions of domestic gas (Kudu), imported LNG, imported coal, fuel oil, imports, and renewables, primarily wind and solar. The wholesale electricity prices will need to accommodate these energy sources, which will probably mean a weighted average cost of generation, probably varying by time of day or season, accounting for fluctuations in domestic demand and hydro system operations in Namibia and in other SAPP countries.

6.4.2 Retail Electricity Tariffs

NamPower remains the primary electricity supplier to final consumers as well as to the REDs. NamPower must meet certain financial covenants to maintain its ability to finance both ongoing operations and future expansion. A large proportion of NamPower's costs are denominated in the U.S. Dollar.

Given its financial obligations and foreign currency exposure, NamPower is obliged to cover costs of its electricity and fuel purchases over the course of its financial year. In order to meet its financial covenants, NamPower has recently applied to the ECB to recover its losses based on the depreciation of the ZAR over the past 18 months.

An obligation to cover costs with retail electricity sales provides little room for elaborate cross-subsidy schemes at the retail level. Accordingly, the current structure of retail prices is quite simple. Smaller customers, those without KVA transformers, pay one uniform price per kWh, the KVA customers pay a lower, uniform price, plus a demand charge. This translates to rather consistent pricing system for the final consumer.

Some of the local distribution companies charge tariffs on a slightly different basis from that used by NamPower. For example, the City of Windhoek charges slightly below-market rates to some smaller consumers and to old-age homes. However, the under-recovery for these consumers is rather small as a proportion of total turnover and easily made up by the other consumers in that class. Larger consumers pay for demand as well as time of use and seasonal prices. Erongo RED follows a similar pattern of pricing.

One implication of the relatively inflexible tariff calculus used in Namibia is that consumers will generally feel the impacts of utility investment and power purchase decisions rather immediately. As a result, the potential for disastrous investment or import decisions is limited, as long as there is reasonable freedom to invest in new supply.

With limited scope for tariff system experimentation, the ECB has attempted to place a ceiling on the potential for large upside cost errors. These measures are discussed in the following two sections.

6.4.3 Electricity Pricing for Small IPPs (< 5 MW)

The REFIT program seeks to make renewable energy investments feasible by using variable power purchase prices to make each RE technology attractive for efficient investors. The feed-in tariffs (FITs) are calibrated to subsume lower cost producers and leave out high cost

ones. By presenting project developers with a fixed price for each technology, the ECB is working to avoid burdening small producers with prolonged and costly negotiations for the power purchase agreements.

The range for the renewable FITs starts at N\$1.08 (wind) and ranges up to N\$1.90 (CSP). In general, the FITs are below retail electricity prices. As noted in some of the IPP project proposals submitted by many developers, an IPP with a sales price greater than the retail price of electricity has a high likelihood of failure. The Namibian REFIT program avoids this pitfall.

6.4.4 Electricity Pricing for Medium-Sized IPPs (5 – 100 MW)

Projects that provide grid-scale power and energy may involve greater financial commitments by NamPower or other offtakers as compared to small, intermittent producers. These larger proposed IPPs are required to submit bids in response to requests for tenders by NamPower or the ECB. Their bids, for a specific amount of energy or capacity, are then evaluated by a Tender Committee appointed by the Government, with ECB evaluating the licensing application and the PPA and TCA.

By virtue of the work performed to calculate the REFIT prices, ECB and NamPower have a reasonable familiarity with the expected costs from various technologies and likely duty cycles that are expected from each technology type. The Hatch NIRP provides further detail for some of the medium-size IPP technologies and can serve as a screening tool to weed out IPP proposals that are too expensive or unlikely to perform as expected.

As a general rule one would expect purchase prices for the medium-sized IPPs to be a bit lower on a unit basis than the ones in the REFIT. Renewable energy projects are subject to economies of scale just as conventional power projects are. This is especially true with regard to transmission connections, civil works and roads, fuel storage, and combustion efficiency. However, as with smaller IPPs, a standard form contract, perhaps varying by technology type, is appropriate to avoid prolonged and costly negotiations for the PPA.

6.4.5 Electricity Pricing for Large IPPs (> 100 MW)

In a small power system such as in Namibia, any project of 100 MW or more is large relative to the entire system and will remain so for many years. Only a few such projects can be accommodated even over the course of a decade. Each large IPP will have measurable impacts on the operation and financial performance of the ESI and its participants.

To help the country's ESI integrate such "lumpy" projects, the ECB has a policy of soliciting specific proposals for plants that are identified in the NIRP. Previous efforts to invite IPP proposals on an open basis have not led to success in closing transactions. This national IPP policy provides further clarifications on Namibia's IPP approach and addresses some of the inherent challenges associated with the entry of IPPs in the Namibian power market.

The upside of attracting one or more large IPPs is the potential to reduce dependence on non-firm imports, mid-sized combustion engines, and variable output renewables. Furthermore, the addition of sizeable base load capacity will ensure Namibia's energy supply security, a major goal of the Government. The downside of attracting large IPPs is the loss of negotiating leverage over prices once other potential project developers have

received rejection notices. Other small market countries have resolved these types of issues by adopting an outline PPA, but not a fully specified one.¹⁶

In particular, a model framework PPA would distinguish between capacity and energy payments. This would allow some element of price protection for the purchaser for at least some significant element of the total cost. Protection would come in two forms – limited inflation of capacity charges and limited escalation of fixed O&M.¹⁷ Unlike the REFIT program that is 100% indexed to the CPI, such agreements would permit separate rates of price escalation for fixed costs, variable costs, and fuel that are expected to differ from power plants participating in the REFIT program and are likely to be lower.

The NIRP provides guidance on expected costs over the economic lifetime of alternative generation technologies. This work shall be updated periodically, especially the technology screening curves, as changes in relative capacity and energy costs may be substantial for some technologies over the next 10-20 years.

6.5 IPP Licensing Requirements and Process

This National IPP Policy is consistent with the role and authority vested in the ECB in accordance with the Electricity Act 2 of 2000, which has been subsequently repealed by the Electricity Act 4 of 2007. The Electricity Act 4 of 2007 expanded the ECB mandate to exercise regulatory control over the ESI, with the main responsibility of regulating electricity generation, transmission, supply, and import and export in Namibia through two primary functions – setting tariffs and issuing licenses.

With respect to issuing licenses, the ECB is responsible for reviewing licensing applications and making decisions on all applications submitted by the Namibian ESI and any new entrants (IPPs) in the Namibian electricity market. This National IPP Policy requires all prospective IPPs desirous of entering the Namibia electricity market to comply with all Namibian laws and regulations including specific regulations related to tariffs and IPP licensing.

Specifically, with respect to licensing requirements, all IPPs shall comply with detailed licensing requirements implemented by the Electricity Control Board of Namibia.

6.5.1 IPP Licensing Application Requirements

This National IPP Policy requires all IPPs to comply with the specific licensing application regulations and requirements published by the Electricity Control Board.¹⁸

¹⁶ An outline PPA identifies the major clauses, fills in most of the generalized clauses – e.g., transmission connections, metering, inspections, insurance, etc. – and leaves the critical pricing and performance clauses for further specification. Given the overall recommendation that PPA pricing be congruent with retail electricity pricing this policy document further recommends that the generalized PPA contain a mandatory reference to retail tariff adjustment schedules in its pricing adjustment mechanism.

¹⁷ For example, once the capacity investment is made an adjustment in the capacity charge should generally cover only upgrades to the plant or major overhauls involving extensive replacement or renovation of equipment. The fixed O&M charge can be separated in domestic and foreign components, as can non-fuel variable O&M. This type of distinction in elements of cost is common practice in PPAs in East Asia.

¹⁸ ECB website (www.ecb.org.na) provides detailed IPP application guidelines, information requirements, a standard advertisement format and a generation license application. In 2006-2007, ECB developed the IPP Investment Market Framework under a grant from the US Trade and Development Agency. The Final Report and Annexes related to this

6.5.2 Power Purchase Agreements (PPAs)

6.5.2.1 Small-scaled IPPs (< 5 MW)

In accordance with this National IPP Policy, the IPP market is classified in three groups. Small-scale IPPs (less than 5 MW in generation capacity) are governed under the Namibian Renewable Energy Feed-in Tariff (REFIT) policy. The development and enforcement of the implementing regulations for the REFIT policy are vested with the Electricity Control Board of Namibia. Specifically, the ECB has developed model Power Purchase Agreements (PPAs) that establish tariffs for solar PV, wind, concentrated solar power (CSP), and biomass based power generation. These PPAs have established the tariffs for all IPP projects qualified under the REFIT policy. This National IPP Policy reaffirms the current policy and regulatory provisions of the Government's REFIT policy. It is the Government's National IPP Policy that all Small-scale IPPs shall be awarded licenses through a competitive and transparent tendering process and in accordance with the model PPAs and tariffs set by the Electricity Control Board.

The Government reserves the right to update this National IPP Policy and direct the ECB to revise the current PPAs and the FITs based on additional information on the success of the Government's REFIT Program.

This National IPP Policy requires that licenses for all Small-scale IPPs under the REFIT scheme shall be awarded on the basis of an advertisement issued by the ECB in accordance with the provisions of the Electricity Act 2 of 2000 and the Electricity Act 4 of 2007.

6.5.2.2 Medium-sized IPPs (5 MW – 100 MW)

With respect to Medium-sized IPPs, this National IPP Policy requires that a PPA be negotiated directly between the IPP and the off-taker. As part of the PPA, the IPP and the off-taker shall establish a power tariff that shall be an integral component of the PPA and the licensing application. ECB, as per statute, shall continue to have regulatory jurisdiction over the review of all licensing applications including the PPAs and tariffs prior to issuing licenses to the IPPs.

It is the Government's National IPP Policy that all medium-sized IPPs shall be awarded licenses through a competitive, fair, and transparent tendering process.

6.5.2.3 Large IPPs (> 100 MW)

Based on considerable lessons learned from international experience in the IPP regime, the Government has determined that the national development goals of Namibia are best met through a "Negotiated" approach for large IPPs. Specifically, under the "Negotiated" approach, the decision for whether or not to submit an application for license for a large IPP project, is left to the IPP industry and the off-taker for mutual negotiations subject to approval by the government.

Under the provision of the Electricity Act 4 2007 and under this National IPP Policy, the ECB shall continue to exercise regulatory authority over the licensing of all large IPP applications

Study are currently on ECB's website. These documents are being updated and the new Report and revised licensing requirements will be available on the ECB website in the coming months.

including the review and approval of the PPAs and TCAs among other licensing requirements.

6.5.3 Transmission Connection Agreement

For Small-scale IPPs under the REFIT scheme, this National IPP Policy reaffirms the authority of the ECB to review and approve the Transmission Connection Agreements (TCAs) between the IPPs and NamPower in accordance with the published model TCA available from the ECB.

For Medium-sized IPPs and Large IPPs, this National IPP Policy allows the IPPs and NamPower to mutually negotiate the TCA subject to approval by the ECB as part of the licensing process.

6.5.4 Technical Description of the IPP Project

This National IPP Policy requires that all applications for an IPP project shall include a detailed technical description of the project including the technology proposed, fuel type, construction period, and plant life. This description shall also include the documentation of any technical risks of the project and the approach to mitigate or remove such risks.

6.5.5 Financial Viability of the IPP Project

This National IPP Policy requires that all IPP licensing applicants shall demonstrate the financial viability of the proposed IPP project as part of the application for the license. Specifically, all IPP license applicants shall be required to conduct a detailed financial analysis of the proposed IPP project in accordance with international best practice methodologies and demonstrate, as part of their application, the financial viability of the project in terms of the project's ability to guarantee a return on investment to the investors and debt service payments to the lenders.

6.5.6 Economic Benefits of the Projects

This National IPP Policy requires that all IPP licensing applicants shall demonstrate the national economic benefits of the proposed IPP project as part of the application for license. Specifically, all IPP license applicants shall be required to conduct a detailed economic analysis of the proposed IPP project in accordance with international best practice methodologies and demonstrate, as part of the application, the national economic benefits of the proposed project in terms of the national gross domestic product (GDP), national employment creation, and income generation.

6.5.7 Development Impacts of the IPP Project

This National IPP Policy requires that all IPP licensing applicants shall demonstrate the development impacts of the proposed IPP project as part of the application for license. Specifically, all IPP license applicants shall be required to conduct a development impact assessment of the proposed IPP project in accordance with international best practice methodologies and demonstrate, as part of the application, the national development benefits of the proposed project in terms of increased electricity access to unserved or underserved populations, development of small and medium enterprises, the extent of

additional integration between rural and urban populations including any trade related impacts, and additional local income generation and improvement in quality of life.

The IPP applicant shall recommend, as part of the license application, both quantitative and qualitative approaches to be used for estimating the development impacts of the proposed project after the implementation of the project.

6.5.8 Project Financing Plan

This National IPP Policy requires that all applications for a license for an IPP project include a detailed project financing plan for the project to establish the financial viability of the proposed project. Specifically, the Project Financing Plan required of all IPP applicants, shall, as part of the application for license, include the debt and equity provisions, pro forma term sheets, letters of intent from investors and lenders delineating return on investment and debt service conditions and any other details that shall establish the proposed project does not face unmanageable financing risks.

6.5.9 Project Security, Risk Analysis, and Risk Mitigation Plan

A specific goal of the National IPP Policy is to ensure that all IPP licenses are awarded on the basis of a clear understanding of the risks associated with any IPP project proposed by an applicant that could adversely affect the ESI and the government's ability to achieve its national development goals.

To this end, this National IPP Policy requires all IPP license applicants to conduct and submit a risk analysis and risk mitigation plan as part of their application for license. The IPP applicants shall conduct analyses of technical, financial, and implementation risks of the proposed project and submit their analysis with their application for license. Specifically, the IPP license applicants shall conduct detailed analyses of cost and schedule risks associated with the implementation of the proposed project and the proposed remedial actions.

With respect to project security, the National IPP Policy required that all IPP project license applicants establish the security of the project as part of their application for license. Specifically, the IPP applicants shall include third-party guarantees, fuel supply agreements (if applicable), project implementation agreement, operations and maintenance agreement, details of capacity and energy payments, and default provisions and strategies to prevent default as part of their application for license.

6.6 Greenhouse Gas (GHG) Emissions and Climate Resiliency of Proposed IPP Projects

The Ministry of Environment and Tourism of the Government of Namibia have a National Policy on Climate Change for Namibia. In addition, Namibia is a signatory to the United Nations Framework Convention on Climate Change and is an active participant in international climate change dialogues. The Ministry of Environment and Tourism, as the highest environmental body within the Namibian Government, is responsible for ensuring that all development projects comply with applicable laws and regulations related to greenhouse gas emissions.

Accordingly, the National IPP Policy mandates that all IPP projects shall comply with the published regulatory requirements with respect to greenhouse gas emissions and the project

developers shall document such compliance. The National IPP Policy requires that all IPP license applicants, as part of their application, shall submit the estimated greenhouse gas emissions from the proposed project and document that such emissions comply with the Government of Namibia's greenhouse gas regulations.

In addition, all IPP license applicants shall ensure that all proposed IPP projects are climate resilient. All IPP license applicants, as part of their application for license, shall include an analysis of the climate resiliency of the proposed IPP project based on historical climate-related events at and around the site proposed for the IPP project.

6.7 Environmental Compliance and Various Permit Requirements

This National IPP Policy requires that all IPPs entering Namibia's electricity market comply with all applicable Namibian laws and regulations within which the IPP projects are implemented. With respect to compliance with environmental policies and regulations of Namibia, the following laws and acts are incorporated by reference and all IPPs are advised to refer to these laws and acts and the specific requirements therein to ensure that they comply with these requirements.

The following specific laws contain provisions and requirements that all IPP applicants shall review prior to preparing and submitting applications for an IPP project license:

- **Environmental Management Act of 2007:** This Act creates a comprehensive national framework for assessing the potential impacts of new land developments. All IPP projects require land in order to site projects. The provisions of this law provide specific guidelines and requirements that must be complied with for the development of any land in order to construct any projects including IPP projects. Most importantly, under this Act, the Department of Environmental Affairs enforces provisions related to land parcels that are protected by the Government in order to ensure biodiversity, conservation, and wildlife protection. All IPP license applicants must make themselves aware of such land parcels that shall not be available for any industrial development including any IPP projects.

While many of the following environmental requirements trigger only during the construction stage of an IPP project, it is important for all IPP applicants to be aware of these requirements and explicitly incorporate them in their IPP licensing applications:

- ◆ Environmental and Social Management Plan (ESMP) for the Proposed Project
- ◆ Environmental and Social Impact Assessment (ESIA) for the Project – Including any resettlement impacts and Resettlement Action Plans (RAPs)
- ◆ Health and Safety Management Plan for the Project
- ◆ Hazardous Waste and Waste Management Plan for the Project
- ◆ Other provisions specific to a particular IPP project that may be required under the Environmental Management Act of 2007

All IPP applicants shall pay specific attention to the requirements of any permits prior to an IPP project implementation in consultation with the Department of Environmental Affairs at the Ministry of Environment and Tourism.

6.8 Land Access and Acquisition Policies and Requirements

The Ministry of Land Reform is responsible for the implementation of Namibia's land management of all Government land except protected land, which is under the jurisdiction of the Ministry of Environment and Tourism. Applicable Laws and Amendments include (i) Agriculture (Commercial) Land Reform Act of 1995, Amendment Act No. 14 2003, Amendment Act No. 19 2003, and other amendments; and (ii) The Communal Land Reform Act 2002.

The Government administers four types of land in Namibia. These include (i) Protected Land (administered by the Ministry of Environment and Tourism), (ii) Commercial (Agriculture) Land – Farms, (iii) Private Farms, and (iv) Commercial (Unregistered) Land. The Commercial (Agriculture) Land – Farms, owned by the Government are leased by the Government to Farmers. Private Farms are not under the jurisdiction of the Government, as they are owned by private farmers. The private farmers have the right to sublease land to other parties for alternative development of the land. However, the Government has the right of first refusal should such a sale by a private farmer not conform to Government land use policy. Currently, the Government is in the process of passing a law whereby foreigners will be allowed only to lease land; no foreign ownership of the land will be permitted. Commercial (Unregistered) Land is administered by traditional authorities and Communal Land Boards under the provisions of the Communal Land Reform Act 2002. It should be noted that Namibia's land reform policy is under considerable evolution.

The process for acquiring or leasing national or communal land is very lengthy and can take up to two years in some cases. Accordingly, all IPP applicants shall be aware that land related issues could cause significant project implementation delays.

6.9 Industrial Development Policy and Requirements

The Ministry of Industrialization, Trade, and Small and Medium Enterprise (SME) Development, administers the Government's policy on industrialization. The Ministry is responsible for recommending industrial projects of national interest to the Ministry of Finance and the line Ministries. Such projects are categorized as "Promoted Projects" and are developed based on the individual sectoral priorities as embodied in the Government's National Development Plans (NDPs). With respect to the energy sector, the Ministry of Industrialization, Trade and SME Development develops a list of priority energy projects and recommends them to the Ministry of Mines and Energy and the Ministry of Finance for potential incentives including potential subsidies for tariffs. This Ministry also closely works with the Ministry of Finance on the Government's Public-Private Partnership (PPP) Program. The PPP Program is evaluating various national development projects suitable for the PPP scheme.

To the extent a particular IPP project may qualify under the Promoted Project Scheme being implemented by this Ministry, all IPP applicants are encouraged to work with this Ministry and the Ministry of Finance to explore whether or not their project would qualify as a "Promoted Project" or a project under the PPP scheme.

6.10 Labour Policies and Laws in Namibia

The Government's policies and regulations with respect to labour are administered by the Ministry of Labour and Social Welfare. Specific provisions of the labour policies and laws in the country applicable to IPP projects include workers' rights, fair employment practices, fair wages, Affirmative Action Plan, occupational health and safety, and a required minimum level of local Namibian content. All of these policies will have an impact on the implementation of any IPP project.

Currently, the Government is in the process of developing a Black Economic Empowerment Law that would also have an impact on IPP project implementation with respect to Namibian local content.

Accordingly, this National IPP Policy shall ensure that all prospective IPPs comply with all applicable labour laws and policies in Namibia. Therefore, IPP applicants are strongly encouraged to be cognizant of such policy and regulatory requirements, as they will have an impact on the financial viability and implementation of any IPP projects.

6.11 Conformance To and Compliance With, Other Namibia Laws and Policies

In addition to compliance with the Government of Namibia's laws with respect to energy, environment, land, and labour, all investors, including IPPs, shall comply with all other applicable Namibian laws and regulations including contract laws; business licensing laws; taxation, customs, and duties requirements; specialized standards requirements (e.g. ISO Certifications); and other applicable regulations in order to ensure that any planned IPP investments are not only financial viable but can, in fact, be implemented without undue risks and delays.

Even the best-designed IPP projects have the downstream risk of dispute among the parties (the IPP developer and the off-taker) or, in the worst case, the failure of the project. Namibia has a well-established judiciary whereby IPPs can seek judicial remedies for disputes that may arise during the IPP project implementation or during project operation. The risks of project failure are often covered in the financing structure of the project and are addressed through appropriate risk guarantees explicitly included in the financing term sheets. This National IPP Policy recommends that all prospective IPPs familiarize themselves with the provisions of dispute settlement within the Namibian judiciary and ensure that their applications for license include appropriate guarantees against project failure to protect all concerned parties.

As a matter of this National IPP Policy, all IPPs are strongly encouraged to ensure that they acquire an understanding of all Namibian laws and regulations that may impact their planned investments in the Namibian economy.

7 Implementation of the National IPP Policy

The implementation of the National IPP Policy shall be governed by a national body consistent with the roles of various stakeholders with a direct impact on the development of an IPP regime in Namibia that shall support the national economic and social development goals of the country embodied in the Vision 2030, the National Development Plans (NDPs), and the Harambee Prosperity Plan.

7.1 Roles of Various Stakeholders

A large number of stakeholders have a direct role in implementing the National IPP Policy. These include Government ministries, the Electricity Control Board, the ESI (including NamPower, the REDs and the Municipalities), industry associations, and consumer groups. Specifically, the roles of the key stakeholders are defined as follows:

- **Ministry of Mines and Energy:** Development and update of National IPP Policy in coordination with other ministries, the municipalities and local authorities, and the broader stakeholder community and submission to the Cabinet for approval
- **Other Government Ministries:** Other Government Ministries with a direct role in the development and implementation of IPP projects (e.g., Ministry of Finance, Ministry of Environment and Tourism, Ministry of Land Reform, National Planning Commission, Ministry of Labour, and others)
- **Electricity Control Board:** Development and Implementation of IPP regulations to implement the National IPP Policy including issuing licenses and approving tariffs in an independent, transparent, fair, and non-discriminatory manner through extensive stakeholder consultation
- **The Electricity Supply Industry:** Provision of reliable and affordable electricity services to Namibian consumers in accordance this National IPP Policy and all applicable laws and regulations
- **Municipalities and Local Authorities:** Ensuring that the ESI including new IPP entrants in the electricity market operate in accordance with municipal and local policies and regulations
- **Industry Associations and Consumer Groups:** Periodically advise the Government and ESI on electricity sector issues relevant to energy supply security, provision of reliable and affordable electricity service to consumers, and recommendations for policy and regulatory reform to ensure efficient electricity service delivery

7.2 National IPP Policy Governance Framework

The implementation of the National IPP Policy establishes an overall governing body that sets the key principles of policy implementation and has the decision-making authority to modify the Policy in the best public interest consistent with the Government's national development goals.

7.2.1 National IPP Policy Board Membership

As a specific provision of this National IPP Policy, this Policy establishes a National IPP Governing Board (NIPB) with the express responsibility for providing the overall guidance for

the implementation of the National IPP Policy. This Board shall be composed of the following key stakeholders:

- Minister of Mines and Energy, Chairman
- Minister of Finance, Board Member
- Minister of Economic Planning and Director General of the National Planning Commission, Board Member
- Minister of Environment and Tourism, Board Member
- Minister of Land Reform, Board Member
- Minister of Labor and Social Welfare, Board Member
- CEO, Electricity Control Board, Board Member
- A Representative of the ESI by Rotation, Board Member
- A Representative of the Municipalities and Local Governments by Rotation, Board Member
- A Representative of the Industry by Rotation, Board Member
- A Representative of Consumer Groups by Rotation, Board Member

Exhibit 4 provides the structure of the National IPP Policy Board. The Board shall have an Executive Secretariat responsible for supporting the Board and its functions.

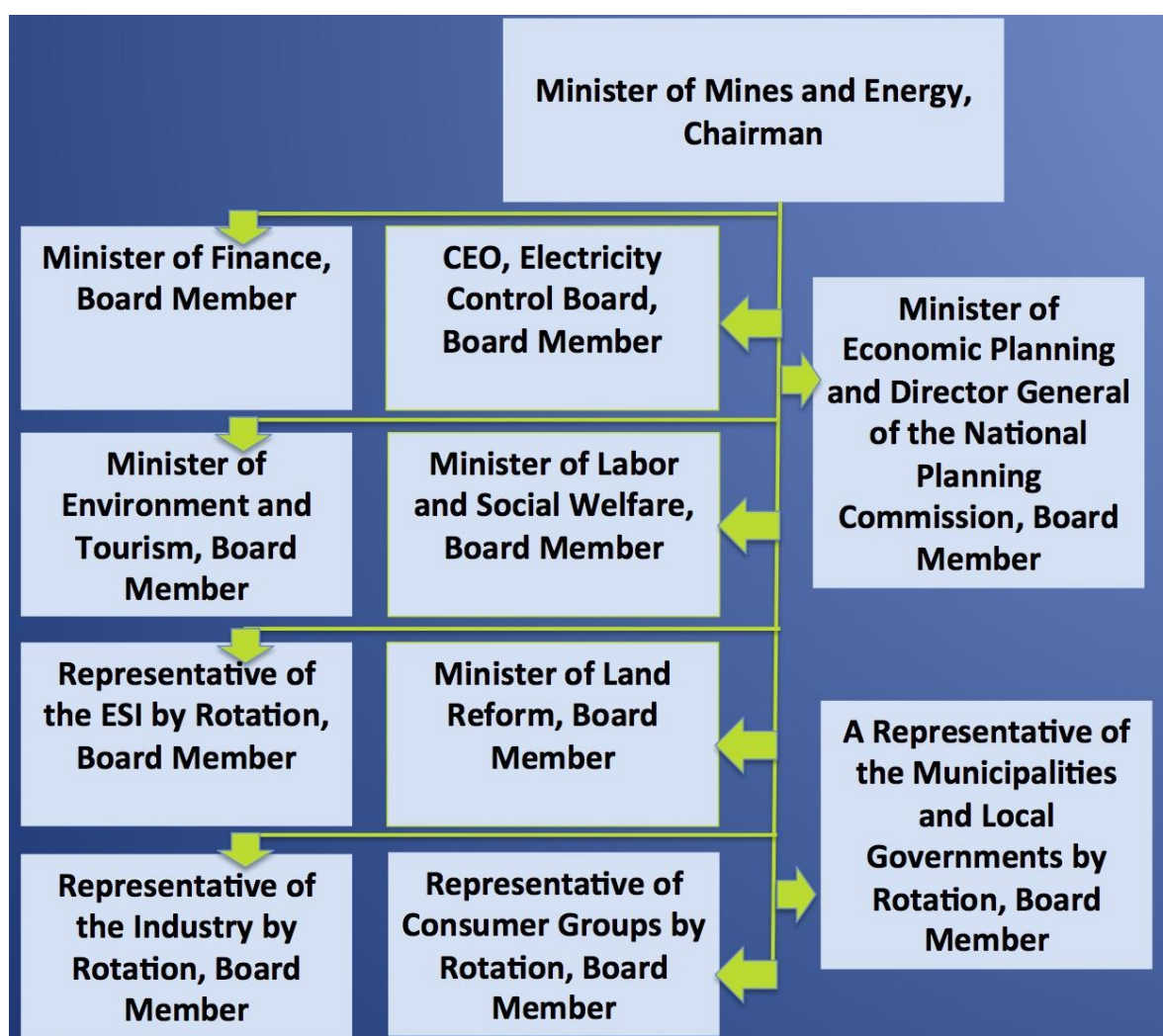
7.2.2 Functions of the National IPP Policy Board

The overall responsibility of the National IPP Policy Board shall be to review and address key issues related to the National IPP Policy implementation and make informed decisions regarding any modifications to the Policy. The specific functions of this Board shall be as follows:

- Periodic review of the progress of the implementation of the National IPP Policy
- Discussion on any implementation challenges in areas for further improvement of the National IPP Policy
- Discussions on potential revisions to, or modification of, the National IPP Policy to address any implementation challenges
- Discussion on any unique insights gained from existing IPPs and any new market entrants in the Namibian electricity market
- Other matters, as necessary

The Minister of Mines and Energy shall convene a meeting of the Board every six months. Attendance by all Board Members shall be mandatory. Organizations represented on the Board may nominate alternate attendees who shall be senior officials of the organization. The Chairman of the Board shall appoint a rapporteur at each Board Meeting to take notes and produce the minutes of the meeting for further actions including the establishment of the agenda for the next meeting. At any time the Chairman of the Board may call additional meetings as found to be necessary based on the nature of the issues to be addressed.

Exhibit 4: National IPP Policy Governance Framework



The Board shall foster a climate of coordination and communication among the entities represented on the Board and shall institute an overall accountability in terms of the stakeholders' responsibilities.

7.3 National IPP Policy Implementation Structure

7.3.1 Issuance of IPP Licenses and Approval of PPAs and TCAs

In accordance with the authority vested with the ECB, the ECB shall be responsible for review of IPP license application and the issuance of licenses to IPP applicants. In addition the ECB shall be responsible for the approval of all PPAs and TCAs submitted by the license applicants.

7.3.2 IPP Procurement

The ECB shall continue to administer the REFIT scheme including the awarding of licenses to prospective applicants for projects less than 5 MW in generation capacity.

For projects ranging from 5 MW to 100 MW, in accordance with the National IPP Policy, IPP projects shall be selected based on the least-cost solutions in the NIRP and a tendering

approach whereby the Government shall issue periodic tenders for the procurement of IPP projects in this range of generation capacity. The procurement shall be carried out by a Tender Board established and authorized by the Minister of Mines and Energy for each IPP project.

Regardless of the make-up of the Tender Board, the ECB shall continue to administer the process of license application review, licensing decisions, and approval or rejection of the PPAs and TCAs.

For large IPP projects (> than 100 MW), the development, negotiations, and contractual terms and conditions shall be left to the ESI and the IPP community. All large IPP projects, similar to IPP projects of any size, shall be consistent with the least-cost plan in the NIRP. In addition, all such IPP projects shall require a license and approval of the PPA and TCA by the ECB.

In addition, such large projects shall require the approval of the Government of Namibia represented by the Minister of Mines and Energy in order to ensure that such projects are consistent with and conform to the national development goals and objectives of the Government.

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8 One Stop Licensing Process for IPPs

The Government of Namibia recognizes the importance of ensuring that all prospective IPPs are afforded a fair opportunity to participate in the Namibian electricity market. Therefore, the Government is committed to ensuring that the burden of project development and the preparation of proper and complete applications for licenses is minimized on all prospective IPP applicants. To this end, this National IPP Policy has appointed the ECB as the first stop for all IPP applicants to receive proper guidance and information required for the completion of an application for license.

The ECB shall guide all prospective IPP applicants regarding the details of the IPP licensing process and all information required as part of the license application including where the IPPs may find such information with respect to various Government laws and regulations.

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9 Implementation, Monitoring and Evaluation

The Government of Namibia places a very high importance on continuous policy and governance reform in the country in order to meet the country's national development goals and objectives. In a rapidly evolving economy, it is incumbent on the government to periodically review the progress of various policies and make adjustments necessary to keep the country on the path to achieving the desired economic and social development objectives.

Ensuring Namibia's energy supply security and the provision of reliable and affordable electricity service to all consumers in the country is a national priority of the Government in order to support its development goals. Given the massive investments needed to achieve the national self-sufficiency goal, the Government is committed to encouraging the entry of private investors in Namibia's power generation market.

The overall goal of this National IPP Policy is to establish a roadmap and path towards accelerating the entry of IPPs in the Namibian power market. Given the rapid changes in the Namibian ESI and the pace with which domestic and international IPPs are entering the Namibian market, the government is committed to ensure that the performance of this National IPP Policy is continuously monitored.

Therefore, this National IPP Policy establishes a monitoring function within the National Planning Commission to monitor and evaluate the progress of implementation of this policy. The National Planning Commission has an on-going monitoring and evaluation (M&E) function to monitor key Government policies and their outcomes. With respect to the National IPP Policy, the M&E function shall include both qualitative and quantitative assessments of the impacts of National IPP Policy on the Namibian economy. The M&E plan shall develop indicators, baseline, targets, unit of measure, and outcomes in consultation with the ECB and the ESI in order to assess the performance of the National IPP Policy.

Appropriately designed indicators inform policy makers on the progress towards achieving the policy objectives. For the National IPP Policy the targets shall include the following:

- Increase in the Gross Domestic Product (GDP) directly attributable to the implementation of the IPPs (measured in Namibian Dollar)
- Impact on income generation (measured in additional income in Namibian Dollar)
- Number of jobs created (measured in new employment – both temporary and permanent)
- Additional power generation capacity added to the Namibian grid (measured in MW)
- Number of additional households with access to electricity (measured by household and household income)
- Number of new businesses established as a result of new generation capacity (measure in new businesses established by category – tourism, commercial, industrial, mining, cottage industry, farming, etc.)

As a condition of license, all IPP applicants awarded a license shall provide specific information on the impacts of the IPP project related to the above indicators to the NPC once per year in a format designated by the NPC.

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