Enhancing Public Participation in Kenya's Power Purchase Agreement Process

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Summary

While Kenya's power sector has made huge strides in recent years, it continues to face major challenges including high electricity tariffs, a loss-making utility, and low-quality service. These issues prompted President Kenyatta to constitute a task force in March 2021 to review existing electricity sector contracts, or Power Purchase Agreements (PPAs), and recommend actions to reduce prices.

To date, Kenya Power has signed at least 42 PPAs with private developers. But apart from some basic information, very little detail is available to the public regarding how each contract was procured, its cost structure and resulting electricity price, or the impacts on Kenya's broader power system.

Enhanced transparency throughout the procurement process would: improve cost-competitiveness and encourage price reductions; enable better consideration of projected impacts on power stability and quality; improved public accountability and governance; and better safeguards for environmental and social priorities.

Key recommended reforms to enhance transparency include:

- Ensuring that procurement of all new power capacity is done through a competitive and transparent process.
- Requiring issuance of a public notice of the intention to sign a PPA.
- Providing access to key details of the PPA itself during a public comment period, and to the full PPA within one year of commissioning.

Disclosure should ensure that critical information on the structure of the PPA is publicly available. Ideally, this would include disclosure of the full PPA, but at the very least should include project location, installed capacity, generation capacity factors, ownership structure, specific technology, energy charges, capacity charges (where applicable), deemed generation charges, payment formulas, pass-through costs, implications on public finance (including sovereign guarantees), taxes, potential penalties, environmental and social impacts, and exit options. PPA disclosure has the potential to play a critical role in mitigating further escalation of electricity costs in Kenya.

Context

Kenya's electricity sector has made huge strides in recent years. Since 2016, the Government of Kenya has prioritized scaling up renewable energy and decommissioning thermal plants to attain 100% renewable power production by 2030.[1] Already, more than 90% of the country's electricity is generated from renewable sources including geothermal, hydro, wind, and solar PV.[2] Power generation capacity has more than doubled over the last 15 years,[3] and the electrification rate increased from 19% in 2010 to approximately 85% in 2020,[4] representing the world's highest annualized average change in access rates during this period.[5]

However, the sector is also in crisis. Kenya has some of the highest electricity tariffs in East Africa— at US$ 22/kWh, Kenya's average residential tariff is higher than Uganda, Ethiopia, Tanzania, and South Africa, as well as in OECD countries including Canada, Sweden, and the Netherlands.[6] The national utility's financial performance represents a major cause of concern: in 2020, Kenya Power (KPLC) reported a loss of US$ 67 million, compared to a profit in 2018 of US$ 49 million.[7] The combination of high prices, irregular billing, and poor service has fomented public anger, with calls to "#SwitchOffKPLC" trending on social media.

The way in which Kenya Power procures electricity supply— including the process through which it signs Power Purchase Agreements (PPAs) with Independent Power Producers (IPPs), and the structure and terms of those contracts themselves — is a leading contributor to these challenges. However, public access to the PPA negotiation and contracting process in Kenya is limited, even though the outcomes have widespread socio-economic implications.

In March 2021, President Kenyatta constituted a task force to review and potentially renegotiate some of the country's existing PPAs, and granted it the power to recommend contract termination and any other measures deemed appropriate to lower the cost of electricity. During this period of review, all PPA negotiations (including extensions) between IPPs and Kenya Power were suspended. Members of parliament, through the Public Investment Committee, are also investigating the structure and impacts of PPAs and ordered Kenya Power to share details of privately held PPAs in June 2021. On September 29, 2021, the Presidential task force presented a report on its findings. Among other recommendations, it advises that Kenya Power institute due diligence and contract management frameworks for PPA procurement and monitoring. Further, it advises for the inclusion of the names and beneficial ownerships of all Independent Power Producers which Kenya Power has contractual agreements with in the Kenya Power annual reports, in line with the constitutional mandate for transparency of public sector organisations.

This paper discusses the impact of PPAs on Kenya's electricity system, and the importance of increased transparency in the contracting process, including the risks of non-disclosure and the potential benefits of disclosure. It concludes with actionable recommendations including amendments to the Energy Act (2019).

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[1] Government of Kenya. (2021). *President Kenyatta showcases Kenya's renewable energy success story | The Presidency*. www.president.go.ke.
[2] Kenya Power. (2021). Annual report and financial statements for the year ended 30th June 2020. *Kenya Power Limited*, Nairobi.
[3] Government of Kenya. *Least Cost Power Development Plan*, *2017-2037*.
[4] IEA. (2020). *SDG7: Data and Projections*. IEA. Paris.
[5] IEA, IRENA, UNSD, WB, and WHO. (2019). Tracking SDG 7: The Energy Progress Report 2019*, Energy Sector Management Assistance Programme, World Bank,*Washington DC.
[6] Global Petrol Prices. (2021). Electricity prices around the world. GlobalPetrolPrices.com.
[7] Kenya Power. (2020). Annual report and financial statements for the year ended 30th June 2019. *Kenya Power Limited*, Nairobi.

Overview of Kenya's Electricity System

Kenya was one of the first countries in sub-Saharan Africa to institute market-oriented power sector reforms, which liberalized the electricity system and led to the emergence of the first IPPs. These reforms began in 1996 and included: restructuring the national utility through full horizontal and vertical unbundling; creating an independent regulatory entity; enabling private sector participation; and introducing competition in power generation and distribution. These reforms were intended to improve technical and financial performance, customer orientation, utility efficiency and cost recovery, and eliminate private management abuses and day-to-day political interference.

The Ministry of Energy and Petroleum provides policy oversight while the Energy and Petroleum Regulatory Authority (EPRA) oversees regulatory functions including licensing and tariff-setting. The Geothermal Development Company (GDC), established in 2008 as a special purpose vehicle, develops steam fields. Kenya Electricity and Transmission Company (KETRACO) evacuates high voltage power from power plants. The Rural Electrification Authority (REA) is a specialised electrification agency focused on rural and remote areas. Other key players include the Kenya Electricity Generating Company (KenGen), Kenya Power, and the Renewable Energy and Rural Electrification Corporation (REREC) (Figure 1). The country's total installed capacity is just under 3 GW, with 74% from renewable energy sources.

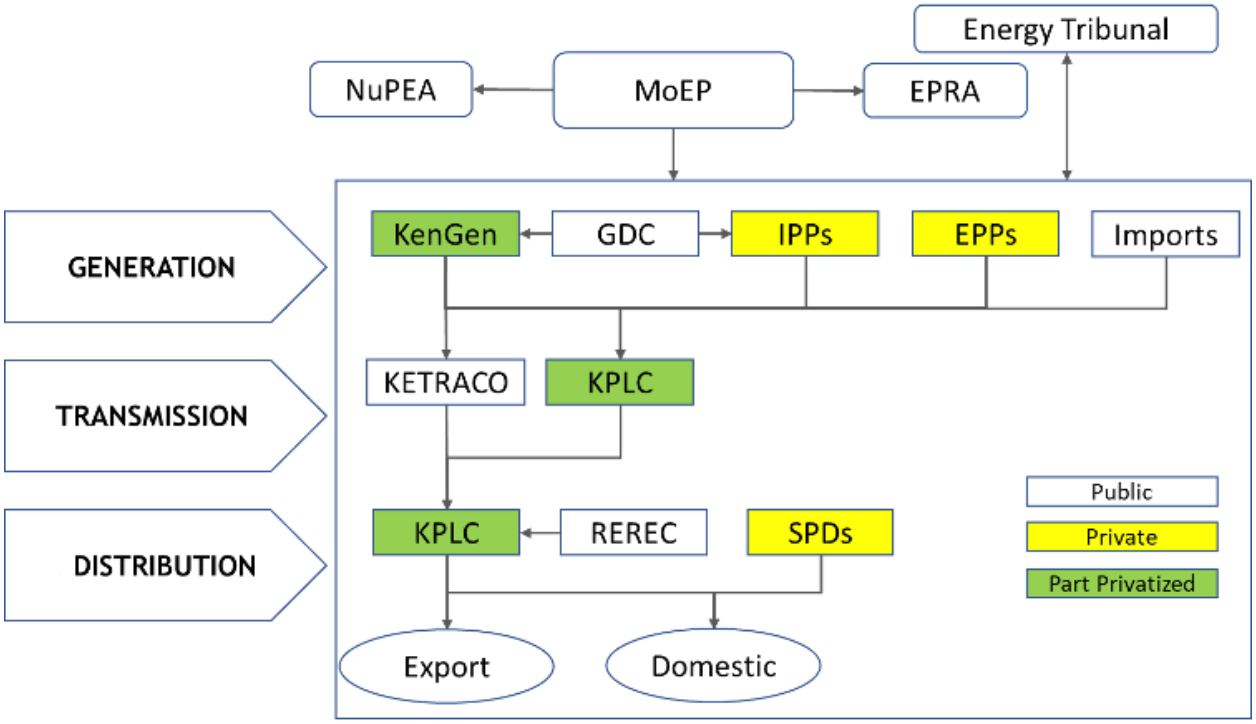

Figure 1: Electricity sector in Kenya

ACRONYMS: NuPEA – Nuclear Power and Energy Agency, MoEP – Ministry of Energy and Petroleum, EPRA – Energy and Petroleum Regulatory Authority, KenGen – Kenya Electricity Generating Company, GDC – Geothermal Development Company, IPP – Independent Power Producers, EPP – Emergency Power Producers, KETRACO – Kenya Electricity Transmission Company, KPLC – Kenya Power, REREC – Rural Electrification and Renewable Energy Corporation, and SPD – Small Power Distributors (including mini-grids).

Power Purchase Agreements Between Kenya Power and Private Generators

Overview

A PPA is a legal contract that governs the sale and purchase of electric power between two consenting parties, typically the seller (or generator) and the buyer (or offtaker).[8] A PPA can exist between a public utility and a private generator, between two public entities (like Kenya Power and KenGen), or two private entities. PPAs in Kenya typically involve multi-megawatt arrangements between utilities and public/private generators, but with the rise of captive solar solutions, many commercial and industrial entities are now entering into PPAs with small- and medium-sized IPPs generating electricity at the kilowatts scale. In this review, we will consider only PPAs signed between Kenya Power and private generators, as these have had the biggest negative effect on the power sector. Kenya Power signed four 20-year PPAs right after the power sector reforms of the late 1990s (Table 1).

Table 1: *Initial PPAs signed after enactment of power reforms*

S.No	Name	Capacity	Technology	Type	Location
1	Kipevu One	75 MW	Diesel	Public	Mombasa
2	Tsavo Power	75 MW	Diesel	Private	Mombasa
3	Olkaria II	70 MW	Geothermal	Public	Naivasha
4	Olkaria III	64 MW	Geothermal	Private	Naivasha

Following the Ministry of Energy's implementation of a Feed-in Tariff (FiT) Policy in 2008, Kenya experienced an unprecedented increase in the number of private sector-led renewable energy projects under development. To date, Kenya Power has signed at least 42 PPAs with private developers, although most projects have not been commissioned and are not operational (see Annex 1).[9]

The challenge with the Feed-in Policy is that tariffs are predetermined and take a long time to be revised. Kenya's market operated on the basis of the 2012 Feed-in Policy until its revision in 2021. The 2012 policy set tariffs for solar PV and wind at US$ 0.12/kWh and US$ 0.11/kWh respectively. Between 2012 and 2021, the cost of solar PV declined significantly, but because the Feed-in Tariff did not respond to that change, the offtaker was purchasing overpriced solar power.

[8] WB, ALSF, CLDP & PA. (2014). Understanding Power Purchase Agreements. *World Bank (WB), Africa Legal Support Facility (ALSF), US. Department of Commerce's Commercial Law Development Program (CLDP) and Power Africa (PA).* Washington DC.
[9] EPRA register of licences and permits for electric power undertakings as at November 2019, Kenya Power reports, press releases, and the Least Cost Power Development Plans (LCPDP).

Analysis: What Information is Publicly Available?

Total potential installed capacity from all the signed PPAs is estimated at 2,596 MW – comparable to the current installed generation capacity. Apart from the method of procurement, operating status, project name, location, installed capacity, and technology type, very little information is publicly available.

The process to procure at least half of the signed PPAs is unknown, with only 24% known to have been through a competitive process (Figure 2). More than three of every five signed PPAs are for projects under development, with fewer than two of every five currently operating. Hydropower (36%), medium-speed diesel / heavy fuel oil (16%), wind (12%), and geothermal (12%) constitute the greatest shares of PPAs by technology.

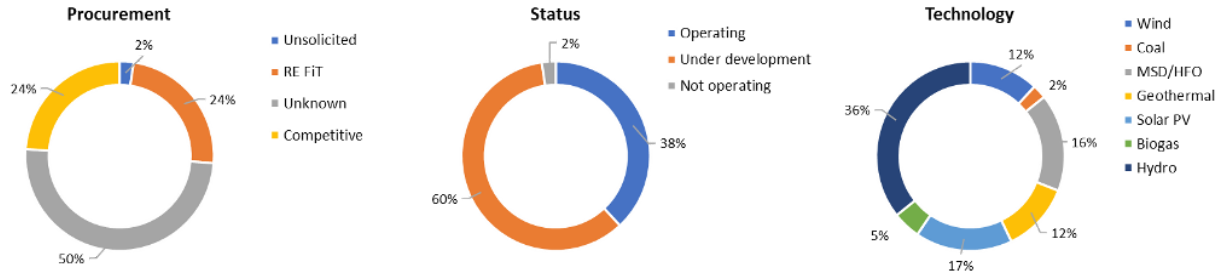

Figure 2: *Features of PPAs according to publicly available information*

Overlooked Factors in Structuring PPAs

In hindsight, several crucial factors that typically determine the design of PPAs were underestimated, overestimated, or overlooked in the procurement process:

- **Power demand:** Before signing a PPA, a utility should be convinced that there is enough demand for the electricity purchased, otherwise, the utility and/or customers will bear the cost of unused electricity.[10] The fact that less than half of Kenya's installed capacity is used on an average day demonstrates that the onboarding of new power plants has been misaligned with demand.
- **Choice of technology and impact on price:** Technology affects the cost and consistency of power supply. Variable renewable energies like wind and solar, although cheaper when compared on a levelized cost of energy (LCOE) basis, require additional ancillary services unlike baseload sources like geothermal or natural gas. A recent study by the EPRA estimates that the associated ancillary services required to manage the country's current share of variable renewable energy will cost $50 million per year.[11]

[10] WB, ALSF, CLDP & PA. (2014). Understanding Power Purchase Agreements. *World Bank (WB), Africa Legal Support Facility (ALSF), US. Department of Commerce's Commercial Law Development Program (CLDP) and Power Africa (PA).* Washington DC.
[11] Mutua., J. (2020), Impact of intermittent renewable energy technologies on economic merit order of dispatch of electric power and implication for thermal power generation in Kenya, *EPRA, Research and innovation day 30th June 2020.*

- **Location of the power plant vis-à-vis the final electricity destination:**[12] Ideally, a power plant should be built close enough to a power station to minimize evacuation costs. The 310 MW Lake Turkana Wind Power project required 438 km of 400 kV lines, allegedly costing the public US$ 208 million.[13] This is comparable to the capital cost required to construct a 70 MW hydropower plant, which would be capable of supplying dispatchable power.[14] Furthermore, the line was not completed in time and the public had to pay for unused electricity for about a year.[15] Location planning has direct and indirect impacts on the cost of electricity.
- **Method of procurement:** A PPA can be initiated through two generally acceptable methods: a competitive bidding process in which the offtaker publishes a request for proposal/purchase and power producers respond by expressing interest; or unsolicited methods in which the developer proposes a project to the offtaker. The competitive method increases transparency and cost-competitiveness, and grants the offtaker greater control over important factors like size, location, and technology. In Kenya, less than one in four PPAs are known to have been signed through a competitive process. While a competitive process cannot guarantee that the utility will not purchase excess capacity, it helps drive down prices to the benefit of the offtaker.

Why Excess Capacity Leads to Higher Prices: Capacity Charges and Deemed Generation Charges

The PPA cost structure for dispatchable power generators that can supply power on demand (like biomass, diesel, gas, geothermal, and hydro) is fundamentally different from that of variable generators that provide intermittent power (like solar PV and wind). A PPA for a dispatchable power plant typically includes two charges: capacity charges and energy charges.[16] A capacity charge ($/kW installed) for the power generation capacity of a facility is made available to the offtaker whether it is dispatched or not, which enables the IPP to meet its debt commitments, tax obligations, and fixed costs. An energy charge ($/kWh) is paid to the offtaker for each unit of electricity dispatched, and is calculated to ensure that the generator covers its costs for fuel, variable operation, and maintenance, and secures a commercial return to investors.

Variable generators receive the same energy charges, but the capacity charges are replaced by curtailment charges. Curtailment refers to the electricity that would have been available but was not dispatched due to the inability of the offtaker to utilize this supply. This is also known as “deemed generation.” Deemed generation is often predetermined by an independent analysis considering the theoretical generation potential of a region relative to the size of the plant. For countries with excess installed capacity, including in Kenya, most of the charges paid to the generators take the form of capacity charges (for dispatchable generators) and deemed generation charges (for variable generators). For the OrPower 4 geothermal plant, capacity payments represented 70% and 74% of revenues in 2019 and 2020.[17] This is replicated across many of the active IPPs in Kenya. In 2020, non-fuel power purchase costs accounted for 54% of

[12] ibid.
[13] Mwende, J. (2011), Isolux Corsan Kenya 400-kV transmission line, (2019, November 10). ConstructionKenya.com.
[14] Overnight capital cost estimates are obtained from the OpenEI initiative of the US National Renewable Energy Laboratory (NREL) and the US Department of Energy (DoE).
[15] LTWP. (2020) Frequently Asked Questions, Lake Turkana Wind Power.; The cost of unused electricity came to KES 14.6 billion (US$ 130 million), of which KES 5.7 Billion (US$ 52 million) has been fully paid to LTWP.
[16] WB, ALSF, CLDP & PA. (2014). Understanding Power Purchase Agreements. *World Bank (WB), Africa Legal Support Facility (ALSF), US. Department of Commerce's Commercial Law Development Program (CLDP) and Power Africa (PA).* Washington DC.
[17] Ormat Technologies. (2021). 2020 Annual Report. *Ormat Power Technology Limited.*

all power purchase costs paid by Kenya Power.[18] Therefore, while the tariffs of a PPA might appear cost-competitive, excessive capacity —however cheap it may be— will inevitably lead to high electricity prices as consumers pay for idle power generation capacity and deemed generation charges.

Benefits of Increased Transparency in Procurement

Cost Competitiveness

High tariffs are often linked to greater shares of thermal and emergency power plants and the use of expensive fossil fuels. However, in Kenya, no positive correlation exists between the share of thermal capacity and electricity tariffs, nor have greater shares of renewable energy led to a reduction in tariffs (Figure 3). The Lake Turkana Wind Power plant, which was directly negotiated by the project developers and the Kenyan government through an unsolicited bid and opaque PPA process, is more expensive per kWh than comparable wind projects in South Africa, which have far lower price outcomes.[19] While many legitimate factors could have contributed to this cost difference, the fact that Kenyans cannot access the Lake Turkana PPA prevents them from having any visibility into the cost structure. Even when power is procured through bidding, the lack of transparency in the PPA contracting process reduces the chances of competitive cost outcomes while increasing the risk of poor PPA structuring. In Kenya, bidders do not know whether they are competing with other project developers or the competing PPA bid amounts, which would encourage price reduction.

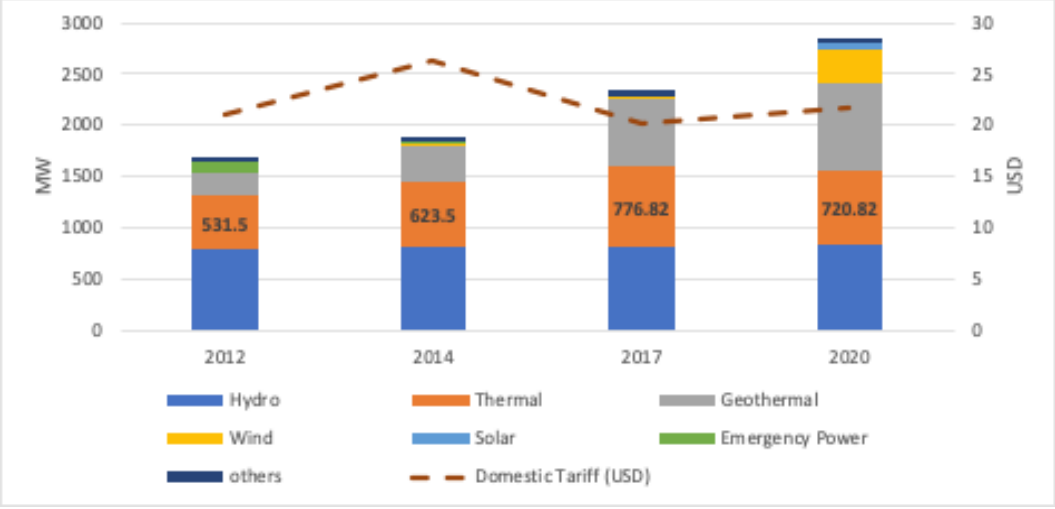

Figure 3: *Installed capacity versus domestic tariffs*

[18] Kenya Power. (2020). *Annual Report and Financial Statements for The Year Ended 30th June 2020*. Kenya Power.
[19] Eberhard, A., Gratwick, K., Morella, E., & Antmann, P. (2016). *Independent Power Projects in Sub-Saharan Africa: Lessons from Five Key Countries*. *World Bank Group.*

Power System Stability and Planning

Kenya's variable renewable energy capacity has rapidly expanded in the last 5 years. The commissioning of the Lake Turkana Wind Power (LTWP) and the Garissa Solar PV plants were well-publicized, but fell short in providing specific details concerning the plants' PPAs and projected impacts on system stability. The LTWP is Kenya's single largest power plant and has introduced unprecedented system stability challenges.[20] This challenge is compounded by the lack of advanced grid management capability— which includes sub-hourly dispatch and intra-hourly scheduling, Automatic Generation Control (AGC) and plant power forecasting capabilities. Although not the only factor, the inability to properly manage the plant's variability also translates to technical losses. Technical and non-technical system losses have risen above 26% (2,224 GWh), which is comparable to Kenya Power's total sales to domestic customers (2,335 GWh) in the financial year ending in June 2018.[21] The World Bank recommends capping system losses at 10%.[22]

Disclosure of the PPAs for the LTWP and Garissa Solar plant, along with associated interconnection studies, would have enabled a wider discussion on the need for these projects as currently structured and encouraged public accountability. Additionally, the LTWP project was not part of the Least Cost Power Development Plan (LCPDP) of 2009 or the FiT policy,[23] creating disruptive impacts on Kenya's long-term power planning process.

Governance

The lack of transparency in Kenya Power's contracting process also has governance implications. In March 2021, President Kenyatta constituted a task force to review and renegotiate some of the PPAs in order to lower electricity costs. Furthermore, in June 2021 the parliamentary Public Investments Committee directed Kenya Power to disclose to the Committee contracts and PPAs signed with all IPPs because members of parliament were concerned about the utility using taxpayer money to purchase possibly overpriced electricity and then passing costs down to the end-user. Additionally, the Auditor General tabled a special report to parliament on August 5, 2021 implicating the Ministry of Energy and Kenya Power in the direct procurement of the LTWP, granting exclusive rights within the project location to the project developer contrary to the now-repealed Public Procurement and Disposal Act (2005).[24] Further, they awarded the evacuation line contract to M/s Isolux Ingenieria SA, a company affiliated to the LTWP developer constituting a clear conflict of interest. This company eventually declared bankruptcy and failed to complete the evacuation line project leading to the LTWP developer benefitting from Deemed Generated Energy (DGE) payments of over US$ 17 million. These among other issues have caused significant governance issues at the board and executive level at Kenya Power, with 4 CEO's being in office over the last 4 years.

Environmental and Social Issues

The proposed Lamu Coal-fired power plant (Amu Power) is one of the most widely debated projects as far as public disclosure of PPAs in Kenya is concerned. In January 2014, the Ministry

[20] GIZ and MoE. (2019). Capacity needs assessment for the power system readiness for Variable Renewable Energy, *GIZ and Ministry of Energy*, Nairobi.
[21] Kenya Power (2018) *Annual Report and Audited Financial Statements, Nairobi* (pg. 208).
[22] World Bank (2016) *Making power affordable for Africa and viable for its utilities, ESMAP*, Washington DC (pg. 9 & 11).
[23] ibid.
[24] Citizen TV. (2021, August 12). *Energy Ministry, Kenya Power fingered in Ksh.18.5B wind farm bill*. Citizentv.co.ke.

of Energy issued a request for proposals (RFP) for the design, financing, construction, and operation of a 981.5 MW coal-fired power plant. Amu Power Ltd was awarded the contract on a Build own and operate (BOO) basis, with the plant to be constructed in Lamu county. The project was designed to primarily use coal imported from South Africa but with a provision for using coal mined in Kenya in the future. Kenya Power entered into a 20-year PPA to purchase electricity from the plant. Given Lamu county's low electricity demand, electricity from the plant would be evacuated 520km to Nairobi by KETRACO using 400 kV transmission infrastructure. The project immediately raised concerns, including: the grid's ability to absorb the 981.5 MW given the state of oversupply, impacts on the environment, and potential livelihood disruptions among the people of Lamu, especially since the Lamu archipelago is a UNESCO Heritage site. Neither the project developer nor the Kenyan government involved the public in explaining the benefits and challenges of the project, why Lamu was selected as the project location, or the process of the PPA contracting.

Advocacy groups like Save Lamu and deCOALonize protested what they felt was a violation of the rights of the Indigenous population, with Save Lamu lodging a petition with the National Environment Tribunal to cancel the license for the construction of the project. As a result of this activism, the confidential PPA was leaked to the public (accessible here). Project finance details from the leaked PPA led to more criticism when they revealed that capacity charges alone would amount to US$ 360 million per year, equivalent to nearly half of Kenya Power's power purchase cost from all power producers in 2014.[25] In May 2018, General Electric acquired a 20% stake in Amu Power with the promise of supplying its clean coal technology to the project. GE argued that its technology reduces sulphur oxides, nitrous oxides, and other particulates to levels comparable to gas-fired plants. This did not persuade the environmentalists and the protests continued. In 2019, the National Environment Tribunal ruled in favor of Save Lamu and cancelled the project's license, arguing that it failed to follow standard procedure for public participation. Amu Power appealed the ruling, but a decision is yet to be made. In 2020, GE and the principal financial backer, the Industrial and Commercial Bank of China (ICBC), pulled out of the project. With other funders like the African Development Bank having walked out earlier, a court injunction and implacable activists, the project's future remains uncertain with unsubstantiated reports that the government of Kenya might have cancelled it altogether.

Increased transparency would have enabled greater public accountability and participation, possibly allowing for increased community buy-in, or for a faster and more efficient cancellation process.

Conclusions and Recommendations

The private sector plays a critical role in promoting energy access and development in Kenya. This paper calls for greater transparency in the PPA contracting process, as it will result in better outcomes for both consumers and the private developers. The Energy Act (2019) already mandates certain aspects of public participation and disclosure of agreements between private sector players and government agencies. Under Part VI (Electrical Energy – Licensing) Section 119 (3) for example, a person seeking to generate electricity above 1 MW "shall give fifteen days' notice, by public advertisement in at least two newspapers of national circulation." The Energy and Regulatory Authority (EPRA) is also mandated under Section 163 (3) of this Act to "ensure that the rates or tariffs established in the contract are just and reasonable." Such actions can be further strengthened by:

[25]Otuki, N., (January 26 2018). *Lamu coal plant to cost power users Sh37bn yearly*, Business Daily.

- **Ensuring that bidding by private power developers is done through a competitive and transparent process** that includes publishing the request for proposals (RFP) in national media and having all unsolicited bids scrutinised against benchmark best practices for international tariff value and contract terms.
- **Requiring a public notice of the intention to sign a PPA**, with the notice outlining the basic features of the PPA. As a rule, Kenya Power should initiate bids based on realistic demand growth and projections and in alignment with its long-term development plan, and publish the RFP and the shortlisted, winning bidders awarded the contract in an open and transparent process sanctioned by an independent Public Procurement and Regulatory Authority (PPRA). This should also include a mechanism and period for the public to submit comments.
- **Providing access to key details of the PPA** for those who wish to review it during the commenting period and **the complete PPA** within one year of the commissioning date.

The legislature (through the Parliamentary Committee on Energy) or the executive (through the Presidential Task Force on the Review of PPAs) can sponsor an Amendment Bill that will include these requirements in the Energy Act (2019). This would complement efforts by the legislature to amend the Public Private Partnership Bill (2021) seeking to adjust Section 62 to state that the "Cabinet secretary responsible for a contracting authority that enters into a power-producing agreement with a private party shall submit the agreement for approval by the National Assembly."

Many of Kenya's poorly structured and expensive PPAs have been developed based on unsolicited proposals, and when done through a competitive process, details of the PPA were not disclosed. Transparent and competitive approaches would help ensure a fair market price for power, clear channels of recourse, predictable impacts on long-term power system planning, and the incorporation of diverse views including stakeholders outside the power sector and minority groups. Rapid changes in technology, innovative pricing options including carbon finance, and emerging business models further complicate the ability of utilities and government to pre-design optimized power plant price specifications. Competitive processes that reward creativity among developers will enable purchasers of power to take advantage of these changes and put forward solutions that provide the highest returns. With this realization, more governments are mandating the public disclosure of PPAs including Brazil, Chile, Colombia, and the United Kingdom.

Transparency allows citizens to hold their government to account on several levels, not only on cost competitiveness but also on environmental, social, and governance issues. This provides civil society groups, research institutions, and think tanks an opportunity to provide varied and independent analyses on the impact of proposed projects. With more entities scrutinizing these PPAS, transparency is effectively translated into a risk reduction tool. Disclosure should ensure that critical information on the structure of the PPA is publicly available. Ideally, this would include disclosure of the full PPA, but at the very least should include project location, installed capacity, generation capacity factors, ownership structure, specific technology, energy charges, capacity charges (where applicable), deemed generation charges, payment formulas, pass-through costs, implications on public finance (including sovereign guarantees), taxes, potential penalties, environmental and social impacts, and exit options. PPA disclosure has the potential to play a critical role in mitigating further escalation of electricity costs in Kenya.

Annex 1: Available PPA Information

#	Mode of procurement	Name of IPP	Location	Project Status	Commissioning Date	Duration (years)	Technology	Installed Capacity (MW)
1	Unsolicited	Lake Turkana Wind Power	Marsabit	Operating	2018	20	Wind	310
2	RE FiT	Kipeto Wind	Kajiado	Under development	2020		Wind	100
3	Competitive bid	Lamu Coal	Lamu	Under development		25	Coal	981.5
4	Unknown	Iberafrica plant 1	Nairobi	Operating	2004	22	MSD/HFO	56
5	Unknown	Iberafrica plant 2	Nairobi	Operating	2009	25	MSD/HFO	52.5
6	Competitive bid	OrPower IV (3 plants)	Naivasha	Operating	2009	20	Geothermal	121
7	Competitive bid	OrPower IV (4th plant)	Naivasha	Operating			Geothermal	29
8	Competitive bid	Tsavo power	Mombasa	Operating	2001	20	MSD/HFO	74
9	Competitive bid	Thika Power	Thika	Operating	2014	20	MSD/HFO	87
10	Competitive bid	Gulf Power	Kitengela	Operating			MSD/HFO	80.32
11	Competitive bid	Rabai Power	Mombasa	Operating	2010	20	MSD/HFO	88.4
12	Unknown	Strathmore	Nairobi	Operating	2018		Solar	0.25
13	Unknown	Triumph	Kitengela	Operating	2012		MSD/HFO	83
14	RE FiT	Marco Borero	Nyeri	Under development	2020		Solar	2

15	RE FiT	Kopere Solar Project	Nandi/Kisumu	Under development	2020	20	Solar	40
16	Unknown	Mumias	Mumias	Not operating		25	Biomass	38
17	Unknown	Imenti	Meru	Operating			Hydro	0.283
18	Unknown	Gikira	Nyeri	Operating	2013		Hydro	0.514
19	Unknown	Biojule	Naivasha	Operating	2015	25	Biogas	2.6
20	Unknown	Regen-Terem	Mt. Elgon	Operating	2014	20	Hydro	5.2
21	Unknown	Gura	Nyeri	Operating	2017	25	Hydro	5.8
22	Unknown	Chania Green Generation Ltd	Kajiado	Under development		20	Wind	50
23	Unknown	Homabay Biogas One	Homabay	Under development		20	Biogas	8
24	RE FiT	Hydro Project Services Peters Ltd	Meru	Under development		20	Hydro	0.51
25	Unknown	Bidco	Thika	Under development		20	Biomass	2.125
26	RE FiT	Kinangop	Kinangop	Under development		20	Wind	61
27	RE FiT	Cummins	Marigat	Under development		20	Biomass	8.4
28	Competitive bid	QPEA Menengai	Nakuru	Under development		25	Geothermal	35
29	RE FiT	Mt Kenya Power	Meru	Under development		25	Hydro	0.6
30	RE FiT	Tindinyo	Nandi	Under development		25	Hydro	1.5
31	Competitive bid	Sosian Menegai	Nakuru	Under development		25	Geothermal	35

32	Competitive bid	Orpower 22	Nakuru	Under development		25	Geothermal	35
33	RE FiT	Kleen Energy	Embu	Under development		25	Hydro	6
34	RE FiT	Oldanayat Power Ltd	Kajiado	Under development		25	Wind	30
35	Unknown	Greater Meru Tea Power Co Ltd	Meru	Under development		25	Hydro	1.5
36	Unknown	Greater Meru Power Co Ltd	Tharaka Nithi	Under development		25	Hydro	2
37	Unknown	Kirinyaga Power Co Ltd	Kirinyaga	Under development		25	Hydro	1.8
38	Unknown	Chania Power Co Ltd	Muranga	Under development		25	Hydro	1
39	Unknown	Alten Energy	Uasin Gishu	Under development		25	Solar	40
40	Unknown	Radiant Energy	Uasin Gishu	Under development		25	Solar	40
41	Unknown	Eldosol Energy	Uasin Gishu	Under development		25	Solar	40
42	Unknown	Malindi Solar	Kilifi	Under development		20	Solar	40