

Policy review critical for provision of affordable energy in Kenya



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Abstract

This paper argues that legal loopholes and policy gaps in Kenya's energy sector present a lucrative ground for exploitation by cartels. It discusses contextual issues and regulatory weaknesses around optimising Ken-

ya's energy resources. It points out the challenges to enhanced uptake by potential rural customers. These are associated with the high cost arising from issues of governance and accountability. It concludes that

development and implementation of progressive, competitive and transparent energy policies remain the most viable avenue to the delivery of affordable and reliable energy.



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Introduction

The Energy Act (2019), Petroleum Act (2019) and the National Energy Policy (2018) provide the crux of Kenya’s energy sector’s legal framework. They inform policy development and implementation, including the establishment of various power utilities, regulatory bodies and their mandates (RoK, 2019a; RoK, 2019b; MoE, 2018). This is critical in the delivery of affordable and reliable energy (MoE, 2004; IEA, 2015; KPLC; 2020).

Under Kenya’s energy framework, power utility firms like Kenya Electricity Generation Company (KenGen), Geothermal Development Company Limited and Independent Power Producers (IPPs) are responsible for building, owning and operating all public and private power generating facilities. These utilities sell their electricity in bulk to Kenya Power and Lighting Company (KPLC), the on-grid monopoly off-taker mandated to distribute and retail power. On the other hand, the Ministries of Energy and Petroleum formulates policies, while the Energy and Petroleum Regulatory Authority (EPRA) regulates the energy sector. EPRA’s mandate includes the review of electricity tariffs, enforcement of safety and environmental regulations, and safeguarding the interests of energy consumers (RoK, 2019a; RoK, 2019b; KPLC; 2020). EPRA has the additional mandate of licensing the generation, exportation, importation, transmission, distribution and retailing of electricity within Kenya (Richter, 2019).

Despite the framework, the sector faces numerous challenges, putting it at crossroads. For instance Kenya’s energy cost remains among the highest in Africa even with the abundance of energy resources (GPP, 2020). This is attributed to poor fundamentals including policy gaps, prevalence of costly “take-or-pay” Power Purchase Agreements (PPAs) with IPPs and an inefficient transmission and distribution infrastructure (MOE, 2004; Escribano, Guasch, & Pena 2008; Trimble, Kojima, Arroyo & Mohammadzadeh, 2016). These fundamentals impede local and foreign investment into the manufacturing sector. The resultant high energy cost continues to influence the flight of investments and jobs from Kenya to cheaper and more competitive destinations such as Ethiopia, Egypt and South Africa (IEA, 2015; Muchira, 2018; Arlet, 2017).

The above challenges and inefficiencies contribute to between 20% and 30% loss in productivity which accounts for 1% to 4% reduction in the Gross Domestic Product (GDP). This reduction is estimated to range between Ksh 500 billion to 2 trillion (MoE, 2004; Foster & Briceño-Garmendia 2010; Central Bank of Kenya, 2020). This necessitates action by energy sector policy makers to mitigate the costly trend.

Contextual Analysis

The paper analyses the policy and contextual issues that curtail the quest for affordable energy and the optimisation of Kenya’s energy resources. Analysis evolves around energy policy gaps; lack of infrastructural development for power transmission and distribution; non-professionalism and inefficiencies in the management of power utilities; and lack of transparency in Power Purchase Agreement (PPAs). These issues inspire migration of energy consumers from the on-grid system to alternative, reliable and affordable off-grid power solutions.

Kenya’s energy sector policy gaps

The legal and policy framework has been harmonised into the Energy and Petroleum Laws of 2019, Finance Acts of 2018, 2019 and 2020, and the National Energy Policy of 2018, in compliance with the 2010 Constitution of Kenya. The framework is geared towards the sustainable, competitive and reliable energy supply at minimal costs (MoE, 2018; Mokveld & von Eije, 2018).

An analysis of Kenya’s energy policies indicates gaps that contribute to unsustainable high cost of energy. These gaps are illustrated in Table 1 below.

Table 1: Gaps in Kenya Energy Policies Impeding the Drive to Affordable Energy

Policy	Implementation Framework	Gaps
<p>National Energy Policy of 2018</p> <p>Promoting coal utilization for power generation</p>	<p>This is the mandate of the national government including competitive bidding of strategic investors and licensing.</p>	<p>a) Promotion of coal utilisation is counterproductive to realization of affordable energy.</p> <p>b) Cost of coal energy is expensive compared to cost of renewable energy sources.</p> <p>c) Promotion of coal negates the advocacy on use of renewable energy sources to forestall climate change.</p>
<p>National Energy Policy of 2018</p> <p>Promotion of Renewable Energy (Solar and Wind)</p>	<p>Implemented by the Rural Electrification and Renewable Energy Corporation (REREC)</p>	<p>a) Uncoordinated approach in policy implementation and promotion of solar energy projects.</p> <p>b) Inefficient project management coupled with corruption and cartels preying on clients.</p> <p>c) Policy is silent on distinct pricing between off-grid and on-grid consumers. Similar taxation policies leads to costly pricing to rural clientele. Low uptake by rural clientele creates an underutilization scenario.</p> <p>d) Most of the renewable energy projects are off-grid. This is despite their increasingly attractiveness due to inconsistency and interruptions of on-grid supply.</p> <p>e) Policy gaps on power generation with concurrent development of transmission lines to grid and load centers. This has lead to penalties and payment for deemed capacity.</p>

Policy	Implementation Framework	Gaps
<p>Finance Act 2020</p> <p>Reintroduction of 14% value added tax (VAT) on solar products.</p>	<p>Treasury and Kenya Revenue Authority (KRA) leads the formulating and implementing of taxation policy and collection.</p> <p>Kenya National Assembly approves taxation policy.</p>	<p>a) Lack of harmonisation between taxation policies and the government’s promise to deliver affordable energy.</p> <p>The VAT increases the cost of renewable energy products which is counterproductive to the increased uptake of affordable off-grid power solutions. This negates the tax exemption passed in the Finance Act of 2019 to encourage the adoption of renewable (solar) energy.</p>
<p>National Energy Policy of 2018</p> <p>Bulk tariffs and power purchase agreements.</p>	<p>Approval of energy purchase agreements (including PPAs) as well as network service and common user facility contracts is the mandate of the national government, through the off-taker (KPLC) and EPRA.</p>	<p>a) Multiple players negotiating for bulk tariffs between producers (IPPs) and KPLC. Bids from IPPs can be requested by numerous power utilities, government ministries and agencies leading to inefficient allocation of energy projects and power oversupply.</p> <p>b) PPAs are subject to approval by EPRA whose board membership comprises actors who can accept energy project bids and review energy tariffs. This represents conflict of interest.</p> <p>c) Harmonised framework for engagement of IPPs, renegotiations and regularisation of PPAs from “take-or-pay” model to “take-and-pay” model is lacking.</p>
<p>National Energy Policy of 2018</p> <p>Energy tariffs management.</p>	<p>Review and adjustment of energy tariffs and tariff structures is the mandate of the national government through EPRA. Parliament approves laws related to power tariffs.</p>	<p>a) Lack of off-grid pricing and taxation policy. Off-grid sites are also subject to EPRA’s pricing structures and statutory charges which leads to costly pricing as KPLC’s.</p>
<p>National Energy Policy of 2018</p> <p>Energy sector prosecution of offences</p>	<p>Prosecution of offences created under the Energy Act 2019 (section 166) is the mandate of the national government.</p>	<p>a) Poor framework to implement the penalty provision.</p> <p>b) Overlap of responsibilities such as contained in the PPAs where KPLC pays for penalties for omissions like lack of high voltage transmission lines to the national grid. This is the mandate of KETRACO not KPLC.</p>
<p>National Energy Policy of 2018</p> <p>Policy Implementation, Monitoring and Evaluation</p>	<p>Ministry of Energy mandate</p>	<p>a) Inefficient monitoring and evaluation framework for energy policies, programs and projects. This has contributed to non-completion of energy projects and missed targets.</p>
<p>National Energy Policy of 2018</p> <p>Data Management and Dissemination</p>	<p>Ministry of Energy mandate</p>	<p>a) Absence of an integrated mechanism for data management and dissemination on energy policies and programs. This inhibits evidence based decision-making in the energy sector.</p>

The sum total of the policy gaps is occasioned by administrative and structural inefficiencies. The administrative gaps are manifested in the conflicting and overlapping roles of the power utilities, weaknesses in policy implementation, monitoring and evaluation. On the other hand, structural inefficiencies exist where the energy sector policies negate the delivery of affordable energy in Kenya. The promotion of coal for power production, reintroduction of value

added tax on green energy products and projects, negotiation of “take or pay” PPAs, and uniformity of tariffs for both on and off-grid power systems are examples of structural incompatibilities. Lastly, is the question of unmotivated staff who opt for extortion and rent seeking from potential customers for services. The resultant effect is expensive electricity whose costs are cascaded to individual and industrial energy consumers.

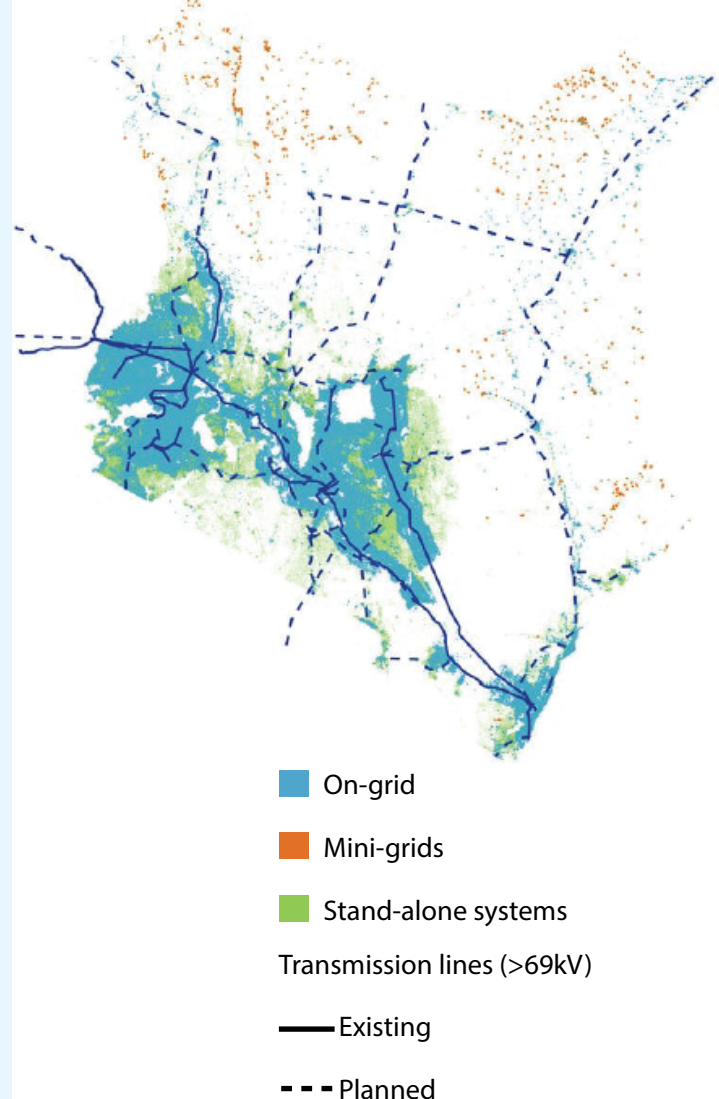
Deficiency in infrastructural development for power transmission and distribution

One third of Kenyans lack access to electricity (World Bank, 2018) while large power investments like the Turkana Wind Plant and Garissa Solar projects are not fully linked to the national power grid as illustrated in Figure 1.

The national energy policy fails to make it mandatory for new energy projects to be fully linked to the national grid or end consumers. The low investment in transmission and distribution infrastructure impedes connections to the grid and usage by consumers. This leads to loss of 20-30% of generated power. This loss is paid by KPLC as it pays for underutilised capacity of these power projects. These payments are often passed to industrial and individual consumers in form of high energy bills (Kamau, 2019).

There is need for policy action that mandates the development of energy projects to be undertaken concurrently with construction of transmission and distribution lines. Opening distribution to other players could ameliorate the situation leading to efficient supply to clients.

Figure 1: Kenya’s Existing and Projected Electricity Connections by 2030.



Source: IEA <https://www.iea.org/articles/kenya-energy-outlook>



Photo Credit: Construction Review Online

Partisan interests in the leadership of Kenya energy utilities

The leadership of Kenya’s power utilities relies on patronage. Appointments to governance and decision-making positions are informed largely by partisan considerations rather than competency, knowledge and experience (Ngugi, 2020; Kiseru, 2020).

The appointees are loyal to their sponsors to the detriment of public welfare and investors whom the power utilities are geared to serve. This contributes to mismanagement of energy utilities and misdirection of resources as most of the appointees seek to appease their sponsors (Anyanzwa, 2020).

Further, appointments to EPRA board, which regulates the sector, comprises actors who accept bids for energy projects. This represents a conflict of interest. Their decision-making and actions are partisan driven rather than based on evidence. An example of a partisan motivated energy project is the Last-Mile Connectivity Project which left KPLC with a Ksh 10 billion loss in revenue (Wafula & Achuka, 2018). The ambitious strategy, which was premised on international good practice and experience, was heavily

undermined by integrity issues. Installation of new but substandard transformers were disastrous. Nevertheless, the resultant losses accruing from these actions are passed to consumers in form of high power bills.

Equally, the overarching partisan inclinations inform collusion between the energy regulator and KPLC in setting energy tariffs (Muchira, 2019). The unfavorable, opaque and overpriced PPA contracts with IPPs (Kamau, 2020; Okoth, 2020) are influenced by political interests rather than sound management and economic fundamentals. As a result, power supply appears to outstrip demand due to inefficient and inadequate distribution infrastructure.



Photo Credit: kahawatungu

Lack of transparency in power purchase agreements (PPA)

The contracts for electricity investments (PPAs) are often bid for, negotiated, signed and implemented without public knowledge or participation (EFG, 2020). Conflicts of interest and corruption in this process are therefore rampant as investors are obligated to pay kickbacks of up to 20% to get operating licenses.

These inefficiencies are factored in the PPAs leading to high energy costs. The end result of these poorly negotiated non-transparent contracts contribute to the costly over-capacity of power generation, financial loss, high investment and governance risks. The audited financial reports for the year ending 30th June 2020 show that KPLC made a post-tax loss of Ksh 0.94 billion compared to post-tax profit of Ksh 0.26 billion the previous year. The post-tax loss took into account a tax credit of Kshs 6.103 billion (KPLC, 2021). Conversely, IPPs who rely on all their revenue from KPLC registered profits. KenGen posted increased profitability of Ksh 10.5 billion (Kamau, 2020b) while the Lake Turkana Wind Power (LTWP) project is owed Ksh 14.5 billion in form of penalty by KPLC. This was linked to the delayed construction of the high voltage line, which is the mandate of KETRACO and not KPLC (Alushula, 2020b; Brufal, Curall & Davies, 2019; Anjarwalla & Khanna, 2017).

On the policy front, there is lack of a framework for negotiating PPAs in Kenya. In most cases, these gaps influence conflict and even collusion between KPLC and the regulator, EPRA (Okoth, 2020b). The PPAs are typically based on the “take-or-pay” model. They are long-term in nature and skewed against the off-taker who guarantees to bear most of the risks and penalties. In 2019 alone, KPLC saw a Ksh 18 billion surge in the payment of partial power generation.

The total payment by KPLC for partial power generation was Ksh 70.8 billion (Okutoyi, 2020). As such, the PPAs make it virtually impossible for IPPs to lose money while energy consumers are left with expensive power bills (Brufal, Curall & Davies, 2019; Mokveld & von Eije, 2018; Muchira, 2018; Muchira, 2019; Alushula, 2020a).

The net effect of the overpriced PPAs are to the general detriment of Kenya’s economy. It affects the actualisation of the 24-hour economy, employment creation, taxation and development. For policy makers, this presents the problem of wastage of energy resources and investments. Further, it has the potential to increase white elephant projects in the energy sector due to assured lucrative returns for investors (Hankins, 2019).



Photo Credit: Nairobi News

Increased transition of consumers to alternative off-grid power solutions

Policy inaction and inefficiencies in the energy sector encourages energy consumers to progressively transit to off-grid solutions like solar photovoltaic (PV) technology. This is illustrated in Table 2. As of 2021, total installed solar energy capacity in Kenya stood at about 52 megawatts (MW). This represents 6.5% of installed geothermal capacity of 699MW and 1.8% of Kenya's annual electricity production capacity of 2819 MW. Though marginal to Kenya's total electricity production capacity, solar PV is projected for a 15% annual increase due to PV technology becoming more competitive.

The motivation for electricity autonomy and an affordable power source compared to on-grid-power solutions informs solar PV popularity

(EPRA, 2021; Samoita et al, 2020). Over the last decade, capital expenditure for alternative off-grid installations has decreased by 65%. While protectionist policies for power utilities may slow down the migration to alternative off-grid power solution, this approach will ultimately be an exercise in futility (Kazeem, 2020).

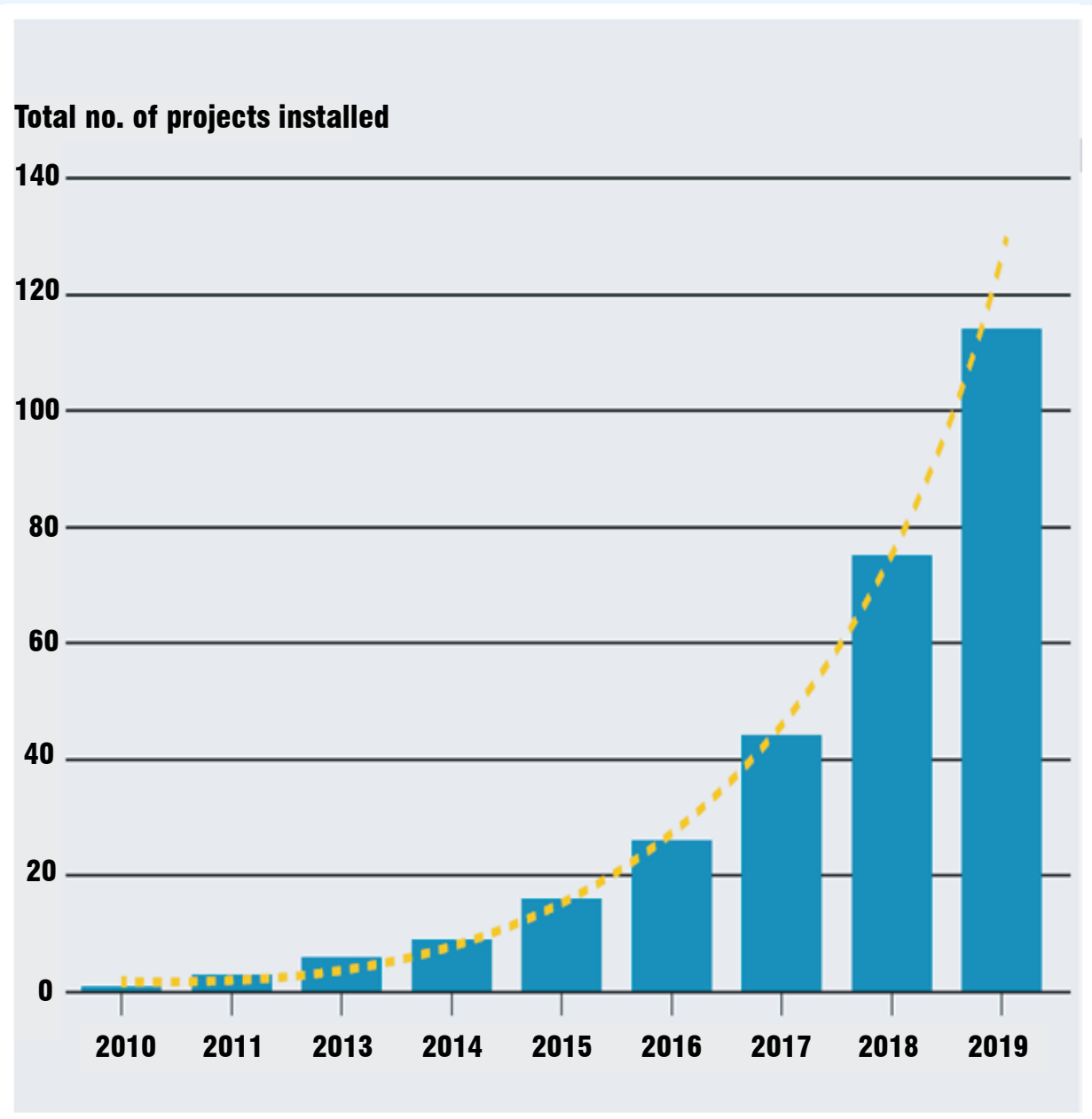
A yearly migration to off-grid (as illustrated in Figure 2) mostly by industrial manufacturers will impact on KPLC and other power utilities bottom-line (Bhamidipati & Ellen-Gregersen, 2020) since industrial consumers account for 50-60% of KPLC revenue (Hankins, 2019)

Table 2: Selected Embedded Solar PV Projects in Kenya

Embedded Solar Power Projects	Capacity MW	Year
Kapa Oil Refinery Ltd	1.5	2021
Mombasa Cement	1.5	2021
Mitchell Cotts Kenya Limited	0.35	2021
Konza Building, Konza Technopolis	0.08	2020
Oserian Development Company	1.0	2019
Dormans Coffee, Tatu City	1.0	2019
Galleria Mall	0.56	2019
Africa Logistics Properties (ALP)	0.506	2018
Mombasa International Airport	0.5	2018
Kenyatta University, Thika	0.1	2018
Bidco Thika	1.2	2017
Swissport JKIA	0.1	2017
Waridi Flowers	0.22	2017
Penta Flowers	0.25	2017
Kilaguni Serena	0.3	2017
London Distillers	0.92	2017
International School of Kenya	0.15	2016
Two Rivers Mall	1.3	2016
ICIPE Solar	1.2	2016
Garden City Mall	0.86	2015
Williamson Tea	1.0	2014
Strathmore University	0.6	2014

Source: Synthesised from Hankins (2019)

Figure 2: Year- on-Year Cumulative Solar PV Installations in Kenya



Source: Bhamidipati & Ellen Gregersen, 2020

Conclusion

The contextual analysis points to the prevalence of policy and structural inefficiencies emanating from the practices of ministries and agencies in the energy sector which consequently lead to high cost of energy. It is evident that these inefficiencies hamper economic activities, promote wastage, and encourage capital and jobs flights from Kenya to the detriment of the government's Big Four Agenda and Vision 2030. Moreover, the overlaps in management and decision-making in key utilities and regulators in the sector, particularly EPRA, REREC, KPLC, KenGen and KETRACO present opportunity for conflict of interest and lack of transparency in negotiations with IPPs on PPAs. The paper advocates for the deliberate pursuit of market-led efficiency as key to realization of competitively priced and reliable energy.

Recommendations

- a) National Assembly and Senate to amend the Energy Act of 2019 to restrict the role of the Ministry of Energy and Ministry of Finance to regulation of the sector rather than energy production, transmission, distribution and negotiation of PPAs.
- b) The National Assembly and Senate to amend the Finance Act of 2019 to provide for tax exemption for green energy projects and tariff differentiation for on- and off-grid consumers.
- c) The Ministry of Energy, Ministry of Finance and the Attorney General to spearhead transparent renegotiations of all PPAs with IPPs from 'take-or-pay' to 'take-and-pay' model.
- d) Ministry of Energy and Ministry of Finance to consolidate the powers to negotiate PPAs on the basis of need, cost-benefit analysis and demand and supply forces in a singular agency.
- e) Ministry of Energy to amend regulation to mandate all power projects to be linked to the national grid or end-consumers.
- f) Ministry of Energy, Ministry of Finance and the Attorney General to renegotiate termination of all coal power projects to protect the government from litigation.

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