AN INVESTOR'S GUIDE TO HYDROPOWER IN AFRICA

Report

ADDLESHAW GODDARD

With support from

iha
international hydropower association

INTRODUCTION

Africa needs more power. An estimated 579 million Africans[1] have no ready access to electricity. The United Nations, have estimated that Africa's population will double by 2050[2], amounting to approximately 2.5 billion people[3] with electricity demand expected to triple by 2040.[4] As Africa continues to urbanise, industrialise and become a global economic force, electricity access must improve[5]. Improved access to reliable, clean and safe power is an essential step for African countries to meet the UN Sustainable Development Goals (SDGs).

Hydropower is the main renewable resource in Africa with over 37GW of installed capacity. The African continent also has the highest untapped hydropower potential in the world, with only 11% utilised.[6] Hydropower amounts to 17% of electricity generation in Africa, with this share potentially increasing to more than 23% by 2040, as part of many African countries ambitious proposals for creating a lower-carbon energy system, and universal energy access in Africa.[7] Hydropower provides a free and clean fuel source - water, renewed by rainfall. It can supply large amounts of electricity and, when combined with storage (a reservoir), can be despatched to provide baseload power or to smooth out the intermittency of other renewables in an energy system - meaning it is one of the most flexible and reliable forms of renewable energy.

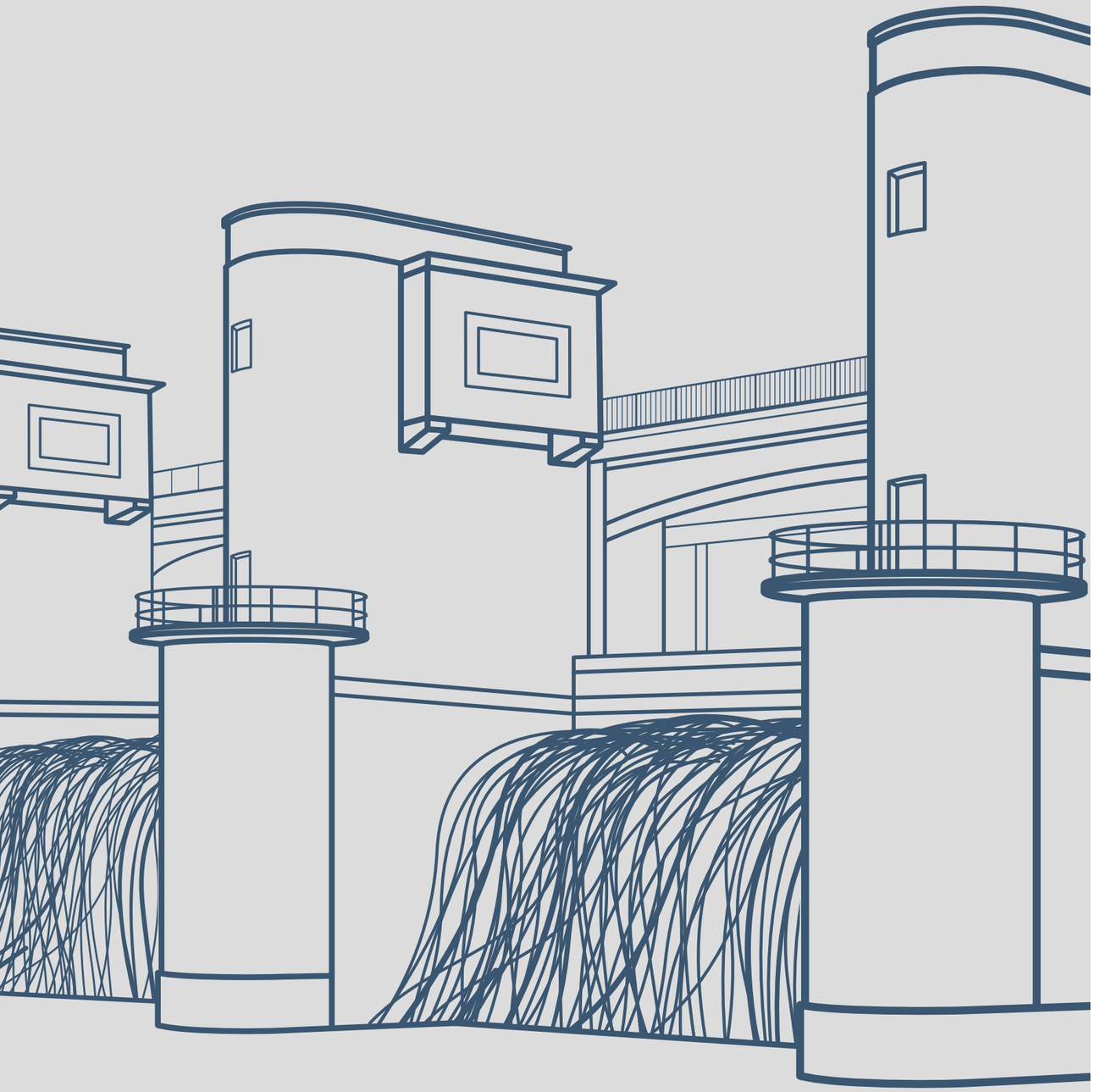
But hydropower, particularly for larger scale projects, is also complex and capital intensive. With power sector investment needs exceeding $100 billion per annum until 2040, mobilisation of a greater proportion of private capital into transitional energy projects in Africa must be a key influencer for policy decisions. Whilst asset managers, commercial financial institutions and multi-national corporates have poured capital into energy and infrastructure projects in North America, Europe and Asia, Africa has historically seen relatively low levels of power sector investment. The existing portfolio of hydropower and other power projects being developed on the African continent remain heavily dependent on investment from a small group of specialist investors and on financing from development finance institutions and export credit agencies, and increasingly from China.

The low level of privately funded power sector investment is in part driven by the perceived risk of investing in African electricity markets due to a range of commercial and legal risk matters such as customary land rights, resettlement, political risk and market structures. However, whereas many of these risks can be mitigated at an acceptable cost, the challenges of transacting with often poorly performing state-owned entities, institutionally weak host government counterparts and very shallow local capital markets still pose significant challenges.

The purpose of this report is to help host governments, private investors, funding parties and in-country procuring entities gain a better understanding of the legal bankability issues which are relevant to the development of certain hydropower projects in Africa, as well as providing an overview of the legal systems and law relevant to the hydropower sector of the selected 10 countries featured.

The countries featured in this report have been selected because of their significant hydropower resources and policy goals of continued development of their hydropower resources. And while this report explains the different financing and procurement models present in the hydropower sector in Africa, its main focus is on the independent power producers (IPP) model.

[1] https://www.iea.org/reports/sdg7-data-and-projections/access-to-electricity
[2] https://www.un.org/en/sections/issues-depth/population/
[3] https://www.economist.com/special-report/2020/03/26/africas-population-will-double-by-2050
[4] https://www.hydropower.org/publications/2020-hydropower-status-report
[5] https://www.powermag.com/hydropower-is-vital-to-africas-future/
[6] https://www.hydropower.org/region-profiles/africa
[7] https://www.iea.org/reports/climate-impacts-on-african-hydropower



CONTENTS

Contributors: Rory Connor (Addleshaw Goddard), Katie Bush (Addleshaw Goddard), Joe Hodson (Addleshaw Goddard), Eleanor Morris (Addleshaw Goddard), Samuel Walley (Addleshaw Goddard), Sukayna Ashikali (Addleshaw Goddard), João Costa (IHA), Cristina Diez Santos (IHA), Wolemi Esan (Olaniwun Ajayi), Joba Akinola (Olaniwun Ajayi), Tomilayo Fadoju (Olaniwun Ajayi), Dereje Ashenafi (Tadesse Kiros), Habtamu Hailemeskel (Tadesse Kiros), Dr Dadimos Haile (Tadesse Kiros), Hamza Latif (Sacranie Gow & Co), Asmaa Qachach (Kettan Law), Ms Lynda Mataka (TMS Legal), Mumbi Theresa Kabimba (TMS Legal), Kombe Mutale (TMS Legal), Ekua Hayfron-Benjamin (Ashong Benjamin & Associates), Nana Serwaa Owusu (Ashong Benjamin & Associates), Bernard Oundo (Citadel Advocates), Mercy Sasira (Citadel Advocates), Jeldine Adite (Citadel Advocates), Guilherme Daniel (GDA Advogados), Ana Luis de Sousa (Vieira de Almeida (VdA), Helna Vitoldas (GDA Advogados), Nadia Kettani (Kettani Law Firm), Asmaa Qachach (Kettani Law Firm)

With special thanks to Anton-Louis Oliver (Renewable Energy Holdings) and Nicholas Troja (IHA).

RORY CONNOR
Partner
020 7160 3220
0738 445 9324
rory.connor@addleshawgoddard.com

KEY LEGAL BANKABILITY AND RISK ISSUES

FINANCING/ PROCUREMENT MODEL

Understanding the financing structure and procurement model for a hydropower project is vital for structuring a bankable project in a way which appropriately mitigates and allocates project-specific risks. While every project is unique, most hydropower projects in Africa are developed under one of the following three models:

1. **The 'World Bank' model**: During the 20th century, most hydropower projects in Africa were wholly owned by national governments or state-owned utility companies with their construction financed by loans from multi-lateral development banks – particularly the World Bank. Loans were secured against the sovereign balance sheet rather than project cash-flows. The project was owned and operated as a public sector infrastructure asset. Whilst the World Bank is by no means the only multi-lateral development agency to fund hydropower projects in Africa through this route, it is the largest provider of finance of this nature and this funding model is often referred to as the 'World Bank' model. This remains an important model for the development of large hydropower projects in Africa.

2. **The 'Chinese' model**: Here, and similarly to the World Bank model, projects are developed and owned by the host-country government/ state-owned entities. However, the construction is financed through tied-contractor financing packages whereby foreign export credit agencies (ECAs) provide loans to pay contractors from the same country of origin as the ECA. The funding is referred to as 'tied' because the funding is conditional upon the project owner appointing a construction contractor from the same country of origin as the ECA. Once construction is complete, the project is owned and operated by the host-country government/state-owned entities and will supply power directly to downstream customers (via the grid). This model is a specialism of Chinese contractors and ECAs, leading to it being labelled as the 'Chinese' model.

3. **The PPP/IPP model**: The key distinguishing feature of public-private partnerships (PPPs) and independent power producers (IPPs) is the private sector ownership of the relevant project. IPPs are normally wholly owned by private investors whereas PPPs involve a mix of state-ownership and private sector ownership through a joint-venture approach. A special purpose vehicle (SPV) company owns and operates the project and is granted rights necessary to do so by the relevant host-country entity. The SPV's income derives from payments made by a state-owned utility under a long-term power purchase agreement. PPPs and IPPs often involve limited-recourse financing providing by banks – either development finance institutions (DFIs) or a mix of DFIs and commercial banks. This type of financing is secured against the cash-flows of the project itself rather than the sovereign balance-sheet.

The procurement and funding model fundamentally shapes the way risks arise and are allocated. By way of example, hydrological risk (discussed below), is primarily borne by operator of a project. This means it is primarily borne by the private-sector in the case of an IPP but borne by the host-country government/ state-owned entities in the case of a publically owned project. And this is not a static issue – these procurement models are shaped around the electricity market structures across the African continent – characterised by vertically integrated utilities with limited or no unbundling and liberalisation. As African countries begin to liberalise and further open their electricity markets, procurement and funding models will need to adapt accordingly.

HYDROLOGICAL RISK

All renewable energy projects that rely on a naturally occurring resource are vulnerable to fluctuations in the availability of that resource. Hydrological risk is the manifestation of that risk in the hydropower sector (i.e. that drought, floods or other events adversely affect the electricity generating capacity of a project). When hydrological risk is combined with the risks associated with the rigid electricity market structures present in most African countries, its mitigation is ordinarily viewed by private investors and their funders as a key bankability issue.

Financial products – such as parametric weather insurance and hedging products – which are structured to pay the policy holder in the event that rainfall or river levels fall below agreed thresholds, have not been widely deployed in Africa to date. They are still regarded as difficult to place and expensive due to the lack of depth in the local capital and insurance markets. In most of the larger host-country owned projects, the host country takes the full hydrological risk. And in the many smaller IPPs the hydrological risk is fully borne by the SPV. However, in some cases, particularly medium and large IPPs, the risk has been shared among the operator, the off-taker and/or the host-country government. The level of risk-sharing is a matter for commercial negotiations but will be based on the availability, and quality, of hydrological data as well as market precedent in the particular country.

A risk-sharing mechanism will usually be written into the terms of core project documents including the PPA and Implementation Agreement (IA). The IA is an agreement between the IPP and the host country government that sets out the non-PPA terms of the PPP concession, such as government guarantees or IPP socio-economic development obligations. In cases where all or most of the hydrological risk is assumed by the host-country/offtaker – such as the Bujagali hydropower project in Uganda – the PPA provides for the offtaker to make capacity payments regardless of power production capacity. Other projects in Africa have arrived at a risk-sharing arrangement whereby the offtaker/host-country, on the one hand, and the owner of the project, on the other, will bear hydrological risk according to an order of precedence (usually modelled to ensure that the owner will at least be able to earn revenues sufficient to meet debt service and operating costs).

The particular contractual approaches to hydrological risk sharing vary from project to project but most are based on the principle of allowing the operator to earn 'deemed energy' payments and/or payments for 'deemed available capacity' where generating capacity is diminished owing to adverse hydrological conditions. The PPA typically sets a hydrological floor corresponding to certain river flows, or reservoir storage volumes, below which deemed energy/ capacity payments apply. Some approaches may also include a hydrological ceiling – providing for a pay-back mechanism in the event of exceptionally favourable hydrology.

USE OF WATER RESOURCES

Most medium and large hydropower projects involve some level of abstraction or impoundment of water, which creates a range of legal issues unique to hydropower. Use and management of water resources can be regarded as a matter of national sovereignty, particularly where a river serves as a national boundary or flows through a number of countries – as demonstrated by the multi-lateral dispute among Ethiopia, Sudan and Egypt over the impoundment of the Nile for the filling of the 6,000 MW Grand Ethiopian Renaissance Dam. Host-country governments seeking to develop or procure the development of large reservoirs which will impact on downstream flow regimes should be encouraged to carefully consider the impact on neighbouring countries. Bilateral and multi-lateral treaties concerning the trans-boundary movement of water can be used to set out a framework of cooperation among countries and to provide a means of resolving disputes. This has been successful in many cases such as the Zambezi River Authority.

However, even at the domestic level, use of water resources remains a central issue for any hydropower project. The right to use water flowing through rivers will, or will need to, be addressed through the laws of the host country – with the right typically vesting with the host country government or relevant land-owners. Permission to use the water from the person(s) who hold such rights must be sought – countries with more active hydropower sectors may already have a licensing regime for this purpose. Investors who will be involved in the operation of a hydropower project also need to understand and, if necessary, mitigate against the risk of upstream impoundment or abstraction of water which could adversely affect the flow into their project.

CONSTRUCTION RISK

Hydropower projects are often more complex than other renewable energy infrastructure projects and, particularly for large projects, may involve the construction of project infrastructure such as dams, reservoirs, tunnels, channels, and associated infrastructure such as transmission lines and roads. As such, construction risk is a key bankability issue. Project owners need to ensure that the construction of the project is completed within the timeframes imposed on the owner (typically through the IA, PPA and/or construction permit and other licences).

Owners manage construction risk through a pass-through of associated risks to the contractor through the construction contract. The allocation of risks for the construction of hydropower projects involves many issues which, whilst vitally important, are not unique to hydropower (such as fixed completion dates, performance guarantees and pass-through of project agreement obligations). But the following issues are particularly relevant to hydropower projects, in Africa and beyond:

Construction contract structure: A turn-key EPC contract is the single best tool for passing construction risk through to a contractor, and it is used in the hydropower sector. However, it is also expensive because of the risk-premium included in the price and because very few contractors will have the capability to perform all aspects of the work (meaning a significant amount of subcontracting). Sophisticated owners often chose to divide the construction into two or more construction contracts – for example, an electro-mechanical works contract with a turbine supplier (there are only a handful of suppliers in the market); civil works contract with a quality general contractor (if local-content rules apply then local contractors will often be involved in the civil works); and a transmission line contractor with a specialist international contractor.

Form of contract: There are many standard forms of contract used in the construction industry as well as bespoke forms. But the market-standard form for the hydropower sector internationally is the FIDIC suite of contracts. For a turn-key EPC contract, the FIDIC silver book is the appropriate starting point whereas where an owner has divided the construction into two or more packages then a mix of yellow book (for electro-mechanical and transmission) and red book (for civil work) may be used. Other forms of contract which are growing in popularity, such as NEC3/4, have not penetrated the hydropower sector in the same way as other sectors and especially not in Africa – with all the other challenges involved in developing projects in Africa, having a form of construction contract which is tried and tested in the market and understood by contractors and funders alike is a valuable commodity. In reality, however, it will always be necessary to agree a comprehensive set of amendments to a FIDIC, or other standard form contract to make it consistent with lender bankability requirements and fit-for-purpose for the individual peculiarities of a particular project.

Sub-surface works: Hydropower projects often require underground works which exposes the owner and contractor to uncertainty around sub-surface ground conditions. Encountering unforeseen ground conditions has the consequence of making the construction more expensive and time consuming than originally anticipated. Some international standard form construction contracts allow contractors to claim additional time and costs if unforeseen conditions are encountered – but in the absence of further tailoring this often leads to disputes over the meaning of 'unforeseen'. Other standard form contracts allocate all risk of unforeseen conditions to the contractor. This issue will likely feature in EPC contract negotiations, with many contractors not prepared to assume this risk for a price acceptable to the owner/developer. One solution, which is used by sophisticated hydropower developers, is to share risk between the developer and the contractor – a method of doing this is to agree upon a set of baseline data for ground conditions together with a sharing formula for costs associated with conditions encountered which fall outside of the baseline data.

De-watering tests: As a condition to final completion, prudent operators often wish to have tunnels de-watered and re-inspected for defects after an initial period of operation. Most EPC contracts permit an owner to search for defects. De-watering and inspection of tunnels ought to be carried out during the EPC contract defect notification period to ensure that the EPC contractor will have a contractual duty to rectify any defects discovered during these inspections. The owner will wish to ensure that a major payment milestone is tied to the expiry of the defects notification period, or that another form of credit cover remains in place during the defects notification period, so that the owner is adequately hedged against the risks of defects being discovered during de-watering tests.

Extended warranty periods: All EPC contracts provide for a defects notification period during which the contractor has a contractual duty to return to site and rectify defects in the works discovered after taking-over. This duty is only active for a specified period of time following taking over (e.g. 24 months). The market-norms on defect rectification periods are not necessarily the same across all aspects of a hydropower project – turbine manufacturers, and suppliers of electro-mechanical equipment, often offer warranties which endure for longer periods of time than the defects notification period in standard EPC contracts. Owners should ensure that they get the full benefit of extended warranties offered by equipment manufacturers – this can be achieved in a number of ways – the most common involve:

- requiring the EPC contractor to assign the benefit of extended manufacturer warranties to the owner prior to the expiry of the EPC contract defect notification period;
- putting a collateral warranty agreement in place among the owner and the equipment supplier, allowing the owner to call directly on the manufacturer warranties; or
- creating a multi-layered defects rectification regime under the EPC contract which provides for differing periods of cover for differing project components.

CREDIT ENHANCEMENT

Weak and non-credit worthy off-takers is a universal challenge. Credit enhancement of PPAs is therefore not an issue unique to hydropower, it is a problem faced by all IPPs in Africa. The electricity market design in most African countries normally embodies an unbundled 'single-buyer' model in which a state-owned utility company serves as the only buyer in the wholesale power market, leaving project owners with no route to market other than a long-term PPA with the applicable utility. From the standpoint of project lenders and sponsors, a PPA should provide a secure revenue stream, which the project company established by the sponsors can use to repay project debt and recover a return on investment.

However, a weak utility balance sheet will undermine this security and potentially prevent a hydropower project from ever proceeding beyond the early stage of feasibility assessment. To alleviate off-taker credit risk, sponsors and lenders have traditionally sought a guarantees from the host-country governments in respect of the payment obligations of a state-owned utility company arising under a PPA. This approach, however, often does not solve the bankability issue for a variety of reasons, including: host-country government unwillingness to issue a guarantee, a weak sovereign balance sheet, and unavailability of sufficient foreign exchange.

A range of strategies can be deployed to overcome this issue – perhaps the most well-known (and most accessible to sophisticated sponsors and lenders) are credit support instruments offered by multi-lateral institutions, such as IBRD's Partial Risk Guarantees. These can be structured in a number of ways but their fundamental purpose is to protect lenders against the risk of borrower default arising from state-owned entity payments defaults. Other strategies which can be deployed, on a broader basis, include using host-country commodity reserves and export revenues as a source of security for lenders, as well as load-creation initiatives which aim to attract large credit-worthy industrial off-takers into the host-country to underpin the balance sheet of the state owned utility company.

FOREX FLUCTUATION AND AVAILABILITY

For most hydropower projects in Africa, debt and equity funding will be provided (and therefore need to be repaid/returned) in a foreign currency, such as USD. Where PPAs are denominated in local currency, meaning a project operator earns revenues in local currency, the owner/borrower faces two distinct risks: firstly, the risk of material fluctuations in the currency of project cash-flow against the currency of debt/equity, effectively causing a devaluation in cash-flows before they are available to repay scheduled debt; and, second, the risk of restrictions on, or unavailability, of foreign-exchange in the local banking system to allow timely conversions of project cash-flows to take place.

Where the host-country government is the borrower for the purposes of financing a hydropower project, it would normally only do so if it was confident of the availability of foreign exchange on the government balance sheet (e.g. a flow of royalty payments from extractive industries) in which case the host-country government is probably comfortable to assume and manage this risk and the interface between project cash-flows. For IPP/PPP projects, however, FOREX fluctuation and availability can be a serious bankability issue. Hedging products provided by financial institutions are the go-to choice for managing forex fluctuation risk, but such products only tend to be available for currencies with a relatively stable history and as such is not widely available in Africa.

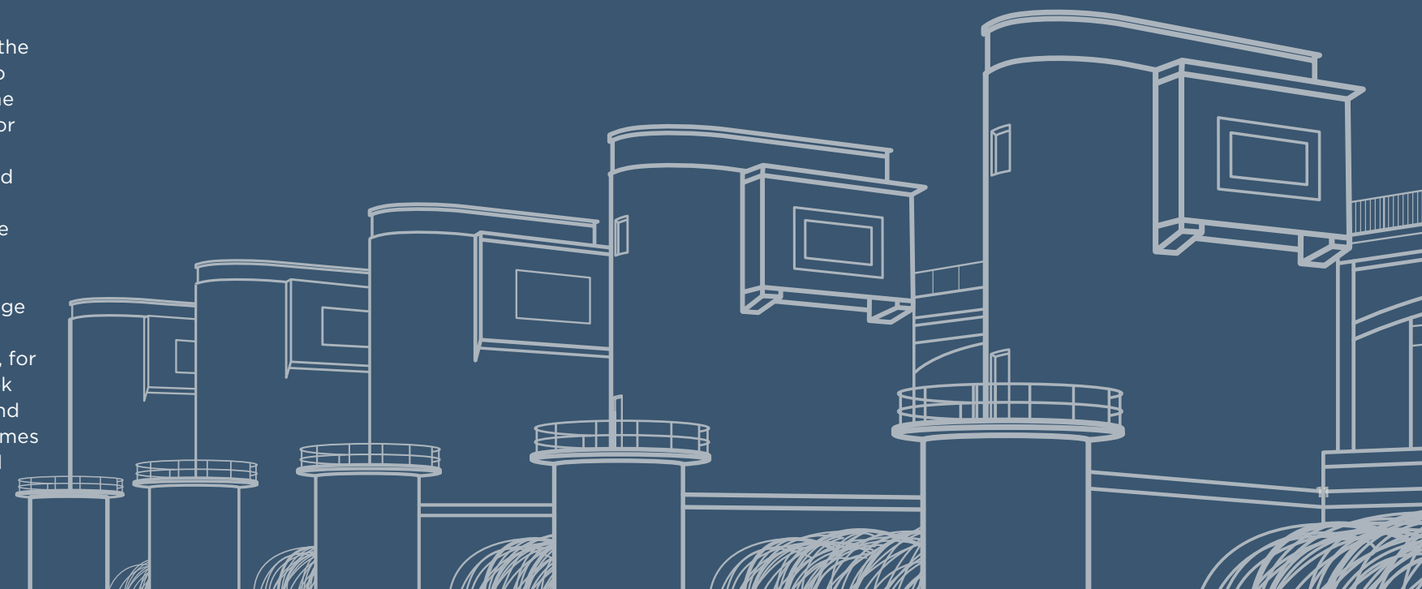
Where hedging products are not available, it is for the operator, off-taker and host-country government to agree upon a risk-sharing approach that satisfies the project lenders. This would normally involve some or all payments under the PPA being made in USD or some or all of the tariff under the PPA being pegged to a notional USD-exchange (such that, if the real exchange rates cause the local currency to de-value against USD, then the PPA tariff will automatically increase to off-set this). But even where fluctuation risk has been hedged, availability of foreign exchange can be a major bankability particularly in countries without large established export markets (Ethiopia, for example). Sponsors and operators will naturally look to host-country governments to provide support and guarantee availability of foreign exchange, but at times this is simply not possible – in those cases work still needs to be done to find a workable mitigation.

POLITICAL RISK

Political risk concerns political forces or events, whether occurring in a host country or resulting from changes in the international environment, which may adversely affect a project. The nature of risks includes war or civil disturbance breaches of contract by a state or state-owned entity, discretionary changes in a host country's laws, currency restrictions, limitations on the movement of goods or people, and expropriation. Any one, or a combination of these political risk events may hamper the ability of a project company to operate its plant and/or repay its loans. Political risk is another issue which is not unique to hydropower or Africa but it does feature due to the perceived or actual likelihood of the occurrence of political risk events. The nature of a project's financing/procurement model is important to understanding the political risk exposure – private sector participants who will own and operate a hydropower project in Africa over a very long period of time will have a higher exposure to political risk than a developer/contractor who is only involved in the financing and construction of the project.

There are a range of options available for mitigating political risk, including:

- **Private law contractual terms**: PPAs and concession-type agreements will normally include regimes which grant reliefs to an operator in the event of certain political force majeure events that cause loss or delay, and may also include 'stabilisation' clauses (effectively freezing the host-country legal regime that applies to a project thereby protecting against future discretionary changes in law).
- **Financial products**: political risk insurance issued by the World Bank's MIGA is perhaps the most well-known product, but there are others. Whilst similar in nature to credit-enhancement products, political risk insurance is typically available for the benefit of both equity and debt providers where credit-enhancement products are usually only designed to benefit debt providers.
- **International investment treaties**: bilateral or multilateral investment treaties are designed to encourage foreign direct investment into member countries by granting actionable rights to foreign investors whose investments are adversely affected by the discretionary action of a host country member. Very large projects may even benefit from bespoke investment treaties (such as the Inga Treaty between Democratic Republic of Congo (DRC) and South Africa concerning the development of the Grand Inga hydropower project).



RESETTLEMENT AND ENVIRONMENTAL ISSUES

Large hydropower projects may require the flooding, or other use, of inhabited areas meaning that members of affected communities may need to be relocated due to loss of their homes or land. Resettlement is a sensitive and complex process which has the potential to delay or even prevent a hydropower project from being realised. The laws of many countries will grant the host government with the right to compulsorily acquire land for the purposes of certain infrastructure projects. In certain countries, particularly those with an existing hydropower sector, regulations concerning the settlement of affected communities may have been enacted and relevant government agencies may have been constituted.

In any event, most multi-lateral development banks and DFIs have adopted strict environmental standards, covering resettlement, which a developer/borrower must adhere to. These require, at a minimum, compliance with the IFC Performance Standards, but other tools such as the International Hydro Power Association's (IHA) Sustainability Protocol and Environmental and Social Gap Assessments are also very useful to identify risk and guide best practice It is importantly to establish a clear understanding of responsibility for the cost of resettlement. Sponsors and their funders will want to use private law agreements with the host government to set out the full extent (if any) of the sponsors' contribution to resettlement costs as well as ensuring that the project and the sponsors are protected against claims and project delays and disruptions arising out of resettlement.

LAND ACQUISITION

Even where resettlement of affected communities is not an issue, given the often remote location of hydropower projects and the complex nature of land rights in many African countries, acquisition of land for green-field hydropower projects is seldom straightforward. Systems concerned with the registration of land and associated rights of ownership and charges may not be in place. Land required for a project may be subject to legal designations such as 'agricultural' or 'non-agricultural' and, where not already under private ownership, may be designated 'state land' or 'customary land'. Customary land may be controlled by tribes.

A developer will typically have one of two routes available for the acquisition of privately held or customary land: privately negotiated acquisition from private land-owner or relevant tribe (as the case may be); or compulsory acquisition by the state (under applicable domestic laws).

If a privately negotiated acquisition of project land is agreed with the consent of the relevant tribes then applicable government agencies will need to be involved to re-designate the land as privately held (typically on a long-leasehold basis). However, on large national projects, compulsory purchase by the host country government may be the only achievable route of acquiring land for the project. Discretion to acquire the land will rest with the host country government. Therefore, private sponsors and their lenders will be keen to ensure that the host country government will exercise its discretion to compulsorily acquire land if requested by the project sponsors to do so (this commitment could be given through the inclusion of terms in the project's Implementation/Concession Agreement).

COMMUNITY BENEFIT SCHEMES

The structuring of a project to involve, and benefit, local stakeholders can help project owners to de-risk a project by aligning the interests of the local stakeholders with the project owners. DFIs also show a keen interest in community benefit sharing schemes and often require projects to provide for certain minimum local benefits. Procuring entities, such as host-governments or state-owned utilities, may have their own expectations around community benefit schemes – which may serve an important political purpose.

There may be additional tax benefits to such schemes. Arrangements typically fall into the following categories:

- **local content requirements**: whereby domestic legislation or the government support; arrangements for a project require the project to use certain minimum levels of local labour, plant, materials and/or equipment;
- **community contribution**: whereby a portion of the project revenues are earmarked, directly or indirectly (for example, through a water royalty arrangement), for investment in local infrastructure such as rural electrification, roads, housing, potable water, schools and hospitals; and
- **profit-sharing**: whereby designated local stakeholders receive a share in the profits generated by the project, including through a local investment company or a trust. Each case presents its own particularities, challenges and risks.

ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG)

Economic progress through infrastructure development can carry ESG impacts. This concept is not new. However, the term ESG has been growing in recognition recently. Corporate social responsibility and climate risk awareness can help explain why companies are putting ESG on top of their agendas. But while the ESG landscape spreads across the financial, corporate and energy sectors, its meaning risks getting diluted. Different stakeholders have different expectations, metrics and assessment methods. In fact, without an agreed definition or framework, the communication gap keeps widening between investors, corporations and civil society.

When it comes to hydropower, ESG impacts can be quite specific. Whether through the flooding of habitats or the disruption of communities' livelihoods, as mentioned earlier, hydropower projects can put an additional pressure on ecosystems and populations. If these issues are ignored or poorly managed, the risks to all stakeholders are high. In turn, if they are well understood and considered early on, both upstream investors and downstream affected communities can reap the potential benefits of clean electricity supply, sustainable water management, and equitable livelihood improvement. In order to not only de-risk development but improve local outcomes, the Hydropower Sustainability Tools provide the much needed ESG framework to assess the performance of hydropower projects across more than 20 sustainability topics. Developed and governed by a multi-stakeholder group of representatives from government agencies, civil society, financial institutions and the hydropower sector, the tools provide a common language in which to discuss and evaluate sustainability issues.

There are three complementary tools:

1. the Hydropower Sustainability Guidelines on Good International Industry Practice (HGIIP);

2. the Hydropower Sustainability Assessment Protocol (HSAP); and

3. the Hydropower Sustainability ESG Gap Analysis Tool (HESG).

The HGIIP act as the key document that defines the processes and outcomes that constitute good international industry practice. Performance against the guidelines can be measured through two complementary tools: the HSAP and the HESG. The HSAP measures performance compared to defined basic good practice and proven best practice, enabling projects to benchmark their performance in a comprehensive way. The HESG can be used to check for gaps against good practice on relevant environmental, social and governance topics, and includes a gap management plan to improve processes and outcomes. The Hydropower Sustainability Tools are currently being used by developers and operators around the world to design, build and assess hydropower projects of all types and sizes.

In Africa, the HESG was recently used to assess the Dibwangui hydropower scheme in Gabon. The hydroelectric plant is planned to power the country's south-west region and support rural communities currently without electricity. The evaluation credits the Dibwangui project with successfully meeting 11 of the 12 criteria for good practice, highlighting the careful engagement with nearby communities through transparent communication and consultation. Dibwangui has been rated as an example of ESG international good practice and showed the developer's commitment to sustainability. This independent ESG evaluation is the first being published in the region, and the process has proven to be a successful framework for sustainable hydropower development in Africa.

HYDROPOWER IN CAMEROON

JING & PARTNERS
ATTORNEYS AT LAW

Cameroon has among the largest hydropower potential in sub-Saharan Africa together with DRC, Ethiopia and Mozambique. The country's five operating hydropower stations are currently the only renewable energy sources on the grid, accounting for 56% of its total installed capacity.[4] The remainder comes from thermal sources while the country also relies on off-grid diesel generation for rural electrification. [5] [6]

Increasing energy access is central to the government's goal of improving the lives and long-term economic prospects of its citizens, including reducing poverty levels below 10% by 2035. [7] [8] Currently only 6 out of 10 of Cameroonians have access to electricity, however access varies greatly between urban and rural areas.[9] To address this and meet growing electricity demand which is expected to triple over the coming decade, the government has prioritised energy sector investment in their national budget and in its 'Vision 2035' development policy.

ELECTRICITY MARKET STRUCTURE:

SINGLE BUYER

MAIN STAKEHOLDERS:

THE MINISTRY OF WATER RESOURCES AND ENERGY, THE ELECTRICITY SECTOR REGULATORY BOARD, THE ELECTRICITÉ DU CAMEROUN AND ENERGY OF CAMEROON

16.2 MILLION
OF THE POPULATION BENEFITTING

27 MILLION
POPULATION[1]

792 MW
INSTALLED HYDROPOWER CAPACITY[2]

56%
HYDROPOWER SHARE[3]

6/10
HAVE ACCESS TO ELECTRICITY

75%
ESTIMATE OF 2030 HYDROPOWER SHARE

12,000 MW
ESTIMATED HYDROPOWER POTENTIAL

[1] https://countrymeters.info/en/Cameroon
[2] https://www.hydropower.org/statusreport
[3] https://www.investiraucameroun.com/gestion-publique/2911-13664-electricite-le-gaz-pourrait-representer-entre-20-et-30-du-mix-energetique-du-cameroun-snh
[4] https://energypedia.info/wiki/Cameroon_Energy_Situation
[5] IHA, 2020
[6] https://www.kas.de/c/document_library/get_file?uuid=643f37b3-338d-8e64-9292-a0b81b5f0def&groupId=252038 - Muh et al, (2017). ENERGY POLICIES IN CAMEROON: A HOLISTIC OVERVIEW. Renewable and Sustainable Energy Reviews. 82. 10.1016/j.rser.2017.10.049.
[7] https://www.worldbank.org/en/news/feature/2018/07/19/nachtigal-dam-continuing-cameroons-progress-in-hydropower
[8] Cameroon Vision 2035 - http://www.cameroon-embassy.nl/wp-content/uploads/2016/04/Cameroon_VISION_2035_English_Version.pdf
[9] https://steelguru.com/power/miga-backs-development-of-420-mw-nachtigal-hydropower-in-cameroon/533798

HYDROPOWER IN CAMEROON

Given Cameroon's significant hydropower potential, estimated at over 12,000 MW, mostly located in the Sanaga River basin, hydropower is expected to pay an even larger role in the country's energy sector in the future.[10] According to the government's Energy Sector Development Plan, hydropower will represent about 75% of the energy mix by 2023.[11]

By the end of this year, the 200 MW Memve'ele project is expected to be fully operational. Being built by Sinohydro, it will help address the electricity shortages regularly experienced in the southern part of the country. Several further projects totalling 3,000 MW in installed capacity are under active development, most notably the 420 MW Nachtigal project located near Cameroon's capital, Yaounde.

Once completed, Nachtigal will be the largest privately owned hydropower station in Africa and is being developed under a build-operate-transfer (BOT) model with the government of Cameroon to take over its ownership after a period of 35 years.[12] Construction is underway and the project will augment the country's electricity generation by 30% (more than 2,900 GWh/year) when it begins operation in 2023.[13] Due to the combination of local and foreign currency financing with the support of the International Finance Corporation, the project is expected to minimise forex challenges helping to deliver very low local tariffs.[14]

In April 2018, the National Electricity Transport Corporation (SONATREL) was granted sole charge of managing Cameroon's electricity transmission network which was previously managed by the private utility, Energy of Cameroon (ENEO). Its mission is to modernise and put in place new transmission lines and improve efficiency, given transmission losses are currently estimated at 40%.

(ENEO) is the exclusive distributor and purchaser of electricity in Cameroon.

ENERGY LAWS

The electricity sector in Cameroon is mainly governed by Law No. 2011/022 of 14 December 2011 (the Law) and its implementing Decree No. 2012/2806/PM of 24 September 2012.

The above-mentioned Law, which replaced Law No. 98/022 of 24 December 1998 governs the electricity sector with the main objective of modernising and revitalising the sector. The Law applies to the activities of production from any primary or secondary source of energy, transmission, distribution, supply, import, export and sale of electricity, carried out by any company on the Cameroonian territory.

As such it, among other things, establishes the basis for healthy competition in the electricity sector with a view to increasing economic efficiency, laying down the modalities for the control of the execution of specific obligations imposed on operators of non-competitive activities, and specifying the rules for the protection of the environment in the electricity sector.

Under the terms of this law, operators in the electricity sector are subject to public service obligations which require, in particular, equality and neutrality in the treatment of users, continuity and adaptability of service, safety and environmental protection.

The Different Legal Regimes:

The exercise of activities in the electricity sector is subject to one of the following legal regimes which determine the scope of public service obligations (see Article 11 of the Law):

A. Concession

The following are subject to the concession regime:

- the storage of water established on the public domain, for the production of electricity;
- the production of electricity, in particular hydroelectric production, established on the public domain;
- the management of the transport network;
- the transportation of electricity
- the distribution of electricity.

The concession is granted by the Electricity Administration.

The production concession contract, defines the operating conditions of the specific installations, intended to generate electricity from any energy source, with a view to the sale and supply of this electricity to third parties. It also defines the rights and obligations of the producer within the framework of its activity.

B. Licence:

The licence regime applies:

- independent production of electricity;
- the sale of very high, high and medium voltage electricity;
- the import and export of electricity.

The licence is granted by the Administration in charge of electricity.

Licences for the sale of electricity of very high, high and medium voltage, as well as those for the independent production, import and export of electricity, are only granted to operators who are technically qualified and who can provide sufficient financial guarantees to carry out these activities.

In all cases, the financial burden and the compensation of the rights acquired by a public or private person shall be borne by the concessionaire or the beneficiary of the licence.

Concessions and production licences are granted by invitation to tender.

Before launching the call for tenders, the Agency submits to the Electricity Administration for approval, the draft concession and licence agreements, as well as the draft specifications relating thereto.

However, the Electricity Administration may decide to grant concessions and licences for electricity production without a call for tenders in the following cases:

- in case of urgency that does not allow to proceed by invitation to tender, in particular in circumstances of serious shortage of electricity or danger to the safety of persons or electrical works;
- if commitments already made or agreements already concluded by the Republic of Cameroon prior to the publication of Decree No. 2012/2806/PM of 24 September 2012 provide for the principle of granting such concessions or licences to certain companies.

[10] https://www.ifc.org/wps/wcm/connect/news_ext_content/ifc_external_corporate_site/news+and+events/news/cm-stories/nachtigal-cameroon-hydropower-plant-clean-power
[11] http://documents1.worldbank.org/curated/pt/655771494727246768/pdf/Cameroon-PAD-04242017.pdf & https://steelguru.com/power/miga-backs-development-of-420-mw-nachtigal-hydropower-in-cameroon/533798
[12] https://www.afrik21.africa/en/cameroon-nachtigal-hydropower-companys-capital-passes-from-3-to-5-shareholders/
[13] https://www.businessincameroon.com/electricity/0911-8554-cameroon-government-signs-all-project-contracts-for-nachtigal-dam-420-mw
[14] IPP workshop 2019 – London, Presentations available in HydropowerPro resources

HYDROPOWER IN CAMEROON

C. Authorisation

The authorisation system is subject to the following conditions laid down by regulation:

- self-generation installations with a capacity of more than 1 MW;
- the establishment and operation of an electrical energy distribution system with a view to directly or indirectly supplying a power less than or equal to 100 KW;

Authorisation may only be granted in cases where there is a lack of public electricity service, due to the non-existence or inadequacy in the region concerned of means of production, transmission and distribution of electrical energy.

It is granted by the Agency.

NB: The costs of obtaining an authorisation, licence or concession are borne by the operator. The Agency ensures compliance with legislative and regulatory provisions in terms of environmental protection.

Concessions, licences and authorisations are nominative and in principle non-transferable. However, on the Agency's approval, they may be transferred under the conditions provided for by the law governing the electricity sector.

The holder of a concession, licence or authorisation is not exempt from any other authorisation required under the applicable laws and regulations, in particular with regard to town planning, staff and public safety and environmental protection.

Concessions, licences and authorisations are granted or possibly renewed in accordance with the principles of transparency and non-discrimination.

Concessions, licences and authorisations for competitive activities have durations compatible with the profitability requirements of the investments envisaged.

Concessions, licences and authorisations for exclusive activities have terms that are sufficient to allow for regular calls for tenders.

LAND RIGHTS

Land tenure and land rights in Cameroon are governed by the following instruments:

- Ordinance n ° 74/1 of July 6, 1974 fixing the land tenure system;
- Ordinance n ° 74/2 of July 6, 1974 fixing the state property regime;
- Decree No. 76/165 of April 27, 1976 setting the conditions for obtaining the land title;
- Law No. 80/21 of July 14, 1980 amending and supplementing certain provisions of Ordinance;
- No. 74/1 of July 6, 1974 establishing land tenure;
- Decree n ° 79/017 of January 13, 1979 relating to private real estate transactions.

From the provisions of Article 1 of Ordinance n ° 74-1 of July 6, 1974, fixing the land tenure system the State guarantees to all natural or legal persons owning land in property, the right to enjoy it and dispose of it freely. Article 8 of the aforementioned ordinance, as amended by law n ° 79/05 of June 29, 1979, states: "Deeds constituting, transferring or extinguishing real property rights must, on pain of nullity, be established in the notarized form". Transfers and rentals of urban or rural land not registered in the name of the seller or the lessor are also automatically null and void. In addition, sellers, lessors as well as notaries and registrars-notaries author of said acts are liable to a fine of 25,000 to 100,000 francs and imprisonment from 15 days to 3 years or one of these two penalties.

Also liable to the same penalties are:

1. Those who sell or rent the same land to more than one person;
2. Those who, having no standing, sell or lease property belonging to others;
3. Notaries or clerk-notaries who lend their assistance to the persons referred to above or who pass deeds on buildings located outside the territorial jurisdiction of their office;
4. Those who register a building by knowingly failing to register mortgages, real rights or charges with which said building is encumbered;
5. Those who, without the authorization of the qualified person, operate or maintain themselves on land which they do not own. In this case, the court orders the eviction of the occupant at its own expense.

It follows from the underlined legal provisions which precede that the sale of land is only deemed to exist between the parties if i) the seller holds a land title on the premises and ii) the sale is made by notarial deed.

Article 10 of the resulting Ordinance as amended by Law No. 80-21 of July 14, 1980 provides that natural or legal persons of foreign nationality wishing to invest in Cameroon as well as diplomatic or consular missions, organizations or companies, can enter into leases or acquire real estate, except in border areas.

The documents drawn up for this purpose must, on pain of nullity, be endorsed:

- the visa of the Minister in charge of estates with regard to individuals;
- the visa of the Minister of Foreign Affairs; and
- the visa of the Minister in charge of areas with regard to diplomatic and consular missions and international organizations.

It should be noted that the acquisitions referred to above do not lead to the alienation of subsoil resources. If it is a private real estate transaction, Article 1 of Decree n ° 79/017 of January 13, 1979 relating to private real estate transactions provides: "a private real estate transaction within the meaning of this decree, constitutes the sale, the free transfer or exchange of a building between individuals "

DIFFERENT LAND REGIMES:

1. National domain of the State:

Land which, on the date of entry into force of Ordinance n ° 74-1 of 6 July 1974, is automatically classified as the national domain, and is not classified in the public or private domain of the State or of other legal persons governed by public law.

The dependencies of the national domain are classified into two categories:

- Land for housing, land for cultivation, planting, pasture and rangelands, the occupation of which results in an obvious human hold on the land and a convincing development.
- Land free from any effective occupation.

Dependencies of the national domain are allocated by concession, lease or affection. To acquire a property right on the national domain of the State, it would be necessary to apply for direct registration, which would result in the issuance of land titles for your benefit.

HYDROPOWER IN CAMEROON

2. State public domain:

Under the terms of Article 2 of Ordinance n ° 74/2 of July 6, 1974 fixing the state property regime, are part of the public domain, all movable and immovable property which, by master or by destination, are assigned to be of direct use by the public, that is to say they are public services. The public domain is divided into natural public domain and artificial public domain.

3. Private State domain:

Under Article 10 of Ordinance No. 74/2 of July 6, 1974, the private domain of the state encompasses all movable and immovable property acquired, maintained, vested in or taken over by the State. The private domain can be assigned or allocated to legal persons, public services and international organisations and can be allotted as a participation in corporate capital.

CONDITIONS FOR OBTAINING LAND TITLE

Obtaining title to land is governed by Decree No. 76-165 of April 27, 1976. Setting the conditions for obtaining the land title is amended and supplemented by Decree No. 2005/481 of December 16, 2005. The land title is the official certification of real estate ownership. It is unassailable, intangible, and definitive. The same applies to deeds establishing other real rights attached to property. The registration of a right in a special register called the Land Register entails registration of this right and makes it enforceable against third parties.

A land title will be void of public order where granted through improper procedure, including when several titles are issued on the same land, or where granted over public land or over the private domain of the State in violation of regulation.

Requests for conversion into a land title or other formal land rights should be addressed to the head of the provincial department of the estates of the location of the building. The request must be stamped and must fully identify the applicant and relevant building, as well as all encumbrances over it.

WATER RIGHTS

Water is considered a common national resource protected and managed by the State which shall facilitate access to it by all citizens. The sector in charge of the management and the mobilization of water resources is the Ministry of Water Resources and Energy. Intensive socio-economic and industrial development has resulted due to poor management of these resources. In order to ensure sustainable management of water resources in Cameroon, the Integrated Water Resources Management (IWRM) was implemented. The Integrated Water Resources Management (IWRM) is a process which promotes the coordinated development and management of water, land and related resources in order to maximize the resultant economic and social welfare in an equitable manner aiming at achieving sustainable water resources management without compromising the sustainability of vital eco-system. The Government has taken some legislative measures to enhance the better functioning of the water- supply sectors which includes implementing various laws such as the Law no.98/005 of 14/04/1998 to lay down regulations governing water resources, law No.2004/17 of 22/07/2004 spelling out the framework of decentralization of water managements and few decrees of application.

HYDROPOWER IN ETHIOPIA

TADESSE KIROS LAW OFFICE

Ethiopia's economy experienced a strong and broad-based growth averaging 10% a year from 2007/08 to 2017/18.[5] This record economic growth, coupled with a population growth rate above 2.5%, has led to a staggering 30% increase in energy demand during this period.[6] Currently though only around half of the population has access to electricity but the country is making significant progress towards the aim of 100% electrification by 2025.[7]

Through the Growth and Transformation Plan II (GTP II) (2015/16-2019/20), the Ethiopian government aspires to achieve middle-income status by 2025[8]. Already accounting for around 90% of the country's installed capacity, greater hydropower development will be central to lifting electricity access and expanding their industrial base. By 2030, the government is aiming to increase the country's total generating capacity by 25,000 MW, which includes an additional 22,000 MW of hydropower, 1,000 MW of geothermal and 2,000 MW of wind.[9]

ELECTRICITY MARKET STRUCTURE:

PARTIALLY LIBERALISED

MAIN STAKEHOLDERS:

MOWIE, EEA, EEU, EEP

56.5 MILLION

OF THE POPULATION BENEFITTING[1]

45,000 MW

ESTIMATED HYDROPOWER POTENTIAL

113 MILLION

POPULATION[1]

4,074 MW

INSTALLED HYDROPOWER CAPACITY[3]

90%

HYDROPOWER SHARE[4]

50%

HAVE ACCESS TO ELECTRICITY[2]

[1] https://energypedia.info/wiki/Ethiopia_Energy_Situation#:~:text=With%20a%20share%20of%2092.4,10%2C8%25%20since%202005
[2]https://energypedia.info/wiki/Ethiopia_Energy_Situation#Hydropower
[3]hhttps://www.hydropower.org/region-profiles/africa
[4] https://www.hydropower.org/statusreport
[5] https://www.export.gov/apex/article2?id=Ethiopia-Energy
[6] hhttps://www.worldbank.org/en/country/ethiopia/overview
[7] https://www.iea.org/articles/ethiopia-energy-outlook
[8] The Growth and Transformation Plan II (GTPII) (2015/16-2019/20), p 76, https://ethiopia.un.org/sites/default/files/2019-08/GTPII%20%20English%20Translation%20%20Final%20%20June%2021%202016.pdf
[9] https://www.iea.org/articles/ethiopia-energy-outlook

HYDROPOWER IN ETHIOPIA

Ethiopia has some of the richest water resources in Africa, distributed across eight major basins with an exploitable hydropower potential of 45,000 MW.[10]

Over half of this potential is located in the Abbay and Omo river basins, where Ethiopia's largest hydropower projects, including the nearly completed 6,450 MW Grand Ethiopian Renaissance Dam (GERD) and the 1,870 MW Gibe III project, are located. Once fully operational, GERD will be the largest hydropower project in Africa, but its development remains controversial due to its potential impacts on neighbouring Egypt and Sudan. Both countries are downstream of the dam and they rely heavily on the Nile river for their water needs. The timetable for filling up the reservoir and how the plant will be operated remain points of contention.[11]

Ethiopian Electric Power (EEP), the state-run electricity producer, owns and operates 14 hydropower stations across the country, including GERD. However, going forward IPPs are expected to play a greater role in the hydropower sector as EEP focuses more on the existing facilities.

ELECTRICITY LAWS

The Ethiopian energy sector in general, including hydropower, is regulated by the Energy Proclamation No.810/2013 (Energy Proclamation) as amended, and the Council of Ministers Energy Regulation No.447/2019(Energy Regulation). There are also various directives, codes, and standards issued by the Ethiopian Energy Authority (EEA), the energy sector regulator, which apply to investors entering the hydropower market.

The Energy Proclamation provides the regulatory framework for the generation, transmission, and distribution of energy and is supplemented by the Energy Regulation which provides for details of the consent and permit procedures and guiding principles on tariffs. It provides for the substantive and procedural rules applicable to businesses in the energy sector including hydropower.

According to the Energy Proclamation, no person may generate, transmit, distribute, sell, import and export electricity for commercial purposes without obtaining a licence. Therefore, investors are required to obtain licences for electricity operations from the EEA. The duration of a licence for hydropower generation is to be specified under the licence issued from the EEA. However, the maximum duration of a licence shall not exceed 25 years subject to renewal on conditions provided under the law. Investors who obtained a licence for hydropower generation are required to commence operation within 5 years from the date of the issuance of the licence.

The Licence fees are payable, first for application (set at 496 Birr (USD 13.45)), an issuance fee, priced for undertakings above or below 10 MW, and a similalry scale dependent license renewal, upgrade, and transfer of the licences fee.

At the federal level, the Ministry of Water, Irrigation and Energy (MoWIE) is responsible for the planning, development, and management of water resources. It is also responsible for the preparation and implementation of guidelines, strategies, polices programs, and sectorial laws and regulations.

The Ethiopian energy sector including hydropower is regulated by the Ethiopian Energy Authority. The Authority is established under the Ethiopian Energy Authority Establishment Council of Ministers Regulation No. 308/2014 with the mandate, among others, to:

- issue and renew licences and certificates of competency;
- issue energy-related codes and standards;
- supervise the operation of licensees;
- approve Power Purchase Agreements (PPA) and network service agreements;
- formulate long term, medium term, and short term energy efficiency and conservation strategies and programs;
- review national grid-related tariffs and submit a recommendation to the government;
- approve off-grid tariffs; and
- hear, investigate and when necessary, mediate or arbitrate dispute between parties including licensees.

In 2013, the Government undertook a reform to split the Ethiopian Electric Power Corporation (EEPC) into two state-owned enterprises (the EEP and the Ethiopian Electricity Utility (EEU)). Both EEP and EEU are established as a state public enterprises engaging in the generation and distribution of electricity respectively. Before that, all components of electricity markets (generation, transmission, distribution) were integrated under the EEPC. EEP is established pursuant to the Council of Ministers Regulation No. 302/2013 as amended as a wholly-state-owned commercial entity, with the purpose, among others, to:

- undertake electricity generation, transmission, and substation construction and upgrading;
- lease electricity transmission line above 66 kilovolts;
- sell and purchase bulk electric power on transmission lines above 66 kilovolts level; and
- undertake feasibility studies, design, and survey of electricity generation, transmission, and substation.

EEP purchases power in bulk from (IPPs) at a tariff rates approved by the EEA. EEP enters a PPA with IPPs for the purchase of power which is required to be approved by EEA.

Similar to EEP, EEU is established as a wholly state owned commercial entity by the Council of Ministers Regulation No.303/2013 as amended with the power, among others, to own and administer electric distribution networks, to purchase bulk electric power, and sell electric energy to customers. Both EEP and EEU are members to the Global Energy Interconnection Development and Cooperation Organization (GEIDCO).

IPPs can enter the Ethiopian hydropower market through a tendering process whereby open and competitive bidding is a common method of sourcing for hydropower projects.

Ethiopia has recently introduced a Public-Private Partnership Proclamation No.1076/2018. The Government has identified PPPs as a mode of infrastructure service delivery and a source of private sector investment. Currently, six hydropower projects (Genale Dawa-5, Genale Dawa-6, Chemoga Yada, Dabus, Halele Warabessa, and Tams) are under the procurement process to be implemented through the IPP route.

[10] https://www.trade.gov/knowledge-product/ethiopia-energy

[11] http://english.ahram.org.eg/NewsContent/1/64/375856/Egypt/Politics-/GERD--Legal-and-technical-committees-to-discuss-po.aspx

HYDROPOWER IN ETHIOPIA

WATER LAWS

The Constitution of the Federal Democratic Republic of Ethiopia (FDRE Constitution) defines the powers and functions of the federal government and regional states with regards to the management of water resources.

Accordingly, the federal government is empowered to enact laws for the utilisation and conservation of land and other natural resources while regional states have the power to administer land and other natural resources in accordance with federal laws.

In 1999, Ethiopia introduced a Federal Water Resource Management Policy with the overall goal of "*enhancing and promoting all national efforts towards the efficient, equitable, and optimum utilization of water resources of Ethiopia for significant socioeconomic development on a sustainable basis*". It sets the general policy framework of the country on the utilization, protection, and management of the water resources. The objective of a hydropower policy, as provided under part 2.3.3.1 of the Policy, is "*to enhance efficient and sustainable development of the water resources and meet the national energy demands as well as cater [to] external markets to earn foreign exchange*".

The Water Resource Management Proclamation No.197/2000 (Proclamation) supplemented by the Council of Ministers Regulation No.115/2005 (Regulation) governs the utilisation, protection, and management of water resources in Ethiopia. The Proclamation provides the fundamental principles for the management and utilisation of water resources. While the Proclamation contains provisions in respect of the application, issuance, duration, suspension, and revocation of water use permits, the Regulation provides for the documents, processes, fees, and charges for the abstraction of water resources. Except for certain activities that do not require a water use permit [11], no person shall perform waterworks construction, water supply (whether for own use or others), water transfer, and release and discharge of waste into water resources without obtaining a licence from the Supervising Authority. The MoWIE (or other authorities as delegated by the MoWIE) is a Supervising Authority and it is responsible for the planning, management, utilization, and protection of water resources. The Supervising Authority has the power, among others, to:

- issue permit and competency certificate for the use of water;
- determine the allocation and manner of use of water resources;
- require the submission of plans and proposals for proposed waterworks and approve;
- establish quality standards for surveys, design, and specifications of waterworks; and
- issue directives for the safety of hydraulic structures, water use restrictions, etc.

River basins fall under the Federal Water Resource Management Policy as part of the country's Integrated Water Resource Management (IWRM). Accordingly, the River Basin Councils and Authorities Proclamation No.534/2007 is issued with the objective of promoting and monitoring the IWRM process in the river basins. The Proclamation anticipates the establishment of River Basins High Council and Authorities for all river basins in Ethiopia and some of those basins have already established their own River Basins Council and Authority. The Basins Development Authority was established in 2018 under Proclamation No. 1097/2018 and the powers given to some river basins have been transferred to it. Basins Development Authority gives permits relating to water use and water works in accordance with the Water Resource Management Proclamation. In issuing the permits relating to water use and water works, consideration is required to be made to the basin's future perspective in line with the IWRM process.

LAND RIGHTS

Similar to water resources, the power to enact land laws is vested in the federal government. Regional states have the power to administer their respective land in accordance with federal laws.

In Ethiopia, land rights are restricted to use right. Therefore, an investor can only have right over the land through the modality of a lease system. The major laws which protect the use rights of an investor include the FDRE Constitution, Urban Land Lease Holding Proclamation No. 721/2011, Rural Land Administration and Land Use Proclamation No. 456/2005, 1960, Energy Proclamation No. 810/2013 as (Energy Proclamation) amended, Civil Code of Ethiopia, and Expropriation of Land Holding for Public Purposes, Payment of Compensation and Resettlement of Displaced Peoples Proclamation No.1161/2019 (Expropriation Proclamation) and Expropriation and Valuation, Compensation and Resettlement Council of Ministers Regulation No 472/2020.

The FDRE Constitution provides the general framework for the protection of land rights in Ethiopia. Under Article 40(3), the ownership of rural and urban land, as well as all-natural resources is exclusively vested in the State and Peoples of Ethiopia. Land is the property of all Nation, Nationalities, and Peoples of Ethiopia and it is not subject to sale or other means of exchange. Article 40(6) of the Constitution obliges the Government to ensure that private investors use land on the basis of payment arrangement established by law. It also stipulates that Government has the power to expropriate private holdings for public purposes subject to payment of compensation.

The fundamental principles and procedures about the urban lease holding system are provided under the Urban Land Lease Holding Proclamation. No person is allowed to acquire urban land other than the lease holding system except for old possessions that are required to be converted into leaseholds. Investors acquire land through a competitive tender process.

Investors have a tenure security over the urban land they possess through lease and "*no land leasehold may be cleared, prior to the expiry of the lease period, unless the lessee has breached the contract of lease, the use of the land is not compatible with the urban plan or the land is required for development activity to be undertaken by [the] government*".

[12] https://www.addisinsight.net/4009-2/#:~:text=Ethiopia%20has%20achieved%20the%20first,Monday%2C%20July%2021%2C%202020

HYDROPOWER IN ETHIOPIA

According to Article 16 of the Energy Proclamation, any generation, transmission, distribution, import or export licensee has the right to enter the land or premises of any person after securing a permission from the person to carry out installation of new electricity supply, connect, repair, upgrade, inspect, and remove electrical lines. Moreover, it also has the right to cut or lop trees, remove crops, plants or other things that obstructs the construction or operation of electrical woks or causes danger to electrical lines. The licensee is required to pay compensations for the any damage caused to the property of the landholder.

Any generation, transmission, distribution and sale, and import or export licensees may be made a beneficiary of an expropriation measure taken by the Government over private holdings.

The conditions and procedures whereby land may be expropriated are governed under the Expropriation Proclamation. Land can only be expropriated for public purposes based on the approved land use plan, urban structure plan, or development master plan. "Public purpose" is defined as a "*decision that is made by the cabinet of a Regional State, Addis Ababa, Dire Dawa or the appropriate Federal Authority on basis of approved land use plan or; development plan or; structural plan under the belief that the land use will directly or indirectly bring better economic and social development to the public*". The expropriation procedure shall be transparent, participatory, fair, and accountable and compensation will be paid in a manner to "*sustainably restore and improve the livelihood of the displaced person*". Compensation will be paid for the property on the land and the permanent improvements made on the land. The amount of compensation will be evaluated by a certified private institution or individual consultant valuator on the basis of nationally approved valuation method.

HYDROPOWER IN GHANA

A country rich in natural resources, Ghana's electricity sector has experienced more than 50% growth in installed capacity over the past decade and today is a mixture of gas, oil, hydropower and small-scale solar developments. While it has a total installed capacity of around 5,000 MW, due to a variety of reasons including ageing infrastructure and fuel supply challenges, actual availability rarely exceeds half of that.[7] [8]

Hydropower is the single largest contributor to annual generation accounting for 40% thanks to the Akosombo (1,020 MW), Kpong (160 MW) and Bui (404 MW) stations.[9]

ELECTRICITY MARKET STRUCTURE:

PARTIALLY LIBERALISED

MAIN STAKEHOLDERS:

EC, WRC

25 MILLION

OF THE POPULATION BENEFITTING[4] [5] [6]

2480 MW

ESTIMATED HYDROPOWER POTENTIAL

32%

HYDROPOWER SHARE[3]

30.9 MILLION

POPULATION[1]

1,584 MW

INSTALLED HYDROPOWER CAPACITY[2]

82%

HAVE ACCESS TO ELECTRICITY[4] [5] [6]

[1] https://countrymeters.info/en/Ghana
[2] https://www.hydropower.org/statusreport
[3] http://www.energycom.gov.gh/files/2020%20ENERGY%20STATISTICS-revised.pd4
[4] https://energypedia.info/wiki/Ghana_Energy_Situation
[5] https://www.hydropower.org/country-profiles/ghana
[6] https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?locations=GH
[7] https://www.energyvoice.com/oilandgas/africa/249512/ghana-gas-electricity/
[8] https://cleantechnica.com/2020/07/20/ghana-pushes-for-adoption-of-evs-to-soak-up-excess-electricity-generation-capacity/
[9] 2019 Energy (Supply and demand) outlook for Ghana, Energy Commission Ghana, April 2019
[10] https://www.hydropower.org/blog/ghana-assessing-the-sustainability-of-new-hydropower-sites

HYDROPOWER IN GHANA

The commissioning of Akosombo in 1965, transformed the country's energy sector by expanding electricity access, supporting local industry and allowing exports of electricity to neighbouring countries.[11] [12] Since then hydropower generation has been an integral part of Ghana's electricity mix, peaking in 2000 with 73% of total installed electricity capacity.[13] It has contributed to Ghana having one of the highest rates of electricity access in sub-Saharan Africa having recorded a rate of 84% in 2018 with full access expected to be achieved in the coming years.[14]

Looking ahead, the government is prioritising diversifying its energy mix in order to deliver a more resilient, reliable and cleaner electricity grid.[15] Ghana's Renewable Energy Master Plan released in 2019 sets a target of increasing the penetration of renewable energy (excluding large hydropower) in the national energy generation mix from the 2015 baseline of 42.5 MW to 1,360 MW by 2030.[16] The plan also seeks to provide renewable energy-based decentralised electrification options in 1,000 off-grid communities.

The renewable energy target is expected to be mainly met by wind, solar and small-scale hydropower developments and supports the country's climate change commitments. The government has set a 15% (unconditional) to 45% (conditional on international support) reduction target in GHG emissions by 2030 compared to the business-as-usual scenario.[17]

Further challenges facing the electricity sector, and hydropower in particular, involve modernising dilapidated infrastructure and addressing the climate impacts on the country's hydrological conditions which is expected to intensify variability in capacity factors.[18]

ELECTRICITY LAWS

Hydropower is regulated under the Renewable Energy Act, 2011 (Act 832).

A licence is required to carry on commercial operations in Ghana's renewable energy industry. Commercial operations contemplated under Act 832 include as production, transportation, storage, distribution, sale and marketing, importation, exportation and re-exportation; installation and maintenance. A licence may only be granted to (a) a citizen (b) a body corporate registered under the Companies Act, 1963 (Act 179) or under any other law of Ghana; or (c) a partnership registered under the Incorporated Private Partnership Act, 1962 (Act 152).

The Energy Commission is mandated to regulate and manage the development and utilization of energy resources in Ghana and provide the legal, regulatory and supervisory framework for all providers of energy in the country. It is also responsible for licensing. A licence granted is for the period specified in the licence, may be renewed and subject to the conditions specified in the licence. A licence may be modified by the Board of the Energy Commission if modification is permissible under the terms of the licence or is required in the public interest.

A feed-in-tariff scheme has been established under Act 832 for the purpose of guaranteeing the sale of electricity generated from renewable energy sources and consists of the renewable energy purchase obligation, the feed-in-tariff rate and the guarantee of connection to transmission and distribution systems.

Act 832 creates an obligation on an electricity distribution utility or bulk customer of electricity to purchase electricity from renewable energy sources to a percentage level determined by the Public Utilities Regulatory Commission – an agency governed by the Public Utilities Regulatory Act, 1997 (Act 538), who is responsible for approving rates chargeable for the purchase of electricity from renewable energy sources by public utilities, wheeling of electricity from renewable energy sources and charging for grid connection.[19] An exception is made for the non-purchase of electricity at the fixed percentage level where a bulk customer or an electricity distribution utility may instead pay a premium to the Commission.

The Energy Commission (Local Content and Local Participation) (Electricity Supply Industry) Regulations, 2017 (Act 541) (L.I. 2354) regulates local content and local participation in the electricity supply industry (including commercial activities in the renewable energy industry) by prescribing the levels of local content and local participation that must be achieved. For a wholesale power supply entity, for example, there must be 15% local equity ownership initially with a target of 51% within 10 years. In terms of local content for engineering and procurement, 30% of the value of the project other than machinery must go to Ghanaian companies with a target of 50% in 10 years. For construction works, management, operations and maintenance staff, a minimum of 60% must be Ghanaian with different targets.

The Regulations prohibit a Ghanaian citizen from transferring that citizen's interests in the electricity supply industry to a non-Ghanaian.

WATER LAWS

The Water Resources Commission (WRC) established by the Water Resources Commission Act, 1996 (Act 522) is mandated to regulate and manage the utilisation of water resources and coordinate policies in relation to them. A "water resource" is defined in the Act as all water flowing over the surface of the ground or contained in or flowing from any river, spring, stream or natural lake or part of a swamp or in or beneath a watercourse and all underground water but excluding any stagnant pan or swamp wholly contained within the boundaries of any private land.

The Act states that the property in and control of all water resources is vested in the President of Ghana on behalf of and in trust for the people of Ghana. Article 268 of the 1992 Constitution of Ghana (the Constitution) provides that, any transaction, contract or undertaking involving the grant of a right or concession by the Government of Ghana for the exploitation of water is subject to ratification by Parliament. Act 522 also requires a person seeking a water right to apply in writing to the WRC for a grant of water right. The Act provides that a grant made in this regard requires parliamentary ratification. Further, a grant of water right granted is non-transferrable except with the written approval of the WRC.

With respect to the use of water for power generation, a person may obtain a permit from the WRC to achieve the same pursuant to the Water Use Regulations, 2001 (L.I. 1692). To obtain this permit, a person must file an application in the prescribed form to the WRC.[20] Prior to granting the permit, the WRC is required to publish in the Gazette, and in at least one national newspaper, a notice indicating the purpose of the application and invite the submission of objections from the public to the WRC within 3 months from the date of the first publication.[21]

[11] NRECA 1981
[12] https://www.vra.com/our_mandate/akosombo_hydro_plant.php
[13] WEM July 2018
[14] https://webstore.iea.org/download/direct/2892?fileName=Africa_Energy_Outlook_2019.pdf
[15] World Energy Issues Monitor 2019, World Energy Council
[16] http://www.energycom.gov.gh/files/Renewable-Energy-Masterplan-February-2019.pdf
[17] https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Ghana%20First/GH_INDC_2392015.pdf
[18] https://webstore.iea.org/download/direct/3006?fileName=Climate_Impacts_on_African_Hydropower.pdf

[19] Section 5 of Act 832.
[20] Sections 1 and 2 of Act 522.
[21] Section 3 of Act 522.

HYDROPOWER IN GHANA

LAND RIGHTS

Under the Constitution, all public lands in Ghana are vested in the President on behalf of and, in trust for, the people of Ghana.[18] The Constitution prohibits the vesting of a freehold interest in a non-citizen of Ghana.[19] However, a leasehold interest may be vested in a non-citizen for a term not exceeding 50 years at any one time.[20]

In the acquisition of land to undertake projects in Ghana, consideration must be given to matters in relation to the resettlement and or compensation of the inhabitants of the land. In 2007, a hydroelectric power development operation, the Bui Dam Hydroelectricity Project was initiated by the Bui Power Authority and Sinohydro. In the execution of this project, a total of 444km^2 of land comprising of seven villages were permanently flooded.[21] As a result of this, a total of 1,216 people within the project area were resettled through a Resettlement Planning Framework prepared by the Environmental Resource Management for the Ministry of Energy and the Bui Development Committee.[22]

[18] Article 257 of 1992 Constitution of Ghana.
[19] Article 266 (1) of 1992 Constitution.
[20] Article 266 (4) of 1992 Constitution.
[21] See https://www.water-technology.net/projects/bui-dam-hydro-power-ghana/
[22] Resettlement Planning Framework (RPF) for the Bui Hydropower Project, January 2007.

HYDROPOWER IN MALAWI

SACRANIE GOW & CO

Landlocked Malawi is among the least-developed countries in the world with less than 15% of its population having access to electricity. [3] [4] Its economy is largely based on agriculture as 80% of its population live in rural areas. However, the government is seeking to diversify its economic opportunities through a mix of measures including increasing the country's electricity supply.

Hydropower is estimated to account for over 75% of Malawi's total installed capacity, with its two largest stations being the 136 MW Nkula and the 128 MW Kapichira. The remainder of the country's installed capacity comes from solar power and diesel generation.[5]

ELECTRICITY MARKET STRUCTURE:

SINGLE BUYER

MAIN STAKEHOLDERS:

ESCOM, EGENCO, MERA AND PML

12%

HAVE ACCESS TO ELECTRICITY[6]

2000 MW

ESTIMATED HYDROPOWER POTENTIAL

20.1 MILLION

POPULATION[1]

371 MW

INSTALLED HYDROPOWER CAPACITY[2]

77%

HYDROPOWER SHARE[3]

[1] https://countrymeters.info/en/Malawi
[2] https://www.hydropower.org/statusreport
[3] Based on a total installed capacity of 482 MW - https://documents.worldbank.org/en/publication/documents-reports/documentdetail/424451586364270375/concept-project-information-document-integrated-safeguards-data-sheet-mpatamanga-hydropower-project-p165704
[4] https://www.jica.go.jp/malawi/english/activities/c8h0vm00004bpzlh-att/energy.pdf
[5] https://www.energy.gov.mw/index.php/about-us-2/overviews/demand-supply
[6] https://www.jica.go.jp/malawi/english/activities/c8h0vm00004bpzlh-att/energy.pdf

HYDROPOWER IN MALAWI

The most recent hydropower station commissioned was the 8.2 MW run-of-river Ruo-Ndiza earlier this year located in the south of the country bordering Mozambique. Construction of the project was led by British-based company Gilkes on behalf of the privately-owned Mulanje Hydro Energy. The project is designed to generate an average annual output of 22.3 GWh for supply to the national utility, Electricity Supply Corporation of Malawi Limited (ESCOM).[7]

With an estimated 2,000 MW of potential, greater hydropower development is central to the government's strategy for expanding the country's generating capacity and addressing power shortages.[8] The largest project under development is the proposed 350 MW Mpatamanga station, located 40 km west of Blantyre, Malawi's second largest city in the south of the country.

The project is being co-developed by the Government of Malawi and the International Finance Corporation (IFC) through a PPP which is a new model of development for the country.[9] Once operational by the end of 2024, it is hoped that it will not only reduce the need for load shedding but also dependency on expensive diesel generation, which is operated during periods of low water levels at the country's existing hydropower stations.[10] The World Bank Group is also supporting the government with the design and financing of the Mozambique-Malawi Regional Interconnector Project which will further strengthen the country's energy security.[11]

In rural areas of the country, where expanding the grid may be deemed too expensive, small-scale hydropower development offers the potential for relatively low-cost access to electricity due to the numerous rivers and favourable topography.[12]

ELECTRICITY LAWS

Hydropower in Malawi is governed by the Electricity Act 2004 (Act), the Electricity Amendment Act of 2016, and the Energy Regulation Act 2007. Malawi Energy Regulatory Authority (MERA) established under the Malawi Energy Regulatory Authority, with the mandate to issue licences for generation, transmission, distribution, importation and exportation of electricity. MERA is also mandated to regulate the electricity tariffs in Malawi, charged by the state-owned utility company ESCOM (Electricity Supply Corporation of Malawi Limited).

Reforms in 2016/2017 saw the unbundling of ESCOM into two state owned utility companies, ESCOM and (Electricity Generation Company (Malawi) Limited) EGENCO with EGENCO given the mandate to generate electricity and supply solely to ESCOM, and ESCOM mandated to transmit and distribute electricity throughout the country. Given the number of IPP's entering Malawi, mainly in the solar and wind sector, further reforms are in the process. The Government of Malawi has incorporated and designated a single buyer known as Power Market Limited (PML) mandated to solely buy electricity from EGENCO and all the IPP's. Power Market Limited will assume the buying rights and obligations of ESCOM. Once the reforms are complete, there will be three state owned utility companies in the electricity sector, as follows. State owned EGENCO – mandated to generate electricity. State owned Power Market Limited – mandated to buy electricity from EGENCO as well as all the IPP's, and sale to ESCOM. State owned ESCOM – mandated to transmit and distribute electricity to the end user.

Developers interested in investing in Malawi's Hydro Power sector can apply for licences from MERA through the solicited tender process or unsolicited direct process by way of an application. In order to undertake a feasibility, one would have to obtain permission from MERA to undertake a feasibility study, and would also need to undertake an environmental impact assessment, and obtain the relevant consents and approvals with respect to water rights etc.

The Rural Electrification Act 2004, strives to increase access to electricity in Malawi in rural areas in order to reduce poverty and encourage rural economic activity, and provides for the generation of electricity of under 5 MW in rural areas close to major trading centres, tobacco growing areas etc, such as the 4.5 MW Wovwe Hydro Power Plant.

WATER LAWS

The Water Resources Act 2013 establishes the National Water Resources Authority, amongst other functions, is mandated to receive and determine applications for permits for water use, determine charges for water use, and regulate and manage water resources, including that related to hydroelectric energy. Investors in a hydro project in Malawi would need to apply to the National Water Resource Authority for the use of water to generate electricity, and also satisfy the requirements and environmental concerns related to the use of water under the Water Resources Act 2013.

LAND RIGHTS

Land in Malawi is governed by the Land Act, Registered Land Act, Deeds Registration Act, Conveyancing Act, Land Acquisition Act, and the Customary Land Act. Malawi has a dual system of registration – title registration and deeds registration. Title registration applies to land in the city and deeds registration applies to land outside the city.

Malawi has different tenures of land – customary land, leasehold land and freehold land. The law no longer permits the allocation of freehold land to any person.

Allocation and acquisition of land for investment in Malawi is made by way of application to the Minister of Lands, for the granting of a lease. Once the land has been allocated, development fees would need to be paid. A survey would then need to be conducted in order to obtain a deed plan. Once a deed plan is obtained, the Minister of Lands would grant the lease. If the land being allocated is customary land owned by local villagers, it would need to be converted to leasehold land by way of a lease from the Ministry of Lands after the Ministry of Lands have compensated and resettled those with customary title. The investor would be responsible for the costs of compensation and resettlement.

A foreign national can own land in Malawi, usually with a maximum tenure of 50 years unless a longer period can be justified. There is no right of renewal or compensation for improvements made during the tenure at the end of the 50-year period.

[7] https://www.usaid.gov/powerafrica/malawi
[8] https://www.gilkes.com/case-studies/ruo-ndiza
[9] https://documents.worldbank.org/en/publication/documents-reports/documentdetail/424451586364270375/concept-project-information-document-integrated-safeguards-data-sheet-mpatamanga-hydropower-project-p165704
[10] https://medium.com/power-africa/malawis-350mw-hydropower-project-reaches-major-milestones-in-2019-4f19ea7973f2
[11] https://medium.com/power-africa/malawis-350mw-hydropower-project-reaches-major-milestones-in-2019-4f19ea7973f2
[12] https://documents.worldbank.org/en/publication/documents-reports/documentdetail/424451586364270375/concept-project-information-document-integrated-safeguards-data-sheet-mpatamanga-hydropower-project-p165704

HYDROPOWER IN MOROCCO

KETTANI LAW FIRM

Morocco, emboldened by its significant renewable energy resources, was among the first countries in the Middle East and North Africa to phase-out fossil fuel subsidies over recent years.[3] In addition to wind and solar resources, the country is further developing its hydropower potential to strengthen grid flexibility.

The country's total installed capacity is 10,937 MW of which hydropower accounts for 1,770 MW.[4] [5] Renewable energy represents 34% of the country's installed capacity, including 16% from hydropower, 11% from wind and 7% from solar.[6]

ELECTRICITY MARKET STRUCTURE:

PARTIALLY LIBERALISED

MAIN STAKEHOLDERS:

ONEE AND MASEN

2000 MW

ESTIMATED HYDROPOWER POTENTIAL[7]

16%

HYDROPOWER SHARE

36.9 MILLION

POPULATION[1]

1,770 MW

INSTALLED HYDROPOWER CAPACITY[2]

42%

ESTIMATE OF 2030 RENEWABLES SHARE[8]

100%

HAVE ACCESS TO ELECTRICITY[9]

[1] https://countrymeters.info/en/Morocco
[2] https://www.hydropower.org/statusreport
[3] International Energy Agency, Morocco. https://webstore.iea.org/download/summary/2736?fileName=IDR_Morocco_ES_UK.pdf
[4] ONEE Rapport d'Activitiés 2019
[5] ONEE, 2019
[6] https://afrique.latribune.fr/entreprises/industrie/energie-environnement/2020-02-03/le-maroc-tete-de-proue-d-une-integration-energetique-euro-africaine-838647.html
[7] https://www.hydropower.org/country-profiles/morocco
[8] https://www.hydropower.org/country-profiles/morocco
[9] https://energypedia.info/wiki/Morocco_Energy_Situation

HYDROPOWER IN MOROCCO

The government's policy is to diversify supply and increase renewable generation capacity to 52% of the electricity mix by 2030.[10] With respect to hydropower, Morocco will focus on the optimisation of existing stations and the development of new pumped storage projects to manage peaks in demand.

The 350 MW Abdelmoumen pumped storage project is a crucial element to meet the country's ambitious renewable energy target. The project had completed 40% of its construction works by mid-2020, and is scheduled for commissioning in the first half of 2022.[11] In addition, the 300 MW Ifahsa pumped storage project in Chefchaouen is under construction and is expected to be commissioned in 2025.[12]

Another pumped storage project under development is the 300 MW El Menzel II in the north of the country. In December 2019, the European Bank for Reconstruction and Development announced financial support to prepare the Environmental and Social Impact Assessment (ESIA) and stakeholder engagement for the project.[13]

To further strengthen the security of the country's power system, transnational interconnection projects will play a major role in future investments.[14] The government-owned National Office of Electricity and Drinking Water (ONEE), the fourth largest operator in the Spanish electricity market, operates the Morocco-Spain interconnection which has a transmission capacity of 2,400 MW. In 2019, a new interconnector was commissioned providing a two-way transmission of 1,000 MW which links Morocco to the Algerian-Tunisian border.[15] Morocco is also supporting regional interconnection projects with sub-Saharan countries, such as new interconnection lines via Mauritania.[16]

ONEE, which is overseen by the Ministry of Energy, Mines, Water and Environment manages and dominates the electricity sector in Morocco. It is the main retail supplier, and owns a majority of the transmission and distribution networks. ONEE traditionally acted as the single buyer in the electricity sector for all generation projects as well as operating a large share of the generation capacity - however, the share of power generation owned and operated by ONEE has fallen dramatically from 90% in 1991 to about 30% in 2017. ONEE enters into power purchase agreements with IPPs. However, in 2010, the RE Law 13-09 made it possible for IPPs to use the transmission grid and enter into direct purchase agreements with end-users to sell the electricity produced from renewable resources. But, with the transmission grid operated by ONEE and with a relatively small pool of credit-worthy bulk purchasers, a PPA with ONEE remained the most bankable route to market for IPPs.

In 2009, and to support a policy goal of 40% of power generation from renewable resources by 2020, the Moroccan Agency for Solar Energy (MASEN) implemented the solar power proliferation strategy. MASEN plans and procures renewable energy projects through a competitive bidding process. MASEN itself enters into PPAs with renewable energy IPPs and then on-sells the power to ONEE. In 2016, MASEN was renamed as the Moroccan Agency for Sustainable Energy (MASEN) with its remit expanded to cover all renewable energy technologies, including hydropower. ONEE was required to transfer all renewable energy assets to MASEN. Nevertheless, the relationship between MASEN and ONEE remains somewhat unclear.

[10] http://www.mcinet.gov.ma/fr/content/energies-renouvelables & https://africa-energy-portal.org/news/morocco-course-meet-renewable-energy-targets-2030
[11] https://www.medias24.com/step-abdelmoumen-a-agadir-40-d-etat-d-avancement-10876.html
[12] http://apanews.net/en/pays/maroc/news/morocco-becomes-key-player-in-renewable-energy
[13] Morocco: Environmental and Social Impact Assessment for El Menzel pumping storage power plants https://www.ebrd.com/cs
[14] Stratégie Energétique Nationale Horizon 2030, http://giz-energy.ma/wp-content/uploads/sites/128/2017/06/STRATEGIE-ENERGETIQUE-NATIONALE%202011.pdf
[15] https://www.entreprendre.ma/Mise-sous-tension-de-l-interconnexion-electrique-entre-l-Algerie-et-le-Maroc_a2382.html
[16] https://afrique.latribune.fr/entreprises/industrie/energie-environnement/2020-02-03/le-maroc-tete-de-proue-d-une-integration-energetique-euro-africaine-838647.html

ELECTRICITY LAWS

There is no law that specifically governs the hydropower sector. Renewable energy in general is regulated by (i) the Dahir n°1-10-16 promulgating the law n°13-09 relating to renewable energies dated 11 February 2010, as amended and supplemented by the law n°58-15 promulgated by the Dahir n ° 1-16-3 of 12 January 2016 and (ii) the ministerial Decree n°2-10-578 implementing law n°13-09 relating to renewable energies.

The implementation of renewable energy projects (with a power greater than or equal to 2 MW) is subject to a provisional authorisation (autorisation provisoire) granted by the administration, following a technical opinion from the National Electric Transport Network (NETN). This authorisation shall be granted within 3 months after the receipt of the technical opinion from the NETN. In the event that the project is not completed within 3 years from the date that this authorisation has been notified to the beneficiary, the latter becomes invalid. In the specific case of hydraulic source installations, this deadline is increased to 5 years.

Morocco has faced new technical constraints resulting from the rise in power of intermittent renewable energies, a draft bill n°40-19 reforming the law n°13-09 relating to renewable energies was published on the General Secretariat of the Government (SGG) website on 6 December 2019. This draft bill aims to improve the legislative framework and regulations for the implementation of renewable energy projects by the private sector, while ensuring the safety and sustainability of the national power grid, and the improvement and transparency of authorisation procedures. Under the draft bill, any request for authorisation referred to as ''autorisation de réalisation'' formerly known as provisional authorisation, must be accompanied by a bank guarantee to secure completion of the project. The amount of such guarantee will be set by ministerial decree.

WATER LAWS

The management of water as well as the public hydraulic domain in general are governed by, inter alia, the (i) Dahir n°1-16-113 promulgating law n°36-15 relating to water, (ii) Decree n°2-07-96 establishing the procedure for granting authorisations and concessions relating to the public hydraulic domain; and (iii) Ministerial decree n°2-07-96 fixing the procedure for granting authorisations and concessions relating to the public hydraulic domain.

The establishment of works intended to use the waters of hydraulic public domain (such as water mills, dikes or canals) for a period less than 10 years are subject to a prior authorisation.

Pursuant to the provisions of Law n°36-15 (i) the conduct of works (including dams intended for the storage or diversion of water) on the public hydraulic domain for a period of more than 10 years, in particular for hydroelectric energy production (or other), as well as (ii) water intakes on watercourses, dams or canals for the production of hydroelectric energy, are subject to the concession regime. The concession is contracted with the water basin agency and constitutes real rights of limited duration which do not confer on its holder any property right on the hydraulic public domain.

The water basin agency is required to rule on the request for authorisation or concession, on the basis of the reasoned opinion of a special commission and observations/oppositions of third parties, within 7 working days from the date of receipt of the commission's minutes.

HYDROPOWER IN MOROCCO

LAND RIGHTS

The right of ownership of tribes, factions, douars or other ethnic groups on the land of culture or rangelands which are collectively used, according to traditional means of exploitation, can only be exercised in two ways: (i) under the supervision of the government and (ii) under the conditions set by the Dahir organising the administrative supervision of indigenous communities and regulating the management and disposal of collective goods.

A draft bill was submitted to the Moroccan House of Representatives in March 2019 to review the administrative supervision exercised over “ethnic” communities and the exploitation of their land heritage. This bill also provides that collective lands may be ceded, by mutual agreement or within the framework of association and exchange agreements, to the benefit of the government, public establishments, regional authorities and “ethnic” authorities. Such collective lands can also be sold or exchanged after competitive bidding as well as by mutual agreement for the benefit of public and private operators.

HYDROPOWER IN MOZAMBIQUE

GDA ADVOGADOS
VdA VIEIRA DE ALMEIDA

Boasting 13 major river basins and Cahora Bassa, the second largest hydropower station in Africa by installed capacity, Mozambique is one of the continent's largest hydropower producers. In addition, over 1,400 potential hydropower projects with a total potential of 19 GW was identified between 2011 and 2013 in the Renewable Energy Atlas developed by the Government of Mozambique and the Mozambique Energy Fund (FUNAE).[3]

Access to energy is a national priority in Mozambique's development agenda and viewed as a key driver for economic growth and poverty alleviation.[4] In 2011, the Strategy for New and Renewable Energy Development (2011–2025) was adopted to spur the sustainable development of Mozambique's renewable energy resources, utilising both on-grid and off-grid solutions.[5]

ELECTRICITY MARKET STRUCTURE:

SINGLE BUYER

MAIN STAKEHOLDERS:

MIREME, DNE AND EDM

6,600 MW
ESTIMATED HYDROPOWER POTENTIAL[6]

81%
HYDROPOWER SHARE[7]

32.3 MILLION
POPULATION[1]

2,216 MW
INSTALLED HYDROPOWER CAPACITY[2]

31%
HAVE ACCESS TO ELECTRICITY[8]

[1] https://countrymeters.info/en/Mozambique
[2] https://www.hydropower.org/statusreport
[3] https://www.get-invest.eu/market-information/mozambique/renewable-energy-potential
[4] Hülsmann, Harby and Taylor 2015, 6
[5] https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?locations=MZ
[6] https://www.andritz.com/hydro-en/hydronews/hydropower-africa/mozambique
[7] https://www.usaid.gov/powerafrica/mozambique
[8] https://energypedia.info/wiki/Mozambique_Energy_Situation

HYDROPOWER IN MOZAMBIQUE

In recent years, energy demand has been growing at an average annual rate of 7-8%. The government has set the target of making electricity available to 63% of the population by 2024, up from 31% in 2018 and hopes to achieve universal access by 2030.[9] [10] [11] In 2018, the government launched its "Energy for All" programme and to date it has mobilised over USD 250 million from development partners.[12] [13] The programme seeks to tackle Mozambique's three key challenges, namely: i) providing reliable and efficient electricity supply; ii) expanding generation and transmission capacity to meet current and future demands; and, iii) providing access to electricity to the vast majority of the population.

Currently, there are eight hydropower stations supporting the national grid in Mozambique. The 2,075-MW Cahora Bassa, operated by the IPP Hidroeléctrica de Cahora Bassa (HCB), represents 94% of the country's total hydropower installed capacity. Mozambique only procures up to 500 MW from the station though, with the majority being exported to the South African Power Pool (SAPP), an important source of foreign revenue for the country.[14]

The largest hydropower station under development is the 1,500 MW Mphanda Nkuwa project on the Zambezi River. In 2019, the government created a new entity called the Mphanda Nkuwa Project Implementation Office (GMNK) to help coordinate the project's development. The project's development will be led by Electricidade de Mocambique and HCB. Construction works are expected to take 5 years.[15]

Several other hydropower projects, namely the 600 MW Lupata and 210 MW Boroma are under consideration. The Electricidade de Moçambique (EDM) Strategic Plan 2018-2028 envisions these projects are likely to be tendered and majority owned by IPPs.

ELECTRICITY LAWS

The Ministry of Mineral Resources and Energy (MIREME) is the key entity within the Government of Mozambique responsible for the energy sector and thus responsible for the analysis, preparation, formulation and implementation of energy policies, as well as for promoting and approving projects of electric power supply. The National Directorate of Energy (DNE) is the executive body within MIREME and a key player in all phases of the project, notably, during the negotiation of project agreements as well as for licensing purposes and others. The DNE is responsible for implementing and executing the competences of MIREME in the electric power sector except for the setting of tariffs and rural electrification, which are under the jurisdiction of Autoridade Reguladora da Energia (ARENE) and FUNAE respectively.

The ARENE is the entity responsible for the instruction and monitoring of the public tender procedures in connection with the awarding of concessions for the production, transmission, distribution and sale of electricity and for the approval of regulated tariffs. ARENE is a newly established regulating body but has no official power until the new Electricity Act is finalised and gazetted. Until that point, the function of ARENE is more advisory to MIREME, with licensing authority still with MKIREME and Tariff setting negotiated between MIREME and EDM.

Under the Electricity Law, private companies may only participate in the power sector through the execution of a Concession Agreement, which, for projects with an installed capacity equal to or greater than 100 MW, must be previously approved and granted by the Council of Ministers, and which, for projects with an installed capacity greater than 1 MW but less than 100 MVA, must be approved and granted by the Minister that oversees the Energy sector.

Under article 11.4 of the Electricity Law, a concession shall be granted by means of a public tender, where specific requirements apply in the case of implementation of hydropower projects (articles 7 and 8 of Decree no. 8/2000, April 20). The execution of a Concession Agreement is subject to (i) the incorporation by the investor of a commercial company in Mozambique, in accordance with the rules under Decree-Law no. 2/2005, of December 27 (Commercial Code of Mozambique), as amended, in the form of a limited liability company or joint stock company, (ii) the submission of an environmental licence, in accordance with Law no. 20/97 of 1 October (Environmental Law), as amended, and Decree no. 54/2015, of December 31 (Environmental Regulation), (iii) Despacho (Feasibility right issued by MIREME), (iv) Feasibility Study (Technical, ESIA, Legal and Financial Viability), (v) Investment Authorisation by the Investment Promotion Centre and (vi) Formal PPA Negotiations with EDM, PPA in draft format.

To generate electricity in Mozambique, project developers must firstly obtain an establishment licence, which shall be followed by an operating licence, both of which are granted by MIREME. The Concession Agreement may be granted for a period of 50 years, in case of a concession covering only the production activity for hydropower plants, or of 25 years, where the concession covers several activities. EDM, the state-owned vertically integrated utility company serves as the offtaker for IPP projects procured through the Concession Agreement route.

Resettlement is regulated by Decree no. 31/2012, of 8 August (Regulation on the resettlement process resulting from economic activities), which establishes the basic rules and principles applicable to the process of resettlement of the affected community, as a result of public or private economic activities aimed at boosting the country's socio-economic development, quality of life and social equity.

WATER LAWS

Under Law no. 16/91, of 3 August (Water Law), inland waters, surfaces and the respective beds, groundwater, whether naturally arising or not, are the property of the State and constitute public domain. Public domain waters can be privately used by any natural or legal persons, national or foreign, provided that (i) they are duly authorized to operate in national territory, through licensing or concession and (ii) do not undermine the ecological balance and the environment.

In accordance with Decree no. 43/2007, of 30 October (Regulation of Licences and Water Concessions), the management of water resources is carried out by the Regional Water Administrations, which are organised according to the hydrographic basins. Regarding investment projects, the private use of water is subject to the concession regime, which may be granted for a period of up to 50 years (renewable). The initiative for the granting of the concession may be private (by means of a request submitted to the Regional Water Administration with jurisdiction over the hydrographic basin) or public (by means of a public tender).

The use of water flows for power production is guaranteed to the concessionaire under the Electricity Law, which grants access to a defined amount of the flow of a watercourse and an exemption from payment of any water use fees, provided for in the Water Law (article 43.2). As power projects and private use of water are both subject to the granting of a concession, the Water Law establishes that the duration, terms and other requirements of same must be harmonized.

[9] https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?locations=MZ
[10] https://clubofmozambique.com/news/all-administrative-posts-to-be-electrified-by-2024-147703/
[11] https://www.rvo.nl/sites/default/files/2019/01/Final-Energy-report-Mozambique.pdf
[12] https://clubofmozambique.com/news/all-administrative-posts-to-be-electrified-by-2024-147703
[13] https://allafrica.com/stories/202008170461.html#
[14] Chambal 2010, cited in Bullock and Hülsmann 2015, 12
[15] https://www.nsenergybusiness.com/projects/mphanda-nkuwa-hydropower-project/

HYDROPOWER IN MOZAMBIQUE

LAND RIGHTS

In accordance to the Constitution of the Mozambican Republic, Law no. 19/97, of 1 October (Land Law) and Decree no. 66/98, 8 December (Regulation on Land Law), as amended, the land and its associated resources are owned by the State and cannot be sold or otherwise disposed of or encumbered/mortgaged. However, the Land Law does grant private persons and/or legal entities the right to use and enjoy land known as Direito de Uso e Aproveitamento da Terra (DUAT). Notwithstanding the above, the DUAT holder becomes the owner of the building, premises or other immovable assets built on the land encompassed in the DUAT, thus being able to sell/ mortgage the immovable property built on the land or pledge movable assets, such as machinery and equipment.

The Land Law does allow foreign investors to hold a DUAT, provided that (i) an investment project is duly approved by the competent authority and that (ii) they are duly incorporated or registered in Mozambique. Where the implementation of an energy project requires the acquisition of a DUAT, the relevant authority shall arrange for a public consultation, in which all directly affected by the acquisition shall be consulted. For economic activity purposes, the DUAT may be granted for a period of up to 50 years (renewable). However, where the DUAT is granted in relation to a power project under a concession, same DUAT shall be granted for the duration of the concession. The relevant entity with the authority for the granting of the DUAT shall depend on whether same is or not located within an urban area. In the former case (i.e., within urban areas), the authority belongs to the municipal authorities or district administrators, and in the latter case (i.e., outside urban areas), same authority belongs to the Provincial Governors and/or to the Ministry of Land, Environment and Rural Development, depending, furthermore, on the area of land over which the DUAT is to be granted.

HYDROPOWER IN NIGERIA

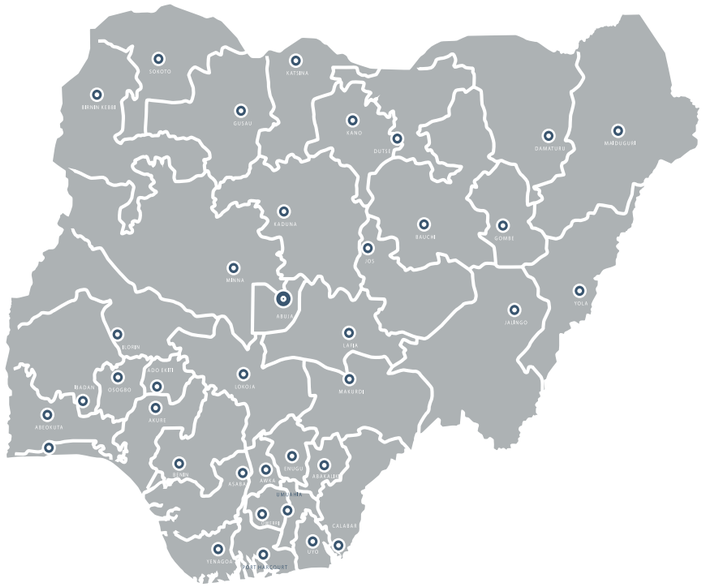
OLANIWUN AJAYI

Nigeria is Africa's largest economy with a population that is expected to double to 400 million by 2050.[4] Yet its power sector, specifically the lack of available power capacity, continues to be a handbrake on the country's growth prospects. Its total installed capacity is around 13,777 MW but due to a variety of reasons such as poorly maintained infrastructure, peak generation is much lower and power shortages are common.[5]

The country's main hydropower resources are located in the Niger and Benue rivers as well as the Lake Chad basin. Its largest station, the 760 MW Kainji station was commissioned in the 1960s and today hydropower is the second largest source of electricity on Nigeria's grid behind natural gas which accounts for over 80% of total installed capacity.[6]

ELECTRICITY MARKET STRUCTURE:
PARTIALLY LIBERALISED

MAIN STAKEHOLDERS:
NERC AND NBET



14,000 MW
ESTIMATED HYDROPOWER POTENTIAL

16%
HYDROPOWER SHARE[3]

209.1 MILLION
POPULATION[1]

2,110 MW
INSTALLED HYDROPOWER CAPACITY[2]

56.5%
HAVE ACCESS TO ELECTRICITY[7]

[1] https://countrymeters.info/en/Nigeria
[2] https://www.hydropower.org/statusreport
[3] Based on a total installed capacity of 13,500 MW https://global-climatescope.org/results/ng
[4] https://global-climatescope.org/results/ng
[5] https://global-climatescope.org/results/ng
[6] https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?locations=NG
[7] https://energypedia.info/wiki/Nigeria_Energy_Situation

HYDROPOWER IN NIGERIA

In a bid to address the challenges across the power sector, including the need to significantly improve electricity access which sits at just over 50%, the Nigerian government has defined a number of priority actions and targets to 2030.[7] Central to this is increasing the grid's installed capacity to at least 32,000 MW, of which some 14,000 MW will be from hydropower.[8] This ambitious target covers both small and large-scale projects as the government focuses on fully harnessing the country's hydropower potential.[9]

The most significant hydropower project under development is the proposed 3,050 MW run-of-river Mambilla station. With the financial backing of the Exim Bank of China, it is hoped that the project will commence construction in 2021 and once completed will be the largest power generating installation in Nigeria and one of the largest hydropower stations in Africa.[10] In order to connect to the station to the national grid, several transmission lines with a combined length of 700 km will need to be constructed which will electrify some of the most underdeveloped parts of the country.[11]

In addition to the need for greenfield development, modernising and rehabilitating the country's oldest hydropower stations has also become a priority. In recent years, both the 760 MW Kainji and the 584 MW Jebba stations, both privately owned by Mainstream Energy Solutions Limited, have undergone works to increase performance and output.[12]

ELECTRICITY LAWS

The overarching statutory framework for electricity supply in Nigeria is the Electric Power Sector Reform Act (EPSRA), which governs the operations of all licensees across the power supply value chain. Prior to the enactment of EPSRA, the electricity sector embodied a vertically integrated structure, owned and operated through National Electric Power Authority (NEPA). EPSRA ushered in the unbundling of generation, transmission and distribution under a holding company called Power Holding Company of Nigeria (PHCN) and subsequently into successor companies of six generation, one transmission and 11 distribution companies. The Nigerian Bulk Electricity Trading Plc (NBET) was established to serve as a financial intermediary that purchases electricity from the Generation Companies (GenCos) under Power Purchase Agreements (PPAs) and sell the same to the DisCos under vending contracts.

The EPSRA established the Nigerian Electricity Regulatory Commission (NERC) as an independent regulator of the power sector. NERC is empowered to licence operators within the power sector and issue regulations to govern the domestic electricity industry.

In addition to the broad legislative and regulatory framework governing Nigeria's power generation market in general, the hydropower space is also subject to a robust policy framework that articulates the Federal Government of Nigeria's plans for the development of renewable energy in Nigeria. Key components of the renewable energy policy framework include the: (i) Renewable Energy Master Plan which sets out the policy agenda and targets Nigeria's renewable energy development drive; (ii) Power Sector Recovery Programme which aims to increase power generation by improving operational capacity, encouraging small-scale renewable projects and building additional generation capacity; (iii) National Renewable Energy and Energy Efficiency Policy 2015 which seeks to increase the share of on-grid renewable energy in the total electricity supply to 16% by 2030; and (iv) United Nations Framework Convention on Climate Change/Kyoto Protocol which Nigeria is a signatory to, and Nigeria has also ratified other conventions relating to energy issues globally.

NERC is responsible for the licensing of electricity generation companies (hydroelectric generators included) as well as the prescription of the terms and conditions for such licences. The generation licence application process is governed by the NERC Application for Licences (Generation, Transmission, System Operations, Distribution & Trading) Regulations, 2010. NERC is required by EPSRA to ensure that the prices charged by licensees are fair and sufficient to allow all its licensees (including generators) to finance their activities and obtain a reasonable profit for efficient operations. As a result, NERC issued the Multi-Year Tariff Order (MYTO), which sets out tariff methodologies for on-grid generation, transmission and distribution of electricity in Nigeria. NERC also developed feed-in tariffs for investors wishing to invest in generation capacity that utilises other sources of energy; including small hydro of up to 30 MW.

The procurement of additional generation capacity is subject to regulations which require a transparent competitive process by the bulk trader (NBET) and the distribution licensees; in line with generation capacity expansion plans approved by NERC. NBET enters into and executes PPAs with generation companies. However, pursuant to the Eligible Customer Declaration, invoked in accordance with section 27 of EPSRA, certain persons may apply to NERC for 'eligible customer' status granting them the right to purchase power directly from a generation company.

WATER LAWS

The use of water resources is governed by federal law, which vests the use and control of all interstate water resources in the Federal Government. The Federal Ministry of Water Resources (FMWR) regulates water use and a licence from the FMWR is generally required for hydroelectric projects.

The National Inland Waterways Authority regulates interstate inland water navigation, sand dredging, pipeline construction, dredging of slots and crossing of waterways by utility lines, water intake, rock blasting and removal, and issuance of dredging permits. A number of states also have waterways authorities, with similar responsibilities.

There are also river basin authorities involved in the management of water resources for agriculture and other uses. Each authority operates in an assigned political boundary and is expected to be involved in the maintenance of dams, irrigation and drainage systems. In 2004, the National Water Resources Policy was issued to tackle the challenges facing the water sector and in addressing these challenges, to achieve coherent regulation, reliable data for planning and projections, and improve capacity for hydropower supply.

LAND RIGHTS

Land use and access rights are generally governed by the Land Use Act 1978, which prescribes, among other things, a framework for acquisition of land (including compulsory acquisition for a public purpose (for which hydroelectric projects would generally qualify)). NERC also issued electricity sector-specific regulations in 2012 which requires, among other things, payment of compensation and a resettlement action plan where land occupants are to be displaced by a power project.

[7] https://www.se4all-africa.org/fileadmin/uploads/se4all/Documents/Country_IPs/Nigeria_IP_for_WFES_9_JAN_19.pdf
[8] https://www.energy.gov.ng/Energy_Policies_Plan/National%20Energy%20Policy.pdf
[9] https://constructionreviewonline.com/2020/03/construction-of-mambilla-dam-in-nigeria-to-start-before-end-of-2020/
[10] https://www.afrik21.africa/en/nigeria-government-allocates-5-5-million-for-the-mambilla-mega-hydroelectric-projec/
[11] https://mainstream.com.ng/companyprofile.html
[12] https://www.hydropower.org/our-members/mainstream-energy-solutions-limited

HYDROPOWER IN RWANDA

Located in east-central Africa, Rwanda is a small landlocked country home to numerous mountains and lakes. Over the past decade, Rwanda has enjoyed sustained economic growth which has substantially raised living standards and the government now aspires to reach middle income country status by 2035.[6] Key to achieving such status will be expanding its power generating capacity, including developing its significant hydropower potential.

Hydropower currently accounts for around 50% of grid-connected capacity in the country, alongside fossil fuels and solar sources which contribute the remainder. Rwanda's largest domestic hydropower station is Nyabarongo I (28 MW) while both Ruzizi I (30 MW) and II (44 MW), operate under a tri-national agreement between Burundi, Rwanda and (DRC) with output shared. Approximately 30 other smaller-scale hydropower stations also contribute to the nation's total installed capacity.[7]

ELECTRICITY MARKET STRUCTURE:

IPPS 48.8MW AND PUBLIC OWNED PLANTS 61.2MW IPP SELL POWER TO THE UTILITY

MAIN STAKEHOLDERS:

RDB, RURA AND RSB

450GWh
HYDROPOWER GENERATION[3]

59.7%
HAVE ACCESS TO ELECTRICITY[5]

13.1 MILLION
POPULATION[1]

110.80 MW
INSTALLED HYDROPOWER CAPACITY[2]

51%
HYDROPOWER SHARE[4]

[1] https://countrymeters.info/en/Rwanda
[2] https://www.hydropower.org/statusreport
[3] https://www.hydropower.org/statusreport
[4] Based on a total installed capacity of 218 MW - https://www.usaid.gov/powerafrica/rwanda
[5] https://www.reg.rw/what-we-do/access
[6] https://www.worldbank.org/en/country/rwanda/overview
[7]https://www.mininfra.gov.rw/index.php?id=79

HYDROPOWER IN RWANDA

According to Rwanda's Ministry of Infrastructure, just over half of households have access to electricity, either via the national grid or through off-grid systems. In order to reach the government's aim of 100% electricity access by 2024, several hydropower projects across the country are currently under active development.[8]

Rwanda Energy Group (REG), the state-owned utility of Rwanda, is developing the multipurpose 43.5 MW Nyabarongo II project, located 20km northwest of the country's capital, Kigali. The proposed site involves a 48m dam and reservoir envisaged to help mitigate downstream flooding, while also supporting water supply, irrigation and energy needs. In early 2020, a financing agreement was signed with Chinese partners to move the project forward with completion expected by 2024.[9] [10]

The 145 MW Ruzizi III is another project being developed along the Ruzizi river near the borders of Burundi and DRC. The power output will be shared among the partner states, with a third (48.3 MW) allocated to supply Rwanda's grid. Planned as a Public-Private Partnership, the World Bank, African Development Bank, and the EU, among others, are providing capital support with financial close expected in 2021.[11] [12]

On the other side of the country in the east, the 80 MW Rusumo Falls projects is a further multi-partner development located on the Kageri river. Under a shared arrangement between Rwanda, Tanzania and Burundi, the project started construction in 2017.

ELECTRICITY LAWS

The Law N°21/2011 of 23/06/2011 governing Electricity in Rwanda (Electricity Law) and the Law N°52/2018 of 13/08/2018 Modifying Law Nº21/2011 OF 23/06/2011 Governing Electricity in Rwanda as modified to date, is the cornerstone of electricity regulation in Rwanda. This law regulates the hydropower sector and participation of private actors therein.

This law subjects any activity of electricity production, transmission, distribution and trade of electric power within and outside the national territory of Rwanda to a licence issued by the Rwanda Utilities Regulatory Agency (RURA).[13] However, any person or company intending to import or export electric power across the borders of Rwanda must obtain an international trade licence for electric power.[14]

The Electricity Law is supplemented by the National Energy Policy 2015 which addresses the principal issues in developing the energy sector in Rwanda with the main objective of meeting the energy needs of Rwanda.[15]

Licences issued under this law are of intuitu personae nature and are only subject to succession or transfer to a third party upon prior approval of RURA. The concerned parties shall make a written request thereof. RURA is required to give a response within 2 months of receipt of the request, and in case of a negative response by RURA, it is obliged to provide a reason for its refusal.[16]

The application fees for licences are USD 500 and the licence fees range from USD 5,000 to USD 50,000 depending on the licence sought i.e. Generation, Transmission, Distribution, domestic or international trading. The licences are for a defined period of not less than 5 years and not more than 25 years. The Electricity Licensing regulations were adopted by the regulatory board of RURA on 25 July 2013.

Grant of a licence is denied where there is non-fulfilment of one of the conditions set forth in the licence; the applicant is in bankruptcy, liquidation due to bankruptcy or legal requirement; the proposed activities in terms of construction, transmission or distribution of electricity are in an area which is subject to another entity's concession or license, and the cost is beyond the requestor's capacity; any element is likely to be a threat to national security; and/or any other reason which is a hindrance to the electricity market.

A project meant for electricity auto production for less than fifty kilowatts (50 KW) is not subject to a licence and is also not subjected to prior notification.[17]

Electricity tariffs and the threshold for tariffs for off-grid electricity for end-users are set by RURA in consultation with the Minister in charge of Electricity. RURA recently set the new electricity end user tariffs which became effective on 21 January 2020. The tariffs (excluding VAT) for industries are: large industries 94 Rwf/kWh; medium industries 103 Rwf/kWh; and small industries 134 Rwf/kWh.

WATER LAWS

The use and management of water resources in Rwanda is governed by Law No49/2018 of 13/08/2018. It is supplemented by the National Policy for Water Resources Management of 2011. The State owns and controls water resources.[18]

Water resources are used on the basis of the following principles: prevention of pollution; precaution; integrated management within catchment; participation; user-pays and polluter pays and subsidiarity.[19] The Rwanda Water and Forestry Authority, particularly the department of Water Resources Management, is responsible for the implementation of policies, strategies and regulations relating to water resources.

The use of water resources in different activities and installations requires a water use permit (Water Permit). An application for the permit, its renewal, modification of permit, and permit transfers are done online on the Rwanda Water Portal.[20]

The Water Permit is essential to manage water resources (effectively and efficiently for optimal use of water), to ensure fair share allocation (the water resources managers must know both how much water is available, and how much is already being used) and to protect the environment (water resources managers must ensure that water use is efficient, is well planned, and that pollution is reduced to a minimum).

When allocating water resources for different uses, water resources managers have to ensure that water for environmental flow remains available. In cases of water shortage, the permit holder will have a priority over those who do not have a permit, depending on priority order in water allocation.[21]

[8] https://www.mininfra.gov.rw/index.php?id=312
[9] https://www.mininfra.gov.rw/index.php?id=79
[10] https://w ww.hydropower-dams.com/news/rwanda-signs-financing-agreement-for-nyabarongo-ii-project/
[11] https://www.mininfra.gov.rw/index.php?id=79
[12] https://regionweek.com/what-you-should-know-about-the-ruzizi-iii-hydropower-plant-project/
[13] Article 2 of the law n°52/2018 of 13/08/2018 modifying law nº21/2011 of 23/06/2011 governing electricity in Rwanda as modified to date
[14] Article 40 of the law governing Electricity in Rwanda of 2011
[15] 2015 National Energy policy available at << https://www.mininfra.gov.rw/fileadmin/user_upload/Rwanda_Energy_Policy_March_2015.pdf >> accessed on 30th July 2020.
[16] Article 9 of the law n°21/2011 of 23/06/2011 governing electricity in Rwanda, on the Intuitu personae nature of the licence.
[17] Article 6 of ELECTRICITY LICENCING REGULATIONS N° 002/ENERGY/EL/RURA/2013, on the Electricity operations not requiring a license.
[18] Article 18 of the Law N°49/2018 of 13/08/2018 determining the use and management of water resources in Rwanda
[19] Article 7
[20] https://waterpermit.rwfa.rw/
[21] Rationale and Benefit of the water permit available at << https://www.waterpermit.rwfa.rw/login>> accessed on

HYDROPOWER IN RWANDA

LAND RIGHTS

Land rights in Rwanda are guaranteed by the Constitution of the Republic of Rwanda of 2003 revised in 2015 in its Article 35. It stipulates that private ownership of land and other rights related to land are granted by the State. Whereas for modalities of concession, transfer and use of land, these rights are governed by Law N° 43/2013 OF 16/06/2013 Governing Land in Rwanda.

Rwanda's land law provides that land is the common heritage of all Rwandan people and the state has the sole authority to accord rights of occupation, use of land and expropriation in the public interest.[22] The right to land is granted by State in the form of an emphyteutic lease.

Rwanda's land law recognises customary land ownership,[23] right to freely own and exploit land [24] and, in relation to access to land and the enjoyment of real rights, shall be prohibits.[25] Rwandan citizens are entitled to a grant of freehold title to land reserved for residential, commercial, social, cultural or scientific services not exceeding 5 hectares. However, the Minister in charge of land, basing on a reasonable case made by the applicant, may authorize freehold rights on an area larger than 5 hectares.

For a group of individuals co-owning land, a business company, and organisation or association with legal personality, freehold title can only be granted if at least 51% of its stake is owned by Rwandan citizens, except for land designated as Special Economic Zones.[26]

Land in Rwanda is classified into three categories, these being urban and rural land, individual land and public land.[27] Individuals are free to transfer their rights on land through succession, gift, inheritance, ascending sharing, rent, sale, sublease, exchange, servitude, mortgage in accordance with the law.

Foreigners are entitled to an emphyteutic lease on land whether acquired from individuals or state for a period not exceeding 49 years subject to renewal.[28] Foreigners can also obtain a freehold title under the condition of reciprocity derived from bilateral agreements or where provided for by an international convention or in Special Economic Zones where the foreigner is treated as a national.[29]

Allocation and acquisition of land for investments is based on an approved business plan and where the land in question is public land in private domain. Allocation is carried out through an open competition unless authorised by an Order of the Prime Minister on well-defined land. Land allocation is evidenced by a certificate of land registration issued by the Registrar of Titles. Land registration is mandatory under the law.[30]

Freehold title land owners are subject to property tax while emphyteutic lease land owners are subject to lease fees.[31]

[22] Article 3 of the Law n° 43/2013 of 16/06/2013 governing land in Rwanda
[23] Article 5
[24] Article 34
[25] Article 4
[26] Article 6
[27] Article 9,10 and 11of the of the Law n° 43/2013 of 16/06/2013 governing land in Rwanda, on the classification of Lands
[28] Article 23
[29] Article 24 of the of the Law n° 43/2013 of 16/06/2013 governing land in Rwanda, on the classification of Lands.
[30] Article 20
[31] Article 43

HYDROPOWER IN UGANDA

Despite being endowed with numerous energy resources throughout the country and rapid electrification progress in recent years, less than a third of Uganda's population still do not have access to electricity.[4] [5] Uganda's annual per capita consumption of electricity also remains significantly below the sub-Saharan African average as traditional biomass is the dominant source of energy for most of the population. [6] [7]

Rich in hydropower resources with a long history of development, Uganda built its first large hydropower station on the White Nile at Nalubaale (Jinja) in the early 1950s. By the end of 2019, the country had just over 1,000 MW of installed hydropower capacity, comprising 83% of the grid's total installed capacity with the remainder mostly from co-generation and thermal sources.

ELECTRICITY MARKET STRUCTURE:

SINGLE BUYER

MAIN STAKEHOLDERS:

UEGCL AND UETCL

2,200 MW

ESTIMATED HYDROPOWER POTENTIAL[7]

43%

HAVE ACCESS TO ELECTRICITY[9]

46.9 MILLION

POPULATION[1]

1,040 MW

INSTALLED HYDROPOWER CAPACITY[2]

83%

HYDROPOWER SHARE[3]

[1] https://countrymeters.info/en/Uganda
[2] https://www.hydropower.org/statusreport
[3] https://www.era.or.ug/index.php/stats/generation-statistics/installed-capacity)
[4] S. Tawha et al., Renewable base distributed generation in Uganda: Resource potential and status of exploitation, Renewable and Sustainable Energy Reviews, 2016
[5] https://www.iea.org/reports/sdg7-data-and-projections/access-to-electricity & https://rmi.org/achievements-and-challenges-of-ugandas-power-sector/
[6] https://energypedia.info/wiki/Uganda_Energy_Situation
[7] https://www.hydropower.org/country-profiles/uganda
[8] https://energypedia.info/wiki/Uganda_Energy_Situation
[9] https://energypedia.info/wiki/Uganda_Energy_Situation

HYDROPOWER IN UGANDA

With an estimated hydropower potential of 2,300 MW, the government's grid development plan has forecasted that total electricity demand will more than double by 2030 with hydropower accounting for 69% of the generation mix.[10] Recently completed hydropower projects include the 183 MW Isimba (commissioned on 21 March 2019) and 42 MW Achwa II stations. Constructed by China International Water and Electric Cooperation and largely financed by Exim Bank of China (covering 85% of the project cost), the Isimba station is located 44 km downstream from the 250 MW Bujagali station and is expected to lower electricity prices for local consumers. Several further hydropower projects are due to be commissioned in the coming years including the 600 MW Karuma located in the Kiryandongo District, mid-northern Uganda also being financed by China through a loan from Exim Bank China, covering 85% of the project cost.

To help address very low electricity access rates in rural parts of the country and advance small-scale renewable energy development, in 2013 the government implemented a feed-in-tariff (FIT) system, known as the Global Energy Transfer Feed-in-Tariff (GET-FiT) Program. It has been successful in encouraging private sector led development with over 120 MW of small-scale hydropower having been supported by the program to date.[11]

In order to keep pace with the increased generating capacity coming online, according to Uganda's Electricity Regulatory Authority, at least USD2.5 billion worth of new investment is needed over the next 7 years in expanding the country's transmission sector.[12] To help fill this financing gap, the government is now considering opening up the sector to private investors.

Owing to the liberalisation of the energy sector, several hydropower projects have been developed by the Government of Uganda through UEGCL, in cooperation with development partners, international financial institutions and private sector investors through joint ventures and Public Private Partnerships (PPPs). These projects include, along with the Isimba and Karuma hydropower projects mentioned earlier:

- The Muzizi Hydropower Project (being funded by the Government of Uganda and concessional loans from KfW and the African Development Bank); and
- The Nyagak III Hydropower Project is being developed through a joint venture between UEGCL and a Strategic Partner (Hydromax and Dott Services).

Several power projects and plants also have been developed by IPPs with the largest being the 250 MW Bujagali Hydropower Project by Bujagali Energy Limited, owned and operated by SN Power of Norway. Other small hydropower plants developed by IPPs include:

- The Bugoye Hydropower Project by Tronder Energi and the Norwegian Investment Fund for Developing Countries (Norfund);
- Mpanga Hydropower Project by EMS Mpanga Limited;
- Baseruka Power Plant by Hydromax Limited; and
- The Ishasha Power plant by Eco-Power Uganda Limited.

These IPPs operate under agreements with UETCL, the Ministry of Energy and are regulated by ERA.

[10] Uganda Electricity Transmission Company Ltd, Grid Development plan 2018-2040 - https://www.uetcl.com/images/final%20gdp%202018-2040b.pdf
[11] https://www.getfit-uganda.org/annual-reports/annual-report-2019/
[12] https://www.reuters.com/article/ozabs-uk-uganda-electricity-idAFKBN22Q1YY-OZABS

ELECTRICITY LAWS

Hydropower is governed by the Electricity Act of 1999, which is supported by various Statutory Instruments. The Electricity Act liberalised the electricity sector and unbundled the Uganda Electricity Board (UEB) to split the power industry into generation, transmission and distribution sectors run by the Uganda Electricity Generation Company Limited (UEGCL), the Uganda Electricity Transmission Company Limited (UETCL) and the Uganda Electricity Distribution Company Limited (UEDCL) respectively.

The Electricity Act also establishes the Electricity Regulatory Authority (ERA) with the mandate to issue licences for generation, transmission, distribution or sale of electricity, ownership, or operation of transmission lines. ERA is also mandated to establish a tariff structure, approve rates of charges among others and promote fair competition. Persons interested in investing in Uganda's electricity sector may apply for licences to ERA through solicited or unsolicited processes. In the solicited process, ERA invites applications for licences and through a fair and competitive process, selects the best suited bidder. In the unsolicited process, IPPs first must obtain a permit from ERA to undertake feasibility studies and any other activities that may require consents and approval usually from the National Environmental Management Authority and the Directorate of Water Resources Management.

On the conclusion of the feasibility studies, and acquisition of relevant consents and approvals, the IPP may then apply for a Generation and Sale of Electricity Licence. The licence when granted is valid for a period not exceeding 40 years, including the time it takes to construct the project.

There is currently no competition in the bulk power transmission sector. UETCL is the only company licenced to carry out the activities of construction, ownership, and operation of installations for the high-voltage transmission (above 33 kV) of electricity in Uganda. Under the single-buyer model, UETCL purchased power in bulk at tariff rates computed by ERA under the Electricity (Tariff Code) Regulations 2003. Investors can therefore only invest in the generation and distribution sector as a consequence of this.

WATER LAWS

Use, protection, and management of water resources in Uganda is provided for by the Water Act Cap 152 and the Water Resources Regulations 1998. Section 5 of the Act vests all rights to investigate, control, protect and manage water in Uganda for any use in the Government, such rights to be exercised by the Minister and Director of Water Development. Construction of works on water is only carried out with a water permit issued by the Director. The requisite process, documents, and fees for application for the permits is stipulated in the Water Resources Regulations. Where a permit is granted, the licensee ought to prevent damage and pollution to the source of water and observe all conditions in the permit since non-observance may lead to cancellation of the Permit. The Directorate of Water Resources Management under the Ministry of Water and Environment is responsible for issuing of Surface Water Abstraction and Construction Permits to hydropower developers.

LAND RIGHTS

Ownership and management of land in Uganda is governed by the Constitution of Uganda 1995, the Land Act 1998 as amended and the Registration of Titles Act 1924. The Land Act provides for four different forms of land tenure (customary, leasehold, mailo and freehold) and the procedure for applying for grant of any of these tenures. Non-citizens may only be granted leases not exceeding 99 years. Uganda uses the Torrens system of land registration which was codified in Registration of Titles Act under which all legal rights in land are registered. A Certificate of Title issued by the Registrar of Titles is conclusive evidence of ownership of land.[13] The Electricity Act in Section 71 also allows a licensee to also compulsorily acquire land with the approval of ERA and the Minister of Lands, Housing and Urban Development.[14]

[13] Section 59 of the Registration of Titles Cap
[14] The Land Acquisition Act Cap 226 of the Laws of Uganda provides for compulsory Acquisition of land where such land is required for public purpose.

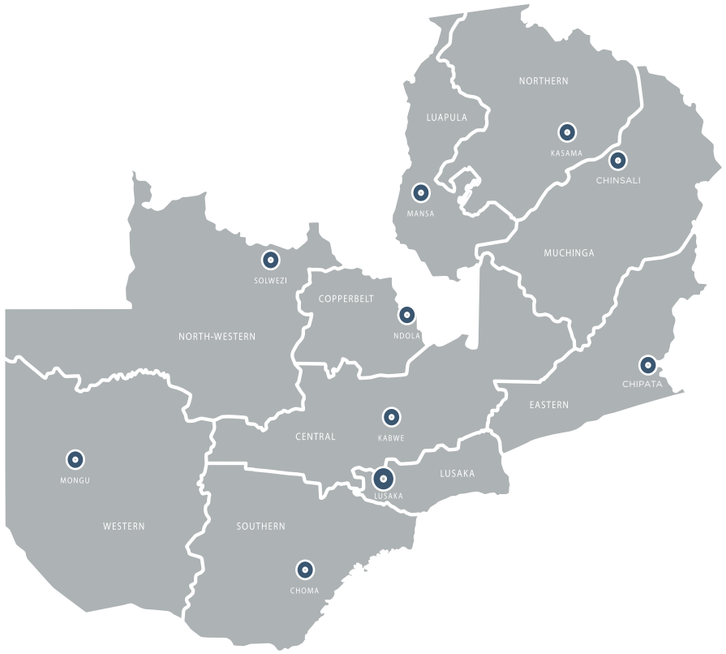
HYDROPOWER IN ZAMBIA

Zambia is home to a large portion of the Zambezi River basin, and the headwaters of the Congo River basin, both amount the most valuable natural resources in Africa, which drive for economic opportunities across the country in terms of agriculture, fisheries and power generation.[4] The southernmost headstream of the Congo River rises in Zambia and flows through the north firstly as the Chambeshi and then, after the Bangweulu Swamps as the Luapula, which forms part of the border with the DRC.[5]

Hydropower dominates Zambia's power grid, accounting for some 85% of the country's total installed capacity. The remainder is a mixture of thermal sources, including natural gas, diesel and heavy fuel oil. The most recent large-scale hydropower station commissioned was the 120 MW Itezhi Tezhi in 2016, located on the Kafue River.

ELECTRICITY MARKET STRUCTURE:
PARTIALLY LIBERALISED

MAIN STAKEHOLDERS:
ZESCO, ERB AND CEC



6,000 MW
ESTIMATED HYDROPOWER POTENTIAL[6]

40%
HAVE ACCESS TO ELECTRICITY[7]

18.9 MILLION
POPULATION[1]

2,400 MW
INSTALLED HYDROPOWER CAPACITY[2]

85%
HYDROPOWER SHARE[3]

[1] https://countrymeters.info/en/Zambia
[2] https://www.hydropower.org/statusreport
[3] https://www.usaid.gov/powerafrica/zambia#:~:text=Zambia%20has%202%2C800%20MW%20of,which%2085%25%20is%20hydro%20based.
[4] https://www.grida.no/resources/5153
[5] Zambia Homepage — Lake Tanganyika (iwlearn.org)
[6] https://www.get-invest.eu/market-information/zambia/renewable-energy-potential
[7] https://energypedia.info/wiki/Zambia_Energy_Situation

HYDROPOWER IN ZAMBIA

Owned by Tata Power and the Zambian power utility (ZESCO) on a 50:50 basis, the Itezhi Tezhi station is a first-of-its-kind PPP in the Zambian power sector. A 280 km transmission line, financially supported by several international financial institutions, was also constructed linking the station's generating capacity to the country's capital, Lusaka.[8]

Given Zambia's reliance on hydropower, increasing climate variability is a major challenge for the country. A severe drought in 2015 led to months of declining power generation at the Kariba dam resulting in regular and costly load shedding events.[9] This underlined the growing need to adequately identify, assess and manage the climate risks of hydropower projects to enhance their resilience.

While a more diverse power mix and increased regional connectivity are being pursued as ways to strengthen the country's energy security, with an estimated 6,000 MW of untapped potential, greenfield hydropower will continue to make a significant contribution to meeting increasing electricity demand.[10]

The 750 MW Kafue Gorge Lower project on the Kafue Rivert in the southern Chikankata district, located 90 km from the capital Lusaka, is expected to be commissioned in 2021. This project is being implemented by ZESCO and the Chinese enterprise Sinohydro, and financed by Zambian Government and foreign financial institutions, including the Exim Bank of China proposed 2,400 MW run-of-river Batoka Gorge. Led by the Zambezi River Authority (ZRA), which is jointly owned by the governments of Zambia and Zimbabwe, it is located 54 km downstream of the Victoria Falls and will create some 6,000 jobs. Proponents of the USD 4.5 billion project hope construction will commence in 2021 and it will be completed by 2026 when it will generate more than 10,000 GWh of electricity a year.[11]

ELECTRICITY LAWS

Zambia's energy regulations have allowed IPPs to participate in the industry since 1995. Notwithstanding this, power supply in Zambia ostensibly remains a centralized and state-owned business with ZESCO viewed as a monopoly. ZESCO is the main power generator which supplies the power supply business to Copperbelt Energy Corporation (CEC). This is utilised for its local power supply business to the mines' operations, particularly underground operations and processing untis such as smelters. CEC is a trading member of the Southern Africa Power Pool and its main customers are the mining companies in the DRC.

Notable power projects include Kafue Gorge Lower Hydropower Project, Itezhi-Tezhi Hyrdopower station and Shiwang and Mini Hydro Power Station which extended electricity to rural areas in order to promote socio-economic growth by providing a sustainable energy source.

ZESCO has entered into PPAs with IPPs which govern the sale and purchase of power. For example, the Lunsemfwa Hydro Power Company is an IPP generating about 48 MW of hydropower that is sold to ZESCO under a PPA. ZESCO has also entered into PPAs with the Itezhi-Tezhi Power Corporation (ITPC) and Ndola Energy Company (NEC).

In order to develop and operate a project, section 11 of the Energy Regulation Act No. 12 of 2019 provides that subject to the Environmental Management Act 2011, a person who intends to establish or operate an enterprise or carry out a licenced activity shall apply to the Energy Regulation Board for a licence in the prescribed manner and form, on the payment of the prescribed fee. The Energy Regulation Board shall within 60 days of receipt of a complete application under section 11, grant or reject the application and inform the applicant of the decision of the Board.

The IPP developing the project also has to comply with the legal requirements of the Environmental Council of Zambia (ECZ) in accordance with the Environmental Protection and Pollution Control Act, Chapter 204 of the Laws of Zambia, Statutory Instrument No. 28 of 1997 and the Environmental Impact Assessment Regulations 2017. Further, during the construction phase, the statutory bodies ECZ and Energy Regulation Board ERB may visit the site to check compliance with the relevant rules and guidelines.

The Electricity Act No. 11 of 2019 provides for the generation, transmission, distribution and supply of electricity so as to enhance the security and reliability of the supply of electricity. The Act also provides for the sale and purchase of electricity within and outside Zambia amongst others. The new Act provides that a person who intends to undertake a feasibility study for the development of a new electricity project must apply to the Minister for authorisation in the prescribed manner and form. The Minister shall, in consultation with other relevant authorities, in considering an application approve or reject the application to undertake a feasibility study within 30 days of receipt of the application.

The Act further provides for the Energy Regulation Board to take into consideration a tariff which shall be fair and reasonable and reflect the cost of efficient business operation. The tariff shall ensure quality of service, predictability of tariff adjustment and reasonable rate return on capital investment. The tariff shall encourage competition, economical use of the source of the electricity, good performance and optimum investment, Furthermore, it shall reward efficiency in performance and a tariff shall reflect enforceable standards for the quality and cost of the supply of electricity to retail consumers and non-retail consumers.

ELECTRICITY LAWS

A licensee may with the approval of the Energy Regulation Board pay access fees for the provision of a supply line, electric power plant or equipment. The Act has introduced a framework that regulates a licensee's tariff over a period of time (multi-year tariff framework). The Act has also introduced a system operator, an entity responsible for short term reliability of an interconnected power system, which is in charge of controlling and operating the transmission system and dispatching generation or balancing the supply and demand in real time in a non-discriminatory manner.

The Energy Regulation Board (ERB) established under the Energy Regulation Act is tasked with regulating the operations and pricing of the electricity sector while the Office for Promoting Private Power Investment (OPPPI) was created to manage additional investment. The objective of OPPPI is to reduce the complexity of procedures, rules and regulations and red tape associated with obtaining the required approvals, permits and licences for investors in the electricity sector. In addition, the Renewable Energy Feed-in Tariff (REFIT) strategy was developed to top-up on electricity prices with the aim of lowering barriers for private sector investment in renewable energy generation.

The REFIT programme has resulted in a standardised PPA consistent with the existing ZESCO PPA. The PPA is based on the assumption that the developer will finance the project through project finance arrangements. The developer shall also enter into an implementation agreement with the Government of Zambia and will obtain a Generation Licence from the ERB. ERB has the mandate to review and approve PPAs before execution. In accordance with the PPAs, ZESCO is obligated to purchase power generated under the REFIT Program from licenced renewable energy generators subject to fulfilment of all necessary licence conditions.

[8] http://www.eu-africa-infrastructure-tf.net/activities/grants/itezhi-tezhi-hydro-power-and-transmission-line-project.htm
[9] https://www.hydropower.org/country-profiles/zambia
[10] https://www.zambiainvest.com/energy
[11] https://www.au-pida.org/view-project/335/

HYDROPOWER IN ZAMBIA

WATER LAWS

The Ministry responsible for the development and management of energy and water resources in Zambia is the Ministry of Energy and Water Development. The Ministry's objective is the management of energy, in a sustainable manner.

In 2010, the revised National Water Policy 2010 was enacted with aims to improve water resources management by establishing institutional co-ordination and defining roles as well as responsibilities for various ministries. Subsequently, the Water Resources Management (WRM) Act No. 21 of 2011 was enacted repealing the 1949 Water Act which was restricted to the regulation of surface water. The Water Act 2011 was enacted to promote integrated water resource management principles that allow for the development and management of water resources through the participation of key stakeholders in order to realize effective and equitable utilization of water resources for sustainable development. The enactment of the Water Resources Management Act 2011 also recognized groundwater which since Zambia's independence in 1964, had never been subjected to regulation. Water Resources Management Authority (WARMA) is a statutory body under the Act tasked to effectively manage Zambia's water resources, be it surface water or groundwater, not only in terms of quantity but quality as well.

LAND RIGHTS

Non-Zambians cannot own land in Zambia. However, there are some exceptions as provided under Section 3(3) of the Lands Act. For example, a non-Zambian can acquire land where they are a permanent resident in Zambia or are an investor as provided for by the Zambia Development Agency Act or where the non-Zambian is a company registered under the Companies Act, and less than 25% of the issued shares are owned by non-Zambians.

Land in Zambia is subject to freehold and leasehold tenure systems. Customary land is held under the traditional leadership as regulators of the acquisition and use of the land. The land under leasehold tenure is under the control of the Republican President and can only be acquired by a direct grant from the President through the Commissioner of Lands.

Compulsory acquisition of land is governed by the Constitution of Zambia and the Lands Acquisition Act. The State cannot however compulsorily acquire property, or an interest in or right over property, without giving the prescribed notice of its intention to do so. The basic principle with respect to compensation is that the sum awarded should, as far as possible, place the claimant in the same financial position as they would have been if the land was not compulsorily acquired.

Where the land acquired has crop, the farmer will be compensated in full for the expected market value of the crop plus the loss of investment of labour and purchased inputs for the relevant production season. The compensation may be paid in monetary form or in the form of alternative land.

SUMMARY

Africa needs more power. Much more. Yet the Paris Agreement objective of limiting global warming to well below 2°C requires countries across the world to rapidly decarbonise their energy supply. This means that Africa has a unique opportunity to circumvent many of the challenges associated with the 'energy transition' (such as stranded asset risk, decommissioning and skills-transfer) and develop its power systems with renewable energy at its core. Intermittent renewable energy sources, however, provide a variable supply of energy, which creates grid balancing issues. Hydropower (especially dams with storage and pumped-storage projects) can play an important role in improving grid stability. And unlike more developed regions (such as Europe and North America) - where the best and most efficient hydropower resources have already been developed, undeveloped hydropower capacity is in abundance in Africa.

Identifying and mitigating risks should be a virtuous circle for investors and non-investment stakeholders - higher quality mitigation and management of risk leads to a higher quality asset which will appeal to be a broader pool of investros - making it more valuable. For sophisticated investments like hydropower, risk mitigation is never a purely legal job. But having the investment structures, transaction documents and other legal matters carefully implemented to anticipate and mitigage hydropower-specific risks will go a long way to improve the overall quality of hydropower investments and projects.

FURTHER READING

- Financing Sustainable Hydropower Projects in Emerging Markets: An Introduction to Concepts and Terminology, Sanna Markannen and Judith Plummer Braeckman - **https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3538207**
- Independent power projects in Sub-Saharan Africa: lessons from five key countries, Eberhard, Anton Adriaan; Gratwick, Katharine; Morella, Elvira; Antmann, Pedro - **https://documents.worldbank.org/en/publication/documents-reports/documentdetail/795581467993175836/independent-power-projects-in-sub-saharan-africa-lessons-from-five-key-countries**
- The Hydropower Sustainability Guidelines on Good International Industry Practice (HGIIP), International Hydropower Association - **https://www.hydrosustainability.org/hydropower-sustainability-guidelines**
- 2020 Hydropower Status Report, International Hydropower Association - **https://www.hydropower.org/resources/status-report**
- Hydroelectric Power: A Guide for Developers and Investors, International Finance Corporation - **https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/publications/hydroelectric_power_a_guide_for_developers_and_investors**
- Climate finance for hydropower, Sejal Patel, Clare Shakya, Neha Rai, International Institute for Environment and Development - **https://pubs.iied.org/10203IIED**
- Climate Impacts on African Hydropower, International Energy Agency - **https://www.iea.org/reports/climate-impacts-on-african-hydropower**
- Africa Energy Outlook 2019, International Energy Agency - **https://www.iea.org/reports/africa-energy-outlook-2019**

PROBLEMS. POSSIBILITIES.
COMPLEXITY. CLARITY.
OBSTACLES. OPPORTUNITIES.
THE DIFFERENCE IS IMAGINATION.

addleshawgoddard.com

13231