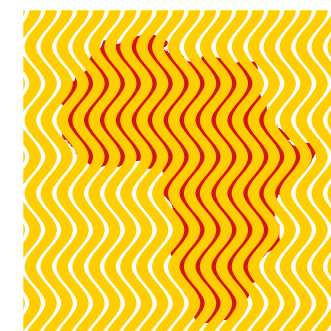


**GET FiT  
UGANDA**

# ANNUAL REPORT 2020

SUPPORTED BY





**GET FiT  
UGANDA**

# Annual Report 2020

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## Message from the Ministry of Finance, Planning and Economic Development

The year 2020 has, in many ways, been a challenging year for the GET FiT Programme. The global COVID-19 pandemic has affected project construction timelines and operations, and several projects experienced damaging floods at the beginning of the year. Despite these challenges, GET FiT projects have shown immense resilience – rectifying destruction due to the floods and continuing construction and operations. As a result, the Programme is still alive and impacting the Ugandan electricity supply industry and economy in a positive manner. In addition to developers, other key stakeholders of the Programme have also continued their efforts in 2020, and this is being recognised on the Continent.

Uganda was ranked number one in the Electricity Regulatory Index for Africa in 2020 by the African Development Bank – for the third time in a row, further increasing their scoring from 0.75 in 2019 to 0.80 in 2020. This demonstrates that the robust and conducive regulatory environment created by the Electricity Regulatory Authority (ERA) and other stakeholders in Uganda is further manifesting itself.

The year 2021 is anticipated to be an exciting year for GET FiT, as the three last projects in the portfolio are expected to be commissioned during the year. The commissioning of Nyamagasani 1 SHP, Nyamagasani 2 SHP and Kikagati SHP will add 36 MW of installed capacity to the portfolio. With this addition, the portfolio will have an installed capacity of 158 MW, contributing with a planned generation of 760 GWh annually to Uganda's energy mix.

The Ministry of Finance and Economic Planning is proud to have been part of the conceptualisation and implementation of the GET FiT Programme from the very beginning. The Ministry has over the years continued to provide an enabling fiscal policy framework for renewable energy through GET FiT. Consequently, the Programme has had a central role in improving the country's investment environment for the private sector, positioning Uganda as a primary example of successful energy sector development in Africa. We thank all stakeholders for their continued support and cooperation in this regard.

“



*The programme has had a central role in improving the country's investment environment for the private sector, positioning Uganda as a primary example of successful energy sector development in Africa.*

**Matia Kasaija (MP) | Minister of Finance, Planning and Economic Development**

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## Message from UK

The GET FiT programme is in its final years and has demonstrated success in assisting Uganda to pursue a low carbon and climate resilient development path, consistent with the 2020 national energy policy. I wish to thank the GET FiT donors; European Union, Germany, Norway, and the UK for providing funding to the programme and Government of Uganda for taking the bold step to lead the way in testing the GET FiT model. GET FiT success has demonstrated the viability of private sector investments in renewable energy in developing countries. The year 2021 will focus on completion of the remaining three power generation projects as well as the critical grid infrastructure, marking the completion of the infrastructure development phase of the programme.

Amidst a challenging year with COVID-19 disruptions and flooding at various GET FiT sites, the programme has continued to make progress. GET FiT contributed up to 10% of the national electricity supply and ERA continued to demonstrate improved regulatory capacity. Progress has also been made on grid interconnections and 1,370 additional full-time employee jobs were created in 2020 alone. Developer compliance with environmental and social standards continued to be a priority.

The registered success was however not immune to the impacts of COVID-19 pandemic that defined 2020 and climate induced disruptions. Lockdowns and travel restrictions impacted work progress with developers citing the force majeure clause in the contracts. Some projects under construction were

delayed due to a supply chain failure and COVID-19 control measures that substantially affected the mobility of workers. In addition, heavy rains during May 2020 flooded three GET FiT sites and resulted in substantial damage to power generation infrastructure.

Sustainability of small hydropower plants rests on a better environmental and social impact monitoring and ability to supply this power to the national grid. We are keen to complete the grid interconnections in western Uganda in 2021 to ensure that all the power generated by GET FiT is transmitted to the national grid. We also welcome the 2020 national energy policies focus on increasing investments in power transmission infrastructure, as power generation without adequate distribution does not address the problem of limited access and use. Beyond GET FiT, we recognise that expanding electricity coverage will require more investment in off-grid technologies with a clear focus on power for productive use. Investments in off-grid technologies is well recognised in the revised Uganda's energy policy.

The success achieved so far demonstrates best practice for similar programmes across Africa and beyond. Lessons from GET FiT have already influenced innovations in the renewable energy sector, particularly investments to incentivise the private sector leadership in innovations and scale up.

I thank the donor partners, Government of Uganda, the private sector and GET FiT implementing partner KfW for this great partnership over the years.

“



*The success achieved so far demonstrates best practice for similar programmes across Africa and beyond. Lessons from GET FiT have already influenced innovations in the renewable energy sector, particularly investments to incentivise the private sector leadership in innovations and scale up.*

**Andrew Ockenden** | Development Director, British High Commission, Kampala

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# Executive Summary

**S**purring the local investment climate. Since the inception of GET FiT Uganda in 2013, 17 small power plants have been developed under the Programme thus setting a track record for successful private investments in the Ugandan power sector. Additional private investments in small-scale renewable energy that make use of the standardised PPAs developed under the Programme are further evidence that GET FiT has had a sustainable impact on the sector.

**Best in Africa – three times in a row.** The Programme continues to track the sector development to gain an indication on the regulatory performance of the sector. For the second year in a row, the Electricity Regulatory Authority (ERA) has reported that more than 90% of performance and compliance reporting to ERA by the electricity sector licensees was timely and complete. This is a substantial increase from 20% in 2017 and is well on the way to the target of 100% timely and complete reporting by 2023. In addition, the average time taken by ERA to review generation licences for projects with installed capacity between 1-20 MW in 2020 was less than one month – already one month faster than the 2023 target. The increasingly robust and conducive regulatory environment created by ERA is being recognised internationally – in 2020 Uganda was ranked number one on the Electricity Regulatory Index for Africa by the African Development Bank – for the third time in a row!

ERA is still seeking to improve its services through the Regulatory Information Management System (RIMS) project that is being implemented. The project will enhance ERA's information and data collection processes and create automated and improved web-based solutions for its monitoring and stakeholder engagement. The project was commenced in November 2020 and is expected to roll-out in mid-2021.

**Job creation.** GET FiT Uganda continues to have a positive impact on job creation. With three projects still under construction in 2020, about 910 workers have been employed through these projects during the year. Moreover, the fourteen operational GET FiT power plants have employed approximately

470 staff throughout the past year. This brings the total amount of direct job creation to approximately 11,730 (Full Time Equivalent – FTE) since inception of the Programme in 2013. Furthermore, there is significant indirect job creation due to, for example, local economic growth. Around 90% of the workers are Ugandan employees.

**GET FiT adapting to unforeseen external events.** 2020 has been an eventful year with unforeseen external incidents impacting the Programme. The global COVID-19 pandemic emerged in March 2020 leaving the developers of the three remaining projects with travel restrictions and supply chain disruptions. Only two months later, in May 2020, major floods occurred in Western Uganda, which substantially impacted the construction progress of the Nyamagasani 1 and 2 small hydropower plants (SHPs). This was a major setback to both projects which had to rebuild key project structures. Furthermore, the floods affected the operation of the Nyamwamba and Lubilia SHPs, leading to downtime whilst remedial works were undertaken.

The three projects under construction have received support from GET FiT throughout the year even though site visits were not possible, ensuring as far as possible that the projects were implemented in accordance with Programme requirements and expectations.

**Portfolio output and performance.** The total portfolio installed capacity has remained at 122.4 MW since 2019, with no additional GET FiT projects commissioned in 2020. The installed capacity is split between 11 small hydropower projects, totalling 82.4 MW installed capacity, two solar projects with a total installed capacity of 20 MWp and one bagasse co-generation project with 20 MW of installed capacity.

Despite the challenges experienced in 2020, the GET FiT portfolio delivered 380 GWh to the grid during the year, yielding approximately 20% higher production than in 2019. The increase in production is predominantly due to more projects being operational throughout the entire year, as compared to 2019 when a few projects were commissioned only late



in the year, as well as a statistically wetter year experienced at many of the hydropower plants, resulting in above average generation. The generation of the GET FiT Portfolio covered approximately 10% of the total electricity consumption in Uganda, which now includes the full effect of commissioning of the Isimba large hydropower project (183 MW) in 2019.

Several projects in the portfolio are still facing evacuation problems, however, as grid reinforcements are still outstanding. As a result, a deemed energy amount of 130 GWh was reported in 2020, meaning that only 75% of the potential energy that could have been delivered to the grid by GET FiT plants was actually realised.

**The last mile.** The unexpected pandemic and the flooding events early in 2020 have impacted construction progress for the three projects still under construction, namely Kikagati, Nyamagasani 1 and Nyamagasani 2. This has led to expected commissioning dates during 2021, delayed from the initially planned commissioning in 2020 for all three projects. GET FiT continued to monitor the implementation of these remaining projects during 2020, but as a result of international travel restrictions this was limited to remote supervision only.

- **Nyamagasani 1 SHP** (15 MW) experienced substantial delays in 2019 but made some important changes at the end of the year so that construction progress was substantially improved during the first quarter of 2020. Progress was however adversely impacted by the COVID-19 pandemic in addition to major flooding events in May 2020. Nonetheless, construction works continued throughout the year and the project is expected to commission in the middle of 2021.
- **Nyamagasani 2 SHP** (5 MW) is located downstream of Nyamagasani 1, forming a cascade. The project experienced similar challenges in 2019, before the progress at the beginning of 2020 was followed by COVID-19 pandemic and flooding challenges later in 2020. The project also continued construction throughout the year and is now planning to commission during the first quarter of 2021.
- **Kikagati SHP** (16 MW) also experienced delays in construction during 2020 due to the COVID-19 pandemic, such as international travel restrictions and adverse impacts to the supply chain. Despite these challenges, several important design issues were resolved in 2020. In addition, construction work at the powerhouse and other key structures was well underway. The Developer is aiming to commission the plant in August 2021.



**Improving the environmental and social performance.** GET FiT has had a consistent focus on environmental and social performance during construction and operation of the portfolio. Dedicated and joint follow-up together with ERA, combined with developers' strengthened efforts, resulted in substantial improvements throughout the implementation period. More than 50 environmental and social Conditions Precedent (CPs) were defined across the Requests for Proposals. These continue to be followed up and in 2020 an additional five CPs were cleared. These improvements and focus on environmental and social development have led to improved compliance with international standards by developers. GET FiT will continue to monitor and follow up these issues closely, with a particular focus on environmental flows.

**Grid connection.** Even though 14 GET FiT projects were operational in 2020 and ready to produce and deliver energy to the grid, a significant share of this production has been lost due to significant power evacuation constraints. Waki, Nkusi, Sindila, Ndugutu and Siti 2 SHPs are among the projects that face the highest deemed energy claims due to grid constraints. Some of the projects under construction are also facing the risk of inadequate grid infrastructure at the expected time of commissioning. Efforts are being made to improve the situation: In addition to

working towards better grid connection infrastructure, the country is investing in deeper integration of the projects via transmission line and substation upgrades.

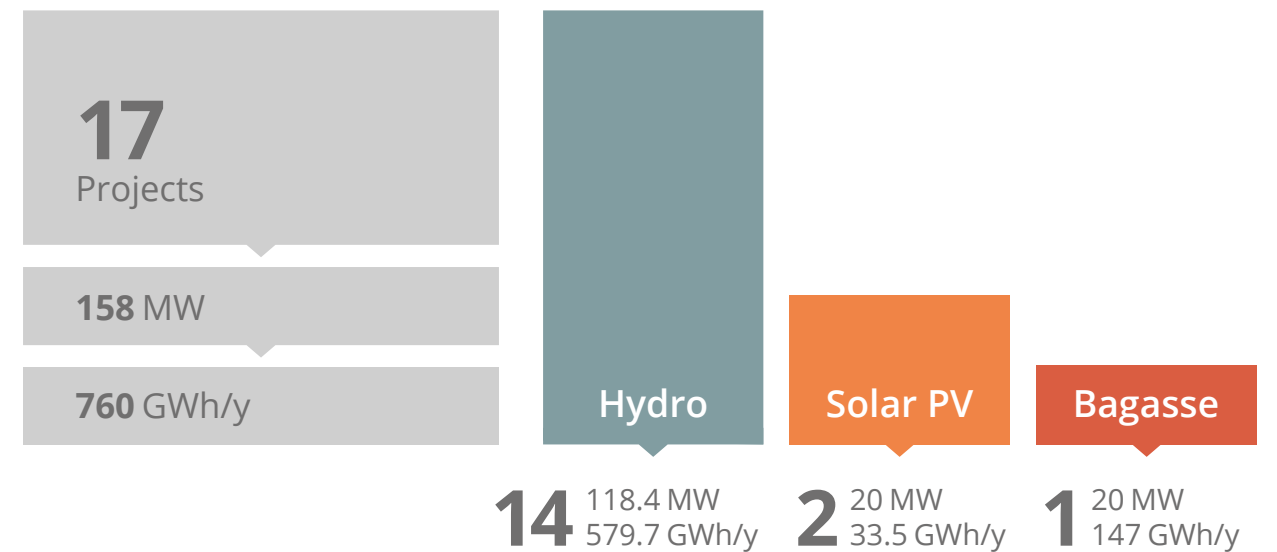
**Outlook.** 2020 was a challenging yet fruitful year – the Programme has proven to handle the challenges well, and the developers have continued to construct and operate their plants. Now, GET FiT is looking forward to the commissioning of the remaining three projects - benefitting from the hard work in 2020. The GET FiT Steering Committee resolved in 2020 that GET FiT will increase its focus on environmental flows for hydropower projects going forward by establishing a Working Group on environmental minimum flow compliance. This group will address relevant issues across the Ugandan power sector, based on lessons learned from the implementation of GET FiT.

Although 2020 did not turn out the way anyone expected, GET FiT Uganda is on track to achieving the overarching Programme targets. GET FiT has built a large and diverse renewable energy portfolio at record speed in the given context. This is only as a result of the dedicated efforts, and loyal commitment to Programme goals, by Project Developers, Ugandan Government Agencies, GET FiT donors and all other, valuable members of the GET FiT Uganda community.





## GET FiT PORTFOLIO



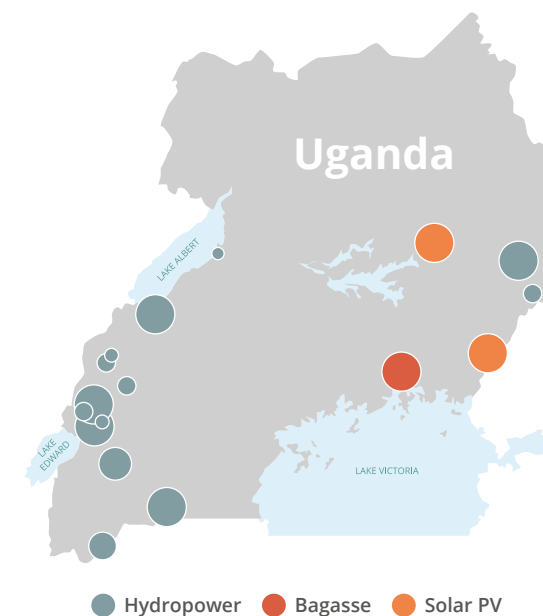
Rwimi EP Company Limited (REPCL) commissioned the 5.5 MW Rwimi SHPP in October 2017 and provides about 27 GWh of energy annually to the National Grid of Uganda.

In addition to the power generation, REPCL also has other local initiatives related to the power plant, such as a gravity flow water supply scheme. This scheme was constructed to supply potable water to the surrounding community, and was implemented in partnership with our Financiers. The Scheme has tremendously reduced the time taken to fetch water, a task which is traditionally carried out by the women and children. This has enabled the community to engage more in subsistence activities and spend extra time with their families while allowing the children to concentrate more on their education.

REPCL wishes to record our appreciation to all Stakeholders, the GET FiT and the Monitoring Agencies for their valuable advice, guidance and funding extended for the successful commissioning and operation of the Rwimi SHPP.

The Sponsors of REPCL look forward to continuing working with GET FiT in the African Region in developing Renewable Energy projects.

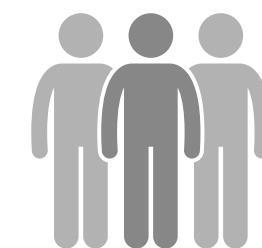
**Firdowsy Ismail** | Chief Executive Officer – Rwimi EP Company Limited



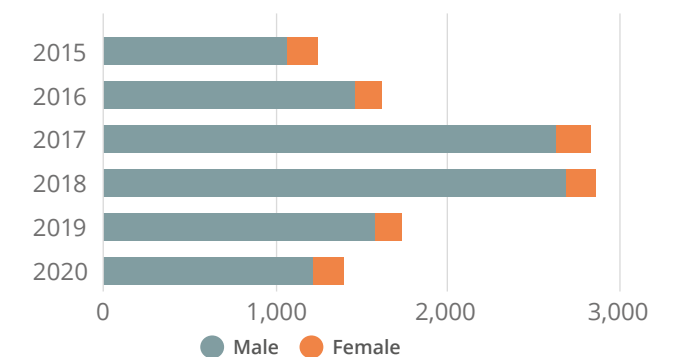
## Projects Commissioned



## Capacity Installed

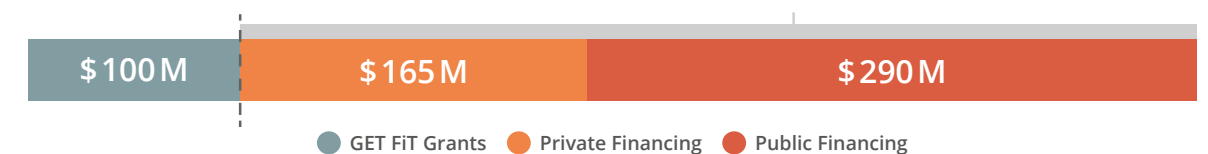


Jobs Created  
**11,732**  
Ugandan Employment  
**90%**



**4.6** GET FiT Leverage Ratio

**455** Million USD in Private Investments Leveraged





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# List of Abbreviations

<b>CO<sub>2</sub></b>	Carbon Dioxide
<b>COD</b>	Commercial Operation Date
<b>CP</b>	Condition Precedent
<b>BEIS</b>	Department for Business, Energy & Industrial Strategy, UK
<b>DFA</b>	Developer Financing Agreement
<b>DFID</b>	Department for International Development, UK, now the Foreign, Commonwealth & Development Office
<b>EPC</b>	Engineering, Procurement and Construction (a form of contract)
<b>ERA</b>	Electricity Regulatory Authority
<b>E&amp;S</b>	Environmental and Social
<b>ESIA</b>	Environmental and Social Impact Assessments
<b>EU ITF</b>	European Union Infrastructure Trust Fund
<b>FCDO</b>	Foreign, Commonwealth & Development Office, UK
<b>GHG</b>	Greenhouse Gas
<b>GoU</b>	Government of Uganda
<b>GWh</b>	Gigawatt Hours
<b>IFC PS</b>	International Finance Corporation Performance Standards
<b>IPP</b>	Independent Power Producer
<b>MEMD</b>	Ministry of Energy and Mineral Development
<b>MtCO<sub>2</sub>e</b>	Million Tonnes of Carbon Dioxide Equivalent
<b>MVA</b>	Mega-Volt-Ampere
<b>MW</b>	Megawatts (of installed power capacity) 1 MW = 1000 kilowatts
<b>PPA</b>	Power Purchase Agreement
<b>RE</b>	Renewable Energy
<b>REA</b>	Rural Electrification Agency
<b>RFP</b>	Request for Proposal
<b>SC</b>	Steering Committee
<b>SHP</b>	Small Hydropower Plant
<b>SPCC</b>	Sector Planning and Coordination Committee
<b>SSA</b>	Sub-Saharan Africa
<b>TA</b>	Technical Assistance
<b>UEDCL</b>	Uganda Electricity Distribution Company Limited
<b>UETCL</b>	Uganda Electricity Transmission Company Limited



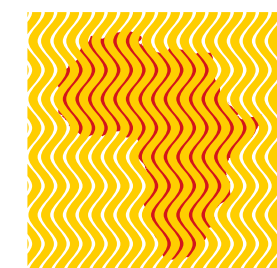
## | 01 About GET FiT Uganda

The GET FiT Uganda Programme was officially launched on May 31<sup>st</sup>, 2013. The Programme, which was developed by the Government of Uganda and the Electricity Regulatory Authority (ERA), in close cooperation with KfW Development Bank, is designed to leverage private investments into renewable energy generation projects in Uganda. GET FiT is supported by the Governments of Norway, the United Kingdom, Germany and the EU through the EU Africa Infrastructure Fund.

The main objective of the GET FiT Programme is to assist Uganda in pursuing a climate resilient low-carbon development path resulting in growth, poverty reduction and climate change mitigation by facilitating private sector involvement and improving the framework conditions for private investments in renewable energy. In Uganda, GET FiT is fast-tracking a portfolio of 17 small-scale renewable energy (RE) projects, promoted by private developers and with a total installed capacity of 158 MW. This will yield approximately 760 GWh of clean energy production per year, transforming Uganda's energy mix within a period of 3-5 years, and resulting in:

- Emission reductions of roughly 10 million tonnes of CO<sub>2</sub> in the 20-year lifespan of Power Purchase Agreements (PPAs).
- An increase in Uganda's energy production by about 20%, and thus a contribution to tackling an anticipated supply shortage.
- Facilitating (or significantly improving) access to energy for at least 200,000 additional households (approximately 1.2 million people) also due to strengthening of regional grids.
- Leveraging more than USD 450 million in public and private investments for RE generation projects with a limited amount of results-based grant funding.

A more comprehensive description of the specific tools and approaches applied by GET FiT to address the challenges faced in the Ugandan power sector, the governance structure of the Programme, and key activities and achievements so far, is found in the **GET FiT Annual Reports** produced since 2013. Following the success of the Programme in Uganda, the GET FiT concept has been replicated in other countries, with the launch of GET FiT Zambia in 2018 and the anticipated launch of GET FiT Mozambique during 2021.



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## 02 Project Portfolio Status

### 2.1 Portfolio Status

#### 2.1.1 Overview

At the start of 2020, 14 of the 17 small-scale RE projects supported by GET FIT were operational and delivering energy to the Ugandan grid. The final three small hydropower projects (SHP) still under construction were expected to commence commercial operation later in the year, finally unlocking the remaining power system contribution from the GET FIT Programme. The year 2020, however, brought unforeseeable challenges that affected both operational projects and those still under construction, alike.

Firstly, the global COVID-19 pandemic, which emerged early during 2020 and persisted throughout the year, significantly impacted the three projects still under construction. Subsequently, and in parallel with the ongoing coronavirus pandemic, major flooding events in Western Uganda adversely impacted two operational projects as well as two of the projects still under construction. These challenges are described in further detail below. As a result, the three projects still under construction at the start of 2020 were substantially delayed and are now expected to complete construction and commence commercial operation during 2021.

The 14 projects operational at the start of 2020, which provide a combined installed capacity of 122.4 MW – approximately 77% of the total installed capacity to be implemented under the Programme (158.4 MW) – nonetheless delivered nearly 380 GWh to the grid, corresponding to approximately 10% of the total grid electricity supplied in Uganda. Cumulatively, the overall power supplied to the Ugandan grid by GET FIT supported projects thus far has totalled more than 1 TWh.

#### 2.1.2 Coronavirus

The coronavirus pandemic emerged during early 2020 and severely disrupted international travel and shipping as well as the movement of people within Uganda. During the second half of March 2020, the developers of the three remaining projects still

under construction – the Nyamagasani 1 and 2 SHPs and the Kikagati SHP – notified the Uganda Electricity Transmission Company Limited (UETCL) and KfW of a Force Majeure event in accordance with the requirements of their respective Power Purchase Agreements (PPA). At that stage, the Developers notified that travel restrictions imposed worldwide had affected the movement of key project staff as well as significant supply chain disruptions for many of their suppliers.

Effective from 18 March 2020, the GoU imposed restrictions on certain activities within Uganda to manage the spread of the virus, including various nationwide lockdowns and curfews which were partially lifted in May 2020, although it was generally understood that the Ugandan construction industry was allowed to continue with precautions during this period. International travel restrictions were relaxed as of 1 October 2020 with the re-opening of Entebbe International Airport. The Developers reported continuing adverse impacts throughout much of 2020 resulting in construction delays, including the supply of equipment, travel restrictions, national curfews, and quarantine procedures.

Whilst it was not possible for the construction sites to be visited by the GET FIT Implementation Consultant and KfW during 2020 due to the travel restrictions imposed during the ongoing coronavirus pandemic, dialogue with the Developers and their construction teams was maintained throughout the year, to check on the status of key issues as well as general progress towards achieving Commercial Operation Date (COD).

#### 2.1.3 Major Flood Events

During May 2020, major floods in Western Uganda substantially impacted the construction progress of the Nyamagasani 1 and 2 SHPs as well as operation of the Nyamwamba and Lubilia SHPs. All four projects experienced varying degrees of flood damage and required major reconstruction efforts.





At the Nyamagasani 1 and 2 SHPs, the Developer again notified UETCL and KfW of a further Force Majeure event relating to flood impacts, which were expected to result in substantial construction delays. Flood related damage was sustained to key project structures, construction equipment, and resulted in severely impeded access and construction progress at key project locations. Design modifications were incorporated where appropriate and substantial reconstruction efforts were required, ultimately resulting in further delays in achieving the COD.

At the Nyamwamba SHP, significant damage was sustained at the intake structure and powerhouse, resulting in unplanned outages lasting several months. Key structures were subsequently reconstructed or repaired and design modifications incorporated to minimise the risk of future damage. The powerhouse was inundated as a result of the flooding and required substantial clean-up, remedial works, and replacement of damaged equipment. In the short term, the Developer assembled a temporary generating unit from salvaged parts to enable generation to recommence from early October, albeit at substantially reduced capacity. The full installed capacity of the plant is expected to be restored early during 2021.

Flood damage was also sustained at the intake and powerhouse of the Lubilia SHP, though the extent was less severe than experienced at the Nyamwamba SHP, resulting in a substantially shorter period of operating downtime. Design modifications and reconstruction efforts were again required to restore the robustness of key project structures to a standard similar to the pre-flood condition.

2.1.4. Progress in 2020 and Remaining Challenges

Despite the various challenges, construction of the three remaining SHPs continued throughout most of 2020. By the end of 2020, remedial and reconstruction works to flood-damaged structures of the Nyamagasani 2 SHP were nearing completion, with the project anticipated to complete construction and synchronise to the grid during the first quarter of 2021. The long term solution for evacuating power from the Nyamagasani 1 and 2 SHPs was further delayed during 2020 and the Developer subsequently

invested in upgrades to the existing nearby grid, to enable the plant to be connected, commissioning tests completed, and evacuation of at least a limited plant output prior to completion of the permanent power evacuation solution. Commissioning works and commercial operations during the first quarter of 2021 therefore appeared feasible.

At the Nyamagasani 1 SHP, access to the weir site had been reinstated following the May 2020 floods and new construction plant mobilised to enable the works to progress. Completion of the weir and upper headrace works remained critical to achieving commercial operation, where there was still potential for progress to be affected by further rainfall and high flow events during the statistically wetter period of the year between March and May. Commercial operation during the middle of 2021 nonetheless appeared feasible.

Construction works at the final GET FiT support project, the Kikagati SHP, also progressed throughout 2020, with a predominant focus at the powerhouse – the most substantial powerhouse within the portfolio. Whilst a number of important design issues had been resolved by the end of 2020, a few key issues were still outstanding and required urgent attention early during 2021. The Developer still planned to progressively commission and bring into operation the three generating units over several months in the second half of 2021, with all three units expected to be operational and COD achieved during the third quarter of 2021. However, the completion of major project structures was forecast to occur during the fourth quarter of 2021, and substantial construction works and risks remained. Construction completion during early 2022 appeared more realistic, although the completion of these works and associated potential construction delays are not anticipated to affect generation.

**Table 1** summarises the construction start and commissioning dates for all GET FiT supported projects as well as periods of prolonged unplanned internal outages<sup>1</sup> experienced by selected projects during 2020. The expected dates for achieving completion of commissioning tests and commencing commercial operations for the three remaining projects are also shown.

**Table 1 |** Overview of construction start and commissioning dates for GET FiT supported projects as well as prolonged unplanned internal outages during 2020

Project	Construction Start	Commissioning	Prolonged unplanned internal outages in 2020
Kakira CHP	Q2 2012	Q2 2014	2 months
Soroti Solar PV	Q1 2016	Q4 2016	–
Siti 1 SHP	Q1 2015	Q2 2017	–
Muvumbe SHP	Q3 2015	Q2 2017	–
Tororo Solar PV	Q1 2017	Q3 2017	–
Rwimi SHP	Q3 2015	Q4 2017	–
Lubilia SHP	Q1 2016	Q2 2018	2 months
Nkusi SHP	Q2 2015	Q2 2018	1 month
Nyamwamba SHP	Q4 2015	Q2 2018	7 months
Waki SHP	Q2 2015	Q4 2018	–
Sindila SHP	Q1 2017	Q2 2019	–
Siti 2 SHP	Q3 2016	Q3 2019	–
Kyambura SHP	Q3 2017	Q3 2019	–
Ndugutu SHP	Q2 2017	Q4 2019	–
Nyamagasani 2 SHP	Q1 2017	Q1 2020	N/A
Nyamagasani 1 SHP	Q1 2017	Q3 2020	N/A
Kikagati SHP	Q4 2017	Q3 2021 <sup>2</sup>	N/A

2.1.5 Consequences of Delayed CODs

The Steering Committee concluded in 2019 that all projects still under construction beyond the extended GET FiT Programme deadline of 31 October 2019<sup>3</sup> would remain eligible for GET FiT support, provided that the Developers of those projects agreed to a DFA addendum. The addendum stipulated that, for each full month of delay beyond 31 October 2019, a penalty of 5% to the COD subsidy payment would be imposed. The addendum was agreed to by the Developers of the three projects

still in construction during 2020 – the Nyamagasani 1 and 2 SHPs and the Kikagati SHP – which will all be subject to these further reductions in the final subsidy amount.

In September 2020, the Steering Committee further agreed that the DFA COD deadline may be extended where there are genuine and justifiable Force Majeure claims. The actual delay arising out of the Force Majeure events, and the associated magnitude of

<sup>1</sup> For the purpose of this report, a "prolonged unplanned internal outage" is taken to mean any unplanned internal outage lasting two weeks or more.

<sup>2</sup> Whilst the Developer of the Kikagati SHP expects to commission all three generating units and achieve COD in Q3 2021, the construction of key project structures will continue and are not forecast to be completed until Q4 2021. GET FiT estimates that construction works will not be completed until Q1 2022.  
<sup>3</sup> The GET FiT Steering Committee resolved in 2018 that, at the discretion of the GoU, represented by KfW, the contractual deadline for all projects still constructing beyond 31 December 2018 would be extended to 31 October 2019.



DFA COD deadline extension, will be determined by GET FIT subject to legal review, assessment of progress on site, and decisions by UETCL and ERA with respect to the PPAs. The cut-off date for final subsidy disbursements made under the GFPPM will, nevertheless, remain as 2023/24. For operational projects affected by Force Majeure events during 2020, the Steering Committee determined that the DFA term may be extended where justified, but no later than the 2023/24 cut-off date, and provided funding is still available at that stage.

2.1.6 Portfolio Operating Performance in 2020

The timely implementation of new power evacuation infrastructure and upgrades to the existing grid continued to be a major issue for several of the SHPs during 2020. Of the 14 operational projects, three SHPs had still only partially completed their respective commissioning activities as a result of a combination of grid and water availability related issues. In each case, improvements to the existing grid and/or the completion of new lines were ongoing throughout most of 2020 and were required to enable power generation at full capacity.

The lack of a dedicated power evacuation line at the Siti 2 SHP continued to greatly hinder generation, resulting in significant deemed energy claims, until the temporary evacuation solution was energised at the end of 2020. Unusually high outages also continued to be experienced at the Siti 1 and Waki SHPs – see **Figure 1** – as well as at the Sindila and Ndugutu SHPs, where the combined output of the adjacent plants continues to be constrained until the permanent evacuation solution is implemented, which is expected in 2021. With these exceptions, the grid availability at GET FIT support projects averaged approximately 95%, whereas when grid availability at all plants is included the average was substantially lower at approximately 83%.

The availability of the plants to generate electricity during 2020 was generally in line with the expected range for a portfolio of new generation projects. Only three of the RE projects were substantially below the average plant availability across the portfolio – the Kakira cogeneration plant (combined heat and power plant - CHP) and the Lubilia and Nyamwamba SHPs. Generation at the Kakira CHP has been constrained since commencing commercial operation as

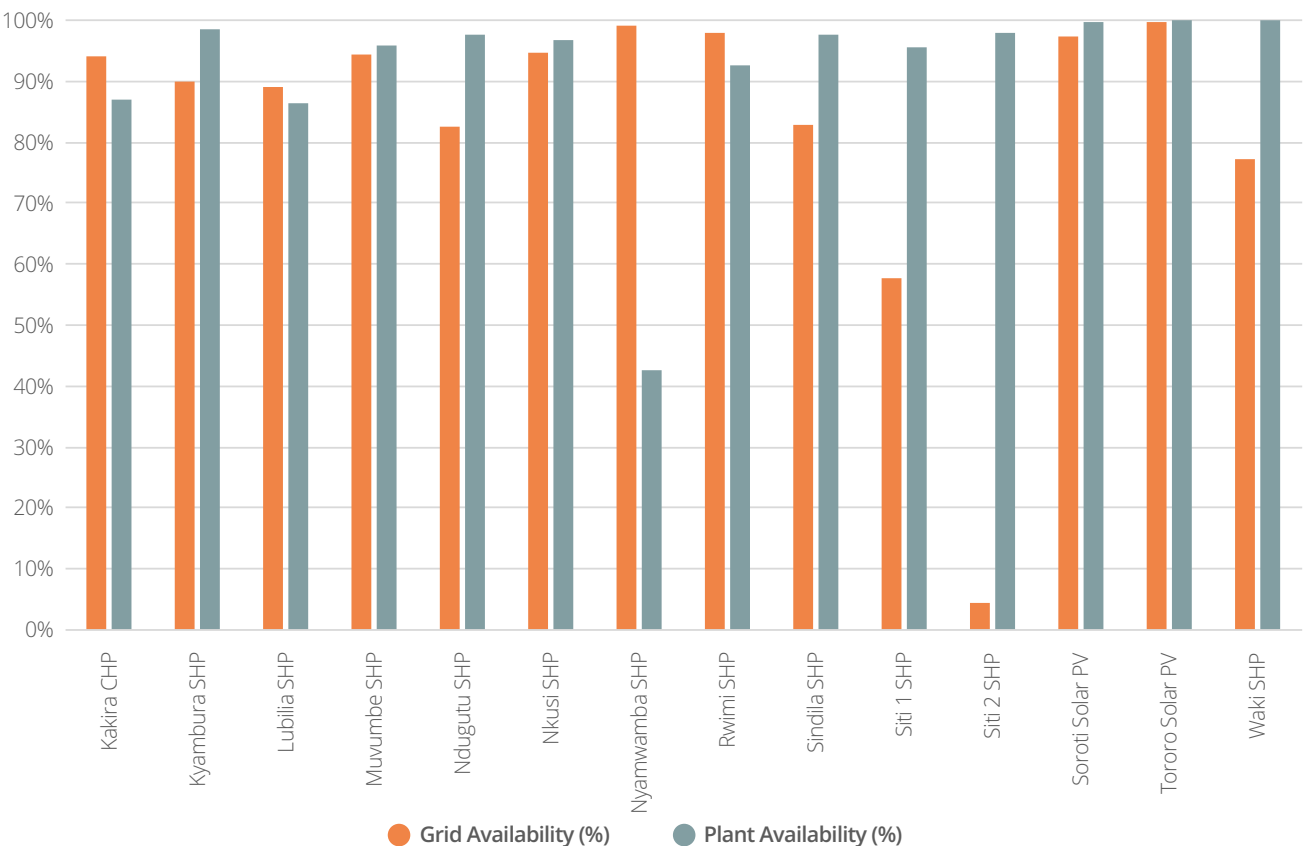


Figure 1 | Grid and Plant Availability During 2020 for all Operational GET FIT Supported Projects

a result of a low availability of fuel – this is discussed further in Section 2.2.1. The relatively low availability of the Nyamwamba SHP was predominantly a result of the flood related damage and ongoing construction repairs and replacement of equipment during the second half of 2020, as described above. At the Lubilia SHP, a landslide alongside the headrace canal in November 2020 resulted in further substantial unplanned outages until the end of the year, whilst remedial works were ongoing.

The energy delivered to the Ugandan grid by the GET FIT supported projects is summarised in **Figure 2**, below, shown as a proportion of the annual energy estimated at application stage. The potential energy<sup>4</sup> of plants during 2020 is also shown, which accounts for deemed energy as a result of grid outages as well as missed generation as a result of internal outages, such as experienced at the Lubilia and Nyamwamba SHPs.

The total energy delivered during 2020 across the portfolio was 380 GWh, which represents 81% of the total planned annual generation at application stage. For the small hydropower projects in the portfolio, **Figure 2** indicates that the generation potential of the plants during 2020 was on average 120%<sup>5</sup> of the annual generation estimated at application stage, indicating that 2020 was statistically a wetter than average year. The key exceptions are the adjacent Sindila and Ndugutu SHPs, located on the western side of the Rwenzori Mountain range, where the energy potential in 2020 is shown to be below the annual energy estimated for each plant at application stage. Further generating records in the coming years will improve certainty with respect to the energy potential of the GET FIT RE projects compared with the estimates made at application stage.

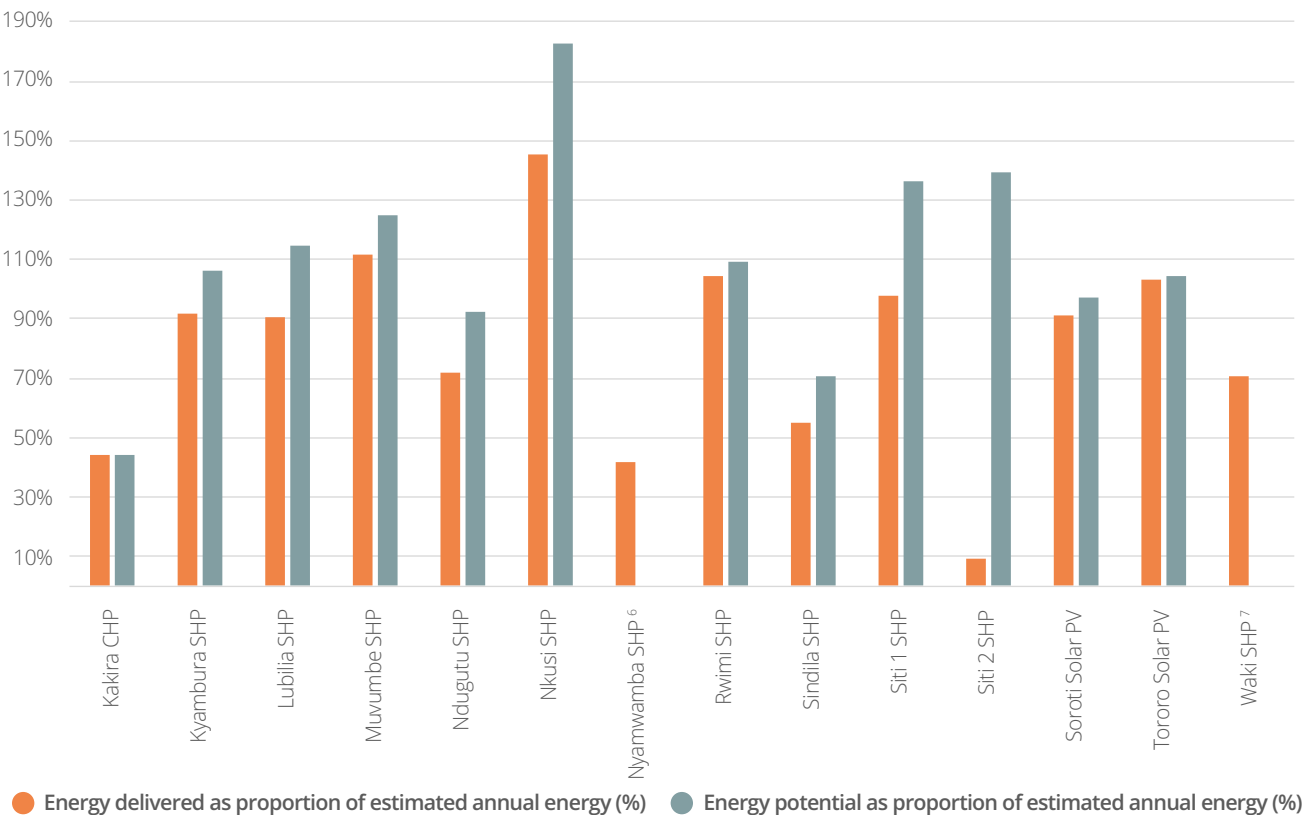


Figure 2 | Energy Delivered and Energy Potential During 2020 for all Operational GET FIT Supported Projects

<sup>4</sup> The "potential energy" or "generation potential" of a Renewable Energy project shall be taken in this report to mean the total energy actually delivered and deemed to have been delivered, accounting for grid outages, combined with electricity not generated due to internal plant outages. The "potential energy" therefore reflects water availability during the year compared with the planned annual generation at application stage.

<sup>5</sup> The 120% excludes the energy potential of the Nyamwamba and Waki SHPs. Energy potential data for the Nyamwamba SHP are incomplete for 2020 due to the damage sustained to project structures as a result of the May 2020 floods. At Waki SHP, uncertainties persist with respect to the method of calculating Deemed Energy, which contributes to the potential energy (see footnote above). Nonetheless, the generation potential at Waki SHP during 2020 was still estimated to be greater than 100% of that planned at application stage. Uncertainties surrounding the method of Deemed Energy calculation are expected to be resolved early during 2021.

<sup>6</sup> Due to a flooding event, the information about energy potential is incomplete, and therefore not presented.

<sup>7</sup> Uncertainties persist with respect to the method of calculating Deemed Energy. Therefore, the energy potential is not presented for Waki.



2.1.7 Expected Portfolio Output

An overview of the total planned installed capacity of the portfolio, and how it is distributed across the supported technologies, is presented in **Figure 3**. The overall portfolio capacity amounts to a total of 158.4 MW, representing approximately 93% of the original Programme target of 170 MW. The difference between the planned capacity of the current portfolio and the original target is partly due to a reduction in the overall Programme funding in earlier years combined with a lower share of bagasse/ biomass than originally anticipated. Nevertheless, adding an installed capacity of over 150 MW to the Ugandan electricity supply network is a significant achievement and truly reflects the successful impact of the GET FiT Programme.

**Figure 4** provides a schematic illustration of the merit order effect of the GET FiT portfolio, considering the current installed capacity of 122.4 MW. The merit order effect refers to the reduction of highly priced peak energy that the utility needs to buy: As indicated in the graph, the GET FiT portfolio (green area) is off-setting expensive thermal generation (grey area) that is associated with high GHG emissions. Due to GET FiT approximately 14% of total generation capacity has been added, thereby reducing generation from the heavy fuel oil plants in the country. Only two small power plants have been commissioned in 2020, with a total installed capacity of 16.5 MW. This means that the effect of the GET FiT Portfolio on the country's energy supply was largely the same in 2020 as it was in 2019. Notably, the

Isimba HPP, commissioned in 2019, increased the installed capacity in the country by 183 MW. In addition, the commissioning of the 600 MW Karuma Hydropower Project is expected in 2021. Therefore, based on ERA reporting, it is expected that Uganda will face a significant surplus generation capacity compared to demand in the short to medium term.

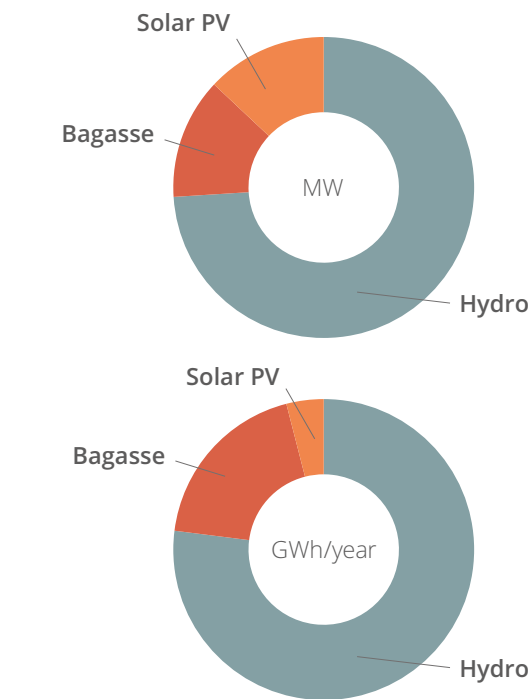


Figure 3 | GET FiT Portfolio Build Up



Schematic Representation of Merit Order in 2020

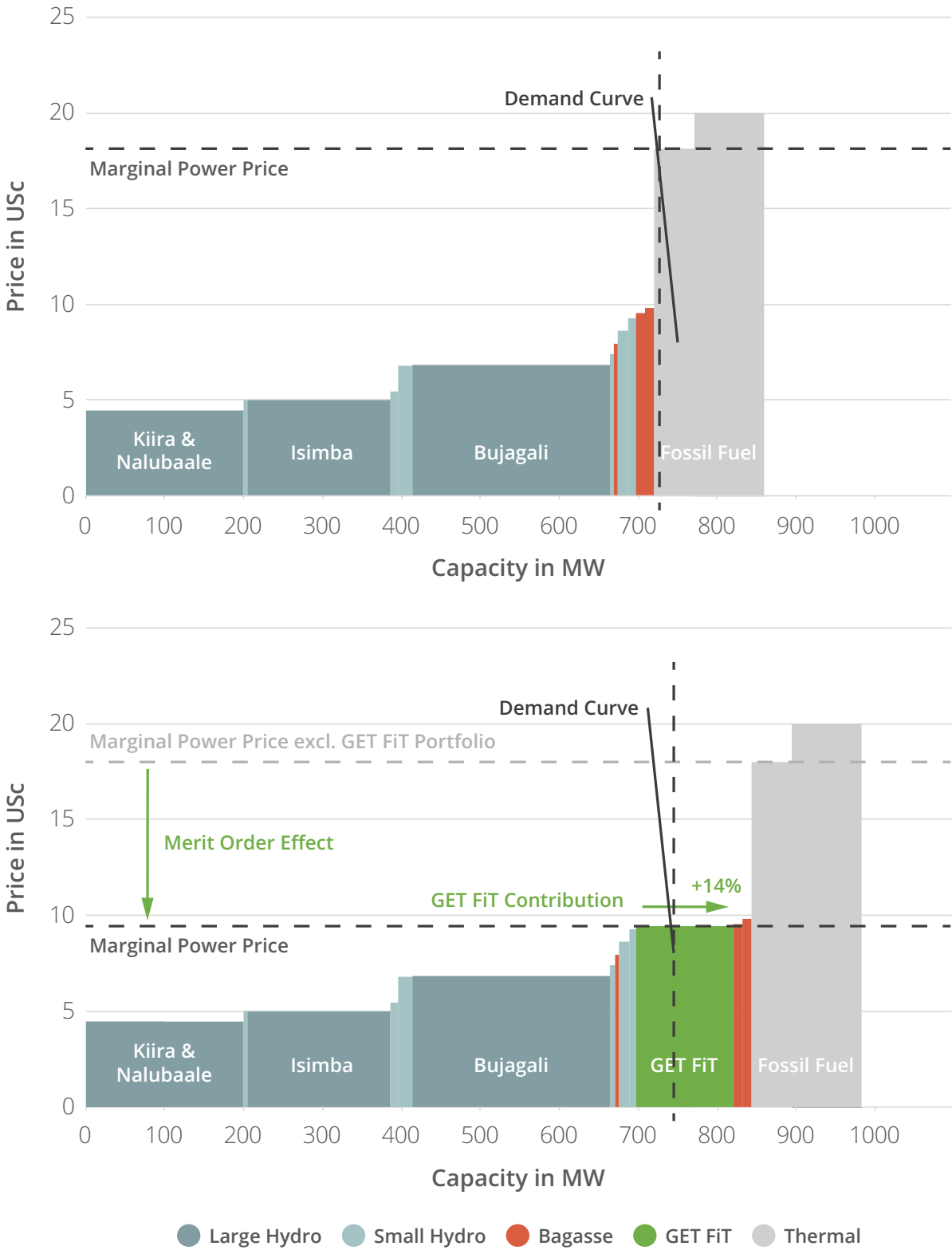


Figure 4 | Schematic Representation of Uganda's Merit Order and the Effect of the GET FiT Portfolio

**Note:** The merit order effect is expressed in marginal energy price, not average energy price. Both thermal power plants have 7 MW generation guaranteed in their PPA. Additionally, most power plants have take-or-pay PPAs. Therefore, the illustration is only a schematic representation of the effects. In 2020, a 10 MW solar plant and a 6.5 MW hydropower plant were commissioned.





2.2 Projects

In the following sections, projects comprising the GET FiT portfolio are described in more detail, highlighting notable developments and power generation<sup>8</sup> in 2020. **Figure 5** provides an overview of the location of the respective projects of the portfolio.

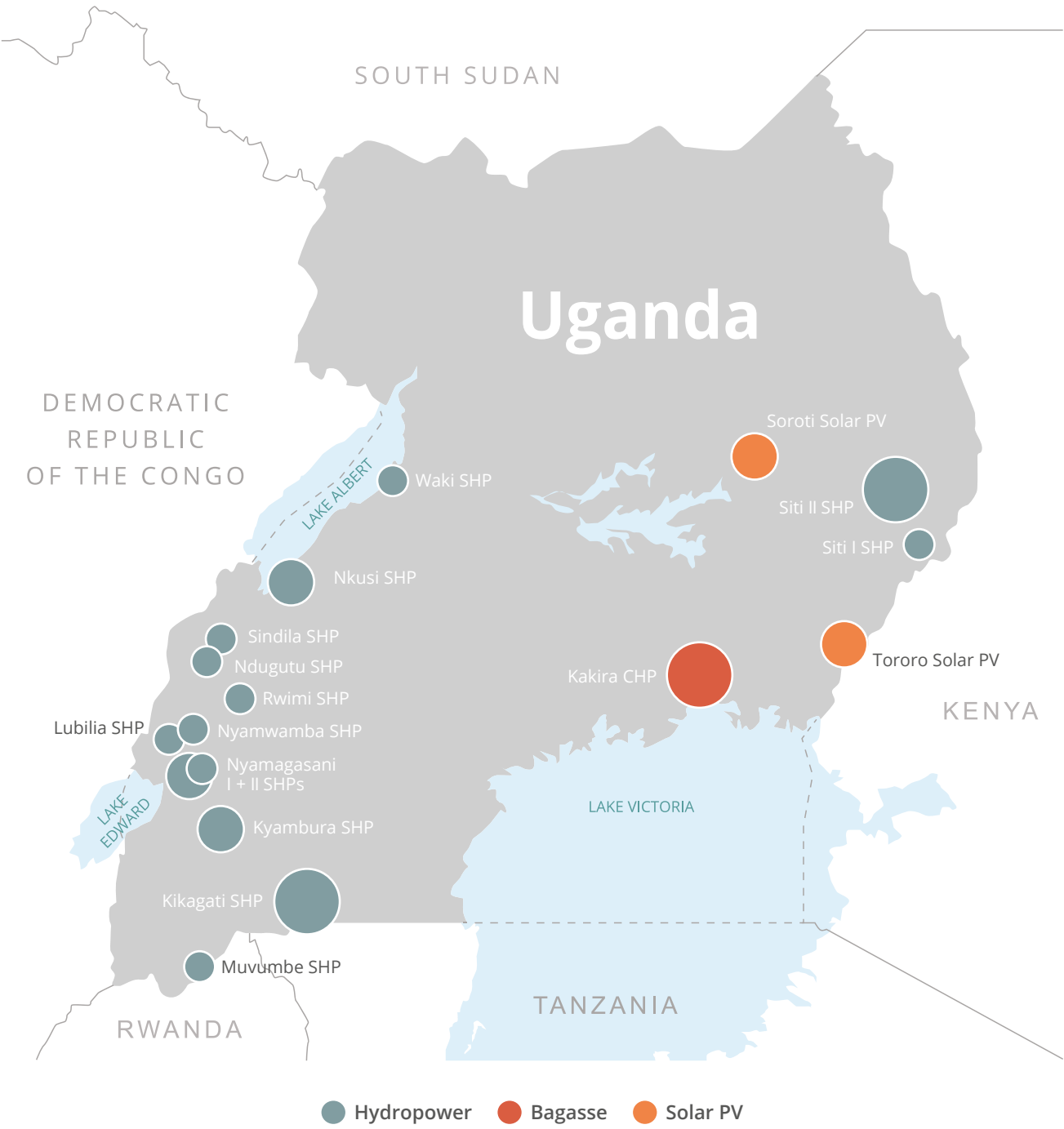


Figure 5 | Map of GET FiT Portfolio

<sup>8</sup> Generation data is presented as provided by the developers. The accuracy and appropriateness of the generation levels presented in the following sections will be reviewed by GET FiT only upon submission of annual subsidy payment requests as per contractually agreed procedures.



# Kakira CHP

Operational

## Bagasse

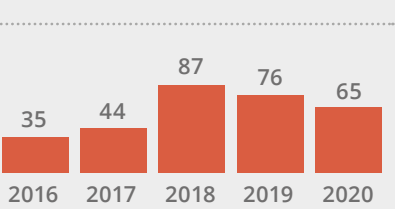
Capacity (in MW) 20.0

Planned Generation (in GWh/year) 147.0

Total Investment (in million USD) 56.8

GET FIT Commitment (in million USD) 7.1

### Annual Generation (in GWh)



The Kakira co-generation plant (using bagasse from sugar production), located in the Jinja District, Eastern Uganda, was the first operational project supported by GET FIT. Power production during the first years of operation was heavily constrained by a low availability of sugar cane caused by increased local competition over sugar cane from multiple new sugar factories. The sugar cane supply improved during the past few years, basically due to good weather and increased numbers of farmers, as well as the expansion of their own satellite cane fields.

Kakira has expanded its own satellite cane fields to reduce dependency on sugar cane supply by independent farmers to ensure more reliable raw material supply. In 2020, even with a higher supply of sugar cane, the production from the GET FIT Kakira plant was still only 65.2 GWh, due to two main technical problems: The need to replace a 11 kV/33 kV transformer which connects Kakira to the grid, and problems with the thrust bearing which required a repair of the bearing assembly. The grid availability has varied between 87% and 99% over monthly intervals, with the average grid availability over the year being 94%.

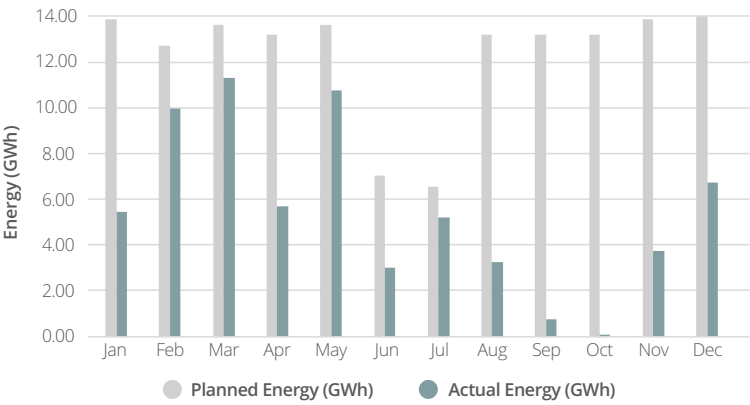


Figure 6 | Kakira Bagasse - Planned versus Actual Energy Output (2020)

# Soroti Solar PV

Operational

The Soroti 10 MWp Solar PV was the second project supported by GET FIT Uganda to commission, in November 2016. It was the first grid-connected solar plant in Uganda, and was, at commissioning, the largest project of its kind in the East and Central African Region. The project is located in Soroti District, Eastern Uganda. The annual production has been very stable across the years. Compared to 2019, the number of external outages was reduced in 2020. These outages have mainly been unplanned, except for some repair work to the grid.

The total generation from the plant in 2020 was 16.0 GWh, which is the same production which has been obtained yearly since the first full years of operation in 2017. This is slightly less than the planned annual production of 17.5 GWh which was predicted at commissioning. The deemed energy due to grid failure and grid maintenance was reduced from 1.24 GWh in 2019 to 0.96 GWh in 2020. The average grid availability in 2020 was 97.4%. Without downtime of the grid, the total delivered energy could have been 17.0 GWh.

The project reported some internal outages at the end of January and in February due to two faulty transformers. This reduced annual production slightly.

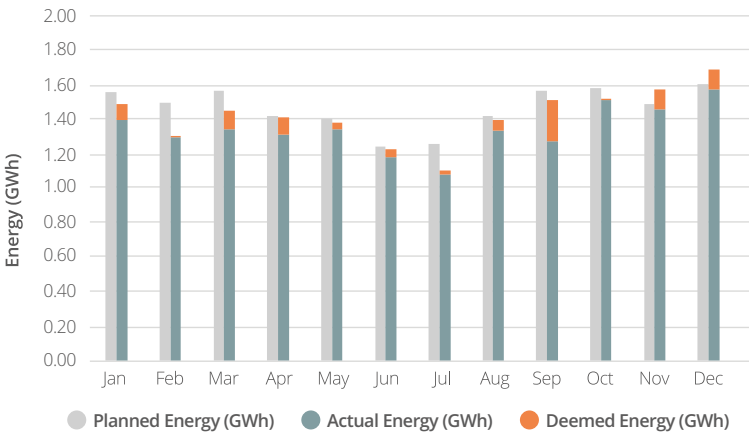


Figure 7 | Soroti Solar PV - Planned versus Actual Energy Output (2020)



# Siti 1 SHP

Operational

## Hydropower

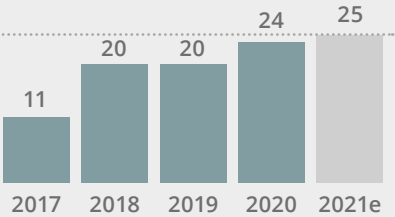
Capacity (in MW) 6.1

Planned Generation (in GWh/year) 25.0

Total Investment (in million USD) 15.0

GET FIT Commitment (in million USD) 3.6

### Annual Generation (in GWh)



This run-of-river hydropower plant is located in Bukwo District in Eastern Uganda and has been operational since May 2017. During 2020, the project delivered 24.5 GWh of energy to the grid.

Substantial grid failures and outages continued throughout 2020, with grid availability reportedly as low as 58% on average (comparable to 2019). Lost generation due to grid failures and outages, accounting for water availability, equated to approximately 27% of the potential plant output, which is especially high and similar in magnitude to previous years of operation.

The long-term power evacuation solution for the Siti 1 SHP and downstream Siti 2 SHP comprises a new 132 kV transmission line between Mbale and Bulambuli, which is expected to substantially improve the availability and reliability of power evacuation from the plants. Completion of the permanent evacuation solution is expected during 2024.

Adjusting for the partial availability of the power evacuation line, the energy output of the plant during 2020 would have reportedly been equivalent to 134% of the average energy estimated at application stage.

A persistent and serious non-compliance with E&S operating phase permit conditions, relating to release of the minimum flow requirement at the weir, was finally reported as resolved during 2020.

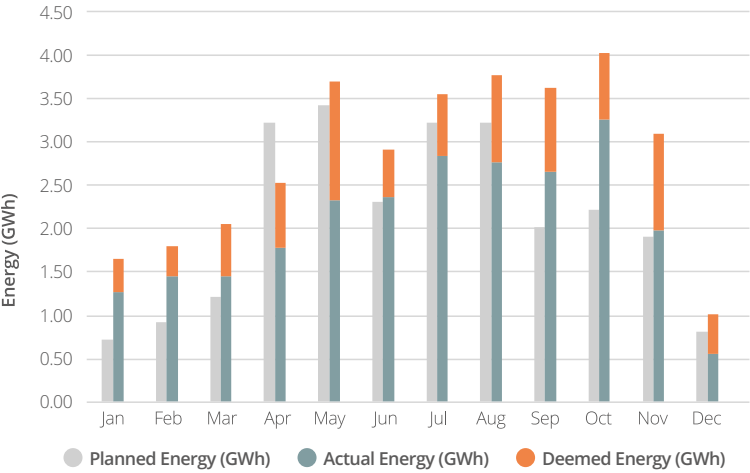


Figure 8 | Siti 1 SHP - Planned versus Actual Energy Output (2020)

# Muvumbe SHP

Operational

## Hydropower

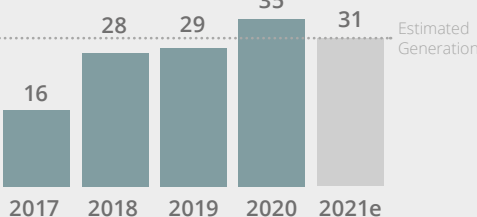
Capacity (in MW) 6.5

Planned Generation (in GWh/year) 31.0

Total Investment (in million USD) 12.5

GET FIT Commitment (in million USD) 4.5

### Annual Generation (in GWh)



This run-of-river hydropower project is located in Kabale District in South-Western Uganda and has been operational since May 2017.

During 2020, the Project generated 35.2 GWh. Combined with the energy generated since achieving commercial operation in 2017, the Project has contributed more than 100 GWh of electricity to the Ugandan grid.

The availability of the grid to evacuate power has been relatively consistent since the plant commenced commercial operations, with an average availability in 2020 of more than 94%. Nonetheless, lost power generation as a result of grid failures and external outages approximately equated to 7% of the potential generation for the year (energy delivered plus deemed energy).

Adjusting for the partial availability of the power evacuation line, the cumulative energy output of the plant would instead have been 38.0 GWh, approximately equivalent to 121% of the average energy estimated at application stage.

A post-COD site visit undertaken to the site during 2018 and subsequent discussions with the Developer resulted in installation of a new, retrofitted arrangement to release and monitor the minimum flow. The new arrangement is intended to correct deviations from the minimum release requirements and was completed during 2020.

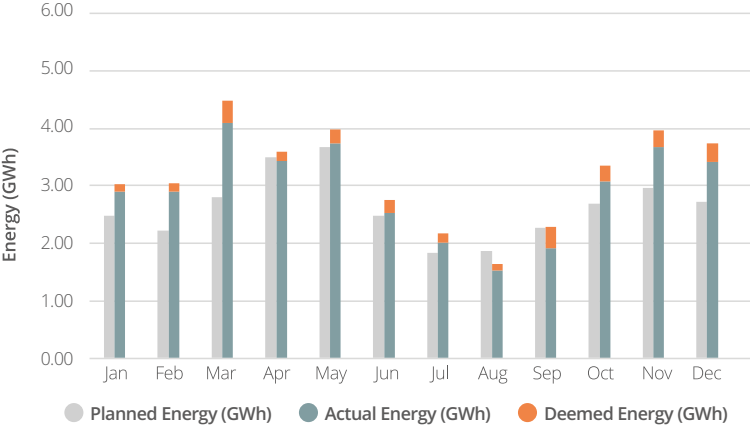


Figure 9 | Muvumbe SHP - Planned versus Actual Energy Output (2020)



# Tororo Solar PV

Operational

## Solar PV

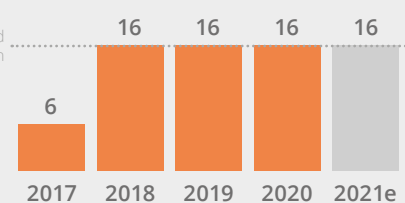
**Capacity**  
(in MW) **10.0**

**Planned Generation**  
(in GWh/year) **16.0**

**Total Investment**  
(in million USD) **19.6**

**GET FiT Commitment**  
(in million USD) **8.0**

**Annual Generation**  
(in GWh)



The Tororo Solar PV project is located in Tororo District, Eastern Uganda. The 10 MWp power plant commenced commercial operations in September 2017, and so became the second grid-connected solar power plant in Uganda. The project was developed by Building Energy, but during 2020 the majority shareholder changed. Further, in 2020 the majority shareholder changed from Building Energy S.p.A to Red Rocket Africa. Building Energy South Africa is still a minority shareholder of the plant, but has changed its name to Red Rocket South Africa.

The facility operated to expected and forecasted performance levels and there have been no major issues or concerns during the first three operational years. The Soroti project produced exactly at the planned annual production level in 2020, 16.0 GWh. The grid availability averaged 99.6% during 2020, with only a few hours of outage reported monthly.

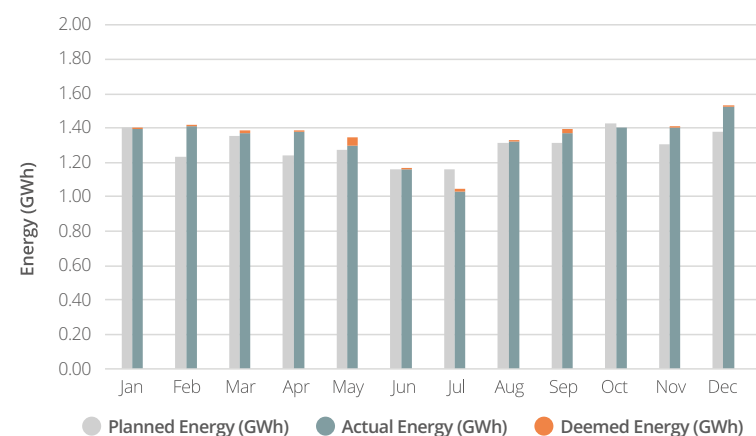


Figure 10 | Tororo Solar PV – Planned versus Actual Energy Output (2020)

# Rwimi SHP

Operational

This run-of-river hydropower project is located in Kasese and Bunyangabo Districts in Western Uganda and has been operational since October 2017.

During 2020, the project generated 28.5 GWh. Combined with the energy generated since achieving commercial operation in 2017, the project has contributed nearly 90 GWh of electricity to the Uganda grid.

A series of unplanned maintenance activities were required during 2020, predominantly as a result of debris accumulation at the dam and intake during the May 2020 floods. Combined with planned maintenance works, this had the effect of reducing the plant availability to 92%. Nonetheless, the plant still generated 104% of the average energy estimated at application stage. Adjusting for the reduced plant availability, as a result of unplanned maintenance activities, as well as external outages, the plant would reportedly have been able to generate a combined 29.5 GWh during 2020, 109% of the estimated annual average energy.

Several of the issues raised during a post-COD site visit in November 2019 were resolved by the Developer during 2020.

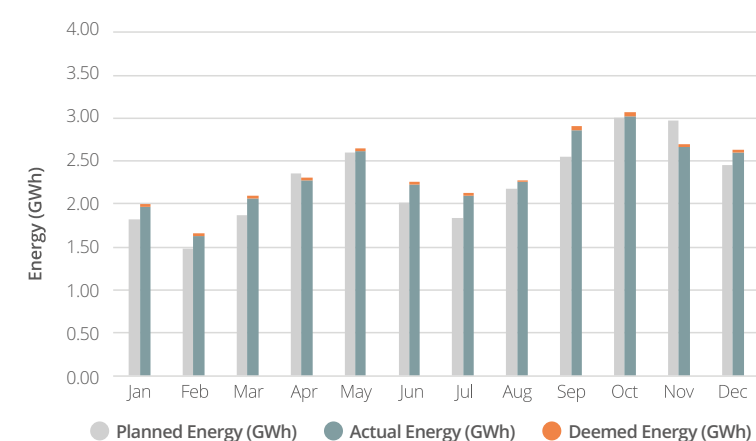


Figure 11 | Rwimi SHP - Planned versus Actual Energy Output (2019)

## Hydropower

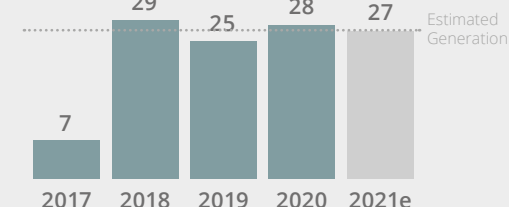
**Capacity**  
(in MW) **5.5**

**Planned Generation**  
(in GWh/year) **27.0**

**Total Investment**  
(in million USD) **19.0**

**GET FiT Commitment**  
(in million USD) **3.9**

**Annual Generation**  
(in GWh)





# Lubilia SHP

Operational

## Hydropower

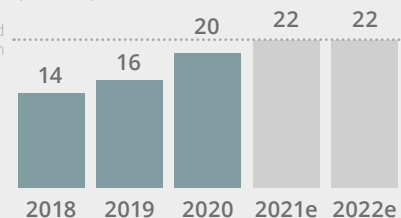
**Capacity**  
(in MW) **5.4**

**Planned Generation**  
(in GWh/year) **22.0**

**Total Investment**  
(in million USD) **16.0**

**GET FiT Commitment**  
(in million USD) **3.2**

### Annual Generation (in GWh)



# Nkusi SHP

Operational

## Hydropower

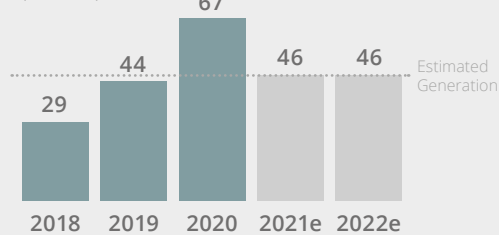
**Capacity**  
(in MW) **9.6**

**Planned Generation**  
(in GWh/year) **46.0**

**Total Investment**  
(in million USD) **19.6**

**GET FiT Commitment**  
(in million USD) **2.8**

### Annual Generation (in GWh)



This run-of-river hydropower plant is located in Kasese District in Western Uganda and delivered a total of 19.9 GWh of electricity to the grid in 2020, having been operational since early April 2018.

The plant experienced a major flood event during May 2020, which resulted in damage to key project structures and the need for remedial repairs. The downtime in plant operations was limited, however, as repairs were largely undertaken in parallel with continued generation.

In November 2020, the project suffered another major setback as a result of a landslide alongside the headrace canal, resulting in further substantial unplanned outages until the end of the year. Combined with the planned maintenance works during 2020, outages for flooding and remedial repairs resulted in an average plant availability for the year of 86%, well below what would be expected from a hydropower plant of similar age.

Grid failures and external outages during the year resulted in missed generation approximately equivalent to 7% of the potential plant output (energy delivered plus deemed energy), which were substantially lower than the 14% observed during 2019. Accounting for internal and external outages, the plant would have been able to generate a combined 25.2 GWh during 2020, approximately equivalent to 115% of the estimated annual average energy.

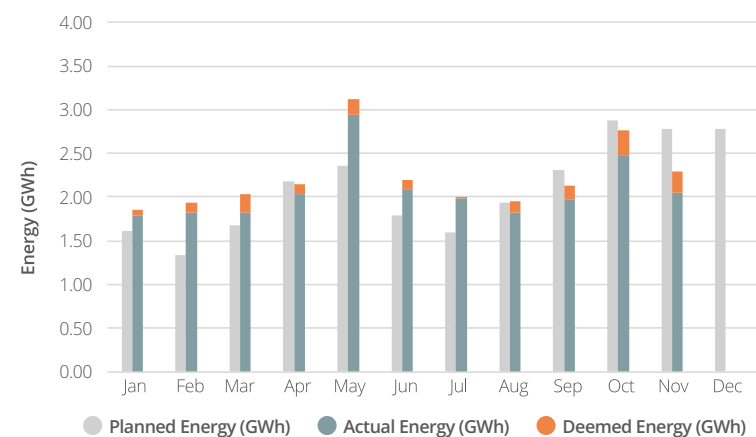


Figure 12 | Lubilia SHP - Planned versus Actual Energy Output (2020)

This run-of-river hydropower plant is located in the Kibale and Hoima Districts in Western Uganda and has been operational since June 2018.

During 2020, the plant was available 92% of the time, which is slightly lower than expected for a hydropower project of this age. The generation in November was considerably lower than planned due to unplanned internal outages. Nonetheless, the project still delivered 66.8 GWh to the grid due to a substantially higher flow availability during the year compared with the average annual generation estimated at application stage. Combined with the plant output since achieving COD in 2018, the project has generated nearly 140 GWh.

Grid failures and external outages during 2020, which resulted in an average grid availability of 87%, resulted in missed generation approximately equivalent to 13% of the potential plant output (energy delivered plus deemed energy), substantially improved from the 24% and 28% reported in 2019 and 2018, respectively.

Adjusting for internal and external outages, the plant would have been able to generate a combined 84.1 GWh during 2020, approximately equivalent to 183% of the average annual energy estimated at application stage, indicating that the plant experienced a significantly wetter than average year.

A post-COD visit has not yet been undertaken. Meanwhile, follow-up of outstanding issues at the time of COD is undertaken on a desk study basis.

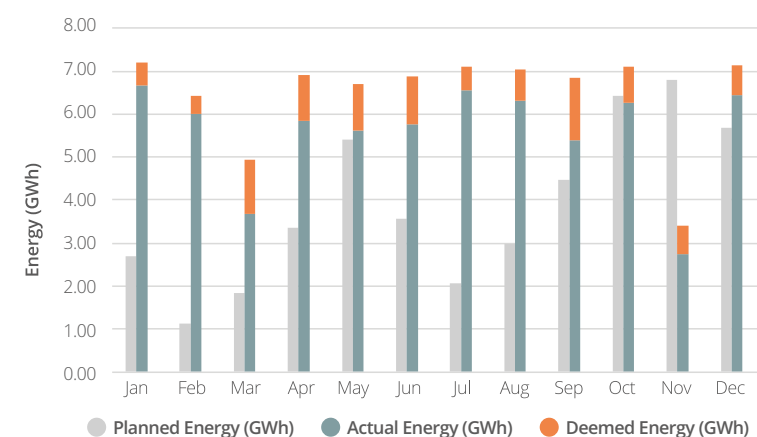


Figure 13 | Nkusi SHP - Planned versus Actual Energy Output (2020)



# Nyamwamba SHP

Operational

## Hydropower

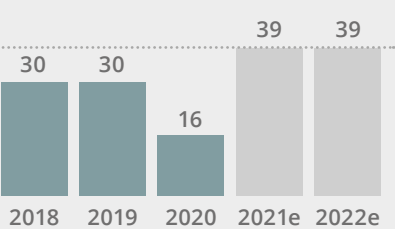
Capacity (in MW) 9.2

Planned Generation (in GWh/year) 39.0

Total Investment (in million USD) 28.7

GET FiT Commitment (in million USD) 5.8

### Annual Generation (in GWh)



This run-of-river hydropower plant is located in Kasese District in Western Uganda and has been operational since April 2018.

During May 2020, the plant experienced a major flood resulting in substantial damage to key project structures and unplanned outages lasting several months. Key structures were subsequently reconstructed or repaired and equipment replaced in the powerhouse. GET FiT undertook desk-based reviews of reconstruction plans, designs and environmental and social compliance issues. Procurement lead-in times and shipping delays meant that not all replacement equipment had reached site by the end of 2020, including equipment for measuring deemed energy.

In the short term, the Developer salvaged parts from all three generation units and assembled a single unit. Following reconstruction of the intake and assembly of the temporary generating unit, the plant recommenced operations in early October 2020, albeit at substantially reduced capacity.

Despite the major setbacks, the plant still generated 16.4 GWh during 2020, including approximately 6 GWh from the temporary generating unit during the last three months of the year, as a result of higher than expected flow availability. Due to the damage to project structures in May, it was not possible to estimate the generation potential in 2020.

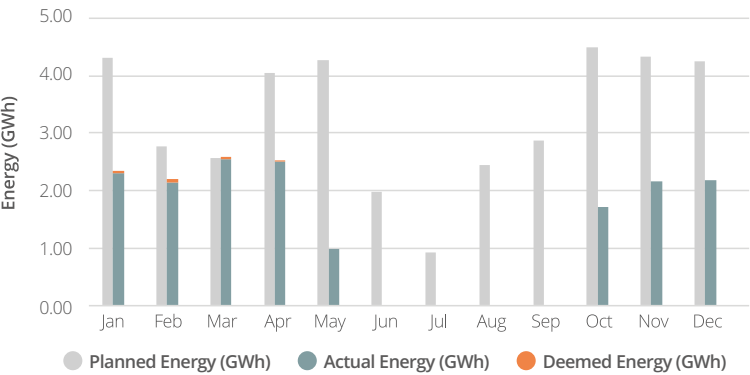


Figure 14 | Nyamwamba SHP - Planned versus Actual Energy Output (2020)

# Waki SHP

Operational

## Hydropower

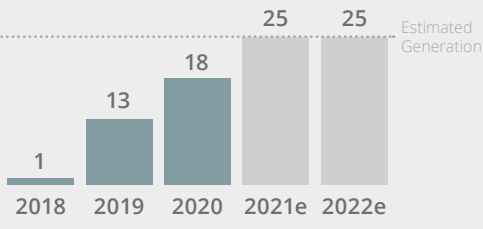
Capacity (in MW) 4.8

Planned Generation (in GWh/year) 25.0

Total Investment (in million USD) 17.3

GET FiT Commitment (in million USD) 3.6

### Annual Generation (in GWh)



This run-of-river hydropower plant is located in Hoima and Buliisa Districts in Western Uganda and has been operational since December 2018.

During 2020, the project delivered 17.6 GWh of electricity to the grid. Grid availability during 2020 was again very poor, averaging approximately 77%, similar to the value reported in 2019 (see Chapter 4 for further details). It was not possible to assess the energy potential of the plant during 2020, however, due to uncertainties with respect to the method of calculating Deemed Energy. Nonetheless, based on available data, the plant was estimated to have had a generation potential during 2020 greater than 100% of that planned at application stage. Uncertainties surrounding the method of Deemed Energy calculation are expected to be resolved early during 2021.

A post-COD visit has not yet been undertaken. Meanwhile, follow-up of outstanding issues at the time of COD is undertaken on a desk study basis. This has included following-up on technical engineering and environmental and social issues, such as the release and monitoring of the environmental minimum flow.

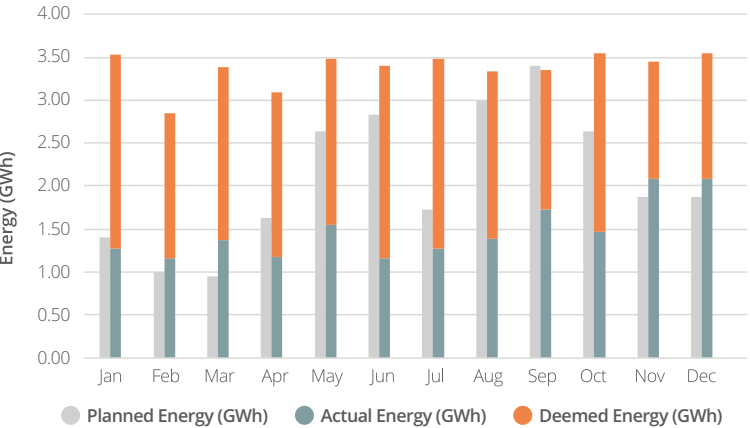


Figure 15 | Waki SHP - Planned versus Actual Energy Output (2020)



# Sindila SHP

Operational

## Hydropower

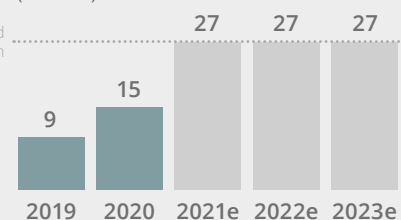
**Capacity**  
(in MW) **5.3**

**Planned Generation**  
(in GWh/year) **27.0**

**Total Investment**  
(in million USD) **19.4**

**GET FIT Commitment**  
(in million USD) **3.9**

### Annual Generation (in GWh)



# Siti 2 SHP

Operational

## Hydropower

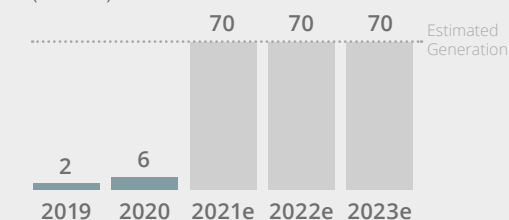
**Capacity**  
(in MW) **16.5**

**Planned Generation**  
(in GWh/year) **70.0**

**Total Investment**  
(in million USD) **33.0**

**GET FIT Commitment**  
(in million USD) **10.2**

### Annual Generation (in GWh)



This run-of-river hydropower plant is located in Bundibugyo District in Western Uganda and was developed in parallel with the Ndugutu SHP, located on an adjacent river basin (also supported by GET FIT). The project commenced construction in February 2017 and synchronised to the grid during April 2019.

Despite having been operational since 2019, the plant has still not been able to complete the full suite of commissioning tests due to a combination of limited available water and grid constraints. Grid constraints continue to effectively limit the combined output from the Sindila and adjacent Ndugutu SHPs to approximately 8 MW, which when combined with outages resulted in generation losses approximately equivalent to 21% of the potential plant output for the year (energy delivered plus deemed energy). The availability of the grid during 2020 was on average 83%, whereas the plant availability was 98%, which is in the expected range for a new SHP.

Despite grid constraints, the plant was still able to deliver 14.7 GWh to the grid during 2020. Whilst 2020 was generally observed to have been a statistically wetter than average year for most of the GET FIT SHPs (see Section 2.1.6) the water available for generation at both the Sindila and adjacent Ndugutu SHPs was less than that estimated at application stage. Adjusting for the partial grid availability, the potential energy output of the plant was equivalent to approximately 69% of the annual energy estimated at application stage.

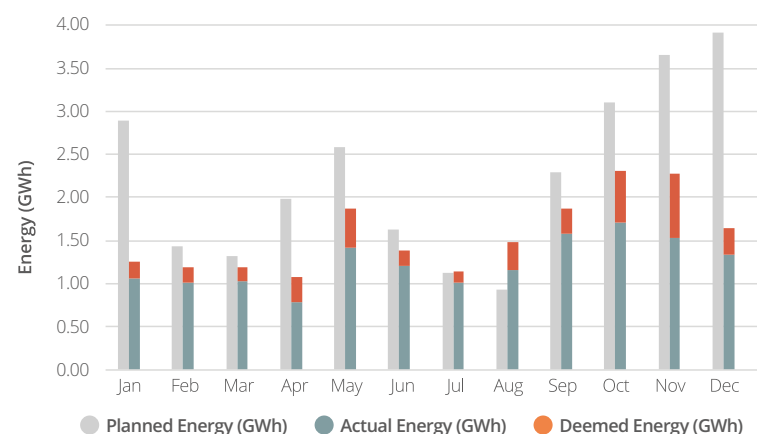


Figure 16 | Sindila SHP - Planned versus Actual Energy Output (2020)

This run-of-river hydropower plant is located in Bukwo District in Eastern Uganda. The Project commenced construction in August 2016 and completed partial commissioning tests and synchronised to the grid in July 2019.

The permanent power evacuation solution, comprising a new 132 kV transmission line (see Siti 1 SHP description), is expected to be completed during 2024. In the interim, the plant was connected to a new 130 km long 33 kV line at the end of 2020 (see Section 4), which enabled further commissioning tests to be undertaken and power evacuation to be increased.

As a result, the plant was only able to deliver 6.5 GWh to the grid during, compared with an annual energy of 70.0 GWh<sup>9</sup> estimated at application stage. Deemed energy claims accounted for 93% of the potential plant output during the year and are expected to be significantly reduced during 2021. Adjusting for internal and external outages, the plant would have been able to generate a combined 97.5 GWh during 2020, approximately equivalent to 139% of the estimated average annual energy, indicating a significantly wetter than average year.

As a result of substantial and persistent environmental and social non-compliances throughout the construction period, as well as during the early period of plant operations, the Developer and the GoU, represented by KfW, subsequently agreed during 2020 to a substantial reduction in the overall subsidy amount for which the project was eligible.

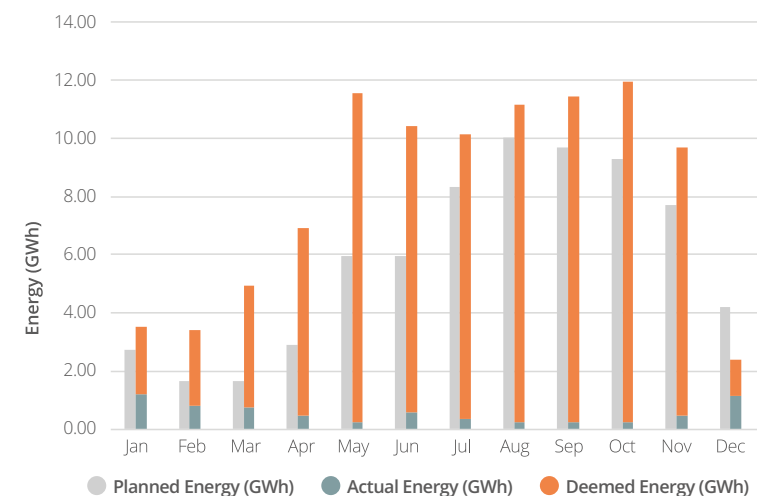


Figure 17 | Siti 2 SHP - Planned versus Actual Energy Output (2020)

<sup>9</sup>The planned average annual generation of the Siti 2 SHP has been adjusted from the 72 GWh reported in previous GET FIT Uganda reporting in order to reflect the expected plant output more accurately.



# Kyambura SHP

Operational

## Hydropower

**Capacity**  
(in MW) **7.6**

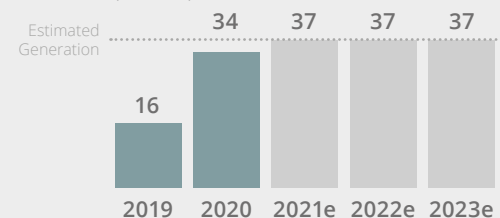
**Planned Generation**  
(in GWh/year) **36.7**

**Total Investment**  
(in million USD) **24.0**

**GET FiT Commitment**  
(in million USD) **5.4**

### Annual Generation

(in GWh)



This run-of-river hydropower plant is located in the Rubirizi District in Western Uganda. The Developer initially mobilised to site in February 2017 but only commenced with key construction activities from September 2017.

During 2020, the Project delivered 33.7 GWh of electricity to the grid. Grid failures and external outages resulted in generation losses approximately equivalent to 12% of the potential plant output for the year (energy delivered plus deemed energy), which is similar to the level of outages experienced in the first five full months of operation in 2019. The plant availability during 2020 was again above 98%, which is in line with the upper end of the expected range for a new SHP, whilst grid availability was slightly lower than during the second half of 2019, with an annual average availability in 2020 of 91%.

Adjusting for the partial availability of the power evacuation line, the cumulative energy output of the plant during 2020 would have been 38.4 GWh, approximately equivalent to 105% of the annual average energy estimated at application stage.

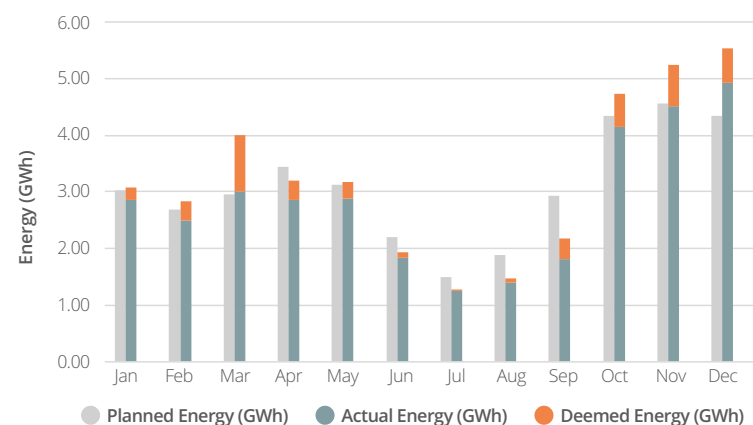


Figure 18 | Kyambura SHP - Planned versus Actual Energy Output (2020)

# Ndugutu SHP

Operational

## Hydropower

**Capacity**  
(in MW) **5.9**

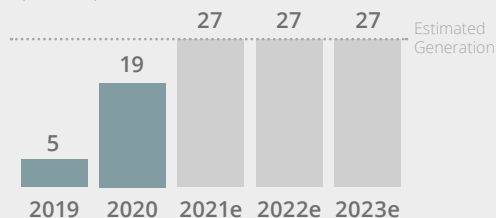
**Planned Generation**  
(in GWh/year) **26.5**

**Total Investment**  
(in million USD) **17.1**

**GET FiT Commitment**  
(in million USD) **3.2**

### Annual Generation

(in GWh)



This run-of-river hydropower plant is located in the Bundibugyo District in Western Uganda and was developed in parallel with the Sindila SHP, located on an adjacent river basin (also supported by GET FiT). The project commenced construction in June 2017 and achieved Deemed COD on 1 October 2019.

Despite having been operational since 2019, the plant was still unable to complete the full suite of commissioning tests due to a combination of limited available water and grid constraints. Nonetheless, plant availability during 2020 was 98%, which is in line with the upper end of the expected range for a new SHP, and 19.0 GWh of electricity was delivered to the grid.

Reinforcements to the existing grid and construction of a new power evacuation line to the Fort Portal substation were ongoing during 2020. These efforts are expected to substantially reduce outages and allow both Ndugutu and the neighbouring Sindila SHPs to generate at full capacity. In the meantime, the grid was only capable of evacuating power up to a maximum of 8 MW from both plants during 2020, which is less than their combined total capacity. As a result, an average grid availability of 83% resulted in missed generation at the Ndugutu SHP approximately equivalent to 21% of the potential plant output for the year (energy delivered plus deemed energy).

Adjusting for the partial availability of the power evacuation line, the potential plant generation during 2020 would have been 23.9 GWh, approximately 91% of the annual average energy estimated at application stage.

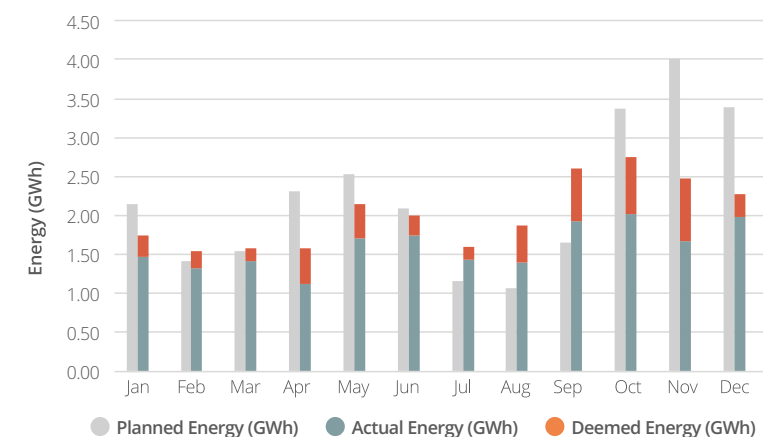


Figure 19 | Ndugutu SHP - Planned versus Actual Energy Output (2020)



# Kikagati SHP

Under Construction

## Hydropower

**Capacity**  
(in MW) **16.0**

**Planned Generation**  
(in GWh/year) **115.0**

**Total Investment**  
(in million USD) **87.7**

**GET FiT Commitment**  
(in million USD) **12.3**



# Nyamagasani 1 SHP

Under Construction

## Hydropower

**Capacity**  
(in MW) **15.0**

**Planned Generation**  
(in GWh/year) **64.0**

**Total Investment**  
(in million USD) **36.1**

**GET FiT Commitment**  
(in million USD) **9.3**



**T**his run-of-river hydropower plant is located in Isingiro District in Southern Uganda on the Kagera River, on the border with Tanzania.

The project experienced construction delays during 2020 as a result of the global COVID-19 pandemic, including adverse impacts to the supply chain and the travel and movements of project key personnel and workforce.

Whilst a number of important design issues had been resolved by the end of 2020, a few key issues were still outstanding and required urgent attention early during 2021. Construction works were substantially progressed at the powerhouse by the end of the year and plans for construction of other key structures were well underway. Construction of the switchyard on the Tanzanian side of the river was also nearing completion.

The Developer still planned to commission the three generating units progressively, with a final estimated COD in August 2021, delayed from September 2020 (as estimated at the end of 2019). Completion of the major project structures, however, was forecast for October 2021, compared with the previously forecast completion date of March 2021.

Based on observed progress, outstanding design issues, the scope of remaining construction works, and substantial construction risks such as being able to successfully divert the Kagera River for dam construction, construction completion will be delayed by several months. Harmonisation and continued coordination with respect to requirements in the two countries is likely to be essential to avoid further unexpected delays, in particular as construction works expand to the Tanzanian side in 2021.

**T**his run-of-river hydropower plant is located in the Kasese District in Western Uganda. The Developer mobilised to site in February 2017 and experienced substantial delays through to the end of 2019 as a result of a combination of issues, predominantly comprising poor construction planning, performance, and contractor cashflow issues. At the end of 2019, the Developer implemented a series of changes that appeared to result in substantially improved construction progress during the first quarter of 2020. At that stage, construction completion and commencing commercial operations during 2020 appeared feasible.

Subsequently, the project experienced a series of major setbacks, including worldwide travel restrictions imposed as a result of the coronavirus (SARS-CoV-2) pandemic – which affected the movement of key people involved in project delivery as well as supply chain disruptions – as well as a major flood event in May 2020. The flood event resulted in damage to key project structures, construction equipment, adversely impacted construction access to the most challenging section of the project – the first few hundred metres of waterway in steep terrain, downstream of the weir – and ultimately led to further construction delays.

Nonetheless, construction of the various project structures continued throughout 2020, with the exception of the critical structures at the intake. By the end of 2020, access to the weir had been reinstated and new construction plant mobilised to enable the works to progress. The Project is now expected to complete construction and commence commercial operations around the middle of 2021. Refer to Section 4.3 for an update on the related power evacuation infrastructure.



# Nyamagasani 2 SHP

Under Construction

## Hydropower

Capacity  
(in MW) 5.0

Planned  
Generation  
(in GWh/year) 25.5

Total  
Investment  
(in million USD) 19.4

GET FIT  
Commitment  
(in million USD) 3.7



This run-of-river hydropower plant is located in the Kasese District in Western Uganda and was developed as part of a cascade, just downstream of the Nyamagasani 1 SHP (also approved for GET FIT support). The Developer and EPC Contractor are common to both the Nyamagasani 1 and 2 SHP's and the reported construction progress issues up until the end of 2019 were similar, as well as the apparent substantial improvements in construction progress during the first quarter of 2020. At that stage, construction completion and commencing commercial operations during 2020 appeared feasible.

Similar to the upstream Nyamagasani 1 SHP, the Project experienced a series of major setbacks in 2020, including worldwide travel restrictions imposed as a result of the coronavirus (SARS-CoV-2) pandemic and a major flood event in May 2020. The flood event resulted in substantial damage to key project structures, the need to modify designs, and substantial reconstruction works, ultimately resulting in further construction delays. The flooding also resulted in modifications to the fish passage at the weir, with the fish passage currently planned for completion after commissioning of the plant.

The construction of other project structures continued throughout the year and, by the end of 2020, remedial and reconstruction works to flood-damaged project structures were nearing completion. The Developer had furthermore invested in upgrades to the existing nearby grid, to enable the plant to be connected, commissioning tests completed, and evacuation of at least a limited plant output, prior to completion of the permanent power evacuation solution. Commissioning works and commercial operations during the first quarter of 2021 therefore appeared feasible.

Refer to Section 4.3 for further details with respect to the related power evacuation infrastructure.





## 03 Environmental & Social Performance

### 3.1 Improved Management of Environmental and Social Risks

Sound management of environmental and social (E&S) risks protects the environment and safeguards workers and project-affected people. Projects supported by GET FiT are required to comply with Ugandan regulations and international standards, particularly the environmental and social performance standards (PS) of the International Finance Corporation (IFC). The IFC PS act as a global benchmark and are widely applied by international financing institutions and private investors, also making these a convenient common reference point in multi-donor funded initiatives like GET FiT.

Over multiple years GET FiT has observed that the capacity of project developers to manage E&S risks, including health and safety, has been considerably lower than expected and not commensurate to the project risks in several of the projects. This necessitated increased supervision efforts and follow-up by GET FiT. Multiple projects have been requested to develop substantial corrective measures. Where risks were critical, GET FiT requested certain construction works to stop until corrective measures were implemented or notified developers of potential subsidy reductions unless critical gaps were closed. Some subsidy reductions were implemented due to delays in implementing appropriate measures.

Important non-compliances during construction included serious health and safety risks to the work force, inadequate compensation during land acquisition and displacement, and excessive pollution and habitat damage due to construction works. During operations, GET FiT uncovered serious deviations from the required releases of environmental minimum flow along the diverted river section between the dam and the powerhouse.

During programme implementation, dedicated and joint follow-up together with ERA, combined with developers' strengthened efforts, resulted in substantial improvements including:

- Greater in-house environmental and social capacity among developers in the home office and in the field during construction and operations.
- Improved environmental and social management plans and procedures.
- Changes in project designs and construction methods to better incorporate E&S concerns.
- Closer supervision and monitoring of contractors' construction practices by developers.
- Reduced risks to workers' health and safety.
- Fair compensation to people losing land, houses, crops or natural resources including provision of water supply schemes for people with project-affected access to water sources at eight projects (see upper photos).
- Reduced pollution of rivers and less damage to biodiversity including support to Uganda Wildlife Authority in the form of two new ranger posts to better protect national park areas neighbouring project sites (see photo in the middle).
- Improved arrangements to reliably release and monitor environmental minimum flows including retrofitting new arrangements during project operations to replace unreliable solutions (see bottom pictures).



In 2020, travel restriction limited GET FiT’s project supervision. There were no on-site construction supervision visits or post-COD visits, only home office follow-up.

The GET FiT Investment Committee defined more than 50 environmental and social Conditions Precedent (CPs) across the three Requests for Proposals (RfPs) in 2013, 2014 and 2015 related to necessary improvements in environmental and social studies,

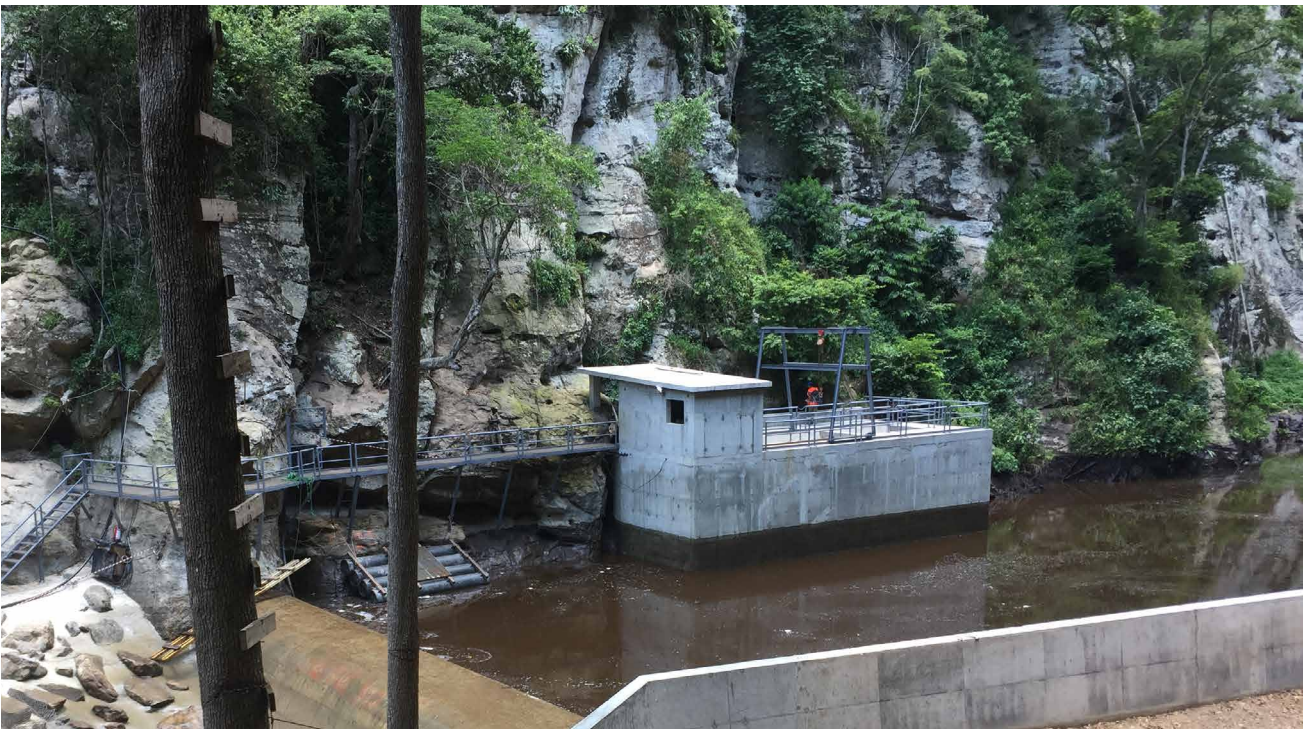
plans and management. During 2020, an additional five CPs were cleared across four projects. Three CPs remained across the three projects still under construction at the end of 2020.

As a result of the GET FiT Programme, there is now a considerably higher degree of compliance with Ugandan regulations and international standards than would otherwise have been observed and improved safeguarding of people and nature in project areas.

3.2 Environmental Flows

By design, the hydropower projects result in a major reduction of the natural river flow between the intake and the powerhouse. Typically, the diverted river section for a GET FiT supported project is 3-4 km long but can be above 5 km for a single project and up to 10 km for cascade projects. The release of a minimum flow is a standard mitigation measure to reduce impacts on people and ecosystems along the affected river section. The volume of the minimum flow also directly impacts on the economic viability of a hydropower project, as water that could otherwise be used for power generation remains in the natural river channel. Defining, releasing and monitoring minimum flows have proved problematic to most project developers.

As illustrated in previous GET FiT Annual Reports,<sup>10</sup> there is substantial variation in the minimum flow requirements defined in the water abstraction permits (measured as a proportion of the estimated mean annual flow). As site-specific and project-specific conditions vary, so should the minimum flow requirements as part of balancing water user interests at a specific site. However, the variation in minimum flow requirements across the GET FiT project portfolio is not clearly justified and not clearly correlated with site conditions. The lack of clear national requirements or guidelines, including on methods or criteria to estimate the minimum flow, contributed to the challenges for developers when suggesting an appropriate level of minimum flow to the authorities.



<sup>10</sup> See for instance the Annual Report for 2017, pp. 49-50 (Section 3.4 Minimum flow – an unresolved issue).

Similarly, national requirements on how to release and monitor the minimum flow were not clear. An additional problem was the overall poor quality of the aquatic ecology studies undertaken by project developers as part of the basis for assessing minimum flows. Thirteen out of 14 projects were later asked by GET FiT to redo their aquatic studies to meet even the most basic requirements.

Following GET FiT inspections during construction and operations, most of the projects had to undertake substantial changes to the design of the minimum flow release arrangements. Developers and their designers had limited experience in this area, there was a lack of clear national requirements, and poor construction or operational practices exacerbated the problems concerning release of the minimum flow. Six projects had to retrofit an entirely new arrangement during project operations as a corrective measure to reliably release the required minimum flow. This followed substantial non-compliances and unacceptable practices noted at some projects concerning the minimum flow release, to the detriment of ecosystems, local people and the electricity consumers in Uganda paying for surplus energy produced based on water abstracted contrary to their permits. Projects are also being required to improve their monitoring and documentation of the minimum flow release to allow for verification, for instance by installing automated flow meters.

In 2021, GET FiT plans to establish a Working Group with ERA and key stakeholders such as DWRM, NEMA and UETCL to review the current practices on minimum flows and recommend requirements for hydropower developers in Uganda to safeguard the economic interest of the off-taker and consumers as well as ecosystems and local water users. As GET FiT is phased out, the valuable lessons from the GET FiT Programme will support the relevant Ugandan agencies in their future follow-up of existing and new hydropower projects.

In future GET FiT Programmes, the relevant national agencies and GET FiT should develop a set of minimum requirements and guidelines prior to programme implementation where such do not already exist in-country.

Minimum environmental flows are essential to reduce adverse impacts on local water users and river biodiversity. While water permits in Uganda prescribe a fixed rather than dynamic minimum flow requirement, the lack of reservoirs in the GET FiT supported run-of-river hydropower projects means that during high flow events there is always spilling of water over the dam that partly mimics the highly variable flows experienced in Ugandan rivers (see figure below for illustration).

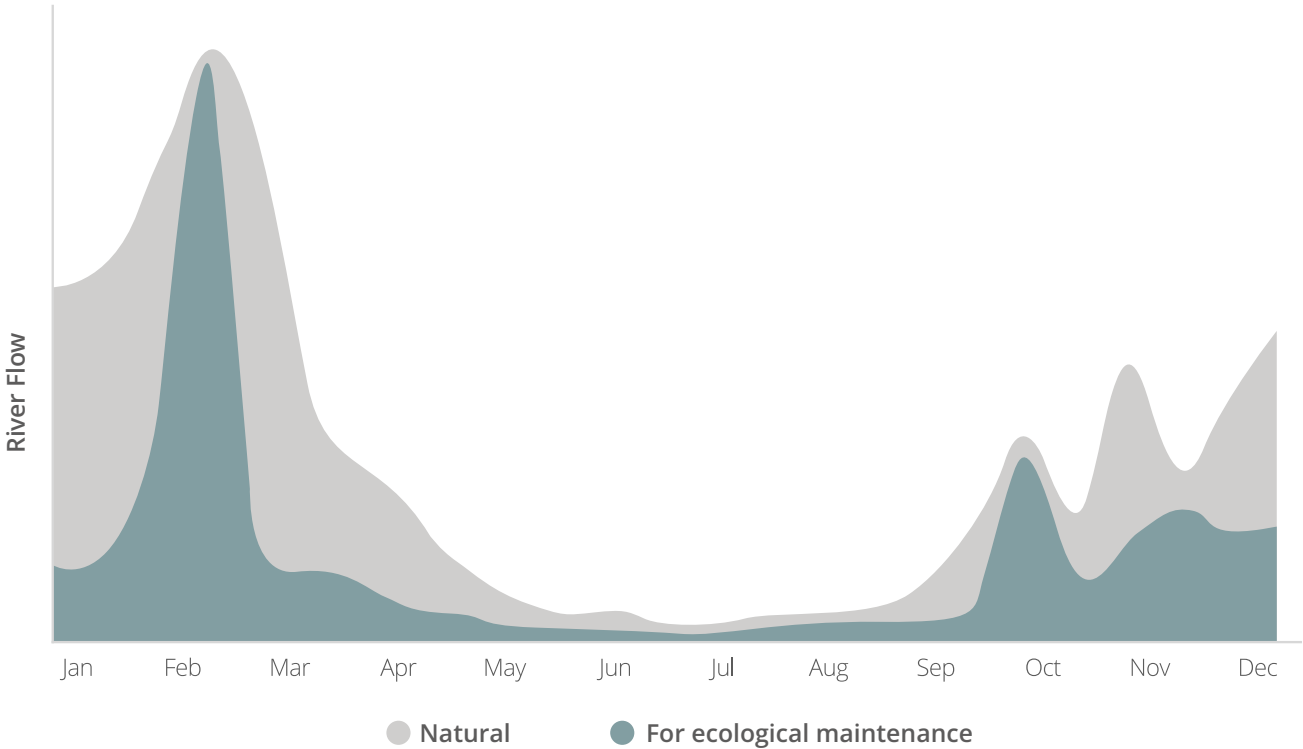


Figure 20 | A simplified illustration of environmental flows compared with a natural flow regime



3.3 Displacement

Substantial parts of Uganda are blessed with relatively abundant rainfall. This provides the basis for hydropower production as well as rainfed subsistence agriculture supporting a high population density in most project areas where GET FiT supported projects were constructed. Therefore, displacement of people from project land has been a key issue for project developers to manage. A review of levels of planned displacement was included in the 2016 GET FiT Annual Report (pp. 38-41). An update on some of the experiences from implementation of the hydropower projects is included below.

Most projects experienced substantial increases in land acquisition and displacement from the time of GET FiT approval to project completion. GET FiT warned several developers of this risk and asked for project plans to be revised as to be more realistic in terms of land requirements. Across the 14 hydropower projects, an overall increase in land acquisition of 104% was observed from the time of GET FiT approval to project completion (see **Figure 21**). Excluding the three outliers in Figure 21, the increase in land take was at approximately 30%, with the single most important driver being weaknesses in early project planning due to inadequate engineering and social surveys. The increased land take at the three outliers can mainly be attributed to significant layout and design changes – and an underestimation of inundation and associated buffer zone in one case.

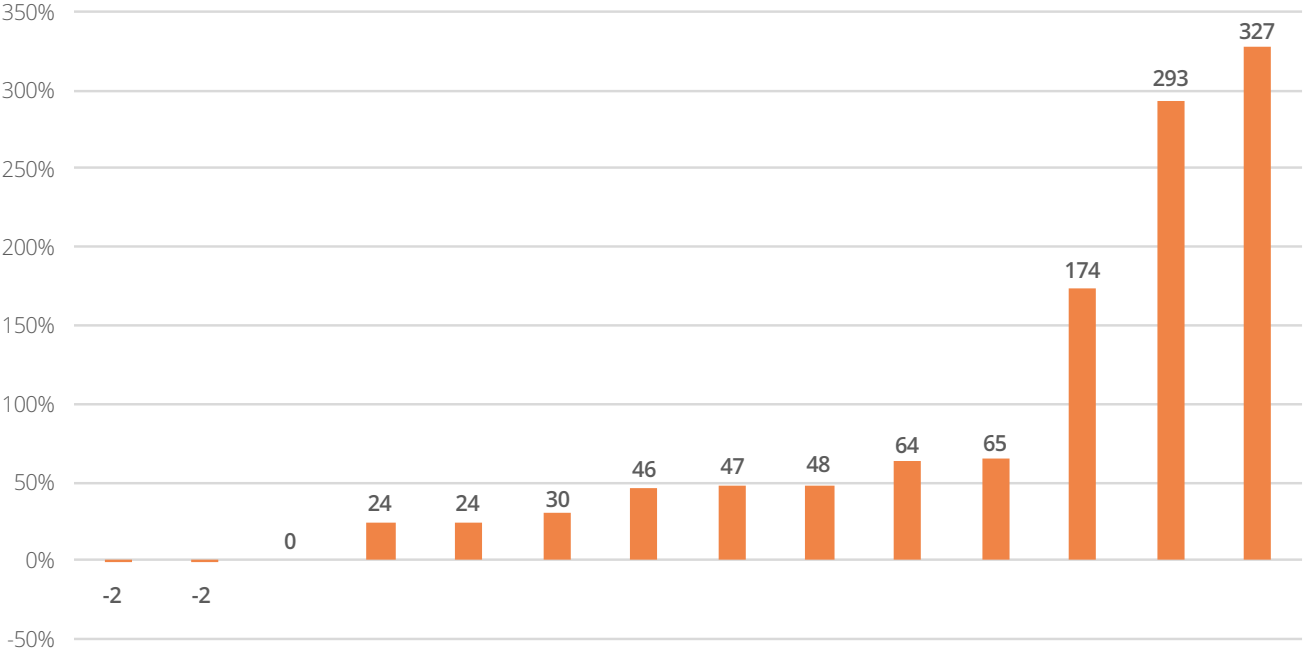


Inadequate planning resulted in unrealistic plans for land requirements (e.g. too narrow land corridors along the waterway) and subsequent design changes and changes in construction methods that triggered additional need for land. In addition, poor construction practices resulted in damage to neighbouring land that at times had to be acquired.

Additional land requirements partly necessitated additional land take from people already affected by a project and partly resulted in land take from people not originally subject to land acquisition by a project. On average, the number of households losing land (economic displacement) increased by 53% from GET FiT approval to project completion, again with large variation between projects (from 24% reduction to 367% increase). During the detailed planning, most developers were able to adjust project plans to avoid increase in physical displacement (loss of shelter), which on average increased by 9% from GET FiT approval to project completion. Only three projects experienced an increase in physical displacement, while seven projects were able to reduce physical displacement.

Looking ahead, the single most important measure to avoid such substantial increases in land acquisition and associated costs is to undertake improved early planning and surveys for key project components, particularly where the terrain or ground conditions are challenging. This will also reduce the additional costs associated with design changes during the construction phase. Secondly, improved monitoring and supervision of contractors' practices by the project developers would have reduced the levels of construction-related damage to neighbouring land that triggered additional land acquisition and costs.

In future GET FiT Programmes, more specific requirements on engineering and social surveys and key designs should be defined and met by developers prior to construction start to minimise risks of substantial additional land acquisition, design changes, increased costs and delays.



**Figure 21** | Increase in Land Acquisition from GET FiT Approval to Project Completion for 14 Hydropower Projects (Overall Increase: 104%).





## 04 Grid Connection & Technical Assistance

### 4.1 Portfolio Overview

The evacuation of power from the portfolio of GET FIT projects has continued to pose significant challenges during 2020. Several operational projects have claimed deemed energy because of inadequate grid infrastructure, while others under construction face high risks of deemed energy. Nevertheless, there has been progress to overcome these challenges during this reporting period after concerted efforts by GoU, project developers and the GET FIT development partners.

The graph below highlights the actual energy production plotted against the expected or projected energy, and the approved deemed energy claims by project.

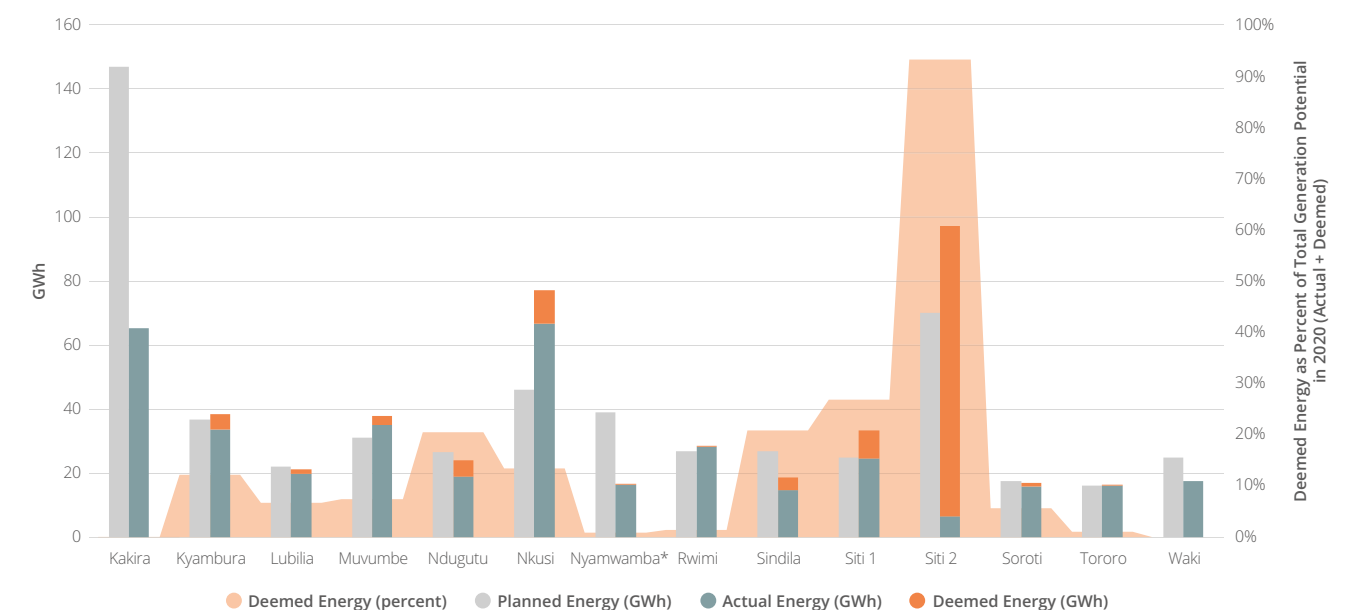


Figure 22 | Planned, Annual and Deemed Energy Generation from GET FIT Projects in 2020

### 4.2 Key Challenges & Interventions

The reinforcement of the national grid to overcome power evacuation issues within and beyond GET FIT is an ongoing process. Some key reinforcements have been completed whereas others are ongoing. We present here some of the

specific power evacuation challenges faced by selected projects with high deemed energy claims, and any interventions made by various stakeholders to address these in the past year.

\*During the flooding event the measuring equipment for deemed energy was damaged and has not been replaced yet. Therefore, no deemed energy after May 2020 was recorded.



Waki SHP

The 4.8 MW Waki SHP, commissioned in December 2018, continued to experience technical constraints to achieving full capacity evacuation in 2020. The project is connected to the Hoima – Bulindi – Waki 33 kV distribution line operated by UEDCL.

The technical problems previously reported were frequent line tripping; earth faults and poor line clearances along sections; inadequate line protection including faulty fuse dropouts and load break switches; old electricity poles; faulty transformers; and lack of remote-controlled communication with the auto-recloser after a trip.

The developer, Hydromax (Nkusi) Ltd., has reported that there was some improvement in the performance of the grid during 2020 (see graph below). In the first half of the year, UEDCL carried out maintenance works that included the replacement of old poles and line clearances in critical sections. The interventions reportedly improved the reliability of the grid and stabilised loads on connected networks. This, in turn, increased the plant’s power export to the grid in 2020 compared to 2019.

However, there remained prolonged grid failures due to old poles and poor line clearances, especially in the Budongo forest. Additionally, UEDCL has reportedly not yet replaced faulty protection hard-

ware, i.e. dropout fuses, insulators and Automatic Break Switches on the network. The utility has set up a maintenance schedule in 2021 to address these challenges. The developer continues to engage and provide support to the local UEDCL team to minimise grid outages.

Nkusi SHP

The power evacuation of the 9.6 MW Nkusi SHP through the UEDCL-operated network in the North Western Service Territory has been characterised by high technical losses since the project’s commissioning in June 2018. As a result, UEDCL imposed a cap of 6 MW on the plant’s generation in 2019 to mitigate losses. Additionally, 31 km of the 235 km network was upgraded from 100 mm2 to 150 mm2 conductors to improve network performance.

Technical simulations in 2019 by the System Planning and Coordination Committee (SPCC) further recommended to split the Nkusi SHP plant into two units (2 x 4.8 MW) to be evacuated separately. The intervention would reduce the network losses by 50%.

During 2020, the developer, PA Technical Services, implemented the SPCC’s recommended solution by constructing two power lines evacuating two split units towards Fort Portal and Hoima respectively. The construction of the 200 mm2 power lines,

including the installation of switches to effect the split, was completed and handed over to UEDCL on 8th December 2020. The pending works related to the installation and commissioning of the switchgear have been delayed by the COVID-19 pandemic. The completion of this solution is expected to significantly reduce deemed energy claims.

Sindila & Ndugutu SHPs

The 5.3 MW Sindila and 5.9 MW Ndugutu SHPs in Bundibugyo have faced severe power evacuation challenges since they were commissioned in April and October 2019, respectively. Both projects connect to the grid through the same link and are evacuated towards Fort Portal via a pre-existing 33 kV line that is over 100 km long.

The project developer of Sindila SHP, Butama Hydro-Electricity Company Ltd., claimed payment for deemed commissioning from GoU in 2019 due to delayed completion of the line upgrades when the project was declared ready to synchronise to the grid. The payment had not been made by the end of 2020. The developer continues to engage GoU through MEMD and ERA to conclude this matter.

The existing evacuation line has limited capacity to evacuate both projects. The production of each project is limited to 3 MW by the grid protection settings in place to mitigate network losses. Additionally, the grid is highly unreliable and prone to frequent

outages. The developer of Sindila SHP has reported over 2,400 hours of outages since commissioning, representing approximately 20% of the time. The grid availability has reportedly been below 70% in some months, e.g. October 2020. This has resulted in high deemed energy claims by both projects during the past year.

The grid performance is expected to improve after the construction of new lines and reinforcements to the existing grid by REA with support from the GET FiT interconnection component. However, this intervention has been delayed as explained in Section 4.3 below.

Siti 2 SHP

The 16.5 MW Siti 2 SHP has, since commissioning in July 2019, been marginally evacuated through a 33kV line connected to a UEDCL-operated distribution grid that also evacuates Siti 1 SHP. The connection provides limited evacuation capacity for Siti 2, resulting in high deemed energy claims in 2020. The evacuation through Siti 1 was an interim measure to enable commissioning while a new 130 km 33 kV line to Mbale substation was being constructed by Umeme.

Following extended delays due to wayleave issues and travel restrictions, the new 33 kV line operated by Umeme was energised and commissioned in December 2020. The connection point of Siti 2 was

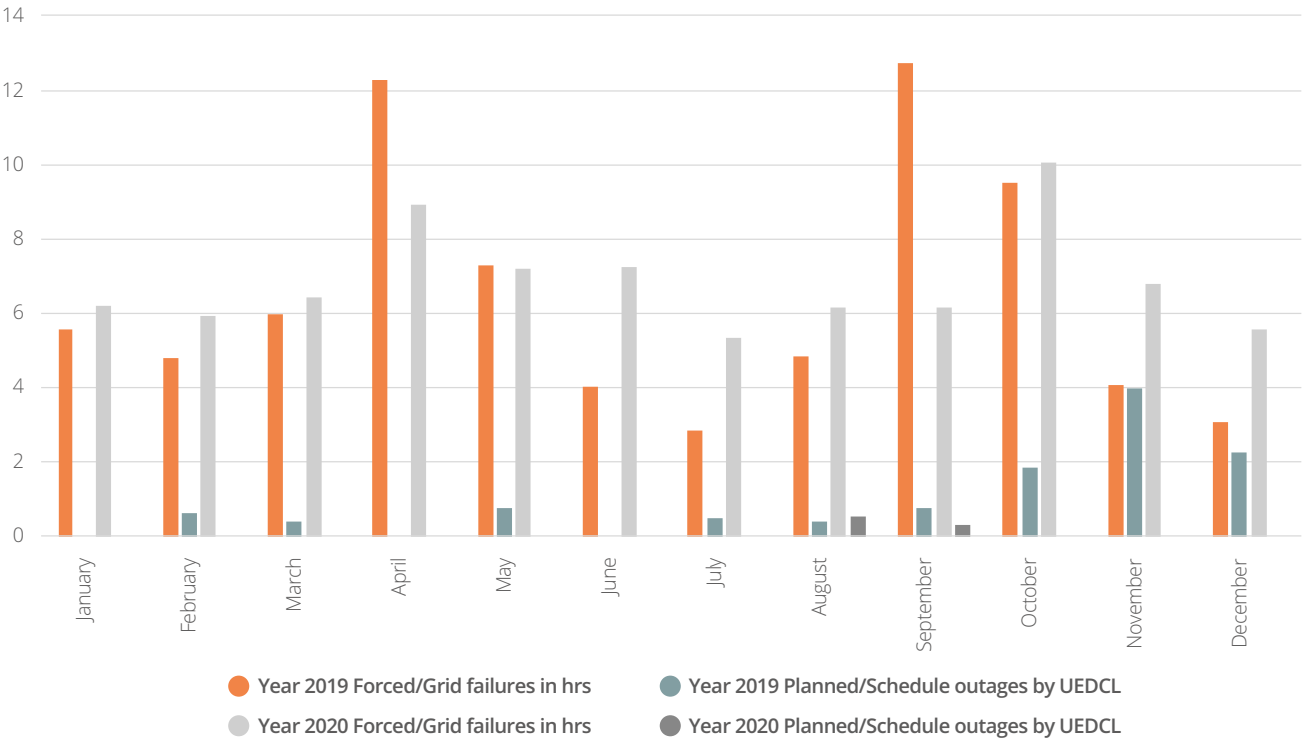


Figure 23 | Illustration of the Grid Outages in 2019 and 2020 for Waki SHP (Source: Hydromax)





shifted accordingly to the new line. The line faced initial technical challenges related to loose connections, unbalanced loading and high voltages at specific times in the day. The unbalanced loading and high voltages have generally been streamlined by adjusting the plant’s unit settings upwards in the interim to minimise related outages.

Tests undertaken at the time indicated that the line could evacuate up to 12 MW with the available water levels. Tests for full capacity evacuation are expected to be undertaken in 2021 when higher water levels become available.

**Mbale - Bulambuli Transmission Line**

The above 130 km 33 kV line evacuating Siti 2 is still characterised by generally high technical losses due to its long distance and low transmission voltage.

It was regarded as an interim solution pending the construction of the high voltage (HV) Mbale-Bulambuli transmission line by UETCL. The planned 79 km HV line is expected to ultimately evacuate both Siti 1 and 2 SHPs and eliminate transmission bottlenecks in Eastern Uganda for a range of small hydro power plants in the region.

The feasibility study for the line, including ESIA scoping, was completed in 2019 with funding from the EU ITF through KfW. The detailed ESIA was launched in November 2020 and is currently ongoing. The RAP study is expected to start in early 2021. The financing of the line is not yet concluded, pending loan approvals from GoU. The planned completion timeline for commissioning the line according to UETCL is end 2024.

4.3 GET FiT Interconnection Support

The Programme has solicited for funds to support GoU in the development of critical infrastructure and reinforcements to facilitate grid interconnection of renewable energy projects. All funding has been provided by the UK Department for International Development (DFID), which is now the Foreign, Commonwealth & Development Office (FCDO).

We present a status update of the different components which are summarised in the table below, together with their associated investment needs.

Table 2 | Funding Commitments for Interconnection Support through GET FiT

Item	Required Intervention	Project Owner	Estimated Investment Need (MUSD)
1	Reinforcement of 33 kV networks in Western Uganda	REA	13
2	Opuyo Substation upgrade	UETCL	5.8
3	TA support to ERA	ERA	3.7
Total grid interconnection support			22.5

Reinforcement of 33 kV networks in Western Uganda

This component is aimed at developing and reinforcing 33 kV lines to secure the adequate grid integration and power evacuation of five GET FiT projects, i.e. Nyamagasani 1, Nyamagasani 2, Lubilia, Sindila and Ndugutu SHPs, in Kasese and Bundibugyo districts. The projects have a combined capacity of 37 MW.

The implementing agency, REA, procured two EPC contractors in August 2018 to build the lines in two lots: Lot A - construction of 104 km of new 33 kV lines from Bundibugyo to Fort Portal; and Lot B – construction of 120 km of new 33 kV lines in Kasese district. The project implementation has been extensively

delayed from the initial completion timeline of August 2019 due to several challenges, particularly related to much higher than anticipated wayleaves costs.

During 2020, the technical designs were reportedly 90% complete for both Lots, and the procurement of materials was at 90% and 60% for Lots A and B respectively. However, the line routes for each lot had to be reviewed by REA in order to optimise the wayleaves costs and social impact of the lines in the national park and densely populated areas. The line route was finalised, and the contractors are currently redesigning the sections that were re-routed. This exercise is expected to be completed end of March 2021.

REA had previously conducted assessments to establish wayleave compensation costs along the corridor of the original line route. The Agency had also made some limited compensation payments to Project Affected Persons (PAPs) on some sections of the line in Lot B. Another study on the rerouted line sections is to be conducted to establish the final compensation costs. The Government through MOFPED has committed to prioritise and avail funds for compensation once the final costs are established by REA. This followed high level engagements between GoU, KfW and the GET FiT development partners.

In accordance with IFC Performance Standards, line construction should only commence after PAPs have been compensated by REA. The planned timeline for start of construction is the second quarter of 2021, according to REA. The construction period is expected to be one year.

Opuyo Substation Upgrade

The main objective of this interconnection component was to upgrade the transformation capacity of UETCL’s Opuyo high voltage transmission substation from a single 10/14 MVA 132/33 kV transformer to two 40 MVA 132/33 kV transformers. This was aimed at facilitating improved grid reliability and security for the evacuation of existing and planned solar generation power plants in Eastern Uganda, including the Soroti solar PV plant.

The project commenced in May 2018. The implementation schedule according to the original contracts was 16 months, but there have been delays due to slower than expected construction of the civil works. All designs, procurements and construction have been completed, and the upgraded substation is expected to be energised and commissioned by the end of Q1 2021.

4.4 Technical Assistance to ERA

Regulatory Information Management System (RIMS)

The RIMS project is the last of a series of components under the GET FiT Technical Assistance Facility to provide capacity building support to ERA and other sector agencies over the years. Previous TA components are documented in earlier annual reports available at <https://www.getfit-uganda.org/annual-reports/>.

The objective of the RIMS at ERA is to enhance the Regulator’s information collection and data processing, automate regulatory analysis and compliance monitoring, and facilitate stronger web-based stakeholder engagements for effective service delivery. The project commenced in May 2018.

During 2020, the initial system design, preparation of tender documents and launch of the tender for the final design, supply and installation of the RIMS were completed. The tender was launched in April 2020. Following a detailed evaluation of bids, the contract was awarded to a Kenya based firm in October 2020. The entire process was fully coordinated by ERA with support from KfW and the GET FiT Secretariat.

The contractor kicked off the project in November 2020. The System is expected to be installed and ready to go online in the third quarter of 2021.





# 05 Financial Status

## 5.1 Funding Commitments

GET FIT Uganda is dependent on predictable commitments from sponsors in order to be successful since it is a results-based Programme – meaning that subsidies are being paid following actual delivery of energy. Several changes were made to the portfolio structure since the Programme’s inception in 2013, demanding an active follow-up from all stakeholders. This requirement has also been met by the GET FIT funders to date, enabling the Programme to deal with any arising uncertainties and risks in a relatively pro-active manner. Four development partners have taken up the challenge and provided GET FIT with the necessary funding: Government of Norway, Government of UK (through BEIS and FCDO - formerly DFID), Germany (BMZ) and the EU (through EU ITF). About EUR 93 million has been committed to the Programme and an overview of the respective commitments can be found in the table on the right.

Exchange rate developments had an adverse impact on the overall budget of GET FIT Uganda, due to donor commitments in GBP. A budget buffer was introduced to cushion future decline in the EUR/GBP rate until remaining GBP disbursements were made to KfW and converted in EUR. Reference is made to previous GET FIT annual reports.

Table 3 | Overall Donor Commitments to GET FIT

Donor	Net Amount Committed (EUR)
Norway	15,592,885
UK BEIS	28,009,040
UK FCDO (formerly UK DFID)	14,129,894
GER BMZ	15,000,000
EU ITF	20,000,000
Total	92,731,819

**Note:** Net amounts are based on funding disbursed to the Programme thus far, projected exchange rates for undisbursed funds and deduction of management fees.

Only a limited amount of undisbursed donor contributions remains at this stage. Approximately 8% of the total GET FIT budget in form of 6.5 million GBP remains subject to foreign exchange risk. GET FIT frequently monitors exchange rate developments to allow for proactive action if needed.





5.2 Disbursement Projections

GET FIT funds are disbursed for the following three purposes:

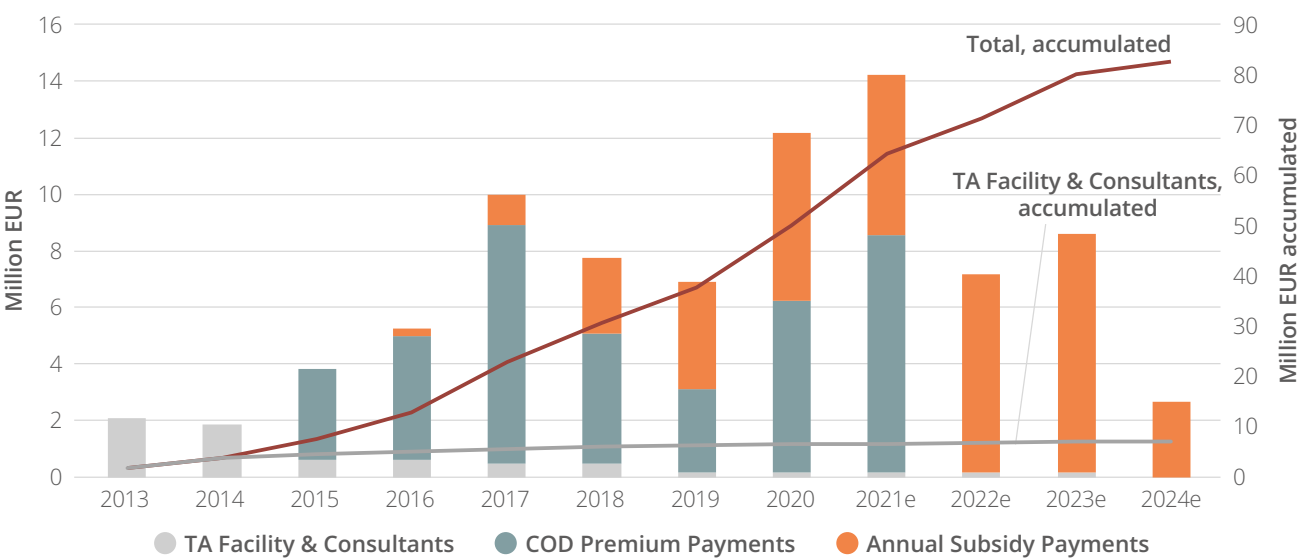
- Project grants, where 50% is paid at commercial operation date and 50% paid in the form of results-based support over the first five years of operation, subject to actual generation,
- Consultants under the Technical Assistance Facility for ERA,
- Consultants for the overall management and monitoring of the Programme.

**Figure 24** illustrates the actual and projected disbursements from the Programme. The overview includes net funding available to the Programme only. The projections are based on the status of the project portfolio and expected progress. During the first five years of operation of each project, results-based disbursements in the form of annual subsidies are made.

In the disbursement projections, the main uncertainty relates to actual COD for the various projects. Project construction delays have influenced the disbursement profile, delaying the payment of COD premiums and annual subsidies. With the majority of projects commissioned and the three projects

remaining under construction expected to achieve COD during 2021, there is limited risk for further shifts or delays in the disbursement. However, the COD disbursement amount in 2021 is subject to some variation, as projects face monthly subsidy penalties for construction delays during 2020 and 2021. Furthermore, there is also some uncertainty tied to the annual result-based payments for each project. Since the developers will only be paid for what they are producing (with a cap at their planned average energy generation), under-production may lead to accumulation of excess funding. In addition, eligibility for the annual subsidy payments will end in 2023 for all projects (except for Kikagati, for which the eligibility will end in 2024, as the project has been granted an exception due to trans-boundary issues) signifying that there will not be any disbursement after 2024, resulting in additional available funds. It has been agreed with donors that excess funding may be allocated to the interconnection components that are supported by GET FIT.<sup>11</sup>

The annual GET FIT Steering Committee (SC) meeting was held online on September 15, 2020 with representatives from the German Embassy, UK FCDO, UK BEIS, the European Union, ERA, the Embassy of Norway, MEMD, MOFPED, KfW and the GET FIT Secretariat (Multiconsult). A key topic of the 2020 SC meeting was delays at the projects under construction,

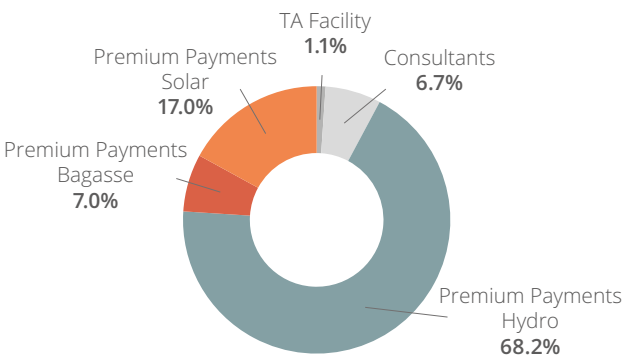


**Figure 24** | Projected Annual Payments (Premium Payments and Consultants) under GET FIT  
**Note:** Projections are subject to budget uncertainty, related to individual project progress. Subsidy penalties were considered in the disbursement projection.

<sup>11</sup> The GET FIT commitments to the interconnection component is not included in the financial status overview and disbursement projections.

particularly in relation to the Force Majeure events caused by the global COVID-19 pandemic and floods in early 2020. As multiple projects have declared Force Majeure events in 2020, it was decided that the COD deadline for affected projects under construction can be extended by up to 6 months – noting that the actual Force Majeure duration is subject to legal review and progress assessment. The annual subsidy cut-offs in 2023 and 2024 remain for the projects under construction. Projects in operation that were affected by floods will receive additional follow-up by the Programme and an extension of the annual subsidy cut-off by up to one year can be granted, subject to available funds.

**Figure 25** shows the relative shares of the various cost components under the GET FIT Programme, based on current budget reservations. Overall, approximately 8% of the overall funds are tied to management, implementation and the Technical Assistance Facility, while 92% of the total commitments are allocated to premium payments



**Figure 25** | Distribution of Budget Reservation of GET FIT Uganda





# 06 Programme Monitoring & Risk Management

## 6.1 Programme Monitoring

The GET FiT Monitoring and Evaluation framework monitors the results of the Programme through several quantitative indicators, which are collected from project developers and key sector stakeholders on an annual basis. The Programme's monitoring and evaluation is structured in a logical framework (Logframe) outlining the relationship between targeted Outputs, Outcomes and Impacts and setting baselines, expected milestones and targets.

The Programme is behind schedule on achieving the original capacity targets, which aimed at full commissioning of the RE portfolio by the end of 2018. Despite the delays in project implementation, intensive efforts in previous years have resulted in good progress on most reporting dimensions.

Notably, due to a lower share of biomass projects in the portfolio than anticipated, the original capacity targets of 170 MW and 830 GWh/year, will not be achieved. Programme targets have not been revised to this end. Other targets that relate to the portfolio size, such as finance mobilised, or displacement of thermal generation, are also be affected by the overall reduced capacity of the portfolio.

Nevertheless, the project portfolio delivered a 20% increase in energy generation in 2020, and is already reaching, and even exceeding, some 2023 targets, such as job creation and sector-related indicators. With expected commissioning of the entire portfolio in 2021, and improved grid connection for some operational projects, the Programme also expects continued improvement in delivered results in the coming years.

An overview of the targeted Outputs, Outcomes and Impacts is provided in the overview below. The following section will address these goals in more depth, providing details and context on the development of the Programme.

Table 4 | Overview of Impact, Outcomes and Outputs

Outputs	Outcomes	Impact
<div>1. Increased small scale RE capacity &amp; generation</div> <div>2. Balanced portfolio of RE technologies</div> <div>3. Reduced GHG emissions</div> <div>4. Increased number of Ugandan national jobs</div> <div>5. Increased capacity of ERA</div> <div>6. Finance mobilised for GET FiT portfolio</div>	<div>1. Improved private sector investment environment for renewable energy in Uganda</div> <div>2. Improved financial stability of energy sector</div> <div>3. Improved local grid stability</div>	<div>Uganda pursues a low carbon, climate resilient development path, resulting in growth, poverty reduction and climate change mitigation.</div>



Outputs

The Programme made limited progress in terms of commissioning projects and increasing the installed capacity, as three projects still remain under constructions – with delays experienced due to flooding damage and the coronavirus pandemic. Electricity generation picked up considerably with approximately 380 GWh delivered to the grid in 2020, which is a 20% increase since 2019. This represents approximately 70% of planned annual generation of commissioned projects overall. This difference is largely due to grid-related issues causing high deemed energy levels for certain projects. With the three remaining projects expected to commission in 2021, the overall portfolio generation is expected to increase in the coming calendar year.

The GET FiT portfolio is contributing to the country's geographical and technological diversification, being represented in most regions of the country and multiple renewable energy technologies. In addition, it is diversifying the group of developers, contractors and other players that participate in the Ugandan electricity sector; almost 50% of the generating power plants in the country (14 out of 33) are supported by GET FiT.

With an increasing level of energy generation, the Programme portfolio is contributing to reducing Uganda's GHG emissions. Thermal generation has reduced significantly from 200 GWh in 2018 to 100 GWh in 2019 – and to approximately 50 GWh in 2020.

The GET FiT portfolio has direct effects on the local economy and made a substantial contribution to local job creation. This is represented by approximately 11,750 newly created jobs (FTE's – Full Time Equivalent), by far exceeding the initial target. In 2020, the portfolio has contributed almost another 1,400 FTE jobs, compared to last year's 1,700. This decline is due to more projects reaching commercial operations and fewer construction jobs. Notably, the share of Ugandan employment remains at about 90%.

In addition, indicators relating to the Technical Assistance activities at the regulator ERA provide positive signals. Time-efficient issuance of generation licences has slightly improved from last year, exceeding the initially targeted processing time of 2 months. Due to delays in the implementation of the RIMS component, licensee reporting has not been digitalised yet. A roll-out of the platform is expected for July 2021. Further, GET FiT is happy to see ERA being ranked number 1 in the Africa Electricity Regulatory Index for the third time in a row.

Finally, GET FiT projects have raised over USD 455 million in investments for the portfolio – approximately USD 165 million in private, and USD 290 million in public funding. Private financing represents a share of 36%.

An overview of all Output indicators is presented in **Table 5**.

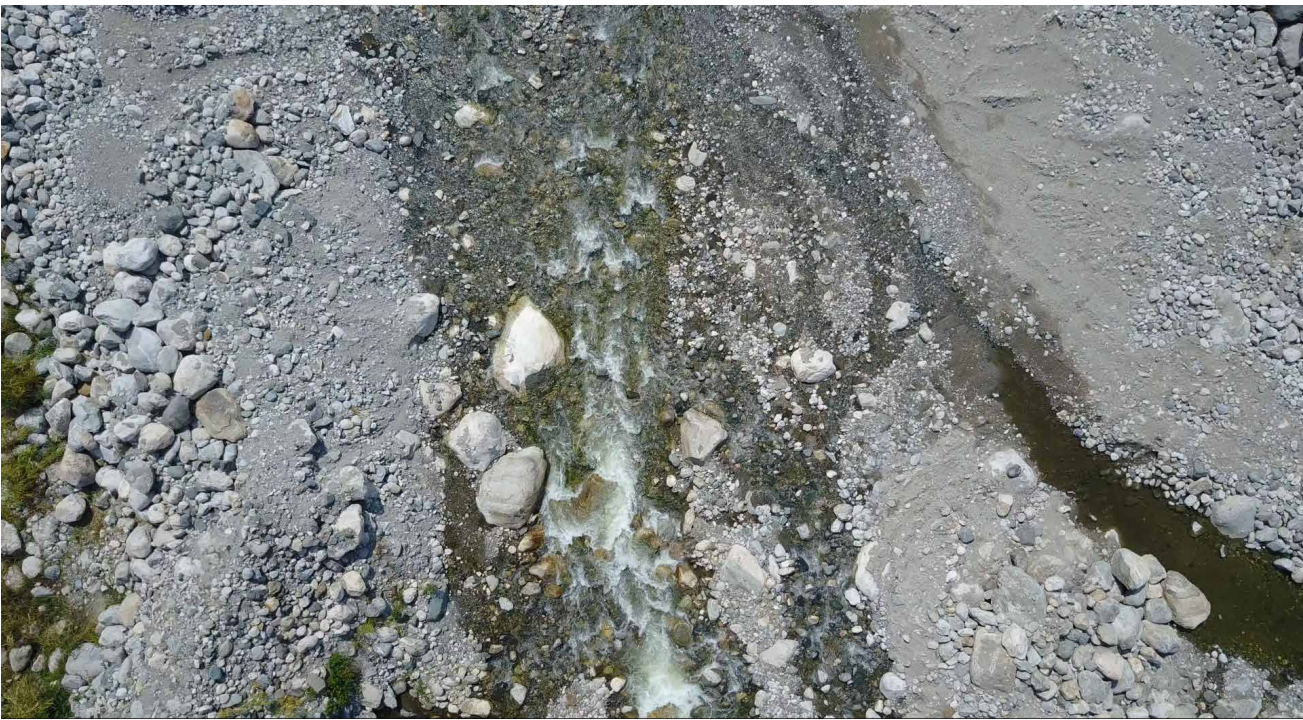


Table 5 | Output Indicators

Indicator	Target 2023	Status 2020	Target Achieved	Comment
Output 1 – Increased small scale renewable energy capacity and generation				
Indicator 1.1 MW installed	170 (158.4)	122.4	77%	The current portfolio has a planned capacity of 158.4 MW. The original target of 170 MW will not be achieved due to lower availability of Programme funds and a lower share of biomass projects than originally expected.
Indicator 1.2 GWh/year delivered to the national grid	830 (760)	380	46%	Commissioned projects have an expected annual generation of 557.7 GWh. Deemed Energy in 2020 was 130 GWh, which is not considered in the reported value. The current portfolio has a planned total output of approximately 760 GWh/year.
Output 2 – Balanced portfolio of renewable energy technologies				
Indicator 2.1 Number of technologies supported by GET FiT	4	3	75%	Supported technologies include hydropower, solar PV and bagasse.
Indicator 2.2 Number of sub-regions with GET FiT projects	5	4	80%	The GET FiT portfolio includes 4 regions: Western, South-Western, Eastern and Central.
Output 3 – Reduced GHG emissions				
Indicator 3.1 Net change in GHG emissions (Cumulative MtCO <sub>2</sub> e)	4.03	0.90	22%	The cumulative net change in 2019 was at 0.65 and increased by approximately 250,000 tonnes. The indicator is behind target due to the delayed portfolio implementation.
Output 4 – Increased number of Ugandan national jobs				
Indicator 4.1 Number of direct national construction and O&M jobs (FTE) created	4,200	11,732	280%	GET FiT is exceeding targets on this indicator. Approximately 1,400 full-time equivalent (FTE) jobs were created in 2020.
Output 5 – Increased capacity at ERA				
Indicator 5.1 Time taken by ERA to review generation licence for 1-20 MW renewable energy applications (months)	2	0.8	n/a	Two generation licences were reviewed in 2020, with an average time taken for the review of 25 days. This is slightly less than last year's value and exceeds the 2023 target.
Indicator 5.2 Number of REFIT tariff reviews taking place by ERA per year	1	0	0%	REFIT tariffs are not reviewed on an annual basis. The last review (REFIT IV) concluded in April 2019 and will be effective for two years.
Indicator 5.3 Timely and complete reporting to ERA by licensees	100%	93%	93%	164 out of 176 reports were submitted complete and on-time.
Indicator 5.4 Online delivery of ERA services	50%	0%	0%	The Regulatory Information Management System (RIMS) is expected to be rolled out in July 2021.
Output 6 – Finance mobilised for GET FiT portfolio				
Indicator 6.1 Private finance mobilised for GET FiT portfolio (in USD million)	200	165	83%	All projects have reached financial close. Due to the reduced portfolio size following inception, the target will not be reached. In the reporting period more than EUR 10 million have been injected into the projects under construction due to COVID-19 and flooding incidents. This is not considered in the value, as finance mobilised is reported at financial close.
Indicator 6.2 Public finance mobilised for GET FiT portfolio (in USD million)	300	290	97%	Mobilised finance at financial close. All projects have reached financial close. Due to the reduced portfolio size following inception, the target will not be fully reached. The public finance has increased in 2020 for the projects under construction as project cost has increased.



Outcomes

The outcomes address the influence of GET FiT at a higher sector level, namely on the private sector investment environment for renewable energy in Uganda, and improved financial stability of the energy sector. A third indicator on local grid stability has been excluded from the Logframe in 2018.

Currently four commercial banks are financing projects of the GET FiT portfolio, and as further projects restructure debt in the future, it is expected that more commercial banks will become involved in the Ugandan energy sector. In 2020, the regulator has issued six development permits and two generation licences for renewable energy projects with capacities greater than 1 MW, but less than 20 MW. Furthermore, 12 additional licenses were granted for project smaller than 1 MW. As highlighted in the Output section, the process of issuing generation licences has maintained high efficiency, with less than one month taken to review applications. While the

power utility UETCL has paid all its invoices for delivered energy in 2020, some developers have reported delayed deemed energy payments. These delays are not considered for the indicator since deemed energy claims are not approved for payment by UETCL, but by ERA through the base consumer tariff, which is reviewed to include deemed energy only once a year.

The electricity purchased from thermal power stations has reduced drastically from circa 100 GWh in 2019 to ca. 57 GWh in 2020, which is well below the target of 832 GWh in 2023. Capacity payments remain part of a Government subsidy, which signifies that the country has not yet achieved fully cost-reflective retail tariffs.

An overview of the Outcome indicators is provided in **Table 6**.



Table 6 | Outcome Indicators

Indicator	Target 2023	Status 2020	Target Achieved	Comment
Outcome 1 – Improved private sector investment environment for renewable energy in Uganda				
<b>Indicator 1.1</b> Number of commercial banks that invest in renewable energy for project finance lending for GET FiT projects	5	4	80%	No Uganda commercial bank is among lenders, due to a lack of technical competence and energy sector experience, according to developers.
<b>Indicator 1.2</b> Number of development permits and generation licences issued for small-scale projects (1-20 MW) by ERA per year	12	8	70%	Two of the permits were permit renewals. In addition to the reported permits and licences, 12 additional licences were granted to projects below 1 MW.
<b>Indicator 1.3</b> Occurrence of annual "UETCL event of default" for energy supplied (deemed energy)	0	0	n/a	Five projects have reported delayed deemed energy payments. These delays are not considered for the indicator since deemed energy claims are not approved for payment by UETCL, but by ERA through the base consumer tariff, which is reviewed only once a year.
<b>Indicator 1.5</b> REFIT adjusted to be cost-reflective	100%	100%	100%	REFITs were adjusted in 2019 (REFIT IV), and are now providing ceiling tariffs, with a maximum return on equity for respective technologies.
Outcome 2 – Improved financial stability of the energy sector				
<b>Indicator 2.1</b> Subsidy paid by the Government for UETCL to cover thermal power use	0	0	n/a	All energy purchased beyond stand-by capacity was covered by tariffs.
<b>Indicator 2.2</b> GWh purchased by UETCL from thermal stations	832	57	n/a	The sector is well below target due to i) lower demand for thermal power than anticipated and ii) thermal energy being offset by renewable energy from the GET FiT portfolio and commissioning of Isimba. Last year's purchases were at 103 GWh.
<b>Indicator 2.3</b> Cost-reflective retail tariffs	100%	97%	97%	Capacity payments remain part of the subsidy paid by the Government.



Impact

The Programme follows the impact statement "Uganda pursues a low carbon, climate resilient development path, resulting in growth, poverty reduction and climate change mitigation". Accordingly, the impact of the Programme is measured through three indicators, highlighted below. Due to the heavy reliance on the activities of key sector actors to reach the targets, the effects of GET FiT Uganda are limited to a certain extent, and subject to a time lag between GET FiT activities and observable results at a higher sector level. **Table 7** provides an overview of the Impact indicator developments in 2020.

Grid-related CO<sub>2</sub> emissions have further reduced in 2020 with lower production from the thermal power plant and increased demand. With an increased energy generation from the GET FiT portfolio, as well as the commissioning of the Isimba hydropower plant in 2019, less energy was dispatched from fossil fuelled power plants in 2020. As such, the grid-related CO<sub>2</sub> emissions are already lower than the target set for 2023. Further, with an electrification rate of 28%, the 2023 target of 26.4% is already exceeded.

Table 7 | Impact Indicators

Impact Indicators	Target 2023	Status 2020	Comment
<b>Indicator 1</b> Grid related CO <sub>2</sub> emissions per unit electricity use <sup>12</sup>	0.09	<b>0.01</b>	Grid related CO <sub>2</sub> emissions decreased from 0.037 (2018) and 0.016 (2019) to 0.01 in 2020, which can be attributed to 40% less thermal generation in 2020.
<b>Indicator 2</b> Percent of population with access to electricity	26.4%	<b>28%</b>	Following the 2019 joint sector review, no new official electrification rate statistics were reported.
<b>Indicator 3</b> Electricity consumption (kWh per capita)	105	<b>103</b>	Following the 2019 joint sector review, no new official electricity consumption statistics were reported.

6.2 Risk Management

**R**isk management is a continuous process running through the lifetime of a programme, where risks are identified and categorised, and measures introduced to reduce or eliminate the risks.

**COVID-19.** The pandemic resulted in implementation delays for the GET FiT projects still under construction, due to travel restrictions for key staff, shipping delays and other direct or indirect effects. However, the projects have maintained activity on site and generally progressed well throughout the year. While progress at the different sites has been monitored remotely by the GET FiT construction supervision team, the full resulting implications of COVID-19 with respect to actual COD delays are not yet clear and will be subject to further assessment.

The increased health risks due to COVID-19 also affected personnel at the GET FiT project construction sites. COVID-19 cases were recorded at all three construction sites. The respective project developers have reported to GET FiT on their test efforts and results as well as preventive and reactive measures. The pandemic, and to some extent the general elections, have also impacted the energy sector in Uganda as a whole. The Government of Uganda has directed its financial resources towards health and the economic condition of the country, and as such made no allocations towards the Electricity Connections Policy in 2020.

From a GET FiT risk management perspective, the construction supervision team was prevented from carrying out physical supervision visits in 2020 due to travel restrictions. In order to maintain a minimum acceptable level of follow up, developer support and progress monitoring, remote supervision was undertaken on a quarterly basis through digital meetings, photos and documentation review. This approach has clear limitations when it comes to assessing both technical and E&S features of the projects, and physical supervision visits will be undertaken when practical.

**Flooding.** Major flood events occurred in Western Uganda during the second quarter of 2020, causing varying degrees of damage to two operational GET FiT small hydropower power plants (Nyamwamba and Lubilia SHPs), as well as causing damage and delays for the Nyamagasani 1 and 2 SHPs which are under construction in the same area. The GET FiT supervision team has been monitoring the progress of repair works remotely and remained available to follow up progress and provide support to developers as required. Both the Nyamwamba and Lubilia SHPs were operational by the end of the year – to varying degrees – with further remedial works being required at the Nyamwamba SHP in 2021 in order to return to full operating capacity. The Lubilia SHP experienced a landslide in November 2020, not believed to be linked to the May 2020 floods, which resulted in substantial additional downtime and repairs, which will be ongoing into 2021.

**Grid connection.** Inadequate grid infrastructure and/or operations within the local and regional distribution and transmission networks continue to present the main risk against achievement of Programme targets. As a result, in 2020, approximately 25% of the energy generation at GET FiT power plants failed to reach Ugandan electricity customers due to grid availability issues (deemed energy). The current level of deemed energy generated by GET FiT and other power plants across the country poses a major risk to the sustainability of the Ugandan power sector. Importantly, the remaining three GET FiT projects under construction are also facing challenges related to securing adequate connection to the grid. Unless these issues are resolved prior to commissioning of the plants, deemed energy levels from the GET FiT portfolio could still rise significantly. On this basis, the risk category for grid connection is maintained with a high probability and high impact.

**Operational performance.** With most of the GET FiT projects now operational, a different set of risks are introduced. The technical performance, operations and maintenance of each plant will affect the targeted level of annual energy production across the portfolio. E&S performance in the operational phase is also vital to ensure sustainable energy generation from GET FiT plants for the next two decades.

While GET FiT Uganda was originally established to support projects up to COD (which is reflected in the Programme's legal framework and budgets) the Programme is also trying to monitor general post COD performance to the extent possible. This is maintained through review of annual energy production in relation to subsidy disbursements, and one or two post COD visits to each project in order to capture key issues and experiences. One issue that has become clear during operational phases to date, is that some developers are not documenting compliance with minimum flow in a satisfactory manner. While such operational risks are not formally part of the GET FiT risk framework, it is highly important that they are monitored and managed by the Ugandan authorities. Therefore, as a first step, KfW and the GET FiT supervision team have addressed the issues with the relevant developers and provided documentation as a basis for GoU to follow up on the issues going forward.

**Health, Safety and Environment (HSE).** Despite the remaining projects under construction being pushed on maintaining timelines, it is crucial that this does not compromise HSE performance in any way. GET FiT is not positioned to supervise or control the quality of developer's HSE work daily, and these risks are therefore not formally part of the GET FiT risk control framework. Nonetheless, GET FiT supervision visits focus on monitoring performance in that respect to the extent possible, discussing HSE standards with developers and creating awareness around potential risks.

An overview of the most relevant remaining risks across the Programme is presented in **Table 8**.

<sup>12</sup> Lower CO<sub>2</sub> emissions per unit electricity use indicate a power system with high penetration of renewable energy. The indicator target was already achieved in 2017. A lower value corresponds to less emissions per unit of electricity use. The indicator is calculated by multiplying the national thermal generation by technology-specific emission factors – and dividing the resulting emissions by the total electricity consumption in Uganda in 2020



Table 8 | Risk Matrix

Description of Risk	Mitigation Actions	Progress	Risk Assessment
<b>Additional construction delays and increased health risks on site due to COVID-19 restrictions, for Nyamagasani 1, Nyamagasani 2 and Kikagati</b>	Monitoring of progress on site through remote supervision. Reporting by developers on COVID-19 testing as well as preventive and reactive measures.	Projects have maintained a substantial level of activity on site, progress is being monitored, and the full resulting delays attributed to COVID-19 restrictions are yet to be determined.	medium
<b>Deemed commissioning of GET FIT projects due to poor planning at key institutions, as well as lack of funds, to ensure timely infrastructure for grid connection.</b>  <b>Operational GET FIT plants generating power at reduced capacity due to continuing, unresolved constraints of the high and medium voltage national grid.</b>	Additional funding provided by GET FIT donors to support selected, critical grid infrastructure investments required for connection of GET FIT projects.  Comprehensive efforts by GET FIT to fast-track implementation of grid infrastructure projects managed by GoU agencies, which are relevant to the GET FIT portfolio.	Unsatisfactory progress on GET FIT funded grid infrastructure projects due to various implementation challenges, including major E&S issues related to compensation. High risk of continued increase in deemed energy generation from the GET FIT portfolio.	high
<b>Availability of wayleave compensation funds and timely compensation GET FIT evacuation lines in Western Uganda.</b>	GET FIT SC has stressed that timely provision of compensation funds is a critical pre-requisite to completing the ongoing GET FIT grid connection projects and safeguard the Programme targets.	GoU has committed to providing the necessary compensation funds on time to avoid losing Programme funds, but due to slow progress and a stressed national budget a high risk.	high
<b>Corruption, misuse of funds and bribes paid by developers or contractors.</b>	Subsidies are performance-based and disbursed for energy delivered.  Zero tolerance in developer's contracts, and termination of contracts, as well as repayment of fees in case of paid bribes.	General risk remains until the commissioning of all projects.	medium
<b>Compliance with Environmental and Social standards of developers.</b>	Workshops on E&S standards were provided to developers. Penalties for non-compliance are incorporated in subsidy agreement (DFA). Additional supervision visits are carried out for underperforming projects.  A water and energy sector working group will be established to address the issue of minimum/environmental flow compliance for hydropower projects.	Some projects still perform unsatisfactorily. GET FIT has carried out multiple additional supervision visits, and imposed penalties on some developers.  Compliance is continuously followed-up, including post commissioning. The risk of non-compliance and associated reputational risks remain.  A scope has been developed for the minimum flow working group. The work will be financed and coordinated by GET FIT, in close cooperation with the relevant GoU authorities.	medium
<b>Lower generation than estimated due to insufficient hydrological data and/or climate change.</b>	Risks were included and diligently assessed in hydrological estimates and sensitivity testing at project evaluation stage.	Generation data for all projects is continuously followed up by GET FIT. The realisation of hydrological risks can only truly be assessed in the fullness of time, following a sustained period of generation (multiple years).	medium
<b>Insufficient Programme funds due to foreign exchange rate developments.</b>	Continuous budget monitoring allows for pro-active financial management and early identification of risks and Steering Committee action if needed.	Low risk level on original Programme budget (premium payments) due to most funds already disbursed there. Medium risk level remaining on grid connection component, where a funding shortfall is likely.	medium
<b>Insufficient understanding of ground conditions results in substantial changes in the design and layout of projects and/or adverse environmental and social impacts as a result of landslides or similar during construction.</b>	Developers required to provide updates on geotechnical conditions in the location of key project structures and in high risk areas during the implementation phase based on further investigations and assessments by geotechnical engineering specialists. Developers requested to address key geotechnical risks through changes in project designs and construction methodologies.	Several projects implemented changes in designs and construction methodologies in 2018-19 to improve the robustness of project designs and to reduce the likelihood of landslides. Further changes may be necessary for remaining projects during 2020 to manage residual risks.	medium







# 07 Other GET FiT Initiatives

## 7.1 GET FiT Zambia

The second roll-out of the GET FiT concept – GET FiT Zambia - was launched in 2018 in Lusaka and is now in its third year of implementation. Similarly to Uganda, the objective of the Programme is to improve the framework conditions for private investments in small-scale renewable energy in the country. The principal component of GET FiT Zambia is the procurement of up to 200 MW in renewable energy projects of up to 20 MW from IPPs. The Programme is a partnership between the Zambian Ministry of Energy and KfW and is implemented by the

GET FiT Secretariat (managed by Multiconsult). Other key stakeholders are the Energy Regulation Board (ERB) and the state-owned power utility ZESCO Ltd.

In addition to the procurement of up to 200 MW of renewable energy capacity at the core of the Programme, GET FiT Zambia comprises a set of tools that addresses barriers and gaps in the Zambian energy sector (see illustration below).



Figure 26 | GET FiT Zambia Toolbox





### A demanding year for the Programme

The procurement, through a reverse auction, of 120 MWac in the form of six solar PV projects in early 2019, was considered as successful. It achieved record-breaking bids for Sub-Saharan Africa, down to 3.999 USc/kWh (and a weighted average of the successful projects at 4.41 USc/kWh). However, the year 2020 presented some challenges for the Programme. The macroeconomic situation in Zambia has been challenging and energy sector reforms are progressing slowly. This had noticeable consequences for the Programme – particularly affecting the ability to secure financing for the six projects. At an average of 4.41 USc/kWh these projects are below the average electricity selling price in Zambia and present an excellent value proposition for a country needing to diversify its energy mix. Changing weather patterns have caused drought in parts of the hydropower-dominated country, which led to high levels of load shedding.

In the face of these challenges, financiers have temporarily suspended their financing activities for on-grid projects, and as a result the development of the Solar PV projects and the RfP for the small hydropower has been temporarily halted until the situation in the energy sector stabilises. The GET FiT Zambia Secretariat continues to have a close dialogue with both the solar PV project developers and prospective lenders to ensure a smooth continuation of the project development once the situation allows for it. While the development of the projects is halted, GET FiT is continuing the work by concentrating efforts on the Technical Assistance Facility, providing support to key institutions during the energy reform process.

### Further information & updates

Stay informed about development in the GET FiT Zambia Programme, please visit the website [www.getfit-zambia.org](http://www.getfit-zambia.org), sign up for the GET FiT Zambia **newsletter**, or follow the Programme on LinkedIn and Twitter.

## 7.2 GET FiT Mozambique

**M**ozambique is generously endowed with renewable energy resources – with about 18 GW in hydropower potential and favourable conditions for electricity production from solar, wind and biomass. However, the country is still suffering from low electricity access rates of 34%. The utility EDM operates about 0.5 GW of generation capacity, falling short of meeting current demand. Several market barriers hamper the development of the energy sector – particularly relating to private sector investments. The third roll-out of the GET FiT concept in Mozambique aims at improving these framework conditions for private investments in renewable energy, to support a climate friendly development, lower greenhouse gas emissions and reduce poverty.

The Programme is implemented over a ten-year period and is expected to launch in 2021. At the core of the Programme are three procurement rounds of both generation capacity, partly with energy storage. The first round will include a reverse auction of up to 32 MW of solar PV with storage.

Furthermore, the Programme consists of several instruments to support the development of the energy sector in Mozambique:

- **Viability Gap Funding** – Supplementation of the feed-in tariffs to a cost-covering level
- **Grid Integration Facility** – Financing of grid connection costs for subsidised power generation plants from private developers (Independent Power Producers - IPPs)
- **Risk Mitigation Facility** – Risk Coverage Guarantee Facility for IPPs
- **Technical Assistance Facility** – Capacity building at the partner institutions through technical support and supervision of the IPPs.

The Government of Mozambique and KfW signed the Financial Agreement for the Programme in 2019. The German Government has provided a EUR 25 million grant for its implementation. The Ministério dos Recursos Minerais e Energia (MIREME) is the Programme Executing-Agency.

For further information about the Programme, please visit the website [www.getfit-moz.org](http://www.getfit-moz.org).





## | 08 Outlook for 2021

As outlined in this report, 2020 was a challenging year for the Programme due to unforeseen external events. Despite this, a good level of progress was achieved on the ground as a result of persistent efforts by project developers and stakeholders. The GET FIT Steering Committee and Implementation Consultant have maintained a flexible and pragmatic approach to managing the portfolio, ensuring continued support to projects affected by COVID-19 restrictions and flooding.

Going into 2021, the situation in Uganda with respect to the pandemic remains difficult to predict. It is anticipated that remote and digital construction supervision may still be needed for at least parts of the year, but physical site visits will hopefully be resumed. KfW and the Implementation Consultant are continuously monitoring the overall situation and assessing needs on the ground.

Physical site visits will also be beneficial with respect to the Working Group on environmental minimum flow compliance for hydropower projects, which will be established by GET FIT in cooperation with ERA and other key government agencies. The work of this group will address minimum flow guidance and compliance issues across the Ugandan hydropower sector, based on challenges and lessons identified during GET FIT implementation. This is vital in order to ensure sound management of Ugandan rivers, and the findings of this group will form an integral part of the GET FIT legacy.

Grid connection for GET FIT projects continues to represent a major challenge for the Programme. Provision of wayleave compensation funds for the construction of new power lines is critical, both in order to safeguard GET FIT energy generation targets and to reduce the financial and reputational burden on GoU of deemed energy payments.

At least one additional project is reportedly on the verge of achieving commercial operations as we enter 2021. Depending on efforts on the ground, commissioning of all three remaining projects under construction is considered possible within the upcoming year. Based on current status, all projects are expected to be commissioned within 2022 at the latest, finally bringing the operational portfolio up to full target capacity after nearly ten years of implementation.

Although 2020 did not turn out the way anyone expected, GET FIT Uganda is on track to achieving the overarching Programme targets. GET FIT has built a large and diverse renewable energy portfolio at record speed in the given context. This is only as a result of the dedicated efforts, and loyal commitment to Programme goals, by Project Developers, Ugandan Government Agencies, GET FIT donors and all other, valuable members of the GET FIT Uganda community.





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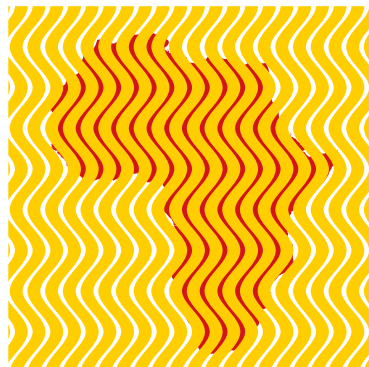
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