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UGANDA COUNTRY REPORT

Wikus Kruger, Kyle Swartz and Anton Eberhard
Power Futures Lab

Report 2: Energy and Economic Growth Research Programme
(W01 and W05) PO Number: PO00022908



 **Energy and Economic Growth**
Applied Research Programme



Uganda Country Report

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Frequently used acronyms and abbreviations

COD	Commercial operation date
DA	Direct agreement
DFA	Development finance agreement
DFI	Development finance institution
DfID	Department for International Development (UK)
ERA	Electricity Regulatory Authority
EOI	Expression of interest
EPC	Engineering, procurement and construction
GET FIT	Global energy transfer feed-in tariff
IA	Implementation agreement
IFC	International Finance Corporation
IPP	Independent power producer
MEMD	Ministry of Energy and Mineral Development
O&M	Operations and management
PPA	Power purchase agreement
PRG	Partial risk guarantee
REA	Rural Electrification Authority
RfP	Request for proposal
ROE	Return on investment
UEGCL	Uganda Electricity Generation Company Limited
UETCL	Uganda Electricity Transmission Company Limited
UEDCL	Uganda Electricity Distribution Company Limited
UK	United Kingdom
URA	Uganda Revenue Authority

1 Introduction

In 2014, Uganda became the first sub-Saharan African country outside of South Africa to embark on a renewable-energy auction programme through competitive bidding. The hybrid nature of the procurement mechanism – whereby winning projects received a feed-in tariff (US¢11/kWh) set by the regulator *and* a competitively set premium payment (US¢5.37/kWh) – made the programme particularly attractive to investors.

Although the two winning projects were relatively small by global standards (at 10 MW each), they became the largest solar PV installations in East Africa when they were commissioned in 2016 and 2017 (IRENA, 2018).

In this report, we analyse the factors that underpinned the outcomes of the auction, primarily from the perspective price and investment. We also highlight lessons learned from the design and management of the auction in the hope that these might usefully inform future initiatives.

Our analysis shows that the auction owed much of its success to its robust institutional setup and governance. The fact that Uganda already had a GET FiT (global energy transfer feed-in tariff) programme, meant that dedicated resources and capacity were allocated to the auction scheme. The GET FiT programme went to great lengths to ensure the success of the auction and its outcomes. A centralised implementation unit located within a powerful local institution, was guided by an independent body of respected experts, and supported by a powerful political committee. This combination of adequate resources, valued expertise and political support was critical in securing investor interest and moving the projects to completion. Unfortunately, most of this capacity was dedicated to establishing the Solar PV Facility and has not extended into the other state institutions responsible for energy provision in Uganda.

Stringent prequalification criteria were set, bidder commitment was secured through a combination of bid and performance bonds, bankable contracts were developed in consultation with potential lenders, and a host of risk mitigation measures were deployed, including sovereign guarantees and front-loaded premium payments. These prequalification criteria, combined with institutional commitment to the programme, including that of its development partners, seemed to all but guarantee the project's success. Even so, some uncertainty about how solar PV projects would be taxed delayed one of the projects significantly, and eventually required a change in Uganda's legislation, pointing to the importance of attending to a wide range of details when designing renewable-energy auctions.

The Ugandan case also confirms the importance of dynamic, least-cost procurement planning within the context of a national energy plan. Uganda's power sector had no such plan when the auction for the GET FiT Solar PV Facility took place, and while the bid process was underway, Uganda's president, Yoweri Museveni, decided to award two large hydropower projects to Chinese funders and contractors. Power demand has since not materialised as the president had hoped, leaving the country with a potentially costly oversupply of electricity. In the context of this oversupply, no further auction rounds are planned. This means that both the tariff reductions and the further entrenchment of renewables that are likely to have resulted from follow-up rounds now seem unlikely. For this reason, Uganda has not been able to fully realise the promise that the auction programme held when it was initiated.

Accordingly, while the launch of the GET FiT Solar PV Facility helped to cement Uganda's reputation as one of sub-Saharan Africa's leading destinations for private power investment, important lessons for the design and implementation of renewable-energy auctions can be learned from a closer examination of the auction process.

Before focusing on the auction design and implementation, we provide some basic background on Uganda and its electricity sector. In subsequent sections, we discuss the design and management of the auction, as well as the roles played by key organisations and structures, including some of the challenges they faced. Finally, we evaluate the programme and conclude by drawing out its key lessons.¹

1 The analytical framework used is outlined in Appendix 2. Our information was gathered partly from existing research and reports, and partly via personal communication with individuals involved in, or responsible for, establishing the Solar PV Facility.

2 Country overview

Uganda, a landlocked country in East Africa, is home to more than 42 million people. Since achieving independence in 1961, periods of conflict and war led to the destruction of much infrastructure and several industries. In 1986, President Yoweri Museveni came to power and remains the incumbent. Multiparty elections were held (for the first time) in 2006, and again in 2011 and 2016.

Modern Uganda is largely the product of a three-decade-long reform project led by Museveni, and brought to life amid the ashes of a country torn apart by civil war. Over the last thirty years, economic stability and investment has increased, underpinned by responsible fiscal policy, prudent monetary management, a sound banking sector and substantial donor support. In 2017, Rand Merchant Bank's report, *Where to Invest in Africa* (Fauconnier et al., 2017), placed Uganda tenth in sub-Saharan Africa, rating it well above the regional average in relation to the ease of doing business, expected market growth, economic freedom and global competitiveness. Uganda's capital market is also reasonably well-developed, and is actively accessed by banks and insurance companies. Loan tenors are long by regional standards (13 years in 2014), and foreign investment is sizable.

Between 2001 and 2018, Uganda's economy has grown considerably, with GDP growth well above 6 per cent for much of the period. A focus on macroeconomic stability, economic liberalisation, as well as regulatory and institutional development, has played an important role. GDP growth has also been driven by infrastructure development, mainly funded by China. In this context, the country has weathered the global financial crises well, although GDP growth has fallen to around 4 per cent since 2012, and the Ugandan shilling has lost value against the US dollar. This loss of value is particularly significant for the country's power sector as its IPPs are exposed to dollar- and euro-denominated off-take agreements.

Although these positive signs combine with noteworthy advances in poverty alleviation and a growing job market, Uganda is still one of the poorest nations on our planet, with nominal GDP per capita at US\$690. The fact that public debt as a percentage of GDP has risen from 33 per cent in 2015 to more than 40 per cent in 2018 further emphasises the country's economic vulnerabilities (Fauconnier et al. 2017; IHS Markit, 2018; Svirydzenka, 2016; World Bank Group, 2016; Youngblood-Coleman, 2018).

Uganda's power sector: reconsidering reform?

President Museveni came to power in the mid 1980s, after much of the country's social, political and economic infrastructure had been devastated by colonial exploitation and the regimes led by Milton Obote and Idi Amin. In the twenty years after Uganda's independence, more than 66 per cent (90 MW) of the country's installed power-generation capacity was lost (leaving just 60 MW of installed hydropower), with transmission and distribution losses estimated at more than 40 per cent. In an effort to ensure the reliable electricity supply that was crucial for Uganda's social and economic recovery, Museveni agreed to the package of macroeconomic reforms that were conditional to receiving funding from the IMF in 1987. This was supported by the World Bank and its member countries.

By 1998, Uganda was ready to embark on sub-Saharan Africa's most ambitious power-sector reform programme. The reforms were based on a suite of robust legislation and policies that clearly defined the roles and responsibilities of all institutions in the sector, and that specifically aimed to attract private-sector investors (Kapika and Eberhard, 2013; Meyer et al., 2018).

Building on the 1993 Public Enterprises Reform and Divestiture Act, the Electricity Act of 1999 allowed for the unbundling of the Uganda Electricity Board into three separate entities:

- the Uganda Electricity Generation Company Limited (UEGCL);
- the Uganda Electricity Transmission Company Limited (UETCL);
- the Uganda Electricity Distribution Company Limited (UEDCL).

The Act also established the Electricity Regulatory Authority (ERA) and the Rural Electrification Board, with the day-to-day business of the latter being handled by the Rural Electrification Authority (REA). Uganda's generation and distribution facilities have subsequently been leased to private companies, Eskom and Umeme,² through respective concession agreements (Kapika and Eberhard, 2013; Meyer et al., 2018). Umeme has since become Uganda's main electricity distribution company. To make these concession agreements work, the government and its development partners had to agree to several guarantees. For example, Umeme was granted relief from many of its major performance obligations in the first few years of the concession agreement after a severe drought caused a crisis in electricity supply and the government froze tariffs.

However, the government has expressed disappointment with the slow pace at which Umeme has attempted to improve its performance, stating that the company has not done enough to extend electricity access. Concerns have also been expressed about the financial protections and returns afforded to Umeme (Kapika and Eberhard, 2013; Meyer et al., 2018). Parliamentarians and other prominent members of Uganda's political establishment, including a former minister of the Ministry of Energy and Mineral Development (MEMD), have gone as far as challenging the legitimacy of Umeme's concession (Kakaire, 2012; Mwenda, 2013; NTV, 2018). In late 2018, Museveni directed his energy minister to start negotiating the extension of Umeme's concession contract, which runs out in 2025 (Wesonga, 2018).

While Umeme could have invested in extending its services into more rural areas, in our view, the company has managed most of its operations reasonably well. From 2012, for example, ERA set higher connection targets for Umeme, and these have been exceeded. This suggests that the regulator should perhaps have added stronger incentives regarding access and performance enhancements into Umeme's contract from the outset.

In other respects, substantial improvements have been made across the power sector. By 2012, financial close had been reached on 11 IPPs (see Table 1). Between 1986 and late 2018, installed generation capacity had increased six times, rising to above 900 MW, with over 40 per cent of this supplied by the private sector. In particular, the commissioning of Africa's largest hydro IPP at Bujagali in 2012 greatly expanded electricity supply, while also enabling a marked reduction in state expenditure on expensive emergency thermal power (see Figure 1).

Furthermore, the reduced need for costly emergency power, coupled with the introduction of a quarterly automatic tariff-adjustment mechanism by ERA,³ helped make Uganda one of very few sub-Saharan countries that has cost-reflective electricity tariffs. Further improvements include: expanded electricity access albeit from a very low base (from 4.3% in 1994 to 26.7% in 2017); reduced transmission and distribution losses (40% in 2005 to 21% in 2017); and improved billing-collection (from 80% in 2005 to 98% in 2017). Many of these gains can be

2 Umeme's initial shareholders were Eskom and Globeleq. In 2006, Eskom dropped out as a shareholder and Globeleq has since been replaced by Actis Capital. Umeme has partial equity listings on the Ugandan and Kenyan stock exchanges.

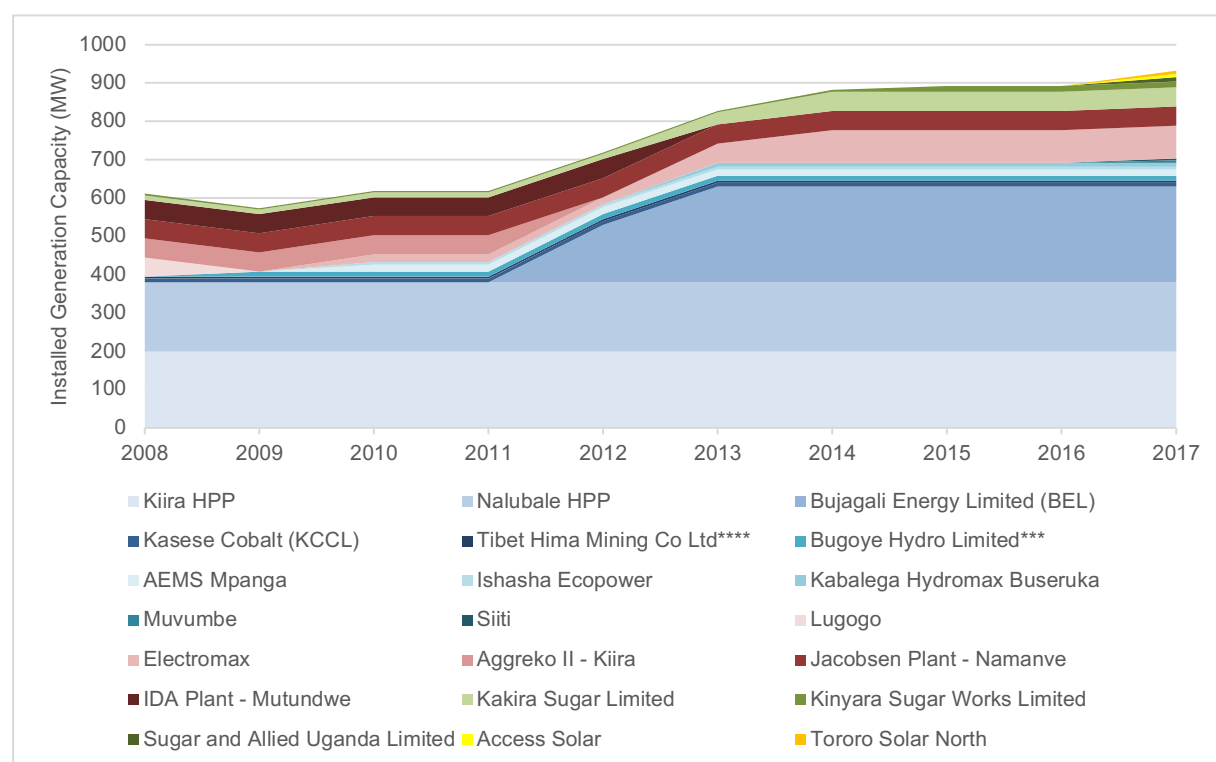
3 Tariffs are adjusted based on fuel costs, local inflation and exchange-rate fluctuations.

attributed to improved performance (linked to incentives in the concession contract) by Umeme (Meyer et al., 2018).

Table 1: Ugandan IPPs established between 1999 and 2012, before the GET FIT programme was launched

Financial close	Project name	Technology	MW
1999	Kasese Cobalt (KCCL), (Mubuku III)	Hydro, small (<50MW)	9.9
2003	Kakira Sugar Ltd cogeneration plant	Waste/bagasse	32.0
2007	Bujagali Energy Ltd Hydro Project	Hydro, large	250.0
2008	Jacobsen Plant - Namanve	MSD/HFO	50.0
2008	Bugoye Hydro Ltd (Mubuku II - Tronder)	Hydro, small (<50MW)	13.0
2008	AEMS Mpanga Hydro Power Project	Hydro, small (<50MW)	18.0
2008	Ishasha Ecopower Mini Hydropower Plant	Hydro, small (<50MW)	6.5
2009	Electromax (Tororo) Power Station	MSD/HFO	16.0
2009	Kinyara Sugar Works Ltd Cogeneration Plant	Waste/bagasse	7.5
2009	Kabalega Hydromax Buseraka Hydropower Plant	Hydro, small (<50MW)	9.0
2012	Electromax (Tororo) Power Station (expansion)	MSD/HFO	34.0

Figure 1: Installed electricity generation capacity, Uganda, 2008-2017



Source: Uganda Bureau of Statistics (2018)

Note: Blue = hydro power; red = thermal power; green = biomass; yellow = solar power.

Key challenges facing the sector

Improvements to date have been hard won and several key challenges remain, and new ones are emerging. For example, the reforms have ushered in important changes in inter-institutional dynamics within the sector. While the energy ministry (MEMD) still has overall responsibility for sector coordination, planning and policy, the regulator (ERA) has gained substantial power and independence, supported by legislation and policy. ERA's power is enhanced by its unique and comprehensive insight into each part of the now more decentralised sector, and by the

growing professional capacities of its staff. Important shifts in this dynamic have come to the fore in recent years, and one arena in which this is playing out is in investment planning across the sector.

In 2011, ERA developed a ‘Power Sector Investment Plan’ for the years 2009 to 2030, in line with its function to ‘advise the Minister responsible for energy on least cost projects’, as per the 1999 Electricity Act. While it is relatively unusual for a regulator to be responsible for this kind of planning, it made sense in Uganda, given the regulator’s capacity relative to that of the ministry. However, although the plan was approved by energy ministry in 2011, it has no formal legal or regulatory standing, and does not seem to be used when investment decisions are being made. Similarly, in 2013, ERA produced an update to the plan – the *Least Cost Generation Plan, 2016–2030* (ERA, 2016). This time, the plan was not been formally approved by the energy ministry. Meanwhile, in 2015, UETCL produced its own *Grid Development Plan, 2015–2030* and Umeme and REA both produce annual investment plans. None of these planning processes appear to be coordinated by either ERA or the energy ministry.

The development of the Bujagali plant also created some controversy. Taking over 13 years to reach financial close in 2007, the project was almost derailed by allegations of corruption, and required a complex arrangement of guarantees and other support measures before it was commissioned. By 2010, Bujagali had become the most costly IPP in Africa (Meyer, et al., 2018). Consequently, the authorities initially allocated subsequent hydropower plants – Kuruma (600 MW) and Isimba (183 MW) – to the public sector (namely UEGCL). However, when corruption allegations halted those projects’, the president awarded them to Chinese contractors and funders in 2013.

As mentioned in our introduction, Uganda is now facing an oversupply of power in the short to medium term. This has significant financial implications for the sector, given the take-or-pay nature of contracts signed with new generation projects. The situation is likely to be exacerbated further by calls from the president to reduce average electricity tariffs to US¢5–6/kWh – a significant decrease from the current US¢17/kWh (Eberhard et al., 2016; Kapika and Eberhard, 2013; Meyer et al., 2018; Rocky Mountain Institute, 2017).

Throughout the reform process, support from the president and other high-level government officials has been both essential and determining. Given the difficulties encountered, and the political costs of the perceived lack of delivery on key outcomes (such as lower tariffs, and wider access), it is perhaps unsurprising that the notion of rolling back some of the reforms has some support.

The GET FiT programme in Uganda

In response to a request from the UN secretary-general’s Advisory Group on Energy and Climate Change, the Deutsche Bank’s Climate Change Advisors designed the GET FiT programme in 2010. The request centred on the need for new concepts to drive renewable-energy investment in low to middle-income countries. In 2011, the programme was presented in Germany to the embassies of various countries.⁴ Uganda’s ambassador to Germany Francis Butagira, picked up the information and passed it on to Benon Mutambi, then-CEO of ERA⁵ (Fulton et al., 2010; Kreibiehl and Miltner, 2013).

4 Zambia launched its version of GET FiT in 2018 and Mozambique has some plans in the pipeline but nothing official yet.

5 In December 2016, Mutambi was appointed to the Ministry of Internal Affairs, where he currently serves as permanent secretary.

As ERA CEO, Mutambi was acutely aware of Uganda’s looming electricity supply gap (see Figure 2), and knew that the earliest that new 600 MW Karuma hydropower project was likely to be commissioned was in late 2018.⁶ Mutambi also knew that Uganda already had a feed-in tariff programme with the potential to address the supply gap through small and medium-sized projects but, for a range of reasons, the programme had failed to deliver.⁷ Uganda’s deep commitment to sectoral reform, and low levels of electricity access, made the country an obvious candidate for the GET FiT programme, offering the country an opportunity to address some of its supply-side problems through a package of support interventions (see Figure 3). The programme was enthusiastically championed by ERA’s CEO.

Figure 2: Generation capacity versus peak-demand projections, Uganda, 2012–2030

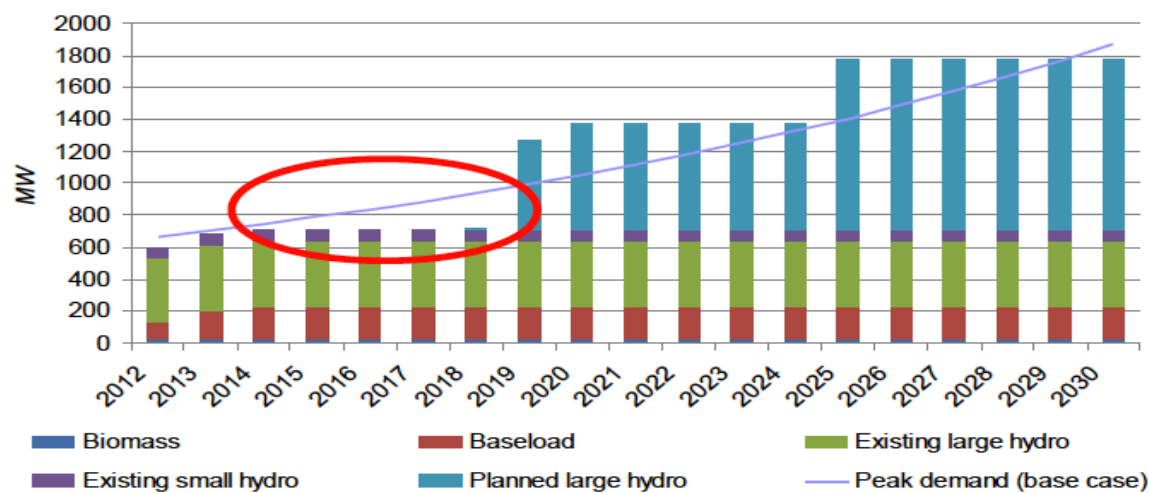
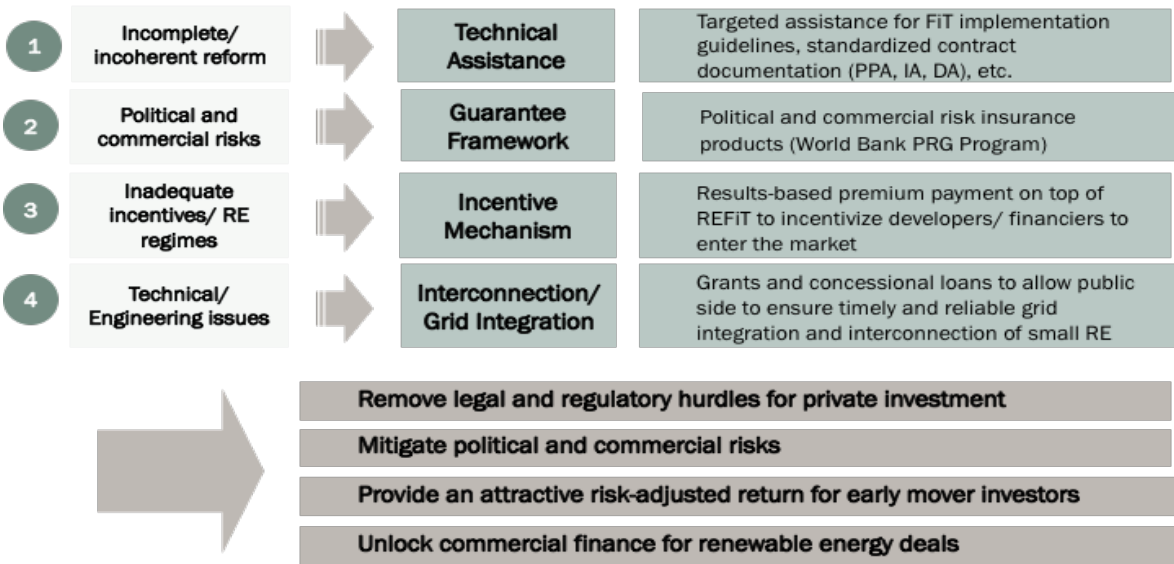


Figure 3: The GET FiT assistance programme as envisaged by KfW and Deutsche Bank



Source: KfW (2016)

6 At the time of writing in late 2018, the project is still not close to being commissioned.

7 For example, feed-in tariff levels were set lower than developers would accept and the lack of standardised bankable contracts was a factor. In addition, currency depreciation was creating liquidity constraints for the single off-taker (UETCL), and rising oil prices were resulting in pressures on the fiscus Uganda spent 7 per cent of its 2011/12 national budget on stabilising the retail electricity tariff (Kreibiehl and Miltner, 2013).

The initial programme combined technical assistance (including developing standardised, bankable documentation), viability gap funding (in the form of premium payments on top of the existing feed-in tariffs), and project de-risking (through the provision of liquidity and termination support, for example). Together, these initiatives aimed at creating a more enabling environment for private renewable energy projects in Uganda.

Launching the programme required development finance, and in 2011, Germany's development bank, KfW, agreed to partner with the Deutsche Bank to conduct a feasibility study, and present its findings in 2012. Thereafter, KfW and ERA were tasked with running the programme in Uganda. Donors, (including DfID and the Department of Energy and Climate Change in the UK, the governments of Norway and Germany, and the European Commission's Africa Infrastructure Trust Fund) committed about US\$90 million to finance top-up payments.

Building on Uganda's ongoing commitment to private-sector generation (as outlined in the 1999 Electricity Act and the 2002 Energy Policy), as well as the prioritisation of small- and medium-scale renewable energy projects in its 2007 Renewable Energy Policy, the intention was for the programme to help facilitate the procurement of 125 MW (later increased to 170 MW) via ten to fifteen IPPs, using small hydro and bagasse or biomass (GET FiT Uganda, 2015, 2016; Kreibiehl and Miltner, 2013; MEMD, 2007).

Launched in May 2013, Uganda's GET FiT programme initially procured fifteen projects in three rounds – mostly small hydro, but also bagasse and biomass.⁸ Late in 2013, ERA indicated that they would also like to see solar PV projects supported through the GET FiT programme, due to the technology's plummeting costs, short lead times, and the fact that solar plants can be built close to demand centres. Until this point, the Ugandan government had considered the use of solar PV only for isolated mini-grid interventions in remote locations with relatively high levelized costs of supply (Meyer et al., 2015).

Accordingly, the GET FiT Solar PV Facility was launched in January 2014, with the aim of procuring 20 MW of electricity via solar PV projects (4 x 5 MW). Funding of €15 million was made available by the EU Africa Infrastructure Trust Fund for the solar facility's premium payments, with the level of premium payment determined through competition on price. In essence, winning projects were given a guarantee that they would receive US\$11/kWh as a feed-in tariff, and could compete for an additional premium payment. This was an important departure for the GET FiT programme, which, until that point, had provided administratively set tariffs to projects by excluding price from the evaluation criteria (see Table 2 **Error! Reference source not found.**). Later in 2014, two solar projects – Soroti I and II (2 x 5 MW) and Tororo North and South (2 x 5 MW) were procured through a competitive bid process, reaching financial close and commercial operation in record time. By late 2018, Uganda's GET FiT portfolio had 17 projects spread throughout the country (see Figure 4). Six of the projects have begun commercial operations, the rest are expected to begin operations in 2018 and 2019.

It is important to note that despite the GET FiT programme's achievements, between five and eight of its projects are facing significant delays related to a lack of connection infrastructure (KfW/Multiconsult, 2017). Donors (notably DfID) have made additional grant funding of about US\$19 million available for the construction of this infrastructure but implementation by UETCL, UMEME and REA has been slow. Failure to resolve this in a timely manner could mean that, when projects reach their contracted commercial operation dates, UETCL will be forced to honour its obligations, and pay for electricity that it cannot transmit. This is likely to significantly diminish public and political support for the programme.

8 Some of the biomass projects were later removed from the programme due to commercial challenges.

Table 2: Investment and tariff details related to Uganda's GET FiT project portfolio, in order of award

Name	Capacity (MW)	Technology	Total investment (million US\$)	REFiT (US\$/MWh)	GET FiT top up (US\$/MWh)
Nyamwamba	9.2	SHP	26.8	85	14
Rwimi	5.5	SHP	20.8	98	14
Kikigati	16.0	SHP	64.4	85	14
Kakira Cogen Extension	32.0 (20.0)	Bagasse cogeneration	60.7	95	5
Muvumbe	6.5	SHP	14.1	94	14
Lubilia	5.4	SHP	18.7	99	14
Siti I	6.1	SHP	14.8	96	14
Siti II	16.5	SHP	34.0	85	14
Sindila	5.2	SHP	17.1	99	14
Waki	4.8	SHP	18.1	101	14
Tororo North /South	10.0	Solar	32.0	110	53
Soroto I/II	10.0	Solar	27.0	110	53
Nyamagasani I	15.0	SHP	36.7	(85-115)	14
Nyamagasani II	5.0	SHP	19.8	(85-115)	14
Ndugutu	4.8	SHP	15.0	(85-115)	14
Kyambura	7.6	SHP	24.0	(85-115)	14
Nkusi	9.6	SHP	23.0	(85-115)	14

Source: GET FiT Uganda (2017)

Note: SHP = Small hydro project

Figure 4: An overview of GET FiT projects in Uganda

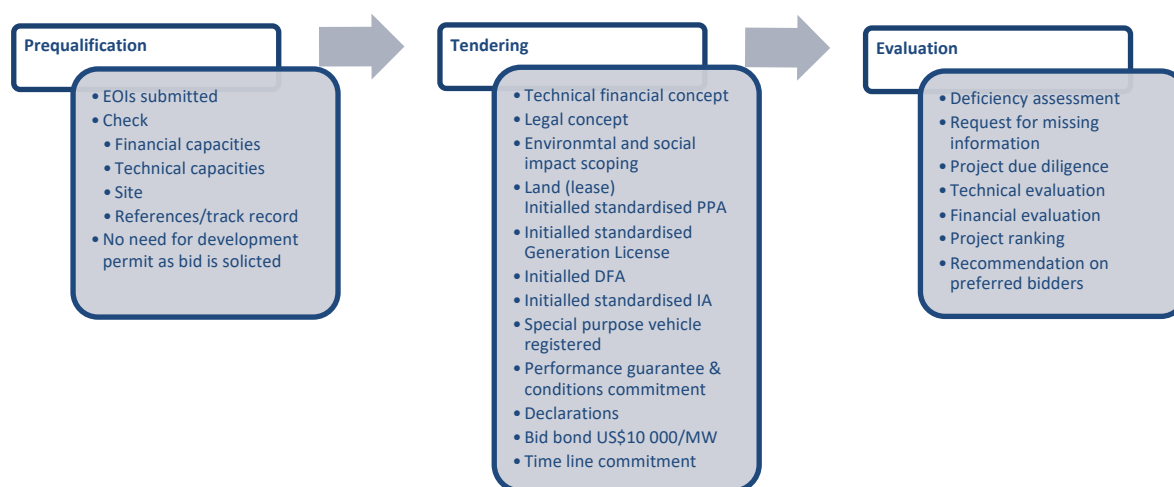


Source: GET FiT Uganda (2017)

3 The GET Fit Solar PV Facility: auction design

The auction for the Solar PV Facility was designed as a stand-alone, sealed-bid, pay-as-bid using a two-stage bidding process. The first stage involved an initial prequalification (or expression of interest, EOI); the second was a request for proposals (RfP) that was issued two months later (Figure 5). Timelines for the programme were generally considered tight, with qualified bidders given three months to prepare their final bids after the RfP was launched. In general, the procurement process stuck to the proposed timelines – at least until the contract negotiations started (discussed below). Successful bidders were offered a standardised, 20-year power purchase agreement (PPA) with UETCL, an implementation agreement (IA) with the Ugandan government, and a development finance agreement (DFA) with KfW.

Figure 5: The GET FiT Solar PV Facility qualification and evaluation process, Uganda, 2014



In this section, we analyse the auction design, focusing on: how the auction volume was decided (auction demand); where the projects would be built; who was allowed to bid, and how this was determined (qualification and compliance criteria); how the projects were evaluated and ranked; and which tools and mechanisms were used to ensure the commitment of bidders as well as fair risk allocation between the host government and the off-taker (seller and buyer liabilities).

Auction demand

As noted, the lack of a clear, legally mandated and integrated planning framework means that the GET FiT programme has contracted projects that are not part of any ‘official’ investment plan, although ERA deemed them necessary in 2012 because of a looming supply gap. The Solar PV Facility is no exception. It is not included in the 2011 ‘Investment Plan’ or the 2016 ‘Least Cost Generation Plan’. The lack of procurement planning has, to a large degree, limited the cost-reducing and pipeline-creating impact of the auction process by precluding the possibility of a predictable schedule of auction rounds.

Accordingly, the way in which the auction volume was determined for the solar facility became one of the programme’s weaker areas. A 20 MW cap was set for the procurement of new solar PV projects based on an estimate of how far the (premium payment) grant funding allocated to the solar facility would go. Therefore, no guarantee could be given that the procured volume would actually amount to 20 MW. If bid prices were higher than anticipated, this would lower the capacity that could be procured. In other words, rather than being determined by an overall

procurement strategy, the auction volume for the Solar PV Facility came down to concerns about grid stability and the availability of donor funding.

Bidders were invited to submit bids of up to 5 MW capacity per solar PV project, and could submit a maximum of two bids worth a total of 10 MW. Bidders were competing for a twenty-year PPA and a five-year DFA. They were informed that if they won and their projects underperformed by delivering less than 90 per cent of the expected energy in the first year of operation, they would forfeit the entire subsidy (premium payment). In addition, if the achieved capacity was less than 70 per cent of the contracted capacity, the PPA could be terminated immediately.

The project tariff was made up of two parts. The first was a US¢11/kWh FiT that was set and announced by ERA prior to bidding (this was based on an estimate of what UETCL could pay without impacting average supply costs).⁹ The second part of the project tariff was a donor-funded top-up payment, front-loaded in the five years after financial close. Bidders were basically guaranteed US¢11/kWh, and were therefore competing for the lowest premium payment portion on top of this tariff. This means that winning bidders signed two payment contracts for the purpose of selling the same power: a standard PPA with UETCL and a premium payment contract (that is, a DFA) with KfW.

Economies of scale (including the costs involved in project financing) dictated that all bidders that were deemed to be technically qualified ended up bidding for two adjacent projects totalling 10 MW. The authorities were concerned that if they offered only one 20 MW project, fewer bidders would expect to have a chance of securing the project, and so fewer would participate in the process, thereby reducing competition. While this might be true, a predictable schedule of auction rounds would probably have done more to increase competition as well as offering developers (and Uganda) the opportunity of exploiting the economies of scale associated with a larger (20 MW) plant.

However, without an official least-cost plan, translated into competitive procurement processes, there could be no certainty about what the Ugandan government would procure, from whom, or by when. Investors therefore had little incentive to spend money developing project pipelines, and the ‘market understanding’ that has been essential in reducing tariffs in auction programmes in other countries is unlikely to be replicated here.

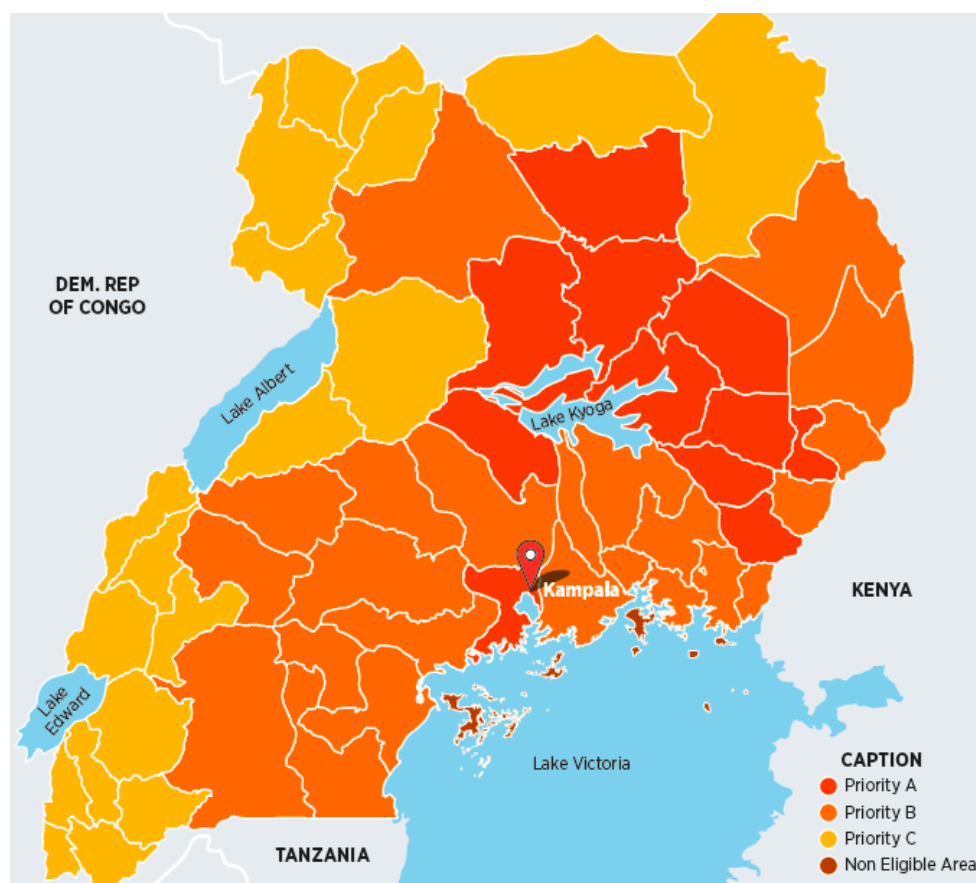
Site selection

Bidders for the Solar PV Facility could choose their own project site, provided they met certain conditions. At the EOI stage, projects were required to be located preferably within 3km of the grid. If they chose a site more than 3km from a transmission line, bidders had to make provision to cover all additional interconnection infrastructure and associated costs, and include these in the bid tariffs (Meyer et al. 2015). Bidders were also required to submit evidence of contractual land arrangements at the EOI stage, although a draft memorandum of agreement for a land-purchase agreement was considered sufficient for this.

The RfP documents went further, however, identifying priority zones close to load centres and sufficient grid capacity (see Figure 6). The zones were determined by ERA and UETCL’s technical teams, which analysed the capacities of existing powerlines and substations, as well as the simulated operational impact of solar-based generation at various locations.

9 This was not based on ERA’s assessment of the levelised cost of producing electricity from solar PV; instead, the regulator was working primarily with feasibility factors in mind, trying to balance a complex set of institutional, economic and political risks (IRENA, 2018).

Figure 6: Priority zones identified for Uganda's GET FiT Solar PV Facility



Source: Get Fit Uganda (2017)

Projects located inside priority zones received additional points in bid evaluations, thus encouraging bidders to locate projects as close as possible to load centres. This became the subject of some contention, since the priority zones had not been mentioned at the EOI stage, and some bidders selected project sites outside of the priority zones without realising that this would impact on their bids.¹⁰ Furthermore, bidders were required to conduct their own feasibility and grid-stability studies, as well as to propose interconnection facilities during the EOI stage. Conducting these studies became a major cost for bidders as UETCL provided very little information.

The costs of grid connection from the generation facility to the main network delivery point (shallow connection works) were borne by the project developer, with the grid interconnection works beyond the delivery point ('deep' connection works) remaining the responsibility of the grid operator at commercial operation date (COD). Thus, shallow network costs had to be included in bids and covered by the applicable tariff. The fact that the line to the plant would be handed over to the grid operator (UETCL or UEDCL) presented a risk to bidders since their projects' ability to deliver power would depend on the operation and maintenance of that line. This risk was mitigated to some extent by the 'deemed energy payment' in the PPA, which can see developers being paid even if curtailed (beyond a set threshold).

¹⁰ Bidders were allowed to change site location in the time between the RfP and their bid submission; this was communicated to bidders at the bidder briefing.

For the solar PV tender, the costs associated with the refurbishment and expansion of the network infrastructure (deep connection works) were funded either by GET FiT directly or by donors coordinated by the GET FiT programme. The projects bidding in the solar PV auction seem to have benefited from the experiences of earlier GET FiT projects, where no such support was envisaged, and for which transmission infrastructure build-out has been delayed. In this regard, the GET FiT programme incorporated useful training for ERA staff on interconnection processes, tariffication and wheeling charges in relation to the solar projects.

Qualification and compliance requirements

Prequalification criteria

About six weeks before the EOI submission deadline, a pre-bid workshop was held in Kampala to clarify the bid process. During the pre-qualification or EOI stage, ERA/GET FiT staff evaluated bidders' general experience and technical capability with solar PV projects, as well as their financial standing. To qualify, bidders had to achieve a minimum score of 70 in relation to a set of prequalification criteria (see Table 3).

Of the 23 EOIs received, only nine bidders reached the 70-point threshold and were given the RfP documents. The prequalified bidders were then given three months to submit a complete bid and permission to email inquiries regarding the RfP to the tender agent until four weeks before the bid-submission deadline. Eight clarificatory emails were distributed by the tender agent to all bidders.

The prequalification rules stated that only the top ten interested bidders would receive an RfP. This was an attempt to limit the (financial and time) costs involved in evaluating a large number of bids. As things turned out, this limited competition to even fewer than ten because only seven of the nine prequalified bidders opted to bid.

Table 3: Prequalification criteria for the GET FiT Solar PV Facility, Uganda, 2014

Category	Max points
General experience (in designing, developing, building and operating at least five solar PV projects, 5–20 MW in volume, in preceding five years plus capacity to raise debt and equity of at least US\$5 million for participation in projects)	30
Regional experience (in lower-income countries, preferably in sub-Saharan Africa)	10
Financial capacity (turnover above US\$20 million; net profit more than 5% of turnover; liquidity ration equal to or more than 2:1)	20
Technical capacity (technical knowledge on board to develop, build and operate the plant; quality of proposed technical components)	20
Organisational capacity (description of resources to be deployed for project implementation)	5
Descriptions of site and quality (GPS coordinates, expected energy generated per year, technology (modules and inverters), nature of grid connection and distance from grid)	10
Completeness and quality	5
Total	100

Source: Republic of Uganda/KfW (2014)

Qualification criteria

After being invited to submit a full proposal, bidders were required to register a special-purpose vehicle in Uganda. KfW and the World Bank also ran ethical due diligence checks on all bids. Bidders could indicate a general interest in a World Bank partial risk guarantee (PRG) in their proposal, although this was not binding.

Technical compliance: principles, norms and standards

Most bidders interviewed considered the technical qualification framework stringent and restrictive. For example, the RfP contained strict and detailed equipment specifications, down to the level of the cabling to be used in the plant. All mechanical components in the project build had to comply with the International Electrotechnical Commission and International Organisation for Standardization. All local standards and norms also applied, particularly the grid code set out by UETCL.

As far as the solar PV components were concerned, all were expected to be state-of-the-art technologies, suited to local meteorological and soil conditions, and expected to last 25 years. All PV modules had to be of the same type and from a manufacturer with at least a five-year track record. Furthermore, bidders had to provide evidence that the modules were already in use in at least five other projects with a minimum capacity of 3 MW per project. No tracking equipment was allowed – a decision that will potentially limit plant performance. Any deviations from the RfP's general framework had to be noted and explained in the final bid submissions.

Bidders were given some flexibility when it came to designing their inverter setup, choosing between central inverters, decentralised units or a combination with an exchangeable unit. However, the RfP required bidders to ensure that spare inverter modules would be kept on site, be exchangeable by a local electrician, and that they would provide all the necessary training to selected operations personnel. Bidders were also required to submit all documents necessary for a full understanding of the plant's technical concept. This included general documents about plant layout, a description of the installation, as well as a datasheet listing all installation manuals and components. Similar documentation also had to be provided for all electrical and mechanical aspects of the solar PV plant.

Bidders were not required to have a generation licence at the time of bid submission. Instead a fully compliant bid proposal served as a licence application.¹¹

Financial qualifications

Equity and finance providers had to provide letters of support indicating that they accepted the provisions and risk allocations in the PPA, IA and DA; that they had performed the required due diligence; and (in the case of lenders) that they had credit approval.¹² Also required was a detailed submission regarding bidders' financial models, including sensitivity analyses not only of foreign-exchange movements but also funding terms, capital expenditure, operational expenditure and annual energy-yield inflation indices, as well as a detailed breakdown of all sources and uses of finance.

Environmental and social sustainability

The RfP required all bidders to comply with the eight Performance Standards on Environmental and Social Sustainability set out by the International Finance Corporation (IFC). These are considered the gold standard for social and environmental impact assessment and mitigation for infrastructure investments and development, with many lenders and investors requiring

11 This complied with Section 33 of the Electricity Act of Uganda, 1999 as well as Regulations 7 and 8 of the 2007 Electricity Regulations (which cover permit applications, license and tariff reviews).

12 Bidders had to have at least first-stage credit-committee approval but bids were not required to be 'financial close ready'. This helped reduce bidding costs relative to similar bid programmes such as South Africa's REIPPPP.

compliance, even in the absence of IFC funding (Meyer et al. 2015). The standards can be summarised as follows:

- *Risk management* of social impacts, risks and opportunities that may arise over the lifetime of the project (from construction and operation to decommissioning). This includes effective community engagement with local people living or working in or near the proposed project location.
- *Labour and working conditions*: all workers must be treated fairly, and given safe and healthy working conditions, the use of child and forced labour is prohibited, and risks within the primary labour supply chain must be identified. All general occupational, health and safety conditions in local policies and laws are also to be complied with.
- *Resource efficiency and pollution prevention*: an efficient resource approach is to be adopted throughout the project. Practices and technologies that reduce greenhouse gas emissions, promote energy efficiency and use resources, including water, sustainably are encouraged.
- *Community health, safety and security*: bidders/project companies adopt responsible practices that reduce risks such as worksite accidents, hazardous materials, the spread of diseases and interactions with private security personnel. Responsible risk-reducing practices are fostered through emergency preparedness and response drills, security-force management, and the design and implementation of safety measures. Bidders are required to anticipate and avoid any adverse impact on the health and safety of affected communities during the project's lifespan. The safeguarding of personnel and property has to be carried out in accordance with relevant human rights principles and in a manner that avoids or minimises risks to affected communities.
- *Land acquisition and involuntary resettlement*: wherever possible, projects should avoid the resettlement of people over the project lifespan. If resettlement is necessary, effective mitigation measures must include fair compensation and improved living conditions for those displaced. Active community engagement and grievance mechanisms are essential throughout the development process.
- *Biodiversity conservation and the sustainable management of natural resources*: bidders must undertake to protect and conserve biodiversity and ecosystem services and to optimally manage living resources.
- *Indigenous people*: developers must minimise negative impacts, foster respect for the rights, dignity and culture of indigenous populations, and promote development in culturally appropriate ways.
- *Cultural heritage*: properties and sites of archaeological, historical, cultural, artistic, and religious significance including traditional lifestyles may not be infringed on and must be preserved throughout the lifespan of the project.

Bidder compliance with these standards was scored for both qualification and evaluation purposes. In line with local regulations and policies, any practitioners who were involved in assessing and ensuring environmental and social substantiality on behalf of bidders had to be registered with Uganda's National Environmental Management Authority.¹³ This requirement led to the disqualification of at least one bid.

The IFC performance standards are generally viewed as both stringent and important in terms of securing local support for projects and ensuring long-term sustainability. Complying with these standards imposed considerable costs on developers – especially given the bidding

13 The RfP did not explicitly state or provide details about this requirement, requiring bidders to instead ensure that they informed themselves and acted with due diligence in relation to local laws and regulations.

timeframe. In part, costs were driven by uncertainty resulting from a lack of sufficient communication on how the IFC standards would be interpreted in the GET FiT context. In the end, three of the seven solar project bidders were disqualified during the financial evaluation stage for failing to meet these standards.¹⁴ However, apart from the IFC standards, the solar PV bid process did not impose any other requirements around local content or local community-development investment.

Bidder ranking and winner selection

As mentioned, a sealed-bid process was used. No ceiling price was announced, but the FiT tariff level (at US\$110/MWh) was made public; in addition, bidders were aware of the of grant funding available for the top-up subsidy, and could therefore estimate a potential maximum bid price, even without a ceiling cap. Winner selection was based on a 70:30 financial to technical evaluation, strongly weighted in favour of price.

Once bids had been submitted, the tender agent had three to four weeks to check them for completeness and substantial responsiveness. Applicants were notified via email if any further documentation was required, and were given 72 hours to provide this. Once the deficiency checks were concluded, the tender agent evaluated the bids via a two-stage process, with the technical aspects evaluated first and the financial aspects thereafter.¹⁵ Apart from price, the evaluation focused on financial sustainability. As such, the tender agent checked whether applications met the 10 per cent financial internal rate-of-return hurdle (in real terms) and whether cash flow/liquidity remained solid when relevant sensitivity analyses were applied.

Bids had to achieve a threshold score of 70 to advance to the financial evaluation stage, and bids that scored less than 50 per cent in any of the technical categories were automatically disqualified. The technical evaluation assessed projected technical and organisational performance, compliance with the IFC standards, and cost benefits linked to projected timelines and proposed sites (see Table 4).

Environmental and social sustainability were given a 30 per cent weighting, with the assessment and management of environmental risks and social risks both contributing equally to this score. Bidders were required to submit an ‘Environmental and Social Sustainability Impact Assessment’ and an ‘Environmental and Social Sustainability Management Plan’ in accordance with IFC standards. If any people or communities were likely to be displaced through the construction and operation of the solar plant, a resettlement plan had to be included.¹⁶

Bidders also had to identify any other potential social and environmental impacts involved. In this regard, bidders were required to outline possible risks and effective mitigation strategies, including detailed implementation and monitoring plans. Maximum points were given to applications that included all applicable documents, although the level of detail required at the bidding stage was unclear. No detailed evaluation template was given to bidders.

14 Beyond the Solar PV Facility, one of GET FiT Uganda’s bagasse projects had their award revoked due to their inability to comply with the IFC standards, while other projects have been delayed. GET FiT now seems to see bidders’ relatively limited exposure to the IFC standards as having the potential to significantly delay or hinder the implementation of specific projects, and the overall GET FiT programme (see GET FiT Uganda, 2015).

15 The tender agent had 24 hours to conduct the financial evaluation; no reason was given for this time limit.

16 The site for the Tororo PV plant did not require any resettlement, but four families were using part of the land it as a thoroughfare and they were duly compensated.

Table 4: Uganda's GET FIT Solar PV Facility: technical evaluation criteria

	Category	Sub-category weighting	Sub-category weighting	Category weighting
1	Environmental and social sustainability (IFC standards)			30%
A.	Assessment and mitigation of environmental risks		50%	
	A.1 Project description	10%		
	A.2 Environmental and social sustainability management system	50%		
	A.3 Pollution prevention, waste minimisation, etc.	20%		
	A.4 Natural environment protection and conservation	20%		
B.	Assessment and management of social risks		50%	
	B.1 Labour and working conditions	20%		
	B.2 Social and economic conditions before and after project	20%		
	B.3 Community health, safety etc.	25%		
	B.4 Land acquisition and involuntary resettlement	25%		
	B.5 Cultural property and heritage protection	5%		
	B.6 Landscape protection	5%		
2	Technical and organisational performance			50%
A.	Technical quality and compliance with technical specs		80%	
	A.1 Modules	15%		
	A.2 Inverters	15%		
	A.3 Cabling	10%		
	A.4 Monitoring	10%		
	A.5 Transformer stations	10%		
	A.6 Connection substation	10%		
	A.7 Mounting system	10%		
	A.8 Buildings	5%		
	A.9 Warranties	15%		
B.	Technical development of project (studies, land, grid concept)		20%	
	B.1 Basic concept – documents	20%		
	B.2 Site preparation	20%		
	B.3 Transportation concept	20%		
	B.4 Construction process	20%		
	B.5 Operations and maintenance	20%		
3	Economic criteria			20%
A.	Timeline from award to COD*		50%	
B.	Project located in priority green zone		25%	
C.	Project close to substation/ demand centre		25%	

Note: * Projects projected to reach COD in nine months were awarded 10 points, while those reaching it in twenty or more months were awarded 0 points.

Table 5: Scoring range for technical evaluation

0	Missing
1	Very bad
2	Bad
3	Average
4	Good
5	Very good

In terms of the technical specifications, over 300 criteria were considered. Scoring was based on the quality and accuracy of information provided by applicants, on a scale from 0 to 5 (see Table 5). As discussed below, the nature of the rating scale meant that the scoring was largely

based on the subjective views of the evaluators, and could therefore have opened up the award decisions to challenge.

As part of the technical evaluations, the tender agents, and representatives of ERA, UETCL and KfW conducted site visits.¹⁷ The tender agent then prepared a bid evaluation report for each project. Each report was then reviewed and endorsed by the implementation consultant and KfW. The bid evaluation reports, along with the scoring spreadsheets, were then handed over to the Investment Committee (discussed in Section 4).

Seller and buyer liabilities

As mentioned, bidders for the GET FiT Solar Facility were competing for a twenty-year PPA and a five-year DFA. The PPA payments (US\$110/MWh) were denominated in US dollars, with only the operations and maintenance component of the tariff indexed (to the US inflation rate).¹⁸ The premium (top-up subsidy) payment was denominated in euro¹⁹ and front-loaded in the first five years: 50 per cent of the total amount was paid at COD, while the remaining amount was spaced over the first five years and paid against the performance of electricity delivered.

For project developers, this payment profile greatly reduced some of the risk during the critical debt-repayment phase. While payment was based on a relatively standard energy-oriented agreement (take-or-pay, US\$/kWh), the PPA (based on previous versions used by ERA/GET FiT) also contained several baseload provisions that are not usual in renewable-energy based contracts; these included ancillary services, responding to dispatch instructions and availability guarantees.

More in line with global practice in renewable energy auctions, bid bonds and performance penalties were used to ensure that projects were delivered and operating optimally in accordance with the relevant agreements.²⁰ For the GET FiT Solar PV Facility, a bid bond was leveraged between the Ugandan government and the successful bidders. That is, successful bidders were required to put up a bid bond of US\$10 000 per MW in favour of ERA for each project submitted. This bid bond would be forfeited if a winning bidder refused to negotiate with respect to the RfP contracts. In this case, the bid bond amounts were considered high relative the size of the envisioned 5 MW solar projects.

Bidders were also expected to provide a performance bond, although it appears that this functioned more as a completion bond. Accordingly, an amount of US\$20 000/MW was required should the bidder achieve its scheduled construction start date, and an additional US\$10 000/MW if the scheduled COD was achieved. If the bidder did not achieve the scheduled COD, they would have had to pay UETCL US\$2 000 per day delayed (capped at US\$300 000). If the performance bond was drawn on to cover this delay, the payments owed would be reduced accordingly.

17 Many of the bidders questioned the necessity of this step.

18 When the tender agent conducted the financial evaluation, no inflation adjustment for operations and maintenance was included, nor did the project ranking process take this into account. In addition, bidders were given no guidance on what percentage of their budgets could be allocated to operations and maintenance.

19 The euro/dollar exchange rate was fixed

20 A bid bond acts as a surety agreement whereby a developer leverages money that acts as an agreement between two parties for the development of a project. If the project does not abide by the stipulations of the agreement between the two parties, the bidder forfeits the money leveraged.

The PPA also differentiated between contracted capacity and available capacity at COD, with the latter becoming the de facto contracted capacity, as well as determining the COD subsidy payment. For ongoing premium payments under the DFA, bidders were paid only for electricity actually delivered to UETCL (or energy deemed delivered). Bidders might be allowed to increase their capacity if they received written consent from UETCL.

The programme tried to deal with the issue of ‘deep works’ transmission planning by indicating preferential zones for projects as discussed. If the plant was commissioned and ready to connect, but UETCL was unable to integrate the plant into the system, a deemed commissioning date would occur on the first day of the month following the day on which an independent engineer certified the plant ready for synchronisation.

As mentioned, to help UECTL overcome its possible reluctance to sign PPAs with projects, the GET FiT programme funded, or coordinated funding for, the development of the network infrastructure required to integrate the winning solar projects.

4 Running the auction: the key role-players

Ensuring that the tender process led to the timely initiation and operation of the GET FiT Solar PV Facility required sustained effort from a range of stakeholders (see Table 6). GET FiT therefore committed significant financial and human resources to the project over a sustained period. Included in this were targeted technical assistance and the appointment of an implementation consultant. This kind of involvement is in line with the overall objectives of the GET FiT programme, which aims to enhance and enable private investment in renewable energy in low- to middle-income countries through ‘the public sector in the developed world “upgrading” the existing regulatory environment in the developing world’ (Kreibiehl and Miltner, 2013).

The implementing structures in Uganda aimed to achieve a range of objectives, including: coordination between government departments and funders, transparency and credibility in the evaluation and awarding of projects, capacity building in the relevant Ugandan institutions, as well as local and international accountability.

Table 6: Timelines for the GET FiT Solar PV Facility bidding process

Phase	Date	Bidders	Description
EOI invitation notice released	23 January 2014	60	No. of requests for EOI documents
Bidders/pre-bid conference	18 February 2014	32	No. of private attendees (companies/ consortia)
One-to-one meetings	February 2014*	12	Held with interested developers to allow for issues to be raised
EOI submission	28 March 2014	23	
Prequalified bids		9	No. of prequalified bidders. Max. of 10 possible
RfP released	11 May 2014		
First clarification round	21 May 2014		This was the first of eight documented rounds.
Environmental and social workshop	10 June 2014		To clarify requirements for sustainability
Clarification round deadline	July 2014*		Set to close 4 weeks before submission deadline
Bid submission deadline	8 August 2014	7	7 bidders for 12 projects
Proposal assessment completed	5 September 2014*		Done by tender agent 3–4 weeks after submission
Technical evaluation and report preparation	October 2014*		By tender agent within 3.5 weeks
Bidders technically compliant		4	4 bidders (8 projects) financial bids to be evaluated
Financial bid review			Tender agent has 24 hours to review financial bids
Review of tender agent reports			Conducted by KfW and ERA
Successful bidders selected	November 2014*	2	2 bidders (4 projects totalling 20MWp) selected
Signing of contractual agreements	Sept 2015/Sept 2016		Soroti I and II/Tororo North and South
Financial close	Jan 2016/Dec 2016		Soroti I and II/Tororo North and South
Expected COD	Dec 2015/Mar 2016		Soroti I and II/Tororo North and South
Actual COD	Oct 2016/Dec 2017		Soroti I and II/Tororo North and South

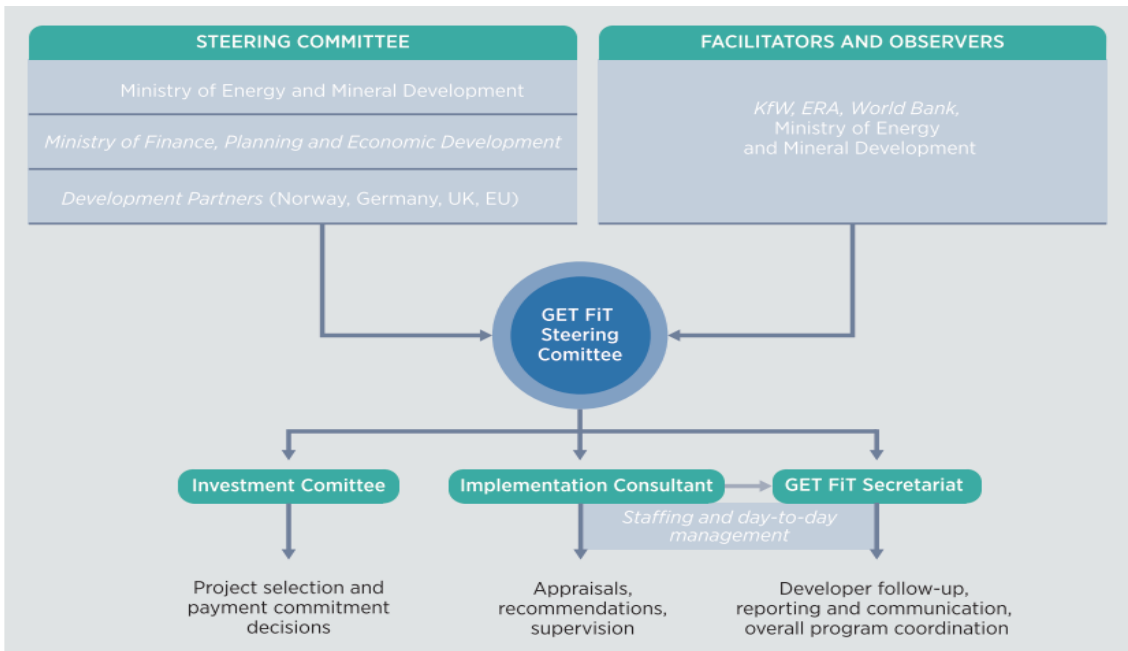
Note: * Exact dates unknown

Underpinning the entire process was the authority that the Ugandan government delegated to KfW regarding all aspects of programme implementation. It is important to appreciate the level of authority and power granted to KfW in relation to this programme: a foreign development bank was effectively granted governmental decision-making power in a specific sphere, albeit subject to a steering committee, which was itself dominated by foreign donor governments. This was made possible largely by the fact several donor governments committed themselves to funding the premium payment mechanism, and those donor governments appointed KfW as their representative, thereby giving KfW the authority to allocate the funds. Essentially, KfW could run the tender process, and sign the required agreements, while managing funding commitments and disbursements from development partners.

For the government of Uganda to also agree that the delegated authority be given to KfW by the donor community is no small matter. Politically, it indicates the attitude of the Ugandan government towards foreign assistance and the private sector, as well as the power of the regulator (ERA) in post-reform Uganda. Of course, such drastic measures also highlight a lack of capacity (at least from the perspective of donors and investors) in Uganda’s public system. To help address this, KfW worked closely with ERA as the local counterpart and host institution.

Two committees – the Steering Committee, and the Investment Committee (IC) – were given responsibility for the governance of the process, with the Steering Committee having ultimate authority. The day-to-day management was carried out by the GET FiT Secretariat (see Figure 7). The Solar PV Facility introduced an additional stakeholder – a dedicated tender agent.

Figure 7: GET FiT governance structure



Source: IRENA, (2018)

The roles and responsibilities of each of the key GET FiT committees and implementation structures, as well as pathways of interaction between these stakeholders and institutions, are shown in Table 7.

Table 7: Main stakeholders in Uganda's GET FiT Solar PV Facility

GOU	Government of Uganda. Represented by KfW in the GET FiT process.
KfW	KfW Entwicklungsbank acted as the dedicated implementing entity under the delegated authority of the GOU and in close collaboration with Uganda's energy ministry (MEMD) and the regulatory authority (ERA). KfW ran the tender process, signed required agreements, managed funding commitments and disbursements from development partners and generally promoted the programme.
ERA	Electricity Regulatory Authority of Uganda – had regulatory oversight of the entire GET FiT programme. This included the standardisation of contractual agreements, licensing of prospective generation companies and monitoring compliance with regulatory requirements, from feasibility study through to construction and operations.
MEMD	Ministry of Energy and Mineral Development – represented on the GET FiT Steering Committee.
MoFPED	Ministry of Finance, Planning and Economic Development – represented on the GET FiT Steering Committee.
UETCL	Uganda Electricity Transmission Company Limited – the state-owned system operator and single buyer under the PPA.
Development partners/donors	Funding providers, represented by KfW – they included the Royal Government of Norway, the UK government, the German Ministry for Economic Development and Cooperation, plus the EU's Africa Infrastructure Trust Fund.
GET FiT Secretariat	A team of international renewable energy experts established by the GOU and KfW, tasked with day-to-day management, coordination and supervision of the GET FiT programme's implementation. This team facilitated meetings between relevant stakeholders, ensured the smooth running of the tender process, maintained dialogue with the developers and followed up on action points from the GOU, KfW, the Steering Committee and the IC.
AEAS	Agut Energy Advisory Services – tender agent for the GET FiT Solar Facility on behalf of KfW and ERA. AEAS did all the work up to and including the arranging of IC meeting. This included managing the Secretariat, running the tender, appraising the bids and recommending projects to the IC. (Non-solar tenders are run by Multiconsult).
Multiconsult–Norplan	Have a five-year contract as the overall implementation consultants for the entire GET FiT programme. However, AEAS, was procured separately by KfW. Consequently, Multiconsult was not involved in the solar PV tender process but KfW did give them a contract to follow-up on the solar projects as they do for other GET FiT projects. This includes reviewing documentation submitted by the developers to meet the condition precedents defined by AEAS, and construction supervision visits for GoU/KfW).
Steering Committee	The primary governing body responsible for determining all policy-related principles related to GET FiT. The Steering Committee comprises one representative from each development partner funding the premium payment mechanism and two representatives from the Ugandan government (one each from MEMD and MoFPED). KfW, ERA, the World Bank and the GET FiT Secretariat also have non-voting representation.
Investment Committee (IC)	A group of seven independent international experts in the renewable energy sector and infrastructure investment. They are in charge of the final appraisal and selection of project applications. The IC also makes proposals for changes and adaptations to GET FiT policies and develops guidelines for consideration by the Steering Committee.
Bidders/applicants	Private companies/ consortia submitting bid proposals.
IFC	IFC standards were used for evaluating projects' environmental and social sustainability.
NEMA	National Environment Management Authority of Uganda, responsible for issuing environmental permits after receiving bidders' environmental and social impact assessments.

Ultimately, the resources allocated – both human and financial – proved necessary and worthwhile. Several involved parties noted that, as the programme was rolled out, some attempts were made to undermine the governance structure and sway the awarding decisions. Had the programme not been supported by such a strong and multilayered governance structure, these attempts might well have succeeded. Instead, all parties we spoke to reported that the governance structure had promoted transparency and effectiveness, and was necessary given the need to test the effectiveness of nature of the programme. Essentially the programme had to prove, not only to the government of Uganda and to the donors, but also to potential investors and the governments of other low- to middle-income countries, how the GET FiT programme can work.

It is important to note that donor governments funded the work of the entire implementation ‘architecture’, with the Ugandan government providing almost no dedicated funding. As this core funding commitment ended, the day-to-day management of the programme has been handed over to a much smaller team. The IC highlighted this as a concern, and proposals for the financial sustainability of the programme have been put forward, but not yet taken up.

GET FiT Steering Committee

The GET FiT Steering Committee provided policy guidance to the Solar PV project. This included setting out operational guidelines for the GET FiT mechanism, approving members of the investment committee, accepting terms of reference for the implementation consultant and the monitoring and evaluation consultant, as well as ensuring the effectiveness and visibility of financing activities. The committee included both ‘voting members’ and ‘facilitators or observers’ (GET FiT secretariat, ERA, World Bank and KfW). Members included one high-ranking representative of each of the donor funders that signed a ‘Delegated Cooperation Agreement’ with KfW in support of the GET FiT Mechanism, and two representatives of the Ugandan government – one from the energy ministry and one from the powerful finance ministry. However, members from the Ugandan government had no voting rights on issues that could be seen as a conflict of interest.

No members of the steering committee were paid for their participation, and all members (plus any accompanying staff) were responsible for their own associated costs. The committee was scheduled to meet once a year (or when necessary, as approved by the chair) at the ERA offices in Kampala, Uganda. If any member was unable to attend a meeting, they had to provide a named alternative.

Politically, the steering committee played a key role, ensuring that the Solar PV Facility had the support of key government departments and providing a dedicated channel of communication between the funding partners and the host government. This political support was especially important when it came to resolving an impasse relating to the VAT treatment of the solar projects (discussed below). That being said, a greater balance in the voting rights between government representatives and funding partners might have been useful as a means to ensure longer-term commitment to, and growth of, the GET FiT programme.

Investment committee

The IC was appointed by the Steering Committee and was made up of seven independent international experts on the financing of renewable energy (see Table 8). The experts were responsible for the ultimate appraisal and selection of successful projects, as well as the disbursement of GET FiT top-up funds. They were also able to review appraisal criteria and, if deemed appropriate, make recommendations to the Steering Committee.

Decisions made by the IC were based on majority rule. However, as KfW carried the responsibility of signing the DFAs, thus holding the ultimate legal and fiduciary risks associated with the agreements, the committee was chaired by KfW, which retained a right of veto. In fact, this veto was never used and all decisions were arrived at through consensus. The IC's decisions on the awarding of projects were informed by recommendations made by the secretariat and then submitted to the Steering Committee for final approval.

Table 6: Investment Committee members, GET FIT Solar PV Facility, Uganda, 2014–2016

Mark Schwiete (Chair)	Head of Division: Energy and Financial Sector East Africa, AU, DRC, KfW
Jim Cohen	Consultant (former director of Balfour Beatty plc and executive chair of Empower Advisors Ltd)
Prof Anton Eberhard	Director: Managing Infrastructure Investment Reform and Regulation In Africa, Graduate School of Business, University of Cape Town
Siyanga Malumo	Head of Africana Finance and Investments
Truls Holtedahl	Senior Project Finance Analyst, Norconsult
Silvia Kreibiehl*	Head UNEP Collaborating Center, Frankfurt School
Dr Vincent Kasangaki	Grid expert, former ERA-Board member

Note: * Kreibiehl was formerly with Deutsche Bank, where she helped develop the GET FIT concept and design.

A powerful tool that often used by the IC was the ability to add 'conditions precedent' to the DFA – that is, conditions that had to be fulfilled before the DFA could come into force. In this way, the committee was able to ensure that approved projects were well developed and fully compliant with all standards and licensing requirements. In other words, this allowed the IC to 'backstop' the evaluations carried out by the implementation consultant or tender agent, thus ensuring that the projects that were successful were of high quality.

IC members received appropriate remuneration (as approved by the Steering Committee) for their services, and were reimbursed for traveling costs associated with meetings. Members were required to declare potential conflicts of interest in writing and would be disqualified if found guilty of any conflicting associations. Any members convicted of any corruption or impropriety would also have been disqualified.

The IC added an important layer of transparency and trust to the project evaluation process, assuring bidders and investors that the auction was indeed a fair and predictable. Several developers remarked that they were initially sceptical of the procurement programme, given their experiences with similar initiatives where awarding decisions ultimately came down to political connections and other opaque determinants. The GET FiT programme went to great lengths to implement a process that was seen by both the public and private sector as rule-bound, transparent and effective. The IC's role in this was critical.

The Secretariat

The GET FiT Secretariat oversaw the general day-to-day operation of the programme and was set up, staffed and assisted by an implementation consultant. The Secretariat was based at ERA – a decision based on the role played by ERA (and in particular its CEO) in championing the establishment of the programme, as well as the strategic importance and the relatively strong professional capacities in Uganda. The Secretariat supported both the IC and the Steering Committee to ensure effective organisation of the RfPs, the bid process, the organisation of meetings, the production of annual reports. It also supported KfW in negotiating financial agreements with developers. Other duties included organising a system for evaluating and

reporting on progress made by qualifying bidders,²¹ undertaking statistical analyses, and overseeing media coverage. The secretariat also played a key role in coordinating various approvals, licences and negotiation processes required for the projects, including negotiations around the taxation of projects (discussed further in Section 6). In many ways, the secretariat was the Solar PC Facility's focal point and adopted a strong problem-solving approach with developers, government officials and others, to ensure its timely and effective implementation.

The Secretariat remains involved in the implementation of the programme (although no further procurement is envisaged), monitoring project performance against environmental and social commitments, and offering legal and other advice where necessary.

The independent implementation consultant

After a competitive tender, KfW (acting for the Ugandan government) contracted the Norwegian consulting firm, Multiconsult, as the implementation consultant for Solar PV Facility. Multiconsult was responsible for the day-to-day management of the programme through the Secretariat. They undertook technical, legal, economic and financial appraisals of projects, and supervised construction. They also assisted KfW in managing disbursement and cash balances, and provided regular reports on programme implementation. Multiconsult will remain involved until 2023 when the final top-up payments are expected to be disbursed.

21 Projects are monitored particularly for compliance with IFC standards on environmental and social sustainability, on a 'best efforts' basis.

5 Evaluating and securing the bids

Considering the relatively small size of the project, the GET FiT Solar PV Facility attracted considerable interest. Over sixty companies expressed interest and attended the initial briefing meeting in early 2014. Of these, 24 companies responded to the ‘Request for Qualifications’ that were called for – with nine meeting the prequalification criteria. As noted, seven companies then submitted proposals in response to the RfP. Subsequently, four bidders passed the technical evaluation, scoring at least 70 per cent overall, *and* at least 50 per cent for each of the technical criteria listed in the evaluation.

Bidders that failed to pass this phase were eliminated due to their environmental and social performance scores being below the required threshold. The four remaining bids (representing eight projects) were ranked against the abovementioned 70 : 30 price to technical evaluation criteria. Price played a determining role in the rankings, but the IFC standards played an equally if not more decisive role in the sense that these appear to have been the main barrier to qualification.

Table 9: Bid submissions and outcomes for the GET FiT Solar PV Facility, Uganda

Project	Shareholder/s	Outcome
Soroti I and II	Access Power/Total Eren†	Awarded 2 x 5 MW
Tororo North and South	Building Energy/Simba*	Awarded 2 x 5 MW
Tororo 1 and 2	BioTherm/Solaire Direct/Vina	Passed technical evaluation, but not ranked highest
Katine 2 and 3	Scatec Solar/Norfund/OTD Kraft	Passed technical evaluation, but not ranked highest
Eizooba Energy One	Ujaas Energy/ Obbralia Proyectos/ Frank & Cook Consulting/ Girasolar East Africa	Failed technical evaluation
Nakaloke Solar Park	eleQtra/Premier Solar Systems	Failed technical evaluation
IPS–FRV A and B	Industrial Promotion Services East Africa (IPS)/ Fotowatio Renewable Venture (FRV)	Failed technical evaluation

Note * At the time of bidding, Building Energy and Simba Power were in a 50/50 partnership. Post-award, the partnership changed, with Building Energy becoming the majority equity partner and Simba effectively exiting the project.

Securing equity providers

Two bidders, each proposing two adjacent 5MW projects, were ranked highest and were awarded the projects.

Soroti I and II was developed by a consortium including Access Power (a Dubai-based IPP developer) and Total Eren. (Eren is a French investor with 450 MW of renewable energy assets in operation or under construction at the time of the bid, mostly in Europe and Latin America). A Ugandan partner was paid to assist the consortium to identify an appropriate project site. For both companies, Soroti was their first venture into sub-Saharan Africa. Soroti was also Access Power’s first IPP. Originally made up of Access Power and the TSK group (a leading Spanish EPC provider and project developer), the consortium cleared most of the qualification hurdles mainly due to TSK’s profile. Shortly after the project was awarded, however, the consortium approached ERA about the possibility of TSK’s shareholding being taken over by Total Eren. ERA had no objection to this, so Total Eren then became the majority shareholder in the Soroti project.

Access Power was established in 2012, first as a consulting firm, and then as an IPP developer, by a group with links to some of the Middle East's biggest IPP developers (El Chaar, 2017).²² The company's explicit focus is on Africa, the Middle East and Central Asia. Since Soroti, Access Power has built up a pipeline of projects amounting to more than 1500 MW – primarily in Africa (Egypt, Zambia, Nigeria and Madagascar) but also in Central Asia (Pakistan, Bangladesh and Armenia). In 2015, Total Eren acquired a 20 per cent stake in Access Power and created Access Infra Africa, with the aim of developing more than US\$500 million worth of power assets in Africa. Soroti has therefore been important for Access Power, proving that they are able to deploy capital and execute projects quickly and successfully.



Figure 8: The Soroti I and II Solar PV plant and some key participants at the opening ceremony

The proposal for Tororo North and South was submitted by a special purpose vehicle that was initially jointly owned by the Simba Group and Building Energy, with each holding a 50 per cent share. The Simba Group is one of Uganda's largest corporations; it is active in agriculture, the hospitality industry, telecommunications and waste treatment. The group also developed Uganda's 86 MW Electromaxx HFO IPP in Tororo. Patrick Bitature, the group's founder and chair, also chairs Electromaxx and is on Umeme's board. The Simba Group's role in developing the Tororo North and South project was crucial, not only in terms of the site location but also in supporting project development and achieving financial close. A delay in reaching financial close (discussed below), combined with competing financial opportunities, meant that the Simba Group opted to exit the project once the construction stage began. However, Charles Muhumuza, CEO of Electromaxx and Patrick Bitature's brother, retains a minority share in the project company, due in large part to his work on developing the project with Sarah Rowell, who was CEO of Tororo until September 2016.

By late 2018, Building Energy was the majority shareholder in Tororo North and South, holding 96 per cent of the equity. Building Energy is an integrated, global, renewable-energy project developer founded in Italy in 2010. Building Energy owns more than 337 MW of operating 'green' power-generation assets across Africa, the Americas and Europe. The company has offices in the UK, Italy, Chile, the USA, Serbia and South Africa. The company first entered

22 Reda El Chaar, executive chair of Access Power, previously led the renewable-energy development division at ACWA Power. Stephane Bontemps, managing director at Access Power, previously worked at TAQA Global, ACWA Power, Engie, and ABB where he developed Africa's first IPP, namely, the Azito Power Plant in Côte d'Ivoire.

the African market through its participation in the South African REIPPP programme – in which it was awarded four projects.²³

For Building Energy, integration across the value chain seems to have been key to their success in the Ugandan bid. The company performed most of their own legal services in-house thus avoiding expensive external legal fees, and they were able to act as developer, EPC contractor and O&M operator, unlike other consortia which had to sub-contract different companies with additional margins for each role. Building Energy has also been successful in South Africa's REIPPP programme and they seem to have applied this experience to GET FiT by systematically squeezing each cost item to the minimum.



Figure 9: Tororo North and South Solar PV plant and opening ceremony

Table 70: Details of awarded GET FiT Solar PV Facility projects, Uganda, 2015 and 2016

	Soroti I & II	Tororo North and South
Project size	10 MW (2 x 5 MW)	10 MW (2 x 5 MW)
Sub-station	Opuyo	Tororo
Project cost	US\$19 million	US\$15.54 million
Equity	Eren Renewable Energy S.A. (France) US\$5.8 mill (70%) Access Consultants DMCC (Dubai) US\$2.5 mill (30%)	Building Energy (Italy) US\$4.88 million (96,34%) Charles Muhumuza US\$0.19 million (3,66%)
Debt	FMO: US\$5.35 million EAIF: US\$5.35 million	FMO: US\$7.33 million EAIF: US\$7.33 million
EPC	TSK Group	Building Energy (lead EPC as sub-EPC)
PPA signing	September 2015	September 2016
Financial close	20 January 2016	14 December 2016
COD	12 December 2016	16 October 2017

23 These include a solar PV project, an onshore wind project, a hydro project, and a biomass project. The biomass project is the only project from bid windows 1–3 that has failed to reach financial close, largely as a result of the biomass providers pulling out of the deal at the last moment. Building Energy has also been awarded three projects in South Africa's small IPP programme, although none of these have yet reached financial close. In bid window 4, Building Energy was awarded an onshore wind and hydro project.

Securing debt providers

Debt to the Soroti and Tororo projects was provided by two prominent development finance institutions (DFIs) that actively financed many of Uganda's earlier GET FiT projects. FMO, the Dutch development bank, coordinated the loans to both projects as mandated lead arranger, and provided 50 per cent of the debt financing.²⁴ The remaining portion of debt was provided by the Emerging Africa Infrastructure Fund (EAIF) – which is funded by the governments of the UK, the Netherlands, Switzerland and Sweden. It forms part of the Private Infrastructure Development Group, which in turn is funded by UK, Switzerland, Australia, Norway, Sweden, Netherlands, Germany and the World Bank Group. EAIF is managed by Investec Asset Management. In total, more than US\$25 million in (US\$-denominated) debt was provided to both projects, for a period of 17 years.

Competition for lending appears to have been relatively limited. This is not to say that there was no competition. As one interviewee from the DFI sector noted, European development funders are increasingly unable to lend into energy projects other than in renewable energy. This is creating a lot of competition among DFIs, especially in Africa where well-structured projects developed by experienced developers are rare. Nevertheless, it is unclear whether competitive pressure was already a factor when the GET FiT Solar Facility was being financed. While commercial lenders (from Uganda and South Africa, including Barclays and Standard Bank) expressed some interest in the projects, they were ultimately unable to compete with the terms and tenors provided by the DFIs and did not participate. As one interviewee put it, the project developers were really only interested in asking, 'can we close the project with that lender?' For this reason, the involvement of FMO and EAIF in existing GET FiT projects all but guaranteed their involvement in the solar projects.

Importantly, DFI funding played an important role in de-risking the projects and potentially lowering costs. The fact that none of the projects elected to make use of the World Bank's partial risk guaranteed (PRG) products reflects the fact that DFIs seldom factor in political risk to the extent that commercial lenders do, nor might they be eligible for PRG cover since commercial lenders tend to be more concerned about political risk.

DFIs are often also able to lower risks through a 'halo' effect, whereby they are able to exert some political pressure via their funding of a host government (as shareholder/owner of the off-taker) to honour their commitments. In addition, the tenors provided by DFIs in Uganda (17 years for solar, 15 years for hydro) are considerably longer than most commercial banks would be able to support. DFIs often have relatively stringent requirements that tend to go further than local standards in terms of mitigating environmental and social impacts and enhancing sustainability – albeit in line with IFC standards. In this case however, these requirements did not translate into any additional cost for the two projects since the procurement programme (though the DFA) also required this level of compliance.

Assessing off-taker risk

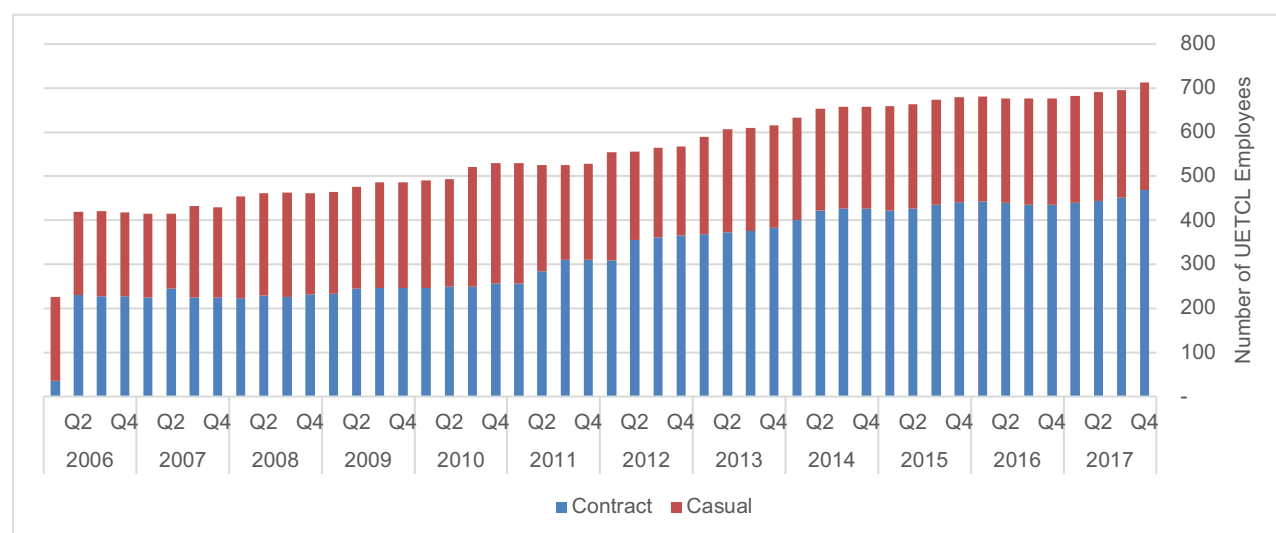
UETCL is the only buyer of electricity in Uganda, and is therefore the official signatory to the PPA and off-taker of power from the solar projects. UETCL's performance has improved since

24 FMO also provided finance to 9 of the 15 GET FiT hydro projects. It is also a lender to the Bujagali IPP. Initially the Tororo proposal indicated that the plant would be fully funded by Building Energy but post-award, the developers approached FMO for debt financing.

unbundling process started (although not as markedly as Umeme's). Its staff complement has substantially increased (Figure 10) and its financial position (Figure 11) has improved. As noted, the commissioning of Bujagali in 2012 (resulted in a sharp reduction in the purchase of costly emergency thermal power). This, combined with the introduction of automatic tariff adjustments by ERA in 2014, had a direct impact on UECTL's financial status. Nevertheless, the utility's revenue does not seem to cover much more than its operating expenses, with network expansion projects funded either directly by the Ugandan government, or through donors.

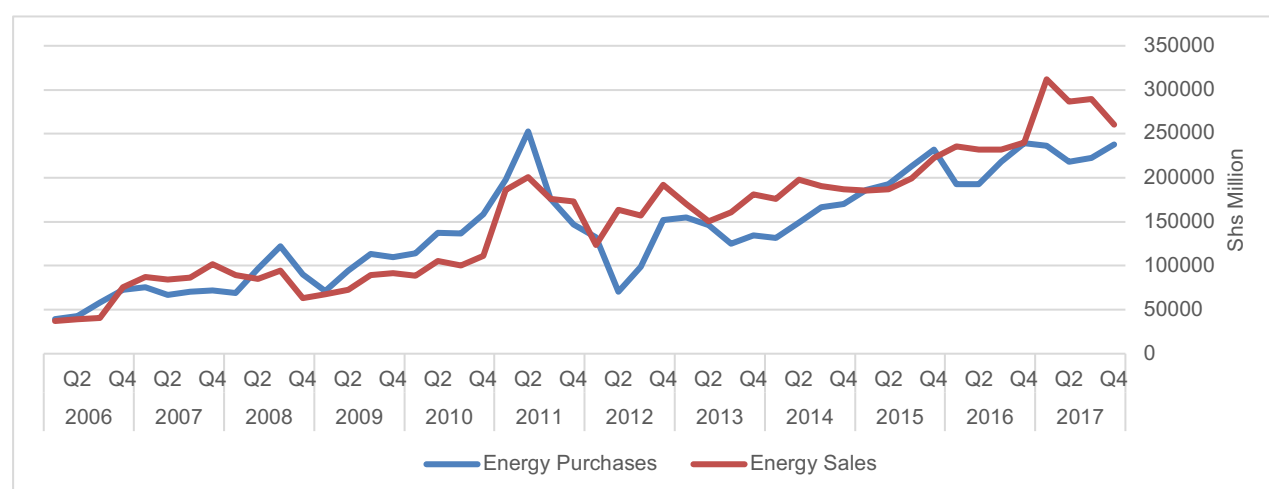
This seems to be the case for the GET FiT programme as well, with all grid strengthening and expansion works funded by donor grants (primarily DfID). Nonetheless, UETCL has a good payment record and receives regular and timely payments from its biggest 'client', Umeme. Thus, while there is still an off-taker risk in the Ugandan power sector – especially given government announcements in 2018 that it wants to decrease retail tariffs – the off-taker has generally been supportive of private-sector investment.

Figure 10: Number of UETCL employees, 2006–2017



Data source: ERA (2018)

Figure 11: UETCL's energy purchases versus sales, 2006–2017



Data source: ERA (2018)

Securing the revenue stream

In general, the GET FiT solar facility was effectively de-risked. As one of the unsuccessful bidders explained: ‘This was our first project in Africa outside South Africa. We did not fully grasp how well-supported the programme was, nor how much they were de-risking it. If we had, we would have definitely bid a lower price.’ Financial de-risking was achieved in several ways, three of which are outlined below.

Firstly, Trinity International LLP a highly regarded international legal firm with experience in the African power sector developed a suite of programme documents for the Solar Facility, including the PPA, IA and DFA. Trinity’s involvement as advisor to the Ugandan Government (that is, to ERA, MEMD and UETCL), as well as to the GET FiT Secretariat, gave developers some comfort. In addition, by the time the solar facility was being developed, these documents had already been used in previous procurement rounds for hydro and bagasse plants.

Even so, drafts were discussed with the lender community before the programme was put out to tender, so their quality and bankability was well established. Nevertheless, a number of clauses (such as the provision of ancillary services, black-start capability, responding to dispatch signals etc.) that were retained in the documents (especially the PPA) appeared to be more applicable to firm, dispatchable power projects (such as hydro and biomass), and less so to variable renewable energy projects, such as solar PV installations. Consequently, although major deviations and mark-ups were disallowed, bidders were able to comment on the documents and some of their comments were incorporated into the documents, or discussed during the negotiations phase.

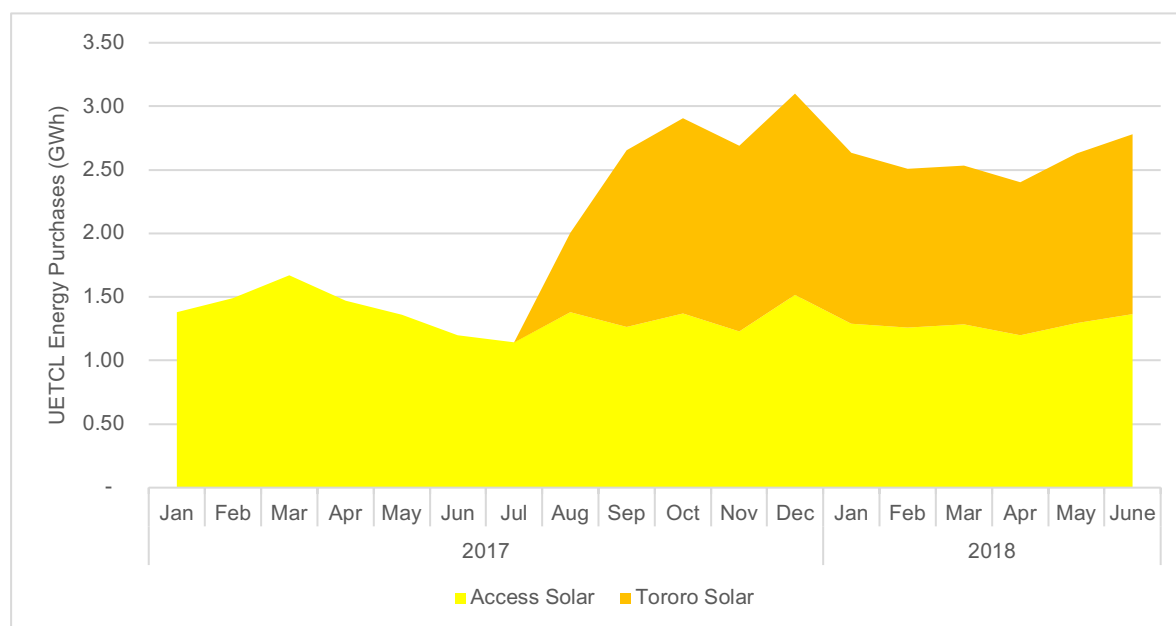
Secondly, revenue was secured not only through the development of a bankable PPA, but also through an IA that effectively acts as a sovereign guarantee. A DA also provided lenders with step-in rights. Further liquidity support was made available through letters of credit from commercial banks, sourced by UETCL, which could be backstopped by World Bank PRGs. As noted, none of the bidders chose to make use of the PRG cover. However, the successful bidders had to pay two thirds of the costs of UETCL’s letters of credit.

Thirdly, and possibly the main risk-mitigation and credit-enhancement mechanism employed, was the front-loaded premium payments. These provided bidders and lenders with additional security, ensuring that they would not only be paid a premium in the first five years of the projects, but also because KfW undertook to make the payments, not UETCL.

Technical performance and strategic management

As discussed, contracts (mainly PPA and DFA) hold the plants to strict performance standards regarding plant availability and generation. Data from ERA (see Figure 12) suggests that both plants have met these performance requirements – although the Tororo plant will have been operating for a full 12 months only by December 2018. Nevertheless, ERA’s data shows that the Soroti plant received deemed energy payments equivalent to 0.7 GWh (6.5 days) in 2017 due to failures on the grid. The plant’s theoretical production for the year would thus have been 17.2 GWh, which is in line with the estimated 17.5 GWh for 2017. In short, the technical performance of both plants (including construction timelines) has been satisfactory and in line with expectations.

Figure 8: Energy delivered by Uganda's Soroti and Tororo solar PV plants, January 2017–June 2018



Data source: ERA (2018)

Both projects have also attempted to build relationships with local stakeholders – this being a ‘silent expectation’ of the DFIs. Thus, over and above meeting the IFC environmental and social sustainability standards, the Tororo project has, for example, helped fund the building of a local school, and provided textbooks for the school. Soroti has provided more than a hundred solar lights to a local teacher’s village. Tororo’s relationship with the Simba Group has also enabled the developer to establish strategic relationships in Uganda’s energy sector. Given Access Power’s lack of a local partner, its engagement appears to have been conducted at more at arm’s length.

6 Coordination and management: strengths and challenges

Prompted by the corruption controversies that surrounded some of the country's big hydro projects, the GET FiT programme focused on ensuring that the procurement process was credible and seen as transparent by all parties. The role of the IC (supported by the Secretariat) was essential in establishing trust in the programme's outcomes, thereby ensuring stronger competition in the bidding process. As one developer put it: 'at the start, we weren't really interested [in participating in GET FiT] because we thought we knew exactly how it would work, with projects just being awarded to politically connected entities. However, when we saw how KfW had set up the programme and that the procurement process was being transparently run, we knew we had a chance and that it would be fair.'

All stakeholders in the GET FiT Solar PV Facility consistently mentioned the governance and day-to-day management of the programme as one of its key strengths. Deadlines were met, queries responded to, and assistance was provided where needed. The Secretariat played a particularly key role in coordinating various institutions and processes (permitting, licensing etc.), offering developers and investors a well-capacitated and clearly mandated central point of engagement.

This role proved utterly crucial when it became necessary to navigate Uganda's bureaucratic and political system to resolve an impasse on the tax treatment of solar projects. The Secretariat took the lead in engaging with ERA and parliament to ensure that a change was enacted in the country's tax legislation. This took about two years and is unlikely to have been successful without the Secretariat's sustained commitment.

At the root of the problem were differences in the interpretation of the tax regime by the Ugandan Revenue Authority (URA) and the GET FiT programme. Initially, bidders were informed that the projects would be VAT-exempt, in line with the exemption granted to hydro projects under the GET FiT programme. However, existing VAT legislation made provision only for small hydro, and not solar PV projects, to be VAT exempt.

URA therefore wished to impose input VAT at 18 per cent on certain construction and future operational payments, withholding tax on imported parts (Uganda's lack of local content necessitated importation), and a VAT exemption on payments by UETCL under the PPA. In addition, because the supply of solar energy is exempt from VAT, the URA said bidders would not be eligible to register for VAT and the project company would not have a VAT account against which to deduct VAT payments. Some major imported inputs such as solar panels were VAT exempt. However, VAT would become an effective cost for all other imported equipment. Lastly, during the operations period, annual operating costs would be invoiced to the bidder inclusive of 18 per cent VAT. As bidders would not be entitled to claim back input VAT, their annual operating costs would have to be grossed up for this amount.

One bidder quantified the additional costs resulting from this tax treatment and determined that these would constitute approximately 13 per cent of the total project cost during construction, and account for around 18 percent of total annual operating costs in real terms.

The project developers were unanimous that this tax regime was a major weakness, and several unsuccessful bidders saw it as detrimental to their applications. The issue stalled contract negotiations on the Tororo plant for more than a year as it undermined the project's financial feasibility. The owners of the Soroti plant seemed ready to accept the risk imposed by the VAT uncertainty – perhaps spurred on by the need to quickly build a successful pipeline for their new company, they reached financial close in January 2016 – whereas the Tororo plant took until December 2016 to close. Soroti's willingness to accept this risk appears to have slowed

down the negotiation process between Tororo and the tax authorities, with URA pointing to the Soroti project's progress as an indicator that the VAT question was not a serious issue.

Nevertheless, with the persistent help of the GET FiT secretariat, the issue was finally resolved and a change to the Tax Act was approved by the Ugandan parliament on 21 April 2016. Ultimately, the change benefited not only Tororo but also Soroti and any future solar PV projects that might be developed in Uganda.

The anticipated project milestones specified in the RfP documentation as well as the dates on which they were achieved are shown in Table 11. Essentially, the tender ran according to schedule until contract negotiations began, with delays attributable mainly to the time required to iron out the tax issues.²⁵

Table 11: Project milestones for the GET FiT Solar PV Facility: planned versus actual

Milestone	Date set in the RfP	Actual date
Release of the RfP	9 May 2014	11 May 2014
Deadline for submission of clarification requests	4 weeks before closing date	
Closing date for submission of proposals	8 August 2014	8 August 2014
Expected end of bid evaluation, incl. site visit	31 October 2014	31 October 2014
Investment Committee announces award	November 2014	November 2014
Clearance of conditions precedent and the start of DFA negotiations	November 2014	June/July 2015
PPA and IA negotiations begin	November 2014	June/July 2015
Commercial operations begin	IC Award + 9 months	IC Award + 13–16 months

This commitment to running a fair and transparent process was particularly important while the issue of Uganda's VAT legislation was being resolved, when some other project developers approached UETCL and ERA, offering to build the awarded projects more cheaply. To its credit, the GET FiT office refused to entertain these offers, aware that it was crucial for the programme to stick to the 'rules of the game' – even when faced with difficulties.

Project development costs were driven largely by lenders' and sponsors' need for local legal counsel and tax advisors, who could review the project documents from the perspective of local law and assist with registering securities. What surprised developers (as this was not included in the procurement documents) was the requirement that projects had to register both equity and debt in Uganda. This was a way for Uganda to collect duties on registered debt, and had a significant financial impact since the duties amounted to 1.5 per cent of total debt. Projects also had to pay US\$12 000 per year for the renewal of their generation licences, and were liable for considerable penalties if this renewal was late by even a day. A further US\$3 500 was also payable for any changes to the generation licence.

The design of the GET FiT programme envisages the development of local capacity, yet in this instance, the emphasis was more on 'adding to' rather than 'building' local capacity. This is particularly clear in the extraordinary authority given to KfW by the Ugandan government to set up and run the procurement process for these projects.

The locally hosted elements of the implementation structure – primarily the Secretariat – were also staffed mostly by foreign consultants. It is therefore not surprising that, despite having hosted the GET FiT Secretariat for several years, ERA still does not feel that it has the capacity to run a similar procurement programme. ERA was not involved in the detailed design of the

25 One of the winning bidders sent a letter to URA shortly after being awarded, and waited more than seven months for a response.

auction programme, or in the evaluation of bids. And with no new funding available for further GET FiT rollout, the role of the implementation consultant has also been rolled back considerably. Given the fact that the GET FiT programme was always conceived of as a ‘pilot’ programme, the fact that it was not institutionalised locally represents an important lost opportunity.

7 Conclusion: lessons and recommendations

Uganda should be lauded for the real improvements achieved in the country's small but progressive electricity sector. As the first country in the sub-Saharan region to fully unbundle its electricity generation and distribution sectors, Uganda committed itself to a reform path that promised to deliver improvements in installed generation capacity and supply security, utility performance and a sustainable price path.

After almost two decades of reforms, some of these promises have been realised (decreased transmission and distribution losses, cost-reflective tariffs, increased installed capacity), but often in the absence, or at the expense, of other reform objectives (the Bujagali IPP, for example was both delayed and expensive). At the same time, new legislation and improvements in institutional capacity (such as the establishment of ERA) have created an enabling environment that is attractive to the private sector (see Appendix A for lists of private energy companies engaged in or attempting to do business in Uganda). Uganda now has one of sub-Saharan Africa's most successful IPP procurement programmes.

The GET FiT programme has been particularly instrumental in improving the environment for private investment in the energy sector. Each project that has been transparently procured, reached financial close, and been successfully constructed, with contracts and payments honoured, has boosted investor confidence, lowered perceptions of risk, and provided a tangible, working asset for the country. In addition, Uganda now has a set of contract documents (related to PPAs, IAs, DAs, etc.) that are bankable and of acceptable quality to international lenders and investors. The country's regulatory and legal regimes (including its grid code and tax regime) have been tested and improved, showing that they are ready to deal with private investment and a range of renewable (variable and dispatchable) technologies. Some capacity improvements have occurred across the range of Uganda's electricity sector institutions (such as ERA at UETCL), although whether these are now able to run competitive procurement processes on their own has not yet been established. Interestingly, post-GET FiT projects are being licensed and contracted using the same processes and documentation that was developed and used for GET FiT (these are also listed in Appendix A).

The absence of an official integrated, dynamic least-cost generation plan, with legal standing, is, however, a threat to many of these gains. In particular, the ongoing contracting and licensing of additional generation projects under the FiT programme, coupled with the commissioning of the large Chinese hydro plants, is likely to lead to a costly oversupply of electrical power. In essence, some projects are being procured more for the purposes of grid strengthening than for the additional electricity capacity they will provide.

The threat of oversupply is prompting UETCL to replace 'take or pay' clauses in the PPA with 'take and pay' provisions, meaning that it will pay for electricity only as and when needed. This has undermined the fundamental bankability of various projects, and Uganda now has a substantial pipeline of generation projects (that it might or might not need) that are unable to reach financial close. The president has refuted any claims of an impending oversupply problem, instead directing ERA and UETCL to provide licences and off-take agreements to these projects. Yet, without a rational, mandated planning framework, the developments threaten to undermine many of the gains of the reform process, including the independence of the regulator and the use of transparent procurement practices.

The GET FiT programme offered some temporary solutions through the creative role played by the regulator, as well as transparent and independent procurement processes, and facilitating the close involvement of donor agencies. However, the winding down of the programme underlines some of the institutional and policy gaps in the sector. It must be acknowledged that

GET FiT played a part perpetuating this poor planning setup – its *raison d'être* was based on little more than a short- to medium-term supply gap and some optimistic demand projections. An independent evaluation of the programme (see Castalia, 2016) was particularly critical of this, noting that the programme reflects a lack of 'duty of care', and might end up costing the country more than it has bargained for.

A good planning framework is of critical importance to the successful development of an auction programme; without this, there can be little clarity on whether and when subsequent auction rounds will occur (and how much will be procured). As a result, the GET FiT Solar PV Facility has not fully achieved its intended purpose, which was to lower the generation costs of these kinds of projects. As the market matured, and both developers and investors grew more comfortable with the programme, subsequent auction rounds would almost certainly have achieved lower prices. Although it was set up as a pilot project, by running just a single auction round, the GET FiT Solar PV Facility turned into little more than a fairly expensive proof of concept. Had it been linked to an integrated, dynamic and approved least-cost generation plan that translated into competitive procurement rounds in a timely manner, the solar facility might well have been able to show the way to a country that is perfectly placed to benefit from the rapidly decreasing cost of renewable energy installations. It is difficult to overemphasise how much Uganda's planning and procurement deficiencies have impacted on the otherwise rapidly developing private involvement in the country's power sector.

Even so, the solar facility offers a number of important lessons. The programme signalled to bidders that it was important to site projects where they are needed most. Most African countries need to incorporate this notion in their bidding programmes. Whether the 3km grid-proximity rule was the best way to achieve this is debatable, but the fact that the Ugandan programme took a proactive approach to project siting, seeking to balance the strengths of private sector bidders with the interests of the public sector in finding optimal sites, worked well. We are sure to see further permutations of this approach in future competitive bidding programmes in the region.

The programme went to great lengths to ensure that bidders were capable of delivering what they promised by asking bidders to include evidence of their track records and net assets in their bid documents. The programme also focused on ensuring that bidders were sufficiently incentivised to deliver by providing a robust set of financial commitments. These included bid and performance bonds as well as penalty regimes in the PPA and IA. GET FiT also increased the chances of this solar PV project's success through offering bankable documentation, an attractive payment profile (such as frontloaded premium payments) and a range of risk mitigation and credit enhancement instruments.

Where the programme might have fallen short was in determining the auction volume and project size. The relatively small project size meant limited economies of scale, and resulted in higher prices. Projects this small also fall outside the range of interest of bigger project developers who would have been able to increase competition while bringing their considerable experience, procurement volumes and balance sheets to bear on the eventual outcomes.

The bid evaluation process is another area that could be improved. In particular, the technical evaluation criteria and process should have provided more detailed guidance to bidders. In the event, bids were scored against more than 300 criteria, and not all of these were made explicit in the RfP documentation. The technical plant design requirements were also so detailed (down to the level of wiring) that this left relatively little room for developers to optimise their systems. Given the fact that bidders are fully dependent on a plant's technical performance over the lifetime of a PPA to repay their debt and recover equity investments (and that both the PPA and

DFA included substantial penalty regimes for underperformance), it might have made more sense to merely require that major equipment items comply with international standards.

The scoring of each of the 300 technical criteria was another area of concern, since instead of a simple pass/fail evaluation, the five-point rating scale used opened up the evaluation process to subjective scoring and therefore potentially to challenge. Both of these issues – detailed guidance and uncertain scoring – came to the fore quite strongly when assessing project compliance against IFC standards. This was where project developers least understood the scoring and it ultimately led to the disqualification of otherwise compliant bids. While this should not be read as a critique of the use of the IFC standards, bidder compliance would have been greatly improved had the tender agent provided clearer guidance on this.

The cost implications of uncertainties related to the programme are further emphasised by the protracted battle for clarity on, and fair treatment under, the relevant tax regimes. Had this issue been sufficiently clarified in the pre-bidding stage, the Tororo project would have come online at least a year earlier, and would not have had to shoulder the significant additional development and legal costs that were incurred. In addition, a Ugandan company would most likely have remained as an equal shareholder in the project. The same can be said for some of the other provisions that winning bidders became aware of only post-award, including the cost of duties on total debt and significant annual licensing fees.

It is therefore critical for procuring agencies to ensure that bidding documents contain as much detail as possible on potential financial liabilities and other costs. Requiring detailed financial models with a bid, while not outlining significant cost items can be seen as potentially negligent on the part of the procuring authority. This is especially so when programmes are attempting to attract international bidders who will not necessarily be familiar with the specifics of local contexts.

The way in which the GET FiT Solar Facility was implemented is another important element to consider. The institutional setup was effective in ensuring the transparency and credibility of the procurement process, as well as in navigating the various Ugandan laws and regulations. This is in large part thanks to the fact that adequate and dedicated resources and capacity were provided for the establishment of a centralised project implementation unit (the GET FiT Secretariat). This unit was located in a powerful institution (ERA), supported by an independent body of respected experts (IC), and guided by a powerful political committee (Steering Committee).

Where the implementation structure fell short was in ensuring that this capacity was institutionalised in Uganda. Instead of progressively extending the roles and capacity of ERA staff (and other local legal, financial and technical experts) in ways that ensured that they learned to manage such procurement processes, a growing roster of international consultants and specialists were imported to handle the work. This means that when the GET FiT programme's procurement came to an end with the solar facility, capacity in Uganda remains insufficient to run future auctions as, for example, South Africa's IPP office has done. This partly explains why Uganda is falling back on feed-in-tariffs even though further auctions could deliver lower prices.

Finally, the GET FiT solar facility projects offered an important opportunity for a more sustainable model of financing that was unfortunately not sufficiently explored. The premium payment mechanism (in Euro), coupled with the liquidity and termination payment arrangements, can be said to have de-risked the project to such an extent that it would have been possible to have made at least a portion of the PPA payments in local currency. As things stand, the foreign-currency exposure of all the US\$-denominated 20-year PPAs in Uganda

represent a significant long-term financial risk to the off-taker and to the Ugandan fiscus (Duve and Witte, 2016).

While some level of forex exposure might have been necessary to attract sufficient international lending, interest from local and regional lenders was not taken up – largely because they were unable to compete with DFIs. Given the developmental mandate of most DFI funding, increased local-currency lending at reasonable rates and tenors, or at least the extension of credit lines or payment guarantees to local or regional commercial banks, should surely be possible. Crowding in commercial debt is one of the key roles played by DFIs in the region's IPP space, and it is unfortunate that the opportunity to work with local investors was not taken up in this case.

Uganda has emerged as a (perhaps unlikely) power-sector-reform champion in sub-Saharan Africa. Many argued that its power sector was too small to unbundle, and the problems too severe to be truly impacted by reform. However, by stubbornly sticking with its reform path through some painful years, Uganda seems to finally be reaping many of the benefits – including an improved investment environment for IPPs. Its successful experiences in IPP procurement – first via feed-in tariffs and then shifting to an auction – have shown the way for others in the region. Those wanting to learn from Uganda would do well not only to note the important steps taken to improve investor confidence and create a credible procurement mechanism, but also to heed its costly lack of procurement planning.

Appendix A

Possibly forthcoming non-GET FiT electricity generation projects in Uganda, 2018

Table A1: The nine companies awarded feasibility-study permits in Uganda in the 2017/2018 financial year

Company	Project
1 Total E&P BV	146MW Thermal power plant using Excess Associated Gas
2 China Africa Investment & Development Co Ltd	330MW Kiba Hydropower project on River Nile
3 PA Technical Services Ltd	4.2MW Kigwabya HPP
4 Aswa – Lolim Power Company Ltd	4.2MW Latoro HPP
5 Uganda Electricity Generation Company Ltd	13.7MW Lwakhakha HPP
6 Hovael Uganda Private Ltd	4.4MW Rushaya HPP
7 Space Links Technologies Ltd	2.5MW Waste to Energy Project
8 CNOOC Uganda Ltd	47MW Excess Associated Gas Project
9 Lemastota (Pvt) Ltd	2MW Atari 1 HPP

Table A2: The 12 companies that have passed the feasibility study stage, and have applied for licences to generate and sell electricity

Company	Project
1 Senok Atari One (PVT) Ltd	3.25MW Atari HPP
2 Senok Kabeywa One (PVT) Ltd	6.5MW Kabeywa One HPP
3 Senok Kabeywa Two (PVT) Ltd	2.0MW Kabeywa Two HPP
4 Eco Clean Power Ltd	7.1MW Sironko HPP
5 Achwa Hydro 3 Ltd	10MW Achwa 3 HPP on Achwa River in Pader District
6 Achwa Hydro 4 Ltd	13MW Achwa 4 HPP on Achwa River in Pader District
7 RAREH Sisi Ltd	7.1 MW Sisi HPP in Bulambuli District
8 RAREH Simu Ltd	9.5MW Simu HPP in Bulambuli District
9 Mpanga Hydro Uganda Ltd	7.8MW Mpanga HPP in Kasese District
10 Rwenkuba Electricity Company Ltd	3.2MW Nyabuhuka HPP in Kabarole District
11 Sugar Corporation of Uganda Ltd	26MW Bagasse power project
12 SM Hydro Ltd	6.9MW Muyembe HPP

Table A3: Licensed power projects that have yet to begin construction

Project name, size, type and location		Status
1	Genmax Ltd 6.6 MW Nyagak III HPP Zombo District	Project yet to achieve financial close. UEGCL portion of the project equity to be financed by Government of Uganda through the Ministry of Finance following the pulling out of KfW
2	Elemental Energy Ltd 7 MW Nyamabuye HPP Kisoro District	Project is yet to achieve financial close
3	Timex Bukinda Ltd 6.5 MW Bukinda HPP	Project is yet to achieve financial close
4	Arpe Limited 41 MW Achwa 1 HPP Gulu/Pader District	Project is yet to achieve financial close given evacuation challenges
5	Albatross Energy Uganda Ltd 50 MW Thermal power plant Hoima District	Project is awaiting crude oil production from the Albertine region
6	M/S Xsabo Power Ltd 20 MW Solar PV Mpigi District	Project is yet to achieve financial close
7	Tororo PV Power Company Ltd 10 MW Solar PV Project Tororo District	Project is yet to achieve financial close
8	Senok Atari (PVT) Ltd 3.25 MW Atari HPP Kapchorwa District	Project is yet to achieve financial close given power evacuation challenges in the Elgon region
9	Senok Kabeywa 1 (PVT) Ltd 2 MW Kabeywa 1 HPP Bulambuli District	Project is yet to achieve financial close given power Evacuation challenges in the Elgon region
10	Senok Kabeywa 2 (PVT) Ltd 6.5 MW Kabeywa 2 HPP Bulambuli District	Project is yet to achieve financial close given power evacuation challenges in the Elgon region
11	SM Hydro Ltd 6.9 MW Muyembe HPP Bulambuli District	Project is yet to achieve financial close given power evacuation challenges in the Elgon region
12	Eco Clean Power Ltd 7 MW Sironko HPP Sironko District	Project is yet to achieve financial close given power evacuation challenges in the Elgon region

Appendix B

Analytical framework

The analytical framework used represents a widening and deepening of the work done by Eberhard and Gratwick (2011) and Eberhard et al. (2017) in their analyses of factors contributing to the success of IPPs in sub-Saharan Africa. These authors have identified a host of factors, at both country and project level, that influence the success of these projects. In particular, they have emphasised the importance of competitive procurement (Eberhard et al., 2016) without explicitly making recommendations concerning the design and implementation of such procurement programmes – largely because the most of sub-Saharan Africa’s IPP capacity has been procured through direct negotiations, often initiated by unsolicited proposals (Eberhard et al., 2016).

How procurement interactions between the public and private sectors need to be structured and managed is a key concern for the development of successful new renewable generation capacity in this region. Renewable energy auction design is a field of growing scholarly and practitioner interest. The work of, for example, Del Río and Linares (2014); Lucas, Ferroukhi and Hawila (2013); Kreiss, et al., (2016); Del Río (2017); Lucas, Del Río and Sokona (2017); Dobrotkova, et al.(2018); Hochberg and Poudineh (2018); and Kruger and Eberhard (2018) offers a useful body of literature for developing a deeper understanding of how choices made in the design of procurement programmes can influence price, investment outcomes, and so on. Eberhard and Naude (2016) as well as Eberhard, Kolker and Leigland (2014) have also emphasised how choices made around procurement programme implementation can play a role in determining outcomes.

The analytical framework used in this case study attempts to combine lessons from the literature on IPP success factors with studies of auction design and implementation to offer a detailed and nuanced understanding of various factors that influenced the auction outcomes. Factors investigated and assessed in the study are outlined in the table below.

Factors	Details
Country level	
Stability of economic and legal context	Stability of macroeconomic policies Extent to which the legal system allows contracts to be enforced, laws to be upheld, and arbitration to be fair Repayment record and investment rating Previous experience with private investment
Energy policy framework	Framework enshrined in legislation Framework clearly specifies market structure and roles and terms for private and public sector investments (generally for a single-buyer model, since wholesale competition is not yet seen in the African context) Reform-minded ‘champions’ to lead and implement framework with a long-term view
Regulatory transparency, consistency and fairness	Transparent and predictable licensing and tariff framework Cost-reflective tariffs Consumers protected
Coherent sectoral planning	Power-planning roles and functions clear and allocated Planners skilled, resourced, and empowered Fair allocation of new-build opportunities between utilities and IPPs Built-in contingencies to avoid emergency power plants and blackouts

Competitive bidding practices	Planning linked to timely initiation of competitive tenders/auctions Competitive procurement processes are adequately resourced, fair and transparent
Programme level	
Programme design	Bidder participation is limited to serious, capable and committed companies Contracts are bankable and non-negotiable Balance between price (competition) and investment risks/outcomes is appropriate Programme is linked to and informed by planning frameworks (volume, transmission etc.) Investment risks and costs are allocated fairly Design takes local political and socio-economic context into consideration Transaction costs (bidders and procuring entity) offset by price and investment outcomes Qualification and evaluation criteria are transparent and quantifiable Design allows for multiple scheduled procurement rounds Measures to create local capacity/market are built in through local currency PPA, shareholding requirements, etc.
Programme implementation	Both the programme and the procuring entity have appropriate and unbiased political support, as well as an appropriate institutional setting and governance structures The procuring entity is capable, resourced and respected Coordination between various government entities is effective The procurement process is clear, transparent and predictable
Project level	
Favourable equity partners	Local capital/partner contributions are encouraged Partners have experience with and an appetite for project risk A DFI partner (and/or host country government) is involved Firms are development minded and ROEs are fair and reasonable
Favourable debt arrangements	Competitive financing Local capital/markets mitigate foreign-exchange risk Risk premium demanded by financiers or capped by off-taker matches country/project risk Some flexibility in terms and conditions (possible refinancing)
Creditworthy off-taker	Adequate managerial capacity Efficient operational practices Low technical losses Commercially sound metering, billing, and collection Sound customer service
Secure and adequate revenue stream	Robust PPA (stipulates capacity and payment as well as dispatch, fuel metering, interconnection, insurance, <i>force majeure</i> , transfer, termination, change-of-law provisions, refinancing arrangements, dispute resolution, and so on). Security arrangements are in place where necessary (including escrow accounts, letters of credit, standby debt facilities, hedging and other derivative instruments, committed public budget and/or taxes/levies, targeted subsidies and output-based aid, hard currency contracts, indexation in contracts)
Credit enhancements and other risk management and mitigation measures	Sovereign guarantees Political risk insurance Partial risk guarantees International arbitration
Positive technical performance	Efficient technical performance high (including availability) Sponsors anticipate potential conflicts (especially related to O&M and budgeting) and mitigate them
Strategic management and relationship building	Sponsors work to create a good image in the country through political relationships, development funds, effective communications, and strategically managing their contracts, particularly in the face of exogenous shocks and other stresses

Source: Adapted from Eberhard et al. (2016)

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