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The Global Energy Feed-in-Tariff's Influence on Uganda's Energy Transition

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Contents

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Abstract

Achieving green energy transitions in developing countries through neo liberal interventions requires trade-offs of risks that may negatively impact energy access and electricity development. The aim of this study is to conduct a critical policy analysis on one of these neo liberal interventions, the Global Energy Feed-in-Tariff (GET FiT), to examine the role and influence of the program on Uganda's energy transition. This program was chosen because it exults the 'niche-building' strategies ubiquitous throughout the transition literature. However, these strategies were formulated through studies on energy transitions in developed countries, leaving gaps in the models as they pertain to the developing world. Considering the ongoing threats of climate change and the need to provide access to the currently 759 million people without electricity, understanding how to effectively conceptualize and design green interventions is key. A critical policy analysis was conducted to identify the neo liberal processes and outcomes of GET FiT. Data was gathered through qualitative semi-structured interviews, GET FiT literature, and second sources. Through qualitative analysis, this study determined that the neo liberal assumptions and design of GET FiT resulted in trade-offs of risks, which negatively impacted Uganda's electricity development. First, GET FiT relied heavily on assumptions of growing electricity demand that did not manifest, in part, because of the raised consumer electricity tariffs, which were implemented to attract investment. Second, by ensuring that investors would yield return on their investments through guaranteed generation payments by the GoU, regardless of consumption, the sustainability of Uganda's electricity sector is now threatened by public debt. Third, by not integrating considerations of how electricity consumer tariff prices affect energy access, the rising costs of electricity resulting, in part, from these guaranteed payments may now be limiting energy access. GET FiT's role in Uganda's energy transition manifested as a means for transnational actors to promote a neo liberal energy transition model, prominent in the literature, which resulted in negative outcomes. This indicates that transition models must be reconceptualized in developing country contexts for green interventions to be effective.

Acronyms

ERA	Energy Regulatory Authority
GET FiT	Global Energy Feed-in-Tariff Uganda
GFPPM	GET FiT Premium Payment Mechanism
GoU	Government of Uganda
IA	Implementation Agreement
IPP	Independent Power Producer
KfW	KfW Bankengruppe
kWh	Kilowatt
MEMD	Ministry of Energy and Mineral Development
MoE	Merit Order Effect
MW	Megawatts
MLP	Multi-Level Perspective
PPA	Power Purchase Agreements
PRG	World Bank Partial Risk Guarantee
REA	Rural Electrification Agency
REFiT	Renewable Energy Feed-In-Tariff

UEB	Uganda Electricity Board
UEDCL	Electricity Distribution Company Ltd
UEGCL	Uganda Electricity Generation Company Ltd
UETCL	Uganda Electricity Transmission Company Ltd

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1 INTRO:

1.1 BACKGROUND

Renewable energy initiatives are on the rise as the world grapples with the disastrous effects of climate change (*Global Warming of 1.5°C —*, n.d.; Newell, 2015). This transformation has deep implications for the developing world[1], especially on the African continent, as of the 759 million people lacking access to electricity worldwide, 3 out of 4 of them live in Sub-Saharan Africa (United Nations, 2019). To accomplish Sustainable Development Goal 7 "ensure access to affordable, reliable, sustainable and modern energy for all (United Nations, 2019, p. 36)", a wave of 'green interventions' is taking place on the continent. This study will explore how one of these green interventions influenced an African country's, Uganda's, energy transition.

Projections estimate that by 2040 up to 75% of Africa's additional electricity generation will come from renewable energy sources (International Energy Agency, 2019). Interventions aimed at meeting that goal are expected to improve standards of living and economic growth. Yet, while these interventions are heralded as accelerating Africa's energy transition towards a 'brighter future' (International Energy Agency, 2019; KfW, 2021), there are reasons to be cautious. The continent has repeatedly had *euro-centric*[2] models, based on neoliberal ideologies of development, thrust upon it (C. Gore, 2017; Harrison, 2004). Many studies have revealed the lasting negative consequences of these interventions to Africa's economic, political and social development (C. Gore, 2017; Harrison, 2004). Now, as a new wave of green interventions emerge, these may be mirroring those of the past. Green interventions in developing countries are generally focused on technological and economic strategies aimed at improving technologies, investment climates, and energy institutions (IRENA, 2020; Newell & Phillips, 2016; Scoones et al., 2015; Spratt, 2015). These

[1] The term 'developing country' will be used for this paper considering its widespread use. Here utilizing the World Banks use "as low and medium income countries, with reference to per capita GNI (Hansen et al., 2018, p. 199)."

[2] Eurocentrism is generally defined as a cultural phenomenon that views the histories and cultures of non-Western societies from a European or Western perspective.

strategies closely resemble the myriad of neoliberal reforms that have already swept through African electricity sectors (C. Gore, 2017; McDonald, 2009).

These considerations are especially pertinent to green interventions as there is growing consensus that energy transitions must also take place as 'just transitions'. A 'just transition' is understood as "one that delivers poverty reduction and climate resilience simultaneously (Newell, 2015, p. 39)." As the influence of neoliberal interventions on Africa's poverty reduction are questionable at best, this brings cause for concern regarding the neoliberal foundations of this new green wave of interventions.

Uganda's energy transition can be understood as a "change in the composition (structure) of [a] primary energy supply (Smil, 2010, p. vi)." Uganda faces many challenges to its energy transition, which pose dangers to the environment and its population. Currently, only 24% of the country has access to electricity, with a majority of those people being in urban areas (CIA, 2017; Godinho & Eberhard, 2019). The lack of electricity access contributes to significant deforestation, as 90% of Uganda's energy needs are met by burning wood fuel (Meyer, Eberhard, & Gratwick, 2018). The country's main source of electricity generation comes from large-hydroelectric dams[3], making up 84% of total installed capacity (*Energy Generated*, n.d.). Though Uganda has high potential for other sources of renewable energy, the government continues to pursue a electrification through large-scale dams (IRENA, 2021). This electrification strategy is concerning, as large-scale dams are seen as environmentally and socially harmful, as well as unsustainable in the long-term (Rosenberg et al., 1995). Already, the construction and operation of Uganda's largest dams has resulted in damage to rivers and local populations (Pottinger, 2000). Additionally, the government continuously looks to encroach on protected wildlife preserves to continue dam construction along the Nile (Okiror, 2020). Beyond environmental and social concerns, this reliance on large-scale dams raises questions about sectoral sustainability, as these dams will be subject droughts, flooding and potential changes to the Nile's hydrological flow as it continues to be dammed downstream (Sridharan et al., 2018).

[3] Large hydroelectric dams are considered as dams with a capacity of more than 20 MW

The intervention studied, the Global Energy Feed-in-Tarrif Uganda (GET FiT[4]), aimed to counter this reliance on large-scale dams by improving Uganda's renewable energy sector. The main aim of GET FiT was to improve the investment climate for small-scale[5] renewable energy developers and investors by providing financial mechanisms, as well as technological expertise.

1.2 OBJECTIVES

This study is conducted as a critical policy analysis of GET FiT as a green intervention. It aims to critically examine the neoliberal design of this program of this program and the consequences this had for Uganda's energy system. This is done by analyzing the data collected not only for the outcomes of this program but also the processes that resulted from certain outcomes.

To reach this objective, a main research question was formulated with additional sub-research questions to direct data collection and analysis:

Main RQ:

How did GET FiT, as a neoliberal intervention, impact Uganda's energy transition?

Sub RQs:

- *What is the role of GET FiT in Uganda's energy transition?*
- *How did the neoliberal assumptions and design of GET FiT impact the outcomes?*
- *What were the trade-offs involved in the niche-building of small-scale renewable energy?*

[4] For the purpose of this paper any reference to GET FiT indicates the program's application in Uganda, unless otherwise specified. Reference to GET FiT indicates all the members and components of the packaged program, including the developers.

[5] Small-scale renewable energy is defined in this paper as a facility with a capacity of less than 20 MW

1.3 SIGNIFICANCE

Access to modern energy[6] is considered a pre-requisite to economic, environmental and social development and are crucial to reduce poverty and sustain growth (Reddy, 2015). As the population of Sub-Saharan Africa is projected to double by 2050 (*Population | United Nations*, n.d.), providing renewable energy to a region wrought with energy poverty poses significant challenges to meeting SDG 7 by 2030. Especially when the region continues to invest in fossil fuels and rely on large-hydro dams, despite its high potential for alternative renewable sources (KfW, 2021).

Altering the direction of energy transformation in Africa is seen by the international community as imperative to reaching climate neutrality (IEA, 2021). Though the goals of multilateral organizations and bilateral donors towards the continent have changed, similar neoliberal policies are being implemented. While there is a wealth of literature surrounding the effects of previous neoliberal interventions on developing countries, the effects of green interventions are less understood (Delina, 2019; C. Gore, 2017).

1.4 OUTLINE

This study is divided into the following seven chapters. First, Chapters 2 and 3 will lay the theoretical and methodological foundations that this study positions itself on. This will be followed by Chapter 4, which will provide an extensive background of the neoliberal reforms of Uganda's energy system to provide context for GET FiT. Next, Chapters 5 and 6 will describe and analyze the results of the critical policy analysis on GET FiT for its processes and outcomes. Finally, Chapters 7 will provide the insights derived from this study and how they contribute to the wider literature.

[6] Though there is no internationally accepted definition of 'modern energy', the World Energy Outlook (WEO) defines modern energy access as "a household having reliable and affordable access to clean cooking facilities, a first connection to electricity and then an increasing level of electricity consumption over time to reach the regional average (*World Energy Outlook – Topics - IEA*, n.d.)".

2 LITERATURE REVIEW

This chapter lays the theoretical foundation for this study. This literature review was conducted as a *narrative review*, which seeks to "arrive at an overview of a field of study through a reasonably comprehensive assessment and critical interpretation of the literature (Bryman, 2016, p. 91). First, through a 'qualitative interpretation of prior knowledge' I will synthesize the theoretical literature of energy transitions to establish understandings on this phenomenon. The next section will illustrate the theoretical model that this study will use to give a heuristic explanation of how energy transitions come about. This will be followed by an examination of the gaps that currently exist in the research on energy transitions in developing countries. Finally, this chapter will end by demonstrating the dilemmas disciplinary neoliberalism poses to just transitions and the neoliberalism that pervades green intervention strategies.

2.1 ENERGY TRANSITION BACKGROUND

The last century has largely been defined by technological transformations shifting human systems. Arguably, the greatest transformation was born from the energy transition of the 21st century from burning wood to fossil fuels (Solomon & Krishna, 2011). Now, as the threat of climate change grows, the world looks to transform our energy system once again (Newell, 2015). Although, unlike the last century's technological transformations that resulted from slow shifts in human practices, this energy transition will require rapid, discursive interruptions to our current energy systems (Scoones et al., 2015; Solomon & Krishna, 2011). A field of study has emanated to understand the many complexities involved in this task; widely known as the field of energy transitions or more broadly sustainability transitions[7] (Araújo, 2014; Köhler et al., 2019). Though an energy transition may refer to any "change in the composition (structure) of [a] primary energy supply (Smil, 2010, p. vi)",

[7] A sustainability transition is defined as a "radical transformation towards a sustainable society, as a response to a number of persistent problems confronting contemporary modern societies (Grin et al., 2010)." This term expresses the expansion of transition studies to fields beyond energy and transportation.

mention of 'the energy transition' generally refers to the "pathway toward transformation of the global energy sector from fossil-based to zero-carbon (IRENA, 2013)."

This is a complex field of study, considering that energy is central to almost every sector of socioeconomic life (Stirling, 2014). These layers of complexity only build when considering the urgent need to rapidly transform energy systems on a multi-scaler level away from carbon intensive energy production, resulting from human economic choices (L. Hughes, 2021; Scoones et al., 2015; Solomon & Krishna, 2011). Scholars call for more multi-disciplinary research, as the energy transition cannot solely be explained by the 'hard' sciences (Sovacool, 2014).

Nevertheless, a bulk of existing energy studies research largely focuses on the technological and economic components of this shift (Scoones et al., 2015; Sovacool, 2014). Increasingly, gaps in the models and theories resulting from this research are being exposed (Sovacool, 2014; Stern, 2007). Though the focus on technology when researching a technological transformation might seem intuitive, "technology, of itself, has no power, does nothing. Only in association with human agency, social structures and organization does technology fulfil functions (Geels, 2002, p. 1257)." Like all aspects of social science, understanding the human associations to these technological transitions of energy systems introduces a confluence of factors and analyses. This has spurred a renaissance of 'green' transformation research that seeks to understand what the energy transition will look like and how to bring it about (Newell, 2015; Scoones et al., 2015; Sovacool, 2014).

This paper utilizes a sub-set of this research known as the 'transition approach' or 'transition studies' that focuses on the "complex interplay among economic, technological, social and political factors (Avelino & Wittmayer, 2016; Meadowcroft, 2011, p. 70)." The transition approach utilizes these interplays to explain why certain energy systems persist while others evolve (Meadowcroft, 2011; Scoones et al., 2015). Stemming from the sociology of technology (Geels, 2002), the transition approach conceptualizes energy systems as seamless webs (T. Hughes, 1987) made up of "[physical] artefacts, actors and institutions (Smith et al., 2010, p. 436)", which co-evolve (Köhler et al., 2019). Thus, the transition approach regards the energy transition as socio-technical and focuses on the process the transition requires (Scoones et al., 2015; Smil, 2010).

However, transition literature continues to rely heavily on economic and technological assumptions of growth in energy transition processes. This literature review will first examine a prominent model

of energy transition processes, the Multi-Level Perspective (MLP), to highlight the modes of thinking surrounding the transition approach. By doing so, this study will contribute to the literature by showing how this model does not properly reflect the processes of energy transitions in developing countries and by emphasizing the neo liberal assumptions embedded in interventions that follow the models of the transition literature. This review will also establish why neo liberal models are problematic for just energy transitions.

2.2 MULTI-LEVEL PERSPECTIVE

The MLP has risen in prominence in the field of transition studies (Köhler et al., 2019; Meadowcroft, 2011). Drawing from structuration theory, the MLP understands the phenomena of transitions as occurring through dynamic processes between three heuristic levels: niches, socio-technical regimes, and an exogenous sociotechnical landscape (Geels, 2011).

The socio-technical energy regime, or *regime level,* represents a cluster of heterogenous elements and multi-actor networks that form a 'deep structure', which is stabilized and reproduced through a 'semi-coherent set of rules' (Geels, 2004, 2004, 2005; Giddens, 1984). As these regimes are 'locked in' at multiple dimensions they form a 'stable trajectory', which means changes to the socio-technical system are incremental (Geels, 2002, 2004; Köhler et al., 2019). This poses a problem for emerging renewable energy technologies, or 'radically new technologies', which represent the *niche level* (Geels, 2004; Kemp et al., 1998).

Radical technologies are unable to compete with the markets of 'path dependent' energy systems unless they are provided a 'protected space', or niche (Geels, 2005; Kemp et al., 1998). Sociologists of technology consider niches "locus of radical innovations (Geels, 2004, p. 912) as they allow for learning processes on multiple dimensions (technology, user preferences, etc.) and social-networking to support innovations[8] (Geels, 2005; Kemp et al., 1998). For 'green niches', these protected spaces typically take the form of regulatory instruments (standards, laws, performance targets) and policy instruments (subsidies, workshops, etc.), which support coalition building (Geels et al., 2017; Kemp et al., 1998). Niche- networks are typically developed by 'small networks of dedicated actors' (Geels

[8] The processes of niche innovation are detailed in the Strategic Niche Management theory.

& Schot, 2007). These actors build internal momentum for the niche to break through the regime (Geels, 2014). However, building momentum is typically not enough to redirect the pathway of a socio-technical system and requires additional pressures from the socio-technical landscape.

The socio-technical landscape, or *landscape* level, represents deep structural trends and exogenous factors that take place over long periods of time (Geels, 2011). The landscape is comprised of the material and social backdrops that make up the wider context of energy systems. These include geographic location, quality of the electricity infrastructure, and social aspects like the "demographical trends, political ideologies, societal values and macro-economic patterns (Geels, 2011, p. 28)" that perpetuate and influence the system (Geels, 2004). The landscape level is so named because of the "literal connotation of relative 'hardness' (Geels, 2004, p. 913)", meaning niche and regime actors cannot influence the landscape in the short-term (Geels, 2011).

The lock-in of socio-technical regimes' technological trajectories and niche actors' inability to influence the landscape level makes purposive transitions, like the energy transition, difficult. As mentioned, niches can be protected to build internal momentum but require more to break through the socio-technical regime. Niches are reliant on windows of opportunity to enter the market. Windows of opportunity occur when there are internal regime problems (e.g., urban air quality) and/or pressure from the landscape level (e.g., rising oil prices) (Geels, 2005; Geels et al., 2017). When this occurs, the regime is destabilized, allowing the now stable niche to compete in the market and diffuse by entering increasingly bigger markets; 'niche-accumulation' (Source from Geels 2007); Figure 1 exemplifies this process.

Figure 2.1

Multi-level Perspective on Transitions

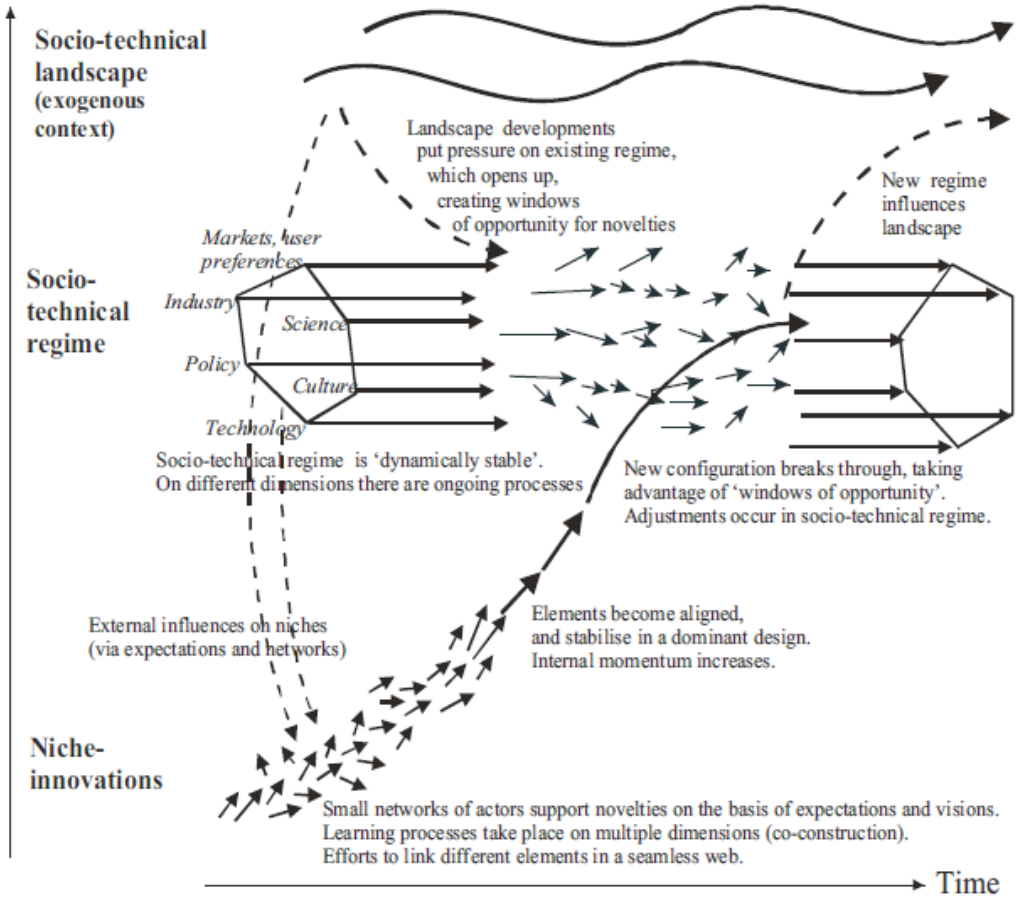


Figure 2.1 Multi-level Perspective on Transitions. Reprinted from "Typology of Sociotechnical Transition Pathways," by F. W. Geels and J. Schot, 2007, Research Policy, 36(3), p. 401. Copyright 2007 Elsevier B.V.

Rather than an ontological representation of reality, the levels of the MLP are heuristic concepts that act as a tool to understand complex sociotechnical processes (Geels, 2002; Newell & Phillips, 2016). For this research, the MLP's macro-focus allows for a more holistic analysis of GET FiT's influence on Uganda's energy transition. Furthermore, while the MLP is not an ontological representation of reality, the model reflects the modes of thinking involved in the design of green niche-building interventions, which this study aims to critique.

2.3 GAPS IN THE RESEARCH

As the field of energy transitions expands and the MLP theory rises in prominence, gaps in the theoretical framework and application emerge. Within the wider energy studies literature, there is a profound lack of focus on developing countries; especially in Africa (Scoones et al., 2015; Sovacool, 2014). A comprehensive content analysis of energy scholarship in 2014, revealed that "Africa as a whole accounted for only 3.5% of all case studies, and many developing countries had only one or two authors in [a] sample over a fifteen year period (Sovacool, 2014, p. 22)." Though, the past few years have seen these percentages rise and topics on energy transitions in developing countries diversify (Hansen et al., 2018).

Anomalous Energy Transitions

Considering the wave of energy transition interventions about to be implemented in the developing world, this emerging research may prove indispensable. Even more so when regarding the many anomalous elements of developing countries and their energy systems to the developed world. Developing countries generally exhibit "a mixture of well- and ill-functioning institutions, in a context of market imperfection, clientelism and socially excluded communities (Ramos-Mejía et al., 2018, p. 218)", "less efficient bureaucracies, higher levels of political and economic instability, less transparency in legal proceedings and enforcement of legal frameworks and relatively high levels of economic and social inequality (Hansen et al., 2018, p. 200)", as well as strong informal sectors (Hansen et al., 2018).

The differences diverge even further when considering the energy systems being studied. The most pronounced difference is the level of transformation that must take place. In the developed world, the focus on energy transitions revolves around adapting infrastructure, consumer habits and institutions to renewable energy technologies (Geels et al., 2017; Kemp et al., 2007). However, for many developing countries, especially in Sub-Saharan Africa, the energy infrastructure is not there and most of the population has never had energy access (Newell, 2015). This means that transitions refer to far more than adapting new energy sources but instead will require 'deep structural changes' (Newell & Phillips, 2016). For some, this represents an opportunity to 'leapfrog' countries past fossil-fuel dependency by building renewable energy infrastructure from the ground-up (Newell, 2015). Though, it more generally presents obstacles considering the high amounts of capital required; Africa

alone is estimated to cost $93 billion to provide electricity infrastructure (Spratt, 2015, p. 162). Regardless, these anomalies bring uncertainty regarding the applicability of transition theories, like the MLP, to developing countries.

Though, the field of transition literature is increasingly integrating these anomalies into the transition research. First, the spatial scales of the MLP levels are being conceptualized differently within developing countries (Raven et al., 2012). While it's common for niche technologies to unfold on a global scale, developing countries are especially dependent on transnational capital and expertise in order to advance niches (Hansen et al., 2018). This creates dependencies on external donors and opens niches to being potentially driven by foreign interests (Hansen & Nygaard, 2013). Furthermore, many of the energy regimes throughout Sub-Saharan Africa, like Uganda, have been subject to such profound transformations by transnational actors, that "the relationship between transnational capital and the domestic political economy belies any sharp distinction between an external set of international donors and finance institutions on the one hand, and a bounded set of national and sub-national institutions on the other (Newell & Phillips, 2016, p. 41).

Yet, the differences in developing countries' energy regimes differ most in how their regimes are reproduced and 'stabilized'. Unlike developed countries, many developing countries experience relatively unstable regimes due to 'lower political and economic stability' and inefficient institutions (Hansen et al., 2018). Rather than providing 'windows of opportunity' for niche proliferation, this instability more often impedes niche development by creating barriers (Verbong et al., 2010). Furthermore, this calls to question how niches can diffuse in developing countries if destabilizing regimes impedes radical development.

Politics, Power and Justice in Energy Transitions

Perhaps the strongest criticism of energy transition literature is the lack of consideration regarding power and politics in energy transitions (Delina, 2019; Geels et al., 2017; Meadowcroft, 2011; Newell & Phillips, 2016). Many of the transition theories and models continue to rely heavily on assumptions of niches' main obstacles and limitations being market-driven, even when actors within regimes actively resist niches and transitions (Avelino, 2017; Geels, 2011; Meadowcroft, 2011). Though transition research builds on considerations of politics and power in transitions, like the concept of

'regime resistance'[9], these continue to focus on developed countries' governance structures; like the Dutch energy transition (Kemp et al., 2007).

Although, research is emerging that applies politics and power concepts to the anomalous contexts of developing countries as they apply to the MLP. Some of these include the application of the MLP to: rentier states in Nigeria (Osunmuyiwa et al., 2018); the 'minerals-energy' complex in South Africa (Baker et al., 2014); and transnational linkages in the Philippines (Hansen & Nygaard, 2013). While there is much to gain from these studies, their conceptualizations of regime resistance continue to closely mirror that of developed countries. Rather than look at actors entrenched in profitable fossil-fuel-driven industries, there are larger questions about what drives path dependency in a country with embedded transnational actors. As Newell & Phillips (2016) states "transition literature continues to have little to say about the politics of which energy sources are prioritised, by whom and why, and what this means for who secures access to energy (Newell & Phillips, 2016, p. 40)."

In this regard, Newell and Phillips draw from the cross-cutting social science research agenda of *Energy Justice* (Jenkins et al., 2016). Energy justice answers the call for a more human-centered exploration of energy development (Sovacool, 2014). Building from environmental justice, Sovacool & Dworkin (2015, p. 436) define the concept as "a global energy system that fairly disseminates both the benefits and costs of energy services, and one that has representative and impartial energy decision-making." Energy justice integrates considerations of environmental and social harms that may result from certain energy sources, socially excluded groups from energy benefits, as well as the distribution of risks and costs of transitions (Fuller, 2021; Newell & Phillips, 2016; Sovacool & Dworkin, 2015). As Scoones et al. (2015, p. 3) point out, "There's unlikely to be a green transformation if social justice is not part of the debate."

However, many complex dilemmas arise in attempts to provide 'just' transitions. Many governments must strive to develop energy systems for the betterment of their economies and social welfare through neoliberal models of electrification. Citizens often consider electricity provision a public service that politicians are accountable to provide, even though electricity delivery operates as a

[9] Drawing from the neo-Gramscian political notion of 'historic blocs', Geels (2014, p. 23) *Regime Resistance* (Hess,2013) posits that regime stability may be the "outcome of active resistance by incumbent actors" to fundamental transitions (Geels, 2014, p. 23). Considering that regimes are formed through the 'reproduction of dominant structures', regimes by their nature result from "power, dominance and vested interest (Avelino, 2017, p. 507; Geels, 2002)."

private good[10] in liberalized sectors, which makes it costly (A. Scott & Seth, 2013). Simultaneously, to provide a just energy system, both the distribution of benefits and harms to local populations by electricity sources must be considered. Even more so as they contend with global pressures to provide their populations with energy access without contributing to climate change (Baker et al., 2014).

Balancing these various elements raises many questions but Gore (2017, p. 3511) summarizes these dilemmas by stating that these concepts

> are conflict-laden and produce deep ethical conundrums for energy planners, donors and politicians. Can electricity be provided in a quantity and quality that is equitable so that individuals, firms, and households have equal capability to enhance their well-being? Further, who gets to make these decisions in sub-Saharan Africa? What opportunities exist to deliberate the realities of energy poverty, and do these deliberations have the potential to alter the energy pathways chosen?

These 'ethical conundrums' Gore brings up will become somewhat thematic in this paper, as they are the root of modern energy problems. Though, an underlying driver of these questions revolves around the role of interventions in the pursuit of the 'green industrial revolution'.

2.4 'GREEN INDUSTRIAL REVOLUTION'

Energy transitions are taking place under what has been called the 'green industrial revolution' (Scoones et al., 2015) or 'green growth', which simply stated "is economic growth (growth of gross domestic product or GDP) which also achieves significant environmental protection (Jacobs, 2012, p. 4)." A dominant emphasis on green growth is on investment and technological innovation by the private sector (Scoones et al., 2015). For developing countries this emphasis has larger repercussions for 'just' transitions.

As mentioned before, though electricity may be treated as a 'public good', neoliberal electricity systems require it to be a private good. Neoliberalism is defined here as the "theory of political

[10] "Public goods are neither rival goods nor excludable; private goods are both rivalrous and excludable (A. Scott & Seth, 2013).

economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets, and free trade (Harvey, 2005, p. 2)." Neoliberalism swept throughout Sub-Saharan Africa during the 1990's as International Finance Institutions pressured many countries into liberalizing various public sectors (C. Gore, 2017).

In transition literature these neoliberal reforms are commonly framed as a positive landscape pressure towards niche proliferation (Hansen & Nygaard, 2014). Advocates of liberalized energy sectors determine that "reducing public spending, increasing the role of the private sector, and the restructuring of publicly owned companies as essential pre-conditions to "provide financial sustainability, attract investment, and extend grid services to the poor (Bayless and Fine, 2007, as cited in Newell & Phillips, 2016, p. 39)." However, these neoliberal reforms provide ethical dilemmas for just energy transitions. By privatizing electricity sectors "consumers become customers" and this opens opportunities of exclusion of the "poorer ones rendered unprofitable (Newell & Phillips, 2016, p. 42)". While poorer customers are excluded, many Sub-Saharan nations focus their energy resources and policies on economic growth; a model McDonald (2009) calls 'electric capitalism'. Electric capitalism creates an additional unevenness for electricity providers as it makes them "dependent on private actors for the provision of public goods (Newell & Phillips, 2016, p. 39)."

Incidentally, beyond being a potentially unjust form of electrification, neoliberal methods may also be ineffective. Private sector performance in Sub-Saharan Africa has been mixed, at best, and exclusionary practices hamper electricity development (McDonald, 2009; Newell & Phillips, 2016). Marketized versions of electrification will only be tenable if the sector is economically viable and "consumers support them through their purchasing power (Scoones et al., 2015, p. 17)." However, creating economically viable electricity sectors requires higher pricing and user fees that "make electricity unaffordable for many [...] undermining potential benefits (McDonald, 2009, p. 519)."

As will be shown in this paper, this neoliberal embeddedness had great implications for GET FiT and Uganda's energy transition. While gains have been made in Uganda's electricity sector since reforms, the country still faces many problems regarding energy justice (C. Gore, 2017). Though the World Bank and other scholars celebrate the gains made through liberalization (Godinho &

Eberhard, 2019; Meyer et al., 2018), many citizens cite the results of neoliberal practices as being a major impediments to energy access (Kakumba, 2021).

The goal of these criticisms is not to analyze the first wave of neoliberal interventions and reforms of Sub-Saharan African electricity sectors but to provide a context for a secondary wave of neoliberal green interventions. The first wave came about through leading development agencies and multilateral banks exercising their control over poorer countries to implement neoliberal sector reform (Newell & Phillips, 2016). While the second wave is aimed at "trying to address energy poverty and the challenge of de-carbonisation simultaneously (Newell & Phillips, 2016, p. 47)", similar results of power asymmetries and inequality may arise. As will be explored in this research, these waves are not mutually exclusive, the second wave is built on the same 'disciplinary neoliberalism' (Gill, 1995).

This can be seen through the methods and strategies many of these renewable energy interventions employ. While these renewable energy interventions are implemented in various forms, they share the common aims of building energy efficiency, enhancing financial systems for radical technologies and reducing energy poverty (Newell & Phillips, 2016; Scoones et al., 2015; Spratt, 2015). As previously mentioned, the goal is to provide developing countries with the technology and trade necessary to 'leapfrog' their energy systems (Scoones et al., 2015). In doing so, these interventions mirror renewable energy policies in the developed world by providing financing mechanisms, technological knowledge transfer, and giving space for coalition building (Bhamidipati et al., 2019; IRENA, 2015). However, considering the limited experience many developing countries' energy sectors have with renewable energy, interventions are often packaged as large-scale programs to build capacity (Hansen et al., 2018); like GET FiT.

Following the model of the MLP, these interventions focus on supporting niches by creating protected spaces, much like they would in developed countries. The International Renewable Energy Agency's most recent report, *The Renewable Energy Transition in Africa,* dedicates a whole section to 'de-risking and promoting private sector investments' as a field of action (KfW, 2021). While reducing risks may be necessary for private investment, these de-risking strategies do not specify how these risks would be re-allocated. As will be shown in this research, creating a protected space for niches, through funding mechanism, requires trade-offs (Newell & Phillips, 2016).

3 METHODS

The purpose of this chapter is to describe the actions that were taken to investigate this research problem. Specific procedures and techniques used to identify, select, process, and analyze information are detailed to affirm this study's validity and reliability. This chapter will include this study's research design, data collection methods and analysis, as well as the criteria for evaluation and ethical considerations of data collection. The final section will provide the ontological and epistemological positioning, as well as reflections on reflexivity to this study.

3.1 I. RESEARCH DESIGN

3.1.1 Case Study

Overall, I aim to understand how GET FiT influenced the energy transition in Uganda. A large motivation for choosing Uganda's energy transition and GET FiT as a case is due to the uneven representation of this program's outcomes. Both Uganda's liberalization of its energy sector and GET FiT as a green niche intervention have received high praise from many researchers and economists (Bhamidipati et al., 2019; Godinho & Eberhard, 2019; Meyer et al., 2018). However, questions around long-term sustainability of the sector to electrify Uganda, while addressing the principles of a 'just' transition have not been fully explored.

Designing this research as an idiographic case study allows for "an in-depth examination...to reveal the unique features" of this case (Bryman, 2016, p. 61). For this study, the 'case' is understood as GET FiT, which is embedded in the 'complex systems' of the multi-level energy transition of Uganda (Pal, 2005). Here, the case, GET FiT, represents a 'single unit of analysis', which will be analytically generalized to inform the MLP theory behind neoliberal green interventions in developing countries (Pal, 2005; Yin, 2003). Though this intervention is unique in the context of the Ugandan energy system, and thus raises questions around *external validity* and *generalizability*, the design of the program provides data that may be transferrable to other instances of intervention (Bryman, 2016).

3.1.2 Critical Policy Analysis

To make these generalizations, I conducted a critical policy analysis of GET FiT. Critical policy studies focus not only on the outcomes of the policies but also the "processes that result in certain outcomes (Pal, 2005, p. 237)." More specifically, in the "interests, values and normative assumptions—political and social—that shape and inform these processes (Fischer et al., 2015, p. 1)." The aim of a policy analysis is to draw on social science theory in order to help define and solve "real problems in the real world (Pal, 2005, p. 228)." For this case, the 'real problem' is normatively defined as the need to provide sustainably sourced energy for the Ugandan public in the context of neoliberal electricity development. The policies analyzed will encompass both the design of GET FiT as an intervention to solve this problem and the larger context of neoliberal electrification in which the program is contextualized. A policy analysis is befitting to this study because this form of analysis moves beyond the technocratic nature of problem solving used to shape this kind of green intervention (Fischer et al., 2015). Commensurately, case studies are important in policy analysis as they "complement statistical analysis [...] with in-depth analysis of specific instances of a policy problem (Pal, 2005, p. 229)"; as this analysis aims to do.

3.2 DATA COLLECTION AND ANALYSIS

As a case study "investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident (Yin, 2003, p. 23)" multiple sources and forms of data collection were used for this study. For all sources, a qualitative research strategy is utilized for its inductive and iterative process (Bryman, 2016).

3.2.1 Reports Analysis

While the iterative process of this research meant that all sources of data would be analyzed and re-analyzed continuously, I used reports and brochures developed by GET FiT as the first set of sources. As part of GET FiT's deliverables, annual reports were released following each year of implementation to highlight the mechanisms of the program, progress of specific projects, risks and obstacles to progress, payment cycles, etc. Data collection and formulation of the reports was

conducted by the Implementation Consultant[11] of GET FiT, Multiconsult/Norplan[12]. The reports are released annually and currently cover the years from 2013 to 2020. In addition to these reports, brochures produced throughout the program, titled "Lessons Learned" are included in this analysis. I also included the "First Performance Review and Baseline Report for GET FiT Uganda", conducted by a third-party consultant, Castalia, in 2016. This Baseline report was meant to be the first of several reports evaluating the performance of the program. However, an advisory board of GET FIT members determined that the report "did not meet the minimum quality standards as outlined in the terms of reference (Multiconsult & KfW, 2017, p. 56)." From then, there was no further mention of additional baseline reports for the program. Upon review of the Baseline Report, I determined that the methodology was clearly stated in the report and decided to include it in this analysis.

Following the criteria of assessing the quality of documents, outlined by Scott (1990), I offer the following. First, the *authenticity* of the documents being produced by Multiconsult, in partnership with KfW, is confirmed through qualitative interviews (expanded on below) and their use in published articles by reputable journals. Furthermore, the *authenticity* and *credibility* of the evidence provided in the documents is corroborated by second sources (expanded on below), though certain claims will be questioned in the Findings section of this paper. Additionally, the *representativeness* of the evidence in these reports is typical for this form of reporting and the *meaning* of the evidence is clear and comprehensible (Bryman, 2016; J. Scott, 1990); as will be shown in the excerpts used in the Findings of this study. I applied criteria of quality to the Baseline Report and determined that it complemented the evidence of the GET FIT reports by providing an un-biased third-party analysis of the program.

Initially a 'coding down' analysis was employed to reveal emerging 'concepts' from the data (Bryman, 2016). The emerging concepts that informed the questions for interviews are listed below in Table 3.1:

[11] An implementation consultant is a third-party contractor brought in by companies to manage a large-scale project.
[12] Norplan is the Ugandan branch of Multiconsult

Table 3.1

Concepts From Reports Analysis

Concept	Relevance	Contribution to Further Inquiry
Technical Assistance Training Program of ERA	Influence on capacity building goals	Extent of influence on the ERA and capacity building for electricity sector
Governance Structure/ Processes	Processes that influenced outcomes	Normative assumptions (political and social) that shaped the processes
**Interconnection Issues	Obstacles that negatively influenced outcomes	Policies in program design that led to these outcomes; extent of negative influence on electricity sector
Regulation/Transparency	Focus on "good governance" and normative assumptions	Extent to which these processes were effective in this context
**Standardized Documents	Processes that influenced outcomes	Influence on the electricity sector
Actors/Stakeholders	Stakeholder mapping of sector	Power relations between agencies and influence on outcomes

** indicates that these concepts became larger points of inquiry that informed the direction of this research

These emerging concepts informed the questions that were posed to interviewees. While conducting interviews, reviewing second sources and 'grey literature', I continuously visited and re-analyzed these reports. Throughout the research emerging themes and patterns were used to build a narrative

analysis of processes that led to certain outcomes of GET FiT (Braun & Clarke, 2006; Klag & Langley, 2013).

3.2.2 Qualitative Interviews

After reviewing the GET FIT reports, I conducted purposive theoretical sampling (Bryman, 2016), seeking individuals for their position, public remarks and/or relation(s) to previous interviewees and renewable energy investment programs. Many respondents were recruited through their public association with GET FiT, while others were referred by previous interviewees. Table 3.2, below, highlights the interviewees, their reason for being recruited and demarcates them for how they will be identified in the Findings section. For ethical reasons, all participants will remain anonymous.

Table 3.2

List of Participants for Qualitative Interviews

Participant Number	Position	Association
Participant 1	Consultant	(Transnational Company) Associated with GET FiT
Participant 2	Consultant	(Transnational Company) Associated with GET FiT
Participant 3	Consultant	(Transnational Company) Associated with work in the Ugandan electricity sector
Participant 4	Renewable Energy Development Worker	(Transnational Government Agency) History of work with Ugandan renewable energy
Participant 5	GoU employee (ERA)	Associated with GET FiT
Participant 6	Development Worker	Formerly associated with GET FiT

Each participant signed a written consent form. The consent form explained the details of this research project and that all participants would remain anonymous to all, except the researcher. Participants were informed that they could withdraw their data at any time and that transcripts and recordings would be stored until 01.11.2021. For information security, all data was stored in encrypted files with multi-factor authentication. Furthermore, the key with any non-anonymized information was kept separately from other documents/recordings on an online folder, which required a triple-layered process of bio and password authentication.

The greatest limitation of this study was the difficulty in recruiting participants for this study. Between the Ugandan presidential elections in 2021 and the continuously worsening Covid-19 situation, finding participants was challenging. Many more participants should have been interviewed to ensure the reliability of the patterns that emerged (Bryman, 2016). Additionally, all the participants interviewed are or were active green interventionists, with many adhering to neo liberal models of electrification. While analyzing these ideologies was within the scope of this study, a greater understanding of this program and Uganda's energy transition would have been gained from analyzing alternative perspectives. In this regard, to ensure validity more participants should have been included that were not associated with GET FiT or that worked within the GoU (Bryman, 2016). However, due to the generosity of participants, each interview was 40-60 minutes in length, which allowed for a deeper exploration of the questions of the concepts.

To allow for additional concepts and themes to emerge, these interview were semi-structured (Bryman, 2016). As the basis of this research evolved over the course of interviews, the interview guides remained flexible and changed with subsequent interviews. Early interviews, with participants 1 through 3, focused on the capacity building nature of GET FiT and renewable energy development of Uganda in general, while later interviews went deeper into specific questions about obstacles that the program encountered.

As the basis for policy analysis is to "probe for nuances, contradictions, viewpoints, underlying assumptions and so on (Pal, 2005, p. 229)", thematic analysis was utilized. By first employing a 'coding up' strategy, concepts emerged, which were then used to 'code down' for emerging themes and sub-themes (Braun & Clarke, 2006; Bryman, 2016); see Table 3.3.

Table 3.3

Concepts From Qualitative Interview Transcripts

Category	Theme	Sub-theme	Quotation
1 - Renewable Energy General	Renewable Energy Development in Uganda	Low Capacity for Renewable Energy Development	Disjointed Renewable Energy Sectors
			Low Capacity
			Resource constraints/Overloaded Agencies
			Bureaucracy
		Conflicting Energy Pathways	Generation over access
			Donor Driven vs. GoU Driven
			On-grid vs. off-grid
			Large vs. Small Renewable Energy
			Renewable Energy low priority
		Renewable Energy Trends	Less small Renewable Energy projects
	Political-economy	ERA	Freedom for small Renewable Energy
			Constraints with large Renewable Energy
		REA	Driven by government's Grid Agenda
2 - GET FiT Successes and Failures	GET FiT Successes	Capacity Building	ENS Compliance
			Procedures
		Policy Change	Hydrology Flow
		Market Capacity	Investor Insurance
			GET FIT as a "catalyst"
			Attract Private Sector
		General Renewable Energy Development	local development cooperation
			Changed CCD project trends
		Standardized Documents/Streamlined Processes	Improved Efficiency/Necessary for Growth
	GET FIT Challenges/Failures	GET FIT Planned Outcomes	Generation over Access
		Interconnection Issues	
		Delays	Bureaucracy & Grid
		Donor Dependence	Weak Renewable Energy dev w/out GET FIT
3 - Reasons for GET FIT outcomes	Grid Issues	Interconnection Issues	Low grid capacity
			Resource constraints/Overloaded Agencies
			Renewable Energy low priority
			Poor technical planning
			REA - Low Capacity
	Political Will		Low for Small Renewable Energy/ High for large Renewable Energy
	Neoliberal Assumptions		Lack of Growth

A large ethical consideration surrounding these interviews revolves around the 'unpredictability' of the semi-structured interviews and thematic analysis (Kostovicova & Knott, 2020). As this was an iterative process, the themes emerging changed over the course of interviews, as did my stances and the framing of questions. As a researcher, I regret that these interviews could not be conducted as a collaborative relationship, rather than knowledge extraction, because certain stances were not understood until after data analysis (Kostovicova & Knott, 2020).

3.2.3 Second Source Research

Due to the limitations on data collection for this study, a significant amount of second sources and 'grey literature' were utilized. However, this source of data adds to a richer narrative analysis by showing the different theories and normative assumptions other researchers applied to understanding GET FiT. Furthermore, this adds to the *triangulation* of the study, which entails using multiple sources of data to result in greater confidence in findings (Bryman, 2016).

These sources were purposively sampled for their content on GET FiT and Uganda's energy system. This was not a systematic review, but rather a focused search for relevant material. I selected sources that met this study's criteria of quality and delineated the selection based on the scope of this research. Thus, some studies were not included because of their focus on market and technology conditions surrounding this program and the Ugandan energy system, which were not pertinent to this study.

Considering the low amount and lack of diversity of participants, as well as the *authenticity* and *credibility* surrounding the documents analyzed, second research contributes to the reliability and validity of this study. These second sources took the form of newspaper articles, GoU reports from various agencies, and research on GET FiT and/or Ugandan electricity sector. Not having any direct access to the data sets that scholars utilized, I utilized the quotations and findings of published articles; see Table 3.4.

Table 3.4

Second Sources – Summaries & Methods

Article	Summary	Data Collection

Bhamidipati, P. L., Haselip, J., & Hansen, U. E. (2019). How do energy policies accelerate sustainable transitions? Unpacking the policy transfer process in the case of GETFiT Uganda. *Energy Policy*, *132*, 1320-1332.	Utilized the micro-focused theories of sustainability transition to determine 'policy transfer' between donors and the ERA.	Conducted purposeful sampling to identify "key actors involved in the transfer of the FiT" policies in Uganda. Conducted 14 semi-structured interviews in 2017 and 2018.
Godinho, C., & Eberhard, A. A. (2019). Learning from Power Sector Reform: The Case of Uganda. World Bank Policy Research Working Paper, (8820).	Published ongoing research surrounding the development policy discussions of the World Bank around Uganda's electricity sector reform.	**The methods were not given in this working paper but the report was used to draw on certain research perspectives on GET FiT
Gore, C. D. (2017). *Electricity in Africa: The politics of transformation in Uganda* (Vol. 45). Boydell & Brewer.	A culmination of 20 years of research conducted by Christopher Gore regarding the reform process in Uganda. Various quotes and data from his previous research were utilized for this paper.	**The methods were not given and several findings regarding GET FiT were not sourced.
Meyer, R., Eberhard, A., & Gratwick, K. (2018). Uganda's power sector reform: There and back again?. *Energy for Sustainable Development*, *43*, 75-89.	An analysis of how IPPs have progressed in Uganda compared with Chinese investment.	Collected and analyzed data from specific IPPs in Uganda; the World Bank's Private Participation Infrastructure database; the China Africa Research Initiative; AidData; annual reports from ERA and other Ugandan utilities. Interviewed stakeholders from relevant organizations (some anonymous, others identified).

Trotter, P. A., & Maconachie, R. (2018). Populism, post-truth politics and the failure to deceive the public in Uganda's energy debate. *Energy Research & Social Science, 43*, 61-76.	A study of populist tactics used by political elites in regards to electricity development in Uganda.	Conducted semi-structured interviews in 2017 with key stakeholders in Uganda's power sector and donor organizations. Analyzed public talks and transcripts from senior government officials. Analyzed Ugandan data sources to determine 'truthfulness' of electricity development claims by public officials.
Jan van der Ven, M. (2020). *An overview of recent developments and the current state of the Ugandan* (Working Paper E-20046-UGA-1). International Growth Centre.	Provides an overview of the current trends in Uganda's energy sector.	**The methods were not given but sources are provided. This paper was used because several of the sources were not attainable.

**Indicates that the methods for these findings were either not given by the researcher or the source was unattainable and cannot be corroborated.

Table 3.4, only highlights the sources that either had opaque methods or which had findings and/or quotations that directly contributed to the findings of this study. For other sources of information, refer to the bibliography. In addition to these sources, Ugandan government reports and newspaper articles were utilized. The criteria of quality regarding these various documents will not be assessed as these were used to triangulate other findings.

Analyses of grey literature and secondary data are reportedly common in energy transition studies (Bhamidipati et al., 2019; Meyer et al., 2018), as this field of research is generally multi-disciplinary. These sources were not analyzed as units but were used to triangulate findings and provide a richer narrative analysis of the findings.

3.2.4 Ontology, Epistemology and Reflexivity

As this research utilizes qualitative methods, this study is epistemologically interpretivist (Bryman, 2016). Interpretivism assumes that reality and knowledge are not objective, rather they are shaped by people within an environment (Bryman, 2016). Remaining interpretive is crucial for critical policy analysis as it "examines the implications of the social construction of knowledge for policy decision making (Fischer et al., 2015, p. 2)." This also makes this form of analysis ontologically constructivist asserting that "social phenomena and their meaning are continually being accomplished by actors (Bryman, 2016, p. 29)." The sociological foundation of energy transition studies, especially regarding the MLP, is inherently constructivist as it the phenomena of socio-technical regimes is built on social reproduction.

Conducting an interpretivist policy analysis has deep implications for the reflexivity of the researcher. This research questions what is 'common' or 'normative' in policy, which means that insights may "follow from a 'self-reflective' acknowledgement of the 'world' (Fischer et al., 2015, p. 8)." Aware of this, I maintained a constant awareness of my own biases in relation to the GET FiT program. When this study began, I knew little about the topic. Though this originally presented a limitation, it resulted in a more neutral interpretation of the program's outcomes.

It was more challenging to remain neutral while interpreting the processes of the program that led to these outcomes. Especially once the concept of disciplinary neoliberalism was added to the study, as I am personally opposed to many neoliberal practices in the developing world. However, critical policy analysis is rooted in 'defamiliarization' or 'denaturalization' of the 'contemporary techno-empirical policy analysis' and can have an 'emancipatory' effect on how policy problems are understood (Fischer et al., 2015). In this way, I understand the policy problems surrounding GET FiT from a theoretical foundation of pursuing 'just' energy transitions to maintain reflexivity.

4 HISTORIC AND POLITICAL BACKGROUND

The purpose of this chapter is to provide a historical and political background of Uganda's energy system. Not only will this allow for a deeper examination of how GET FiT fit within this context, but will also contribute to understanding the ideological underpinnings of the program and the neoliberal system it was situated in.

4.1 UGANDA'S NEOLIBERAL REFORMS

The seeds of the 'window of opportunity' that led to the formation of the GET FiT program are the same seeds that led to its inevitable failures. Few nations approached reforming their electricity sectors with the matched gusto of the Government of Uganda (GoU) (C. Gore, 2017). Being the first in Sub-Saharan African nation to do so, caused the Ugandan electricity sector to be praised by the World Bank and heralded as a resounding success by many economic analysts (C. Gore, 2017). Though, as will be seen, these policies had long-term repercussions for Uganda's energy transition and the role small-scale renewable energy would play in it.

Uganda's neoliberal electricity reforms were the result of pressures from the World bank, a historically central international actor in Uganda, to improve the efficiency and management of its electricity sector (C. Gore, 2017; Meyer et al., 2018). Through the Electricity Act of 1999, western governments assisted Uganda in 'unbundling' the state-owned Uganda Electricity Board (UEB) into multiple entities, so that they could be privately run (C. D. Gore, 2009).

The vertical unbundling of the UEB (Godinho & Eberhard, 2019) fundamentally transformed the sector and formed the key players that drive electricity development in Uganda. In 2001, the UEB monopoly was restructured into the Electricity Distribution Company Ltd (UEDCL), the Uganda Electricity Transmission Company Ltd (UETCL), and the Uganda Electricity Generation Company Ltd (UEGCL)(C. D. Gore, 2009). The UEDCL and UEGCL were both privatized under various concessions, while the UETCL remained state-owned[13] (Godinho & Eberhard, 2019).

[13] The UEDCL was given a 20-year concession to the company Umeme. The only operating power plants, Nalubaale and Kiira Power Station, are controlled under a 20-year concession by Eskom Enterprises; a state-owned public entity

In addition to these, two essential entities emerged from these reforms, regarding small-scale renewable energy development. First, the Energy Regulatory Authority (ERA), which has autonomy as a parastatal[14] and receives funding from the GoU and through licensing fees[15]. Its main responsibilities are setting a cost-reflective tariff and monitoring "the licenses required to generate, transmit and distribute power (Godinho & Eberhard, 2019; Meyer et al., 2018)". The establishment of the ERA was a crucial change in the socio-technical regime of the GoU's electricity sector, as it gave the regulator authority to seek out generation investment through Independent Power Producers[16] (IPPS); eventually leading to the GET FiT program. However, as Meyer et al. (2018) notes, the Electricity Act of 1999 gave the ERA authority to control all bids for generation plants, regardless of size. Something that would later be contested.

Another notable entity that emerged is the Rural Electrification Agency (REA). Early on in these reforms, there was recognition that rural electrification would not be profitable for the private sector distributor (Mawejje et al., 2012), a common problem in developing countries. Considering that the majority of Ugandans live in rural areas, this makes rural electrification essential for electricity development and was a large reason for the UEB's failure to progress (C. D. Gore, 2009). Overseen by the Rural Electrification Board, comprised of members of parliament, the REA is funded through levies on energy sales collected by the ERA and significant external contributions (grants, donations and loans) (Jan van der Ven, 2020; Mawejje et al., 2012)[17]. In 2003, the REA was officially formed to be the secretariat of the rural fund and board, which 'oversees the implementation of rural electrification activities'; mainly grid extension and connections (Godinho & Eberhard, 2019). A flow chart of the Ugandan Electricity Sector's structure can be seen in Figure 4.1.

Perhaps the most important agency, in terms of Uganda's electricity sector and influence on GET FiT, is the UETCL. The UETCL is the only branch of the Ugandan power sector that remained state-owned after reforms (C. D. Gore, 2009). This can be attributed to the low prospect of

of South Africa (C. D. Gore, 2009). All energy policy matters regarding the various entities of the electricity sector are directed by the Ministry of Energy and Mineral Development (MEMD) (Godinho & Eberhard, 2019).

[14] Parastatal is defined by Webster's dictionary as "having some political authority and serving the state indirectly, especially in some African countries."

[15] Participant 6

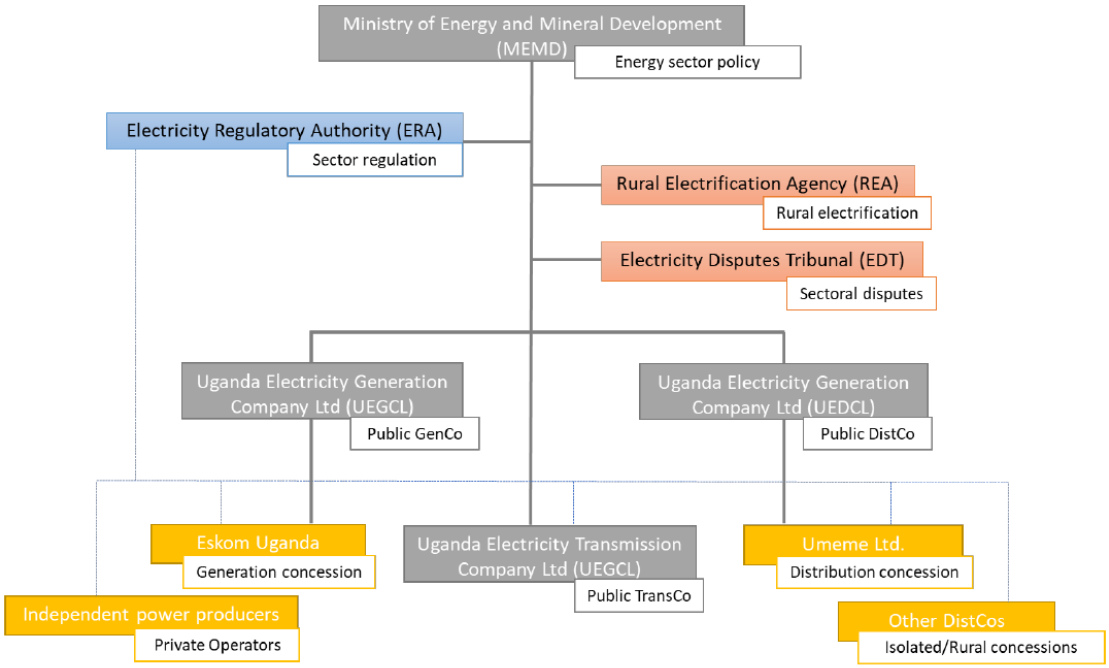
[16] An independent power producer (IPP) is an entity, which is not a public utility, but which owns facilities to generate electric power for sale to utilities and end users.

[17] Participant 6

profitability surrounding transmission management, thus a lack of interest by private companies to operate it.[18] Almost all privatized electricity generators, sell their electricity to the UETCL, which is then transmitted and sold to the distribution company (Jan van der Ven, 2020); see Figure 4.2. The UETCL is additionally responsible for all high-voltage transmission infrastructure (> 33kv) (Godinho & Eberhard, 2019). As the UETCL controls the purchase and supply of almost all electricity generated in Uganda, the agency retains strong control of Uganda's electricity development.

Figure 4.1

Uganda's Power Sector Structure



Note: Chart of Uganda's Power Sector Structure. Reprinted from "Learning from Power Sector Reform: The Case of Uganda," by C. Godinho and A. Eberhard, 2019, *World Bank Policy Research Working Paper,* (8820), p. 5[19]

[18] Participant 6

[19] The Uganda Electricity Generation Company on the right should read Uganda Electricity Distribution Company Ltd

The Standard Model

While forming these entities was substantial, the crux of change from these reforms involves the introduction of IPPs as private investors of electricity generation in the Ugandan market (Bhamidipati et al., 2019; C. Gore, 2017; Meyer et al., 2018). The liberalization process was guided by the 'standard model for power sector reform' that was adopted from the sector reforms of countries like the US, the UK, Chile and Norway (Meyer et al., 2018). The standard model reforms aim to make the power sector more competitive by enabling an environment conducive to private investment, rather than relying on the state-owned electricity supply (Meyer et al., 2018).

This model of electrification is driven by the least-cost planning model, which entails minimizing the long-term costs to society when meeting electricity demand (Berry, 1992; C. Gore, 2017; Meyer et al., 2018). It should be noted that these 'long-term costs' are meant to encompass social, environmental and financial costs, which differentiates it from cost-benefit planning (Berry, 1992).

For the ERA, a least-cost planning strategy meant integrating the needs of expanding rural electrification and attracting investors for new generation into the pricing of electricity. Until 2005, the Ugandan government "had been paying $200 million annually to keep electricity tariffs lower than the unsubsidized rate (C. Gore, 2017, p. "Electricity and Politics of Transformation", Para. 8)." Over the course of the reforms, the ERA proposed multiple times to increase the tariff so that funds could be invested to expand electricity provision beyond the 5% of Ugandans who had access (C. Gore, 2017). Though there was resistance from those who already subsidized access, in 2012 the ERA eliminated the subsidy and introduced a quarterly Automatic Tariff Adjustment [20], which has risen the tariff from $.09 per kilowatt-hour in 1990 to $US.19 in 2017 (Godinho & Eberhard, 2019). This modeling is an example of a *cost-reflective tariff*, which means that electricity prices reflect "the full recovery of economic cost of supplying electricity to a customer (Dugard, 2008)." As previously mentioned, these heightened costs negatively influence Uganda's electricity development.

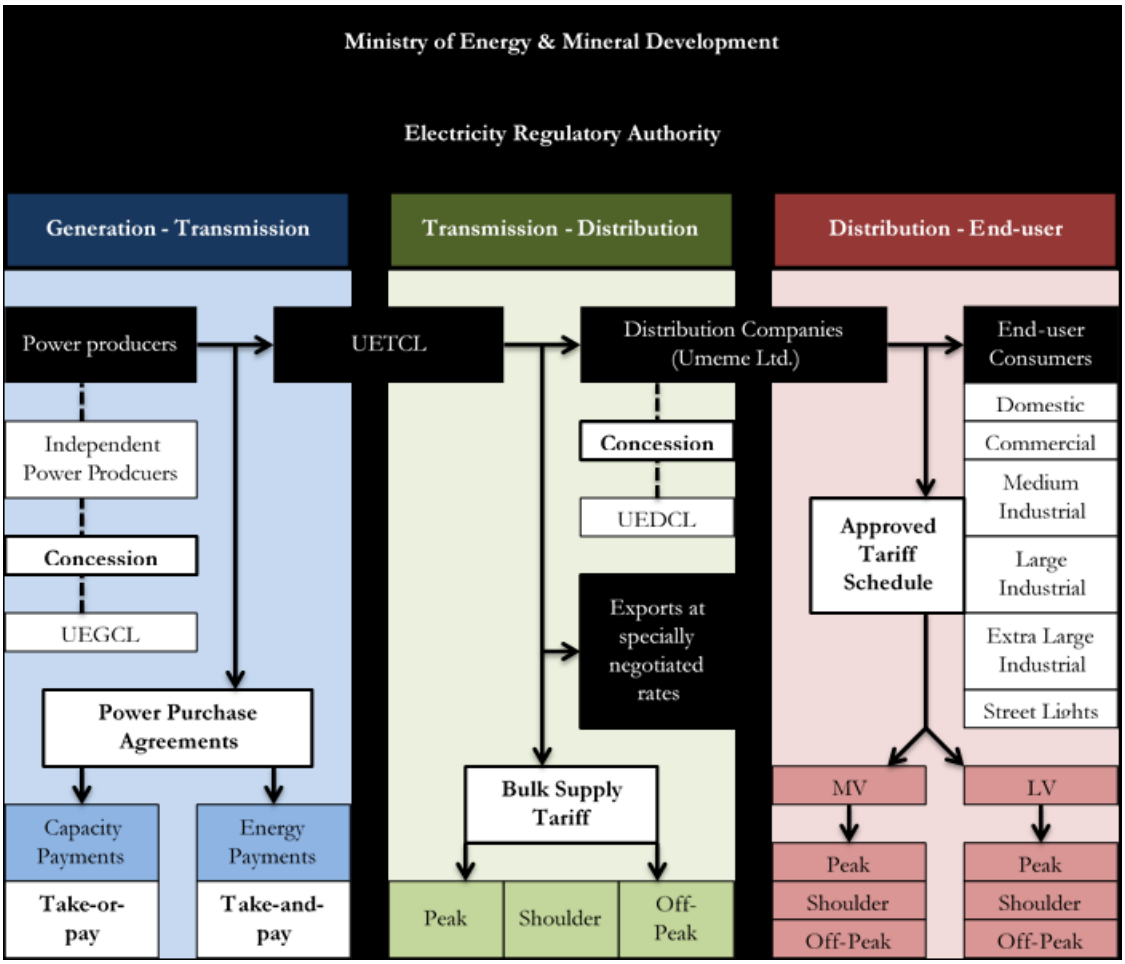
[20] The Automatic Tariff Adjustment utilizes macroeconomic parameters to determine the tariff price so that there is no political involvement in the pricing (Godinho & Eberhard, 2019).

Implementing cost-reflective tariffs was not only considered necessary for expansion but also to attract private investment into much-needed generation facilities (Godinho & Eberhard, 2019). Still, private companies would not invest into generation projects in a such a risky political and economic climate, unless they could guarantee profits (C. Gore, 2017). Unbundling the sector opened the way for Power Purchase Agreements (PPA), which function to mitigate risks beyond the investor or off-taker's control, such as inadequate natural conditions for production (e.g. low hydrology flows), low electricity demand, natural catastrophes, wars, etc (Bosshard, 2002). The PPA also provides a stabilized tariff, which protects investors from economic shocks, fluctuations in demand or political uncertainties (C. Gore, 2017). PPAs in Uganda are usually 20-year contracts between the 'off-taker' (the utility buying the power), in this case the UETCL, and the investor to guarantee the purchase of electricity being produced, regardless of risks; so-called 'take-or-pay' clauses (Bosshard, 2002).

A notion that resounds in the literature on PPAs is the lack of transparency on these agreements and the need for more research on how they influence electricity sectors (Bosshard, 2002; Jan van der Ven, 2020). This study will contribute to this research by analyzing how these PPAs played a central role in GET FiT's influence on Uganda's energy transition; expanded on in Chapters 5 and 6.

Figure 4.2

Current Structure and Main Players of the On-Grid Energy Sector of Uganda



Note: Current Structure and Main Players of the On-Grid Energy Sector of Uganda. Reprinted from "An Overview of Recent Development and the Current State of the Ugandan Energy Sector," by M. Jan van der Ven, 2020, *International Growth Centre* (Working Paper E-200-46-UGA-1), p. 9

4.2 LARGE HYDRO-ELECTRIC DAMS 'LOCK-IN'

First, it should be understood how Uganda's energy system became path dependent on large-scale hydroelectric dams. Given that Uganda was experiencing high electricity supply constraints, reforms strongly emphasized increasing generation (C. D. Gore, 2009; Mawejje et al., 2012). This exults the

'build-ahead-of-demand strategy'[21], which posits that increased generation will lead to increased consumption and eventually a sustainable sector (Hirschman, 2015). Thus, the standard model prioritizes IPPs, with long-term PPAs with the state utility (Meyer et al., 2018), as a means to provide this generation. This strategy of electrification was not favorable for small-scale renewable energy sources, due to the high costs of these technologies (C. Gore, 2017). Thus, bi-lateral agencies at the time of reforms were focused on cheaper large-scale hydroelectric dams (C. Gore, 2017).

In 2002, the opening ceremony for the construction of the Bujagali dam, a 250 megawatt (MW) hydropower plant was meant to be a turning point for Uganda's electricity development (C. Gore, 2017). Not only would the dam address Uganda's power supply problems but it would also promote private-led infrastructure development as the first IPP bid under the new model (C. Gore, 2017; C. D. Gore, 2009; Meyer et al., 2018). However, the problems of introducing the standard model into the context of Uganda quickly emerged. The non-transparent bidding process was racked with controversies and a host of environmental and social impact concerns resulted in the World Bank and the developer to abandon the project (Godinho & Eberhard, 2019; C. Gore, 2017). Though the World Bank eventually continued on the project, concerns of corruption and environmental degradation started a rift between the GoU and western donors (C. Gore, 2017; Meyer et al., 2018). This rift grew to a chasm when similar concerns arose over the proposed construction of the Karuma (600 MW) and Isimba (183 MW) dams (Meyer et al., 2018).

By the early 2000's, having developed a distaste for large-infrastructure projects in developing countries, western donors were urging the GoU to seek alternative energy sources to large-hydro dams on the Nile (C. Gore, 2017; Meyer et al., 2018). However, the President of Uganda, Yoweri Museveni, and the GoU had already set Uganda on an energy pathway that required large amounts of generated electricity. Uganda's comprehensive national development planning framework, Vision 2014, envisions "A Transformed Ugandan Society from a Peasant to a Modern and Prosperous Country within 30 years (National Planning Authority, 2007, p. iii)." Under a series of national

[21] Albert Hirschman first attributed this strategy to Uganda in 1967, regarding the construction of the Owen Falls Dam (now the Nalubaale Hydroelectric Power Station). During the time of colonialism, this strategy was meant to support exports for colonial firms and resulted in minimal electricity development; especially for the poor (C. Gore, 2017; Hirschman, 2015).

development plans, Vision 2040 sets the goal to have 41,738 MW of energy generated, and provide energy access to 80% of the population by 2040 (National Planning Authority, 2007).

While these ambitious goals would draw the GoU towards large-scale generation infrastructure, there are other interests that may drive these types of projects. Large infrastructure projects notoriously provide opportunities for rent seeking, poignantly reflected in the Bujagali controversy (Amundsen, 2019). Additionally, political theorists have noted the importance of centralized electricity development to president Museveni and his political party, the National Resistance Movement (Khisa, 2013; Trotter & Maconachie, 2018). Large-infrastructure projects and a sprawling national grid symbolize development and prosperity, which provides political power to those responsible for them (Amundsen, 2019; Trotter & Maconachie, 2018). Thus, Uganda faces a path dependency on large-scale hydro generation, in part, due to clientelist interests, the symbolic meaning of large-infrastructure, and the disciplinary neoliberalism inherent in the electrification strategy. Though, this is far from a conclusive list, as any one of these factors that may contribute to Uganda's locked in socio-technical energy regime would require additional studies.

Beyond the national development goals and political interests, the need for electricity generation was pressing. Electricity demand[22] was growing by 20% per year, or 30 MW per year (C. Gore, 2017), in the early 2000's, and the country's economic development hinged on a stable electricity supply (Bacon & Besant-Jones, 2001). Thus, when given the opportunity to award the Isimba and Karuma dams directly to Chinese firms, rather than have a competitive procurement process, Museveni took it (Meyer et al., 2018). Chinese loans and grants did not require the same conditionalities as the west and directly awarding contracts avoided lengthy procurement processes[23] (Eberhard et al., 2016; Meyer et al., 2018).

The entrance of Chinese donors as strong players in Uganda's electricity sector not only changed the GoU's relationship with western donors but also redefined the roles of electricity sector actors within Uganda. According to the Electricity Act of 1999, procurement of additional generation is the responsibility of the ERA (Meyer et al., 2018) and there is no mention of the MEMD having any

[22] 'What consumers could and would pay for'

[23] The GoU argues that direct awards are more cost-effective than lengthy procurement processes but this is disputed (Meyer et al., 2018).

authority to award generation (Meyer et al., 2018). Though these large projects were transferred to UEGCL to maintain compliancy, there is still little regulatory oversight regarding large-scale projects[24] (Meyer et al., 2018). Though the ERA's role in procuring large-scale projects was subverted by the entrance of Chinese donors, its opportunity to play a prominent role in diffusing niche small-scale technologies came with a series of droughts.

4.3 GET FiTs Window of Opportunity

In the mid-2000's, the electricity sector was already suffering from the delayed construction of the Bujagali dam (C. Gore, 2017). This was made worse by a series of droughts that occurred at the same time (Bhamidipati et al., 2019). Low water levels caused the only functioning hydroelectric dam to suffer, exposing an overreliance on large dams for electricity generation (C. D. Gore, 2009). The country was experiencing constant rolling blackouts and load-shedding, causing the minister of MEMD to proclaim an energy crisis in 2006 (C. Gore, 2017). Owing to the energy crisis, Uganda's economy began to shrink over several years (Godinho & Eberhard, 2019). To mitigate the effects on the economy, the government was forced to invest in expensive thermal diesel power plants that increased the electricity tariff and Uganda's greenhouse gas emission (Meyer et al., 2018). Made worse by particularly expensive thermal generation due to increasing global oil prices (Bhamidipati et al., 2019). Though electricity demand was high, the controversies surrounding the Bujagali dam and political factors surrounding the sector hurt foreign investors faith (Godinho & Eberhard, 2019). The drought-causing unstable electricity supply, coupled with rising global oil prices that made thermal energy economically unsustainable, opened the window of opportunity for GET FiT.

While the role of the ERA changed over the course of the reforms, the entity remained strongly involved in supporting small-scale renewable energy under the Standard Model. GET FiT was developed merely to assist the third iteration of Renewable Energy Feed-In-Tariffs (REFiT) being offered by the ERA. After opening the sector to investment, the ERA began receiving unsolicited small-scale IPP bids and ERA leadership quickly realized that they lacked the framework to bring these projects to commercial operation date (Bhamidipati et al., 2019). Additionally, investors

[24] Participant 5 & 6

hesitated to invest in small-scale renewable energy because of the uncertain returns on investment (Meyer et al., 2018).The ERA sought out a solution by looking at how other countries with hydropower technologies utilized funding mechanisms, which led to the ERA's REFiTs (Bhamidipati et al., 2019). Feed-in-tariffs are a policy mechanism that accelerates investment in renewable energy technologies by offering cost-based compensation and long-term contracts to renewable energy producers, which provides price certainty and helps finance projects (Couture & Gagnon, 2010). Modeling the feed-in-tariffs of Germany, the ERA implemented its first and second phase of the REFiTs from 2007 to 2011 (Bhamidipati et al., 2019). Like other mechanisms adapted from developed countries, both of these feed-in-tariffs failed to gain traction due to "sectoral problems [...], linked to the constraints of cost-reflective tariffs, high financing and project development costs, investor risks and lengthy regulatory procedures (Bhamidipati et al., 2019, p. 1325)." In fact, feed-in-tariffs failed to gain traction in most Sub-Saharan African countries that attempted them (Meyer et al., 2018). Had it not been for the intervention of the German Development Bank, this would likely have remained the case.

Though western donors had largely focused on large-scale generation over the course of the reforms, the German Development Agency continued to actively research small renewable energy, mainly hydro, potential in Uganda (Bhamidipati et al., 2019; C. Gore, 2017). Furthermore, having experienced advances towards green energy transition in their own country with the FIT, the Duestche Bank and the KfW Bankengruppe (KfW) was developing a Global Energy Feed-in-Tariff program to expand this model to developing countries (Bhamidipati et al., 2019). Recognizing the additional difficulties developing countries experienced with their feed-in-tariffs, the GET FiT program "aimed to upgrade existing national FiT policies through a country-specific combination of upfront payments, performance-based payments, risk insurances and attractive debt finance conditions (Huenteler, 2014)."

As can be seen from the first two phases of the feed-in-tariffs in Uganda and the application of cost-reflective tariffs, the ERA was committed to establishing the standard model and opening Uganda to small-scale renewable energy. Additionally, the leadership of the ERA and the KfW advisor in Kampala already had an established relationship when the GET FiT program was being

conceptualized (Bhamidipati et al., 2019)[25]. Therefore, when landscape tensions on the Ugandan electricity sector opened a window of opportunity, there had been sufficient coalition building between the KfW, the Deustche Bank, and the ERA to take advantage of it (Bhamidipati et al., 2019).

As Participant 6 noted:

> "The CEO **[of the ERA]** was convinced of small-scale renewables, there was a great project manager of KfW put in place and very strong personal relationships and they really pulled it off. And there are many situations where the environment was similarly favorable and it didn't happen."

Thus, GET FiT was formally introduced in 2012 as a partnership between KfW and the ERA to improve the sector for private investment in small-scale renewable energy in Uganda (Multiconsult-Norplan, 2013). Uganda would be the first country for the GET FiT program to be applied to[26]. The program was designed to "assist East African nations in pursuing a climate resilient low carbon development path resulting in growth, poverty reduction and climate change mitigation (Multiconsult-Norplan, 2013, p. 1)." Western donors and governments that contributed to the program include: KfW, Deusche Bank, Germany and the United Kingdom (Multiconsult-Norplan, 2013).

[25] Participant 6

[26] After initial success in Uganda, the program expanded to other sub-Saharan African countries, and now is being implemented in Mozambique and Zambia (Multiconsult & KfW, 2020).

5 NEO LIBERAL PROCESSES AND OUTCOMES OF GET FIT

This chapter outlines the data collected during the study. As discussed in Chapter 3, the methodology of this study was through a thematic analysis of GET FIT program documents and qualitative interviews. This chapter first provides a descriptive analysis of what the policies of the GET FIT were. Then, using a narrative analysis, shows how the processes of these policies resulted in certain outcomes.

5.1 BACKGROUND

When GET FiT was designed, Uganda's renewable energy sector and industry was suffering. Even though renewable energy potential and energy demand was high there were virtually no small-scale renewable energy plants in Uganda. Though reforms of the GoU and emerging renewable energy policies allowed access for investors, many would not commit capital to such uncertain outcomes. Furthermore, the renewable energy sector was characterized as being disjointed[27], having low capacity, and overly bureaucratic processes[28] (Fashina et al., 2018). This created multiple barriers for investors and developers, which GET FiT aimed to address.

Main Components of GET FiT

While GET FiT's long-term goals were to improve conditions for small-scale renewable energy investment in Uganda, the immediate aim was to address to the electricity supply-demand gap (Multiconsult-Norplan, 2013). According to the GET FIT report in 2013, this supply-demand gap was expected to steadily increase until the completion of the larger hydropower plants being commissioned (Multiconsult-Norplan, 2013). To avoid this impending energy crisis, GET FiT would fast-track the completion of 17[29] (< 20 MW) projects, about 170 MW in total capacity, to mitigate the supply shortage (Multiconsult-Norplan, 2013). The projects were meant to be completed in 3-5 years (Multiconsult-Norplan, 2013). The final renewable energy technologies to be used were hydro, bagasse, and solar; which was given a separate tariff and auction (Multiconsult-

[27] The renewable energy sectors remain disjointed and spread out amongst various entities.
[28] Participant 4
[29] The original goal was 15-20 projects

Norplan, 2013). Recognizing the need for rural electricity access and regional grid strengthening the projects were focused in rural areas of Uganda (Multiconsult-Norplan, 2013).

Led by the ERA, supporting members of other GoU entities, the KfW, and various western donors, GET FiT manifested as a "way to unlock commercial finance" for small-scale renewable energy (Bhamidipati et al., 2019; Multiconsult-Norplan, 2013). Thus, the main feature of the program was a front-loaded results-based premium payment designed to top-up Uganda's own REFiT, which would be paid out over the first five years of operation (Multiconsult-Norplan, 2013);. the GET FiT Premium Payment Mechanism (GFPPM). Projects that had already received a development permit from the ERA and qualified for the RE FiT tariff, could then apply for the GFPPM through a competitive request for proposal (Multiconsult-Norplan, 2013). Both tariffs were implemented through a 20-year standardized PPA that developers signed with the off-taker, the UETCL.

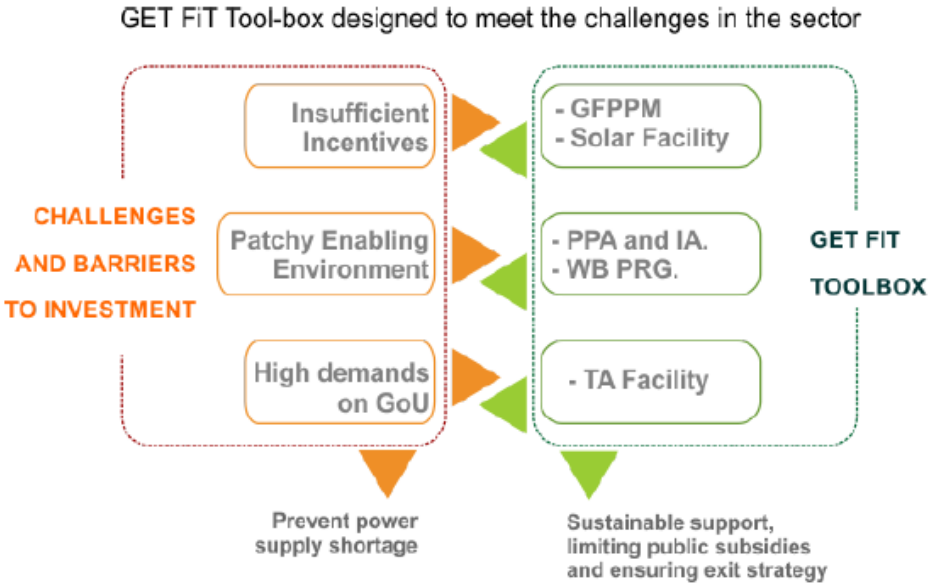
These project aims fit well within the ERA's ambitions for the sector, as they had already been attempting to encourage investment for small-scale renewable energy IPPs. The program was designed to address the following problems identified by program designers (Multiconsult-Norplan, 2013).

- **A patchy enabling environment for investment:** Investors were not investing in Uganda because of their perceptions of low "predictability, consistency, and transparency" throughout Uganda's electricity sector (Multiconsult-Norplan, 2013).
- **Insufficient incentives to encourage investment:** There was low financial incentive for investors because of the low tariff levels and uncertain/prolonged development processes (Multiconsult-Norplan, 2013).
- **High demands on the GoU:** The GoU's struggle to meet investors needs in terms of "predictable policies and actions, transparency, responsiveness, analytical capabilities, coherent negotiations and ultimately guarantee backup for payments and defaults (Multiconsult-Norplan, 2013, p. 8)" with limited resources.
- **Promoting renewable while minimizing public/end-user financial burden:** GFU established early on in reports that making the sector attractive to investors must be balanced with the "ability of Ugandan consumers to pay for their power (Multiconsult-Norplan, 2013, p. 8)."

As can be seen in Figure 5.1, the program was designed to directly address many of these bottlenecks.

Figure 5.1

GET FIT Program Tool-Box Designed to Meet the Challenges of Uganda's Energy Sector



Note: GET FIT program Tool-Box designed to meet the challenges of Uganda's energy sector. Reprinted from "GET FiT Uganda Annual Report 2013," by Multiconsult-Norplan, 2013, *GET FiT Uganda*, p. 9

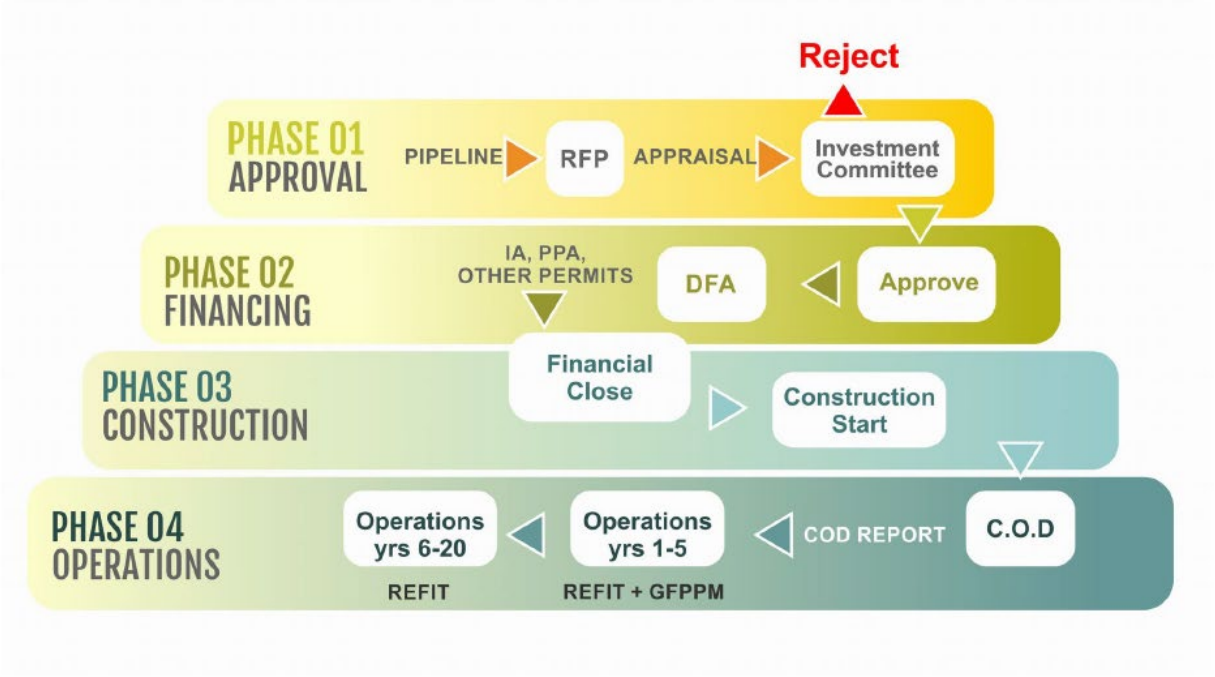
The GET FIT project cycle consisted first of a competitive bidding process with a Request for Proposal, where developers would select sites for their proposed generation plants and provide GET FiT with interconnection and feasibility studies[30]. The interconnection study only included connections made from the plant to the main grid. (Multiconsult-Norplan, 2013). Projects would then be assessed by the Implementation Consultant, Multiconsult, for their financial, technical, and environmental and social reliability (Multiconsult-Norplan, 2013). Once approved the projects went onto sign agreements with GET FiT to receive the subsidy, then moved onto negotiate PPAs and

[30] Other studies were required including environmental and social compliance study, etc.

Implementation Agreements[31] (IA) with the GoU (Multiconsult-Norplan, 2013). When construction was finished and the plant was operational, the project enters the operational phase. As can be seen in Figure5.2.

Figure 5.2

GET FIT Program Project Cycle



Note: A chart of the program cycle for projects receiving the GF funding mechanism. Reprinted from "GET FiT Uganda Annual Report 2013," by Multiconsult-Norplan, 2013, *GET FiT Uganda*, p. 18

The results-based nature of the GFPPM functioned to incentivize developers towards quick completion of construction and to ensure agreed upon kilowatt (kWh) production, as tariffs would

[31] Implementation Agreements: provide for direct contractual obligations and undertakings between the Government and the supplier or project company

be disbursed based on kWhs produced[32]. This results-based payment was meant to be a transparent means of allocating aid and avoiding the forms of corruption that have resulted from previous renewable energy subsidies (Dogmus & Nielsen, 2020). Risks of corruption were further mitigated by the payments going directly to the financers of the projects[33].

Though the added MW improving institutions capacity for small-scale renewable energy was the main goal of GET FiT, long-term sustainability of the sector was always in mind. While the contribution to this sustainability would change over the course of the program, the Technical Assistance Facility was a central effort. Through financed training of selected ERA staff members, development partner aimed to "enhance skills for RE FiT tariff modelling, least cost development planning, Solar PV Tender/ Revers auctioning, project due diligence expertise, strategic communication and negotiation (Multiconsult-Norplan, 2013, p. 12)."

Another contribution the program aimed at to improve long-term sustainability the renewable energy sector was the support of forming 'standardized documents' for developers. As 'bankable' PPAs and IAs are essential for the successful implementation of IPPs in the standard model, GET FiT put considerable effort into securing these (Bhamidipati et al., 2019). Investors later stated that without GET FiT's assistance in negotiating these documents they would likely not have implemented their projects due to the high legal costs (Baseline report).

<u>Logframe Approach of Program Design</u>

This program was designed in a "theory of change context", which manifested as a 'logframe' (Multiconsult-Norplan, 2013), or Logical Framework Approach. Designing an intervention through the Theory of Change context entails:

> "[...]mapping out or 'filling in' what has been described as the 'missing middle' between what a program or change initiative does (its activities or interventions) and how these lead to desired goals being achieved. It does this by first identifying the desired long-term goals and then works back from these to identify all the conditions (outcomes) that must be in place

[32] To enable commercial lending to projects, the GFPPM was disbursed to developers within the first five years of operation to provide "additional cash flow to project owners during critical (early) debt repayment periods (Multiconsult-Norplan, 2013, p. 10).

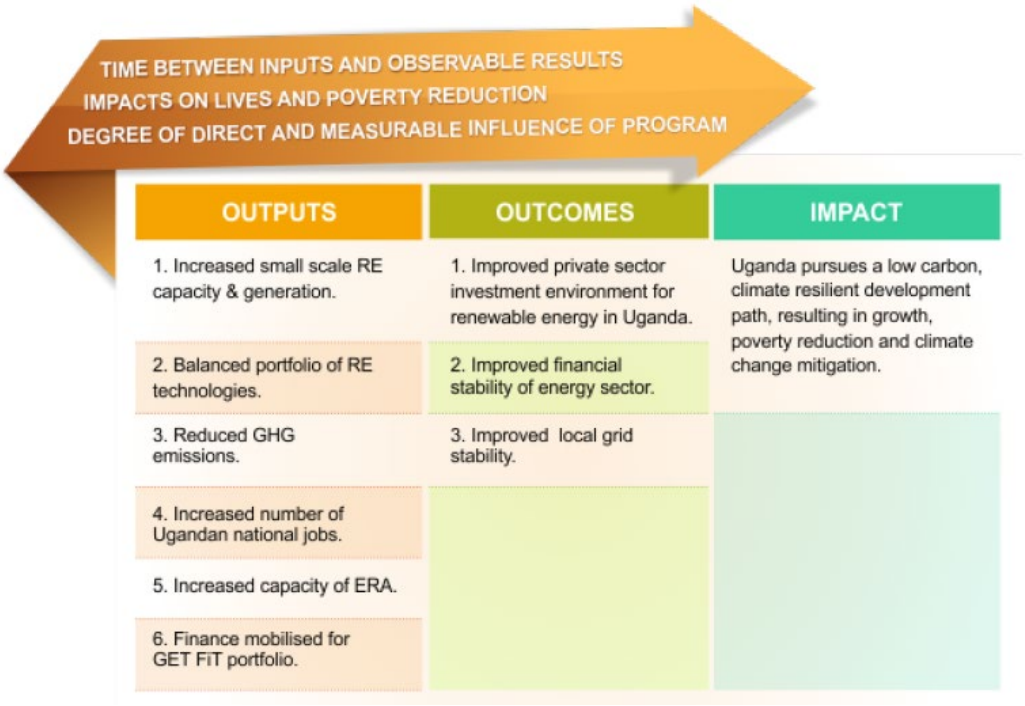
[33] Participant 6

(and how these related to one another causally) for the goals to occur (*What Is Theory of Change?* | *Theory of Change Community*, n.d.)."

As shown in Figure 5.3, GET FiT targeted its outputs and outcomes to result in the impact: "Uganda pursues a low carbon, climate resilient development path, resulting in growth, poverty reduction and climate change mitigation (Multiconsult-Norplan, 2013, p. 34)."

Figure 5.3

GET FIT Program Logical Framework Approach



Note: GET FiT's representation of the program design according to the logframe. Reprinted from "GET FiT Uganda Annual Report 2013," by Multiconsult-Norplan, 2013, *GET FiT Uganda*, p. 34

As Hansen & Nygaard (2013, p. 4) point out, the problems with the Logical Framework Approach are

> that donor intervention objectives, whatever the prevailing interpretation of their 'right' social and economic contents, are thought to be achievable, desirable and beneficial to all. The

second is the belief that a well-meaning, rationally constructed intervention in a social process will lead to such development and that it is in everyone's long-term interest to foster such interventions and development.

This critical policy analysis will focus most strongly on the neoliberal assumptions of these target outcomes on how they would lead to this intended impact and be 'in everyone's long-term interest[s]'.

5.2 PROCESSES AND OUTCOMES

As mentioned, there is a wealth of research and literature surrounding the successes of GET FiT. Researchers have heralded the program as a well-designed regulatory success that increased small-scale renewable energy generation, provided confidence to future investors and even stabilized the Ugandan grid (Bhamidipati et al., 2019; Godinho & Eberhard, 2019; Meyer et al., 2018; Probst et al., 2021). The program is praised for going beyond traditional renewable energy policy implementations, as well as including direct incentives and risk mitigation strategies.

5.2.1 Representation of Positive Outcomes

The most remarkable success of GET FiT remains the, currently, 14 completed small-scale renewable energy generation plants (122.4 MW), with three more plants under construction (36 MW) (Multiconsult & KfW, 2020). In total, these projects will add 158 MW of electricity to the Ugandan grid, with current projects making up 14% of Uganda's total generation capacity (Multiconsult & KfW, 2020). As shown in Figure 5.4, the final technologies selected were 14 hydropower, 1 bagasse, and 2 solar plants; all in rurally populated areas. Though some projects have experienced significant delays, which will be discussed shortly, most projects were completed in 3 to 6 years; an unprecedented speed in the context of Uganda (Meyer et al., 2018; Multiconsult & KfW, 2020). Additionally, a recent study suggests that the GET FIT projects helped improve grid stability throughout rural areas (Probst et al., 2021).

This added capacity has reduced the use of emission emitting thermal energy from supplying 40% of Uganda's electricity supply in 2011, to less than 5% in 2020 (*Energy Generated*, n.d.; Multiconsult & KfW, 2016, 2020). GET FiT claims that this reduced thermal energy can be confirmed by

UETCL members and "feedback from operations at GET FiT power plants [... which ...] take all the power they can get (Multiconsult & KfW, 2017, p. 67)."

It should be noted that even though thermal energy was greatly reduced over the course of GET FiT, emissions targets have not been met. Due to delays in project commissioning, the target of achieving an annual cumulative reduction of 4 metric tons of carbon-dioxide equivalent (MtC02e) from Uganda's electricity supply has only been met at 22% (.90 MtC02e) in 2020[34] (Multiconsult & KfW, 2020).

Figure 5.4

Map of GET FiT Project Portfolio's Geographic Locations in Uganda

[34] 2017 (15%) .27; 2018 (11%) .45; 2019 (16%) .65 2020 (22%) .90; respectively

Note: Map of the geographic locations of the currently completed GET FIT projects to. Reprinted from "GET FiT Uganda Annual Report 2019," by Multiconsult & KfW, 2019, *GET FiT Uganda*, p. 25

The larger goals of improving Uganda's renewable energy sectors have been given the most international attention. When GET FiT started, Uganda was ranked 132 out of 189 in the World Bank's Doing Business Index in 2014 (World Bank, 2013). Though that number has not greatly improved, there was a period during GET FiT when Uganda was ranked 2nd best for renewable energy investment in Africa and 7th out of 55 developing countries by the Bloomberg "Climatescope 2016[35]" (Meyer et al., 2018; Multiconsult & KfW, 2016). However, as will be discussed shortly this ranking dropped over the course of the program.

Beyond the consistent praise from the grey literature and international rankings, interviewed participants frequently pointed to the improved investment climate for IPPs as a resounding success. Two participants currently active in Uganda's energy sector referred to the program as "catalytic" [36] to private investment and the excess energy supply. In terms of private investment, participants say that the program acted as a "public relations for renewable energy investment in Uganda[37]." These views echo the institutional building goals within GET FiT, which embedded the partnered foreign donors and implementation consultant in the office of the ERA; as well as designed the program to synchronize with the existing RE FiT model.

Another component that was often referred to as the crucial[38] to GET FiT's success was the institutional and sectoral capacity building that took place under the Technical Assistance facility. As previously mentioned this facility was designed to build the capacity of the ERA through training by consultants and donors (KfW & Multiconsult, n.d.-b, p. 2)." The technical assistance component resulted in quicker licensing by the ERA for small-scale renewable energy projects (Multiconsult & KfW, 2017), as well as more streamlined processes, and simplified documents like the PPA and IA

[35] The Bloomberg Climatescope measures the renewable energy investment climate in countries worldwide, using several Key Performance Indicators that are reflected in the GET FiT Monitor & Evaluating framework
[36] Participants 4 & 5
[37] Participant 2, 5 &6
[38] Participant 1

(Bhamidipati et al., 2019). These results were meant to improve efficiency of the sector to reduce the overall costs to investors, thus the overall costs of electricity.

When regarding these successes as seen through GET FIT reporting and associated research, the program would have succeeded in its logframe outcomes. GET FiT "improved private sector investment for renewable energy in Uganda [and] improved the financial stability of the energy sector (Multiconsult-Norplan, 2013, p. 61)" through capacity building, streamlining processes and risk-mitigating components. However, in the next section of this chapter, I will explore to what degree these outcomes did result in the intended impact**: 'Uganda pursues a low carbon, climate resilient development path, resulting in growth, poverty reduction and climate change mitigation.'**

5.2.2 Obstacles to GET FiT

While the accomplishments of GET FiT deserve recognition, so too do the negative outcomes and how they manifested. As mentioned, the lack of recognition in the international community regarding these outcomes was a large motivator for this study. As one participant noted, "there was a high learning curve [39]" to this experimental program. This next section will explore the obstacles and dilemmas that caused the need for that learning curve.

Standardized Documents

As previously mentioned, one of the largest and earliest goals of GET FiT was to provide support to standardized documents**;** more specifically, to establish a bankable PPA. The framing, design, and balance of interests regarding this agreement are the crux of this study regarding disciplinary neoliberalism and negative outcomes. GET FiT had the challenge of balancing a range of stakeholders' interests, including various government entities in the Ugandan electricity sector (especially the MEMD), the project developers, commercial loaners, various foreign donors, and the World Bank. While the program integrated multistakeholder engagement, investor interests were the highest priority, as this program was intended to promote a better investment climate. This manifested most greatly in the struggled negotiations surrounding the standardized PPA.

[39] Participant 6

As early as 2013, the GET FIT was reporting standardized PPAs and IAs as being approved by Uganda's Solicitor General (Multiconsult-Norplan, 2013).The GET FIT Report in 2013 heralded this achievement as a key milestone, resulting from the "the culmination of dedicated efforts by all stakeholders, including extensive involvement of [Development Finance Institutions], over several months (Multiconsult-Norplan, 2013, p. 19)." The stakeholders involved considered the agreement so "balanced and bankable [...that...] The first PPAs ha[d] already been initialed after only hours of negotiation (Multiconsult-Norplan, 2013, p. 26)."

However, these early-reported 'hours of negotiation' towards accepted PPAs would soon lengthen into years. In 2014, the negotiations began again, this time between developers and the UETCL regarding the PPAs and IAs (Multiconsult-Norplan, 2014). These negotiations would stretch over the early years of the program, as all parties overcame 'legal and regulatory issues', which caused 'severe project delays' (Multiconsult, 2015, p. 3; Multiconsult-Norplan, 2014, p. 2). While there was a range of issues that led to these lengthy negotiations, the clauses regarding interconnection and deemed energy became a strong focus in the reports.

Interconnection Issues Emerge

As the first GET FIT report noted its pre-mature achievement of a standardized PPA at the beginning of the document, a different story was unfolding in the later sections regarding 'project risks'. For reasons that will be expanded on shortly, it was realized early on that completed projects would be unable to fully evacuate power from their selected sites if transmission and distribution lines on the main grid were not improved. GET FiT moved swiftly and determined which parties/GoU entities would be responsible for the interconnections.

As stated in the GET FIT Report (2013):

> Regarding the first layer of inter-connection of the power plants to the national grid, it is determined that for inter connection of less than 5km, the project developer is responsible for planning, financing and construction of the interconnection facilities. Beyond 5km, the GoU through its dedicated agencies assumes responsibility, i.e. for 33 kV connections this will be REA, for HV connections UETCL. The funding is to be mobilized by the GoU (Multiconsult-Norplan, 2013, p. 23)."

However, this allocation of responsibilities and funding to various GoU entities would have to be changed because of the risks of delayed connections resulting in 'deemed energy'.

Deemed Energy Clause

While reinforcing the grid in time for project completion had many implications for the success of this program, risks loomed larger for the Ugandan electricity sector in the form of potential 'deemed energy' payments. Recalling the function of PPA's 'take-or-pay' clauses from Chapter 4, the approved standardized PPA was meant to mitigate risks to investors in the case power could not be evacuated from the site, owing to circumstances outside the investors' control. Included amongst these circumstances were delays in interconnection lines. If the improvements to the grid lines were not completed by the project's operation date, this would result in 'deemed energy'. "Deemed energy is energy which could have been produced at a generating facility but is not due to insufficient grid capacity (Multiconsult-Norplan, 2013, p. 19). Considering that almost all of the accepted projects were facing interconnection risks, these deemed energy payments "could become a major financial burden (Multiconsult-Norplan, 2013, p. 36)" for the UETCL.

5.2.2.1 Interconnection Issues

Discussing interconnection issues with participants was a somewhat difficult task. Not only did many of the participants not have any direct experience with these issues[40] but the causes of the interconnection bottlenecks were complex. This point seemed particularly poignant when Participant 1 responded to questions about this topic with an exasperated laugh. However, as this is a critical policy analysis, I will first point to a flaw in the design of the program itself. To reiterate a point that resounds through this paper, the program was neoliberally designed and modelled after interventions in developed countries. Looking at the project cycle in the background section of this paper, note that the bidding process was competitive; meaning that developers chose the sites for the generation plants based on their own feasibility studies. Neither developers, nor the program's

[40] A limitation of this study is that no developers or GF program members involved with solving the interconnection issues were interviewed. Though several people were repeatedly contacted regarding this topic, none responded.

designers considered the national grid when choosing the sites. The problem with this form of procurement is highlighted well by Participant 1:

> "[...] we did a competitive process. We didn't know where these sites would pop up. You know you can have different types of auctions. [...] We had an open process [...] And that poses particular challenges that we now are well aware of. Back then, we just went for it and then halfway through the initial implementation phase, the UETCL is never going to manage to rehabilitate certain sub-stations."

This was especially problematic for a group of generation projects that happened to be clustered in a mountainous region with low local/regional grid capacity (Bhamidipati et al., 2019).

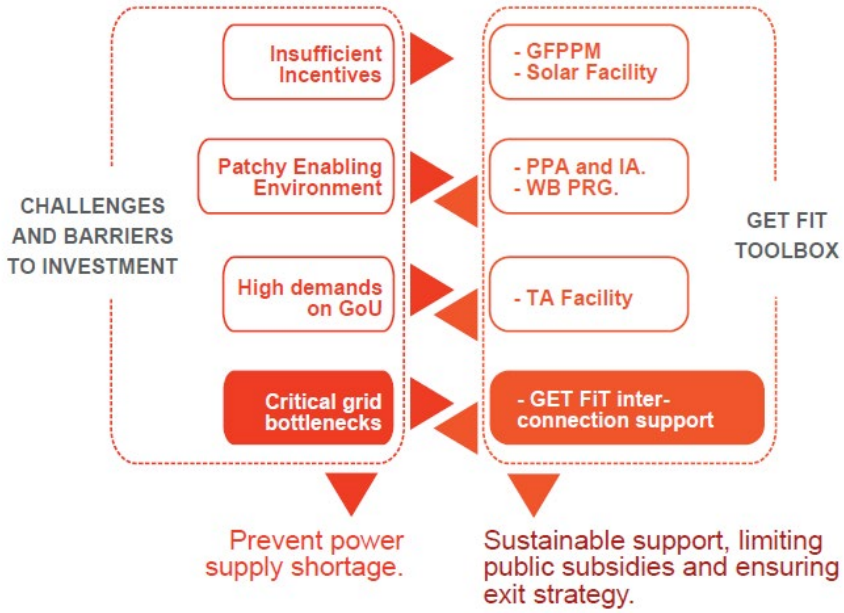
Another factor that contributed greatly to this issue was the lack of stakeholder engagement with the UETCL early on in the program (Bhamidipati et al., 2019). Though it is only speculation, the reason for this oversight likely lies in the array of stakeholders that were already being engaged due to Uganda's disjointed renewable energy sector. Nonetheless, the UETCL presents itself as a unique actor in this program, as it is the only state-owned entity in the electricity sector and the sole off-taker for electricity transmission. Bhamidipati et al. (2019) points out that not bringing the UETCL on board at the beginning of the project design also contributed to the lengthy PPA negotiations.

GET FIT's Interconnection Support Component

As the depth of the interconnection issues and risk of deemed energy payments emerged, the UETCL was hesitant to sign PPAs under the previously stated issuance of interconnection responsibilities (Castalia, 2016). This was likely because of the harm deemed energy payments posed to Uganda's electricity sector (Castalia, 2016). Thus, in 2015 GET FiT added an 'interconnection component' to its design (Multiconsult, 2015); as can be seen in Figure 5.5. The interconnection support was designed to complement other grid infrastructure programs by filling the gaps of existing support (Multiconsult, 2015).

Figure 5.5

GET FiT Tool Box with Interconnection Component Added



Note: GET FIT program Tool-Box redesigned to meet the interconnection challenges of the GET FIT projects. Reprinted from "GET FiT Uganda Annual Report 2015," by Multiconsult, 2015, *GET FiT Uganda*, p. 12

Through a Joint Interconnection Task Force[41] that was formed in 2014, it was determined that $90 million would be needed to for infrastructure investment; an amount that GET FiT reports do not confirm receiving (Multiconsult, 2015). However, donors undoubtedly contributed $22.5 million to two interconnection projects and technical assistance support to the ERA for knowledge transfer of

[41] "The Joint Task Force (JTF) is comprised of technical experts from ERA, UETCL, Uganda's Rural Electrification Agency (REA), and the private distribution company Umeme, with the GET FiT Secretariat in an observatory role. The JTF is chaired by ERA (Multiconsult, 2015, p. 32)."

compliance monitoring and wheeling agreements [42] in relation to these interconnections (Multiconsult & KfW, 2016).

The largest challenge to the interconnection component was the sheer scale of the endeavor. The lines that needed to be built or reinforced spanned hundreds of kilometers into rural and mountainous regions. Additionally, the entities responsible were already overburdened and under-resourced. Even more obstructive was the temporal challenge. As Participant 1 stated:

> "We also realized that grid expansions are not something that's going to be done in a week. Especially if its donor financed, you need time to finance a feasibility study. You need time to procure it, it needs to be implemented, it needs to be reviewed, then you need to secure funding for the consultant for the design. Then that consultant comes on board, then you need to procure the contractor to build it. So, you're talking about 4-5 years best-case. Those are all challenges we initially, significantly underestimated."

Bear in mind that electricity transmission infrastructure requires environmental and social compliance; especially regarding *project affected persons* that could be displaced[43]. Additionally, the electricity sector for Uganda operates disjointedly, which causes problems on several levels: miscommunication causes overlap, bottlenecks occur, and opportunities for misappropriated funds arise (Office of the Auditor General, 2021)[44].

Another problem of the unbundled electricity sector derives from their sources of funding and how that funding should be applied. The source of funding for different entities varies, as are the responsibilities they have towards IPPs. When the PPAs were re-negotiated in 2014, earlier responsibilities towards interconnections were amended. The UETCL pointed out that they are only responsible for implementing High-voltage lines in rural areas, while the REA is responsible for Medium-voltage lines and any deemed energy payments resulting from late connections

[42] (1) Compliance Monitoring: A consultant was hired to provide TA for the ERA to monitor the status of distribution and transmission networks to ensure efficient maintenance, operation, and investment into these networks. (2) Interconnection Code and Wheeling Agreement: A consultant was hired to provide TA for the ERA to develop an interconnection code and a wheeling agreement. "The interconnection code will address technical requirements for the interconnection of small-scale generators, which are insufficiently covered by the existing grid code (Multiconsult, 2015, pp. 34–35)."

[43] Participant 6

[44] Participant 4

(Multiconsult-Norplan, 2014). However, a significant amount of projects also required High-voltage lines, which still placed a burden of responsibility for interconnections and deemed energy payments on the UETCL.

While the reason stated in the reports for this changed responsibility matches the GoU's electricity legislature, there may have been other motivations for certain entities wanting to take responsibility. As stated in Chapter 4, the REA acquires 'significant external contributions' for its funding, mainly from foreign donors, while the UETCL and ERA do not. Furthermore, the REA has repeatedly been mired in controversy surrounding corruption allegations (IGG, 2020; "Inside Story of Rural Electrification Agency Instrigue, Fights," 2020). This might explain the REA's motivation to push for responsibility of these lines, as they would be large recipients of the Interconnection Support Component Funding. As Participant 5 states:

> "The sister agencies, REA, were saying that for them they were ready to construct…because most of these projects were located in very remote areas and these remote areas could easily be traversed by low-medium grid lines that were constructed [by this] particular agency. But also the agency wanted to take advantage of that. To connect some rural communities as part of its electrification agenda in the rural areas. So the motivation was to connect the plant to the grid but also to be able to give electricity to the communities around the project."

Though the reasoning by the REA in taking on these projects is sound, later results of them mismanaging certain projects brings this into question; this will be explored in Chapter 6

Despite adding the Interconnection Component, projects began to experience severe delays to their interconnections from the moment the first generation of plants became operational. Mapping the specific projects that were affected by delayed interconnections quickly became a needless exercise. Put simply, almost every project required an update or construction of an interconnecting line by a GoU entity and almost all projects suffered deemed energy because of these lines' delayed implementation. Delays to line construction/reinforcement were largely the result of the sectors low capacity to accommodate these projects. Capacities that were already strained with the construction

of the Karuma and Isimba hydro-dams on the Nile, as well as other grid projects around the country[45]. However, there were certain instances of corruption and mismanagement that are worth noting.

Controversies Surrounding Delays

As stated before, participants were usually hesitant or avoidant when discussing GET FiT's interconnection issues; especially regarding perspectives on the GoU entities that were most at fault. However, after finding a participant with forthright viewpoints and reviewing news articles, reports and grey literature, the direct causes of certain delays became clear.

The most damaging interconnection project delay was the Nkenda Substation. As the GET FIT Report highlights:

> "The Nkenda substation in Kasese is pivotal to the electrification of Western Uganda and for the power evacuation of existing and pipeline small hydro power projects in the area. Six GET FiT projects with a cumulative generating capacity of 48 MW will be evacuated through Nkenda substation (Multiconsult & KfW, 2016, p. 46)."

Considering that these projects made up 28% of the total MW capacity GET FiT aimed to add to the national grid, it's clear why this substation was pivotal. Initially, the UETCL oversaw this station upgrade. Like most sectors in the Ugandan government, the UETCL is part of a political network that treats it as a resource for more than just its sectoral capabilities.

Causes for the delays on the Nkenda substation, or any other interconnection project, were usually not given in the GET FIT reports. In 2017, there was an allusion to the UETCL's "lack of funds (Multiconsult & KfW, 2017, p. 32)" regarding a smaller line. However, when asked about the interconnection problems, Participant 6 shared this perspective:

> "It's Africa right. There was one critical sub-station called Ukenda – Kasese [**Nkenda**[46]]. That was critical because the sub-station was essential for the evacuation of 5 or 6 hydro stations in the Rwenzori Mountains. According to the standard agreements between KfW, and I assume it's the same for other development agencies, the government has to pay for the resettlement costs. Because, I don't know which elections they were, maybe 2016 or so, the

[45] Participant 1

[46] Though the participant identified this substation as 'Ukenda-Kasese', the UETCL grid maps identified it as Nkenda.

> [National Resistance Movement] had basically sacked all funds out of the system. They literally didn't have a penny to print a page. UETCL couldn't print pages because they didn't have money for paper. And suddenly all the funding they had for compensations payments were not available and suddenly this whole process stalled and suddenly investments of $100 million were in jeopardy. So, negligence and the particularities of governance in countries like Uganda."

This participant was correct about it being the 2016 elections and was likely not exaggerating about the UETCL's lack of funds. Owing to particularly competitive elections in 2016, it is estimated that UGX 2.4 trillion (over $650 million) was spent by political parties and candidates (Kayinda & Muguzi, 2019). Of this, the NRM party and Yoweri Museveni potentially accounted for over 80% of this expenditure ("Museveni Spends Shs27b on Campaigns in 2 Months," 2016). Though there's no direct link of these funds to the UETCL budget, both the president and NRM members refused to disclose all the sources of their campaign funds (EUEOM, 2016). Whatever the cause of the UETCL's sudden lack of funds in 2016, the entity's inability to complete its projects had a significantly negative impact on GET FiT.

Another GoU entity responsible for these line delays was the REA. As previously mentioned, there may have been ulterior motives to the agency's push for these interconnection projects. The REA is strongly characterized by corruption allegations, infighting, and general mismanagement of resources and funds ("Inside Story of Rural Electrification Agency Instrigue, Fights," 2020). Though there were likely risks to including the REA in GET FiT's Interconnection Support component, there were still incentives to do so; as can be seen in Participant 3's statement.

> "We were duped by one of the agencies of government. REA, which is responsible for extending power to rural areas. It received money from donors and government and all that. To reduce the burden on the public, we thought they could make the costs of the interconnection and over time when projects became many, I think their costs were not **[...]."**

Though the participant would not explicitly state the exact meaning of this comment once pushed, Participant 6 expressed a similar viewpoint; hat the REA seeks out projects to gain more funding from donor agencies[47].

No matter the REA's motivation, it's now clear that the agency was not fit for the task. Several of the REA's assigned interconnection projects were severely delayed (Multiconsult & KfW, 2018). Additionally, a report by the Inspectorate of Government of Uganda, the independent anti-corruption institution of the government, directly referenced the mismanagement of transformer and power-line reinforcement that caused deemed energy from two GET FIT generation plants (Wake & Muvumbe) (IGG, 2020).

5.2.3 Resulting Outcomes

Before establishing the negative outcomes of these issues and policies, an even larger issue loomed over GET FiT. As mentioned, GET FiT's main goal was to meet the growing supply-demand gap in Uganda with electricity generated from small-scale renewable energy sources. However, demand for electricity did not increase as expected and by 2017, before the Isimba and Karuma dams were even operational, the country was facing potential energy surplus (Godinho & Eberhard, 2019; Multiconsult & KfW, 2017). This made the risk of the UETCL being financially burdened with deemed energy payments by GET FIT projects even higher, considering that they would be required to pay for energy regardless of demand (Multiconsult & KfW, 2017).

Much of the grey literature and research that praises GET FiT, focuses on a specific phase of the program; the time between the projects' signing of PPAs and their *commercial operation date*. As Participant 6 puts it:

> "Having supported GET FIT we have a euphoric phase up until 2015. But ever since then, things...the story doesn't have the perfect happy ending it would have deserved. There's good outcomes on many fronts but you know, the overarching objective of GET FIT has not...yeah."

The overarching objective the participant is referring to deals with the proliferation of small-scale renewable energy and an improved investment climate in Uganda. Both were greatly impacted by

[47] Participant 6

the energy surplus. When the first GET FIT generation plants were coming online in 2017, this 'euphoric phase' was certainly at an end. Fluctuations in electricity demand had particularly damaging effects on the GET FIT project's mini-grids. According to an interview with Ugandan energy planners, Gore (2017) writes that the mini-grids required for the GET FIT projects caused difficulties for the electricity sector. As has been established, some areas experienced such high demand that the grid was unable to sustain the demand. However, in other instances "demand has been very low, yet the private firm has guaranteed financial return; and in another case, the price of electricity was too high for residents so they chose to disconnect (C. Gore, 2017, p. 3497)." Though this is only a secondary account, the amounts of deemed energy from the project reflect this statement; which will be presented shortly.

The GET FIT reports present this turn of events in a way that reflects the program's priorities and design. The 2017 GET FIT report begins by highlighting the successful building of the small-scale renewable energy investment climate but quickly turns to the problem of surplus energy (Multiconsult & KfW, 2017).

> "From the Government's perspective this represents a major financial risk, as excess power will generate deemed energy payment obligations to plant owners. As a result, UETCL has become reluctant to executing new PPAs with project developers in the wake of GET FiT, and new investments into on-grid renewable energy has slowed down. (Multiconsult & KfW, 2017, p. 66)"

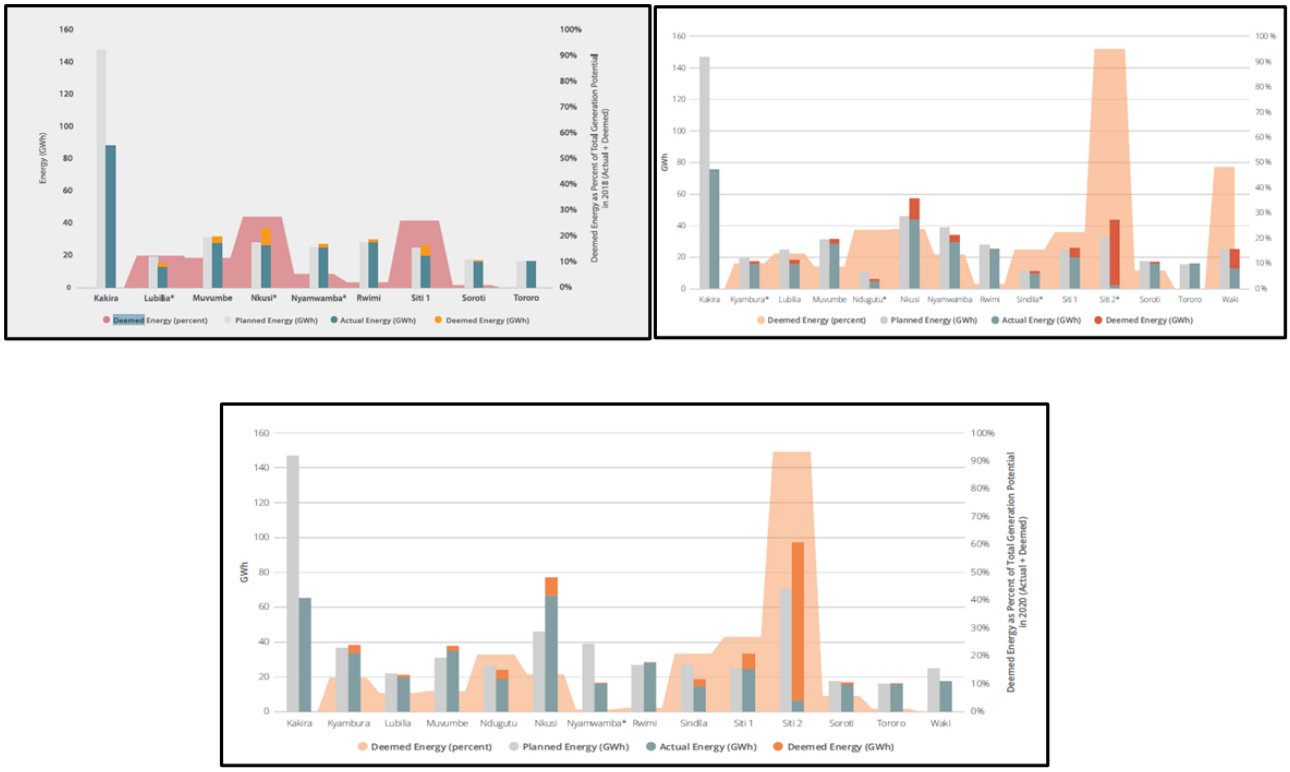
Presenting this risk as the government's perspective of their own financial burden, reflects GET FiT's framing itself as a protected niche outside the Ugandan energy regime. However, this risk extended beyond the government.

5.2.3.1 Deemed Energy Payments

The risk of deemed energy was recognized in the first GET FIT report and rose continuously as interconnection projects delayed and energy surplus rose. In 2017, the risks were brought into reality when the first operational plants reported up to 25% of their electricity production as deemed energy because of grid problems (Multiconsult & KfW, 2017). As can be seen in Figure 5.6, as more projects became operational, the deemed energy reports increased.

Figure 5.6

Graphs of Deemed Energy Percentages from GET FIT Projects from 2018-2020



Note: Collected graphs showing the amounts and percentages of deemed energy from GET FIT projects [Upper left chart 2018; Upper right chart 2019; Lower chart 2020] Reprinted from "GET FiT Uganda Annual Report 2018-2020," by Multiconsult-Norplan, 2018-2020, *GET FiT Uganda*, p. 47; 49; 53

Due to intense flooding in 2020, the GET FIT portfolio provided less than half of its targeted 760 gigawatts (GWh) to the national grid (Multiconsult & KfW, 2020). However, even when producing less than half of the targeted amount, 25% of the total GWh production was still non-deliverable deemed energy. Considering that the average tariff paid by UETCL to small-scale hydropower plants is approximately USD 7 cents/kWh, then this would have cost the government roughly $10 million (*Generation Tariffs - ERA - Electricity Regulatory Authority*, n.d.; Jan van der Ven, 2020). Though this may seem a trivial amount compared to the over $400 million GET FiT attracted, this is merely the calculated payments for one year. Furthermore, this amount is sure to rise as several more plants

will contribute an additional 45 MW of generation once operational (Multiconsult & KfW, 2020). However, the larger risk to the UETCL may not be the deemed energy payments to the GET FIT projects but to the projects added afterwards that used the standardized documents the program established.

6 TRADE-OFFS IN NICHE-BUILDING STRATEGIES

While the previous chapter outlined the processes that resulted in negative outcomes for GET FiT, this section will expand on the larger influences these outcomes had. By employing a qualitative analysis, this section will establish how the neoliberal assumptions and principles of GET FiT design resulted in trade-offs that negatively influenced the Ugandan energy system.

6.1 RISKS TO THE GOU

Though the United Nations Environmental Program considers programs like this one a 'triple-win' for investors, consumers and institutions, there are invariably trade-offs (Newell & Phillips, 2016). The neoliberal design of GET FiT necessitated that it prioritizes the interests of the investors. However, there was rarely any recognition in the reports or interviews regarding the types of trade-offs required to secure a favorable investment climate.

First, the influence of the deemed energy payments on the GoU's public debt continues to be an issue for the sector. If the Ugandan government was not aware of the risks deemed energy payment clauses pose to the electricity sector before, they are quickly gaining that awareness now. Scholars like Meyer et al. (2018, p. 86) warned that "even a temporary excess supply of the expected scale has undoubtedly the potential to drive the offtaker, UETCL, to bankruptcy in a matter of months."

A 2020 audit report by the Ugandan Auditor General of the UETCL, may indicate that this warning is coming to fruition. This report indicated that as of 30th June, 2020, the cumulative outstanding amount of deemed energy was UGX 110.79 billion (USD 31.2M) or roughly 9% of the total electricity purchased that year (Kasemiire, 2021; Office of the Auditor General, 2021). Though a majority of this was being paid to the 41 MW Acwa hydro power project, the report specifically mentions several of the GET FIT projects as well (Kasemiire, 2021; Office of the Auditor General, 2021). In all instances, these deemed energy claims are "attributed to inadequate transmission infrastructure, line outages and insufficient demand in some instances (Office of the Auditor General, 2021, p. 31)." The report acknowledges that charging deemed energy through the consumer tariff "negatively impacts consumer prices, which may be a hindrance to electricity demand (Office of the Auditor General, 2021, p. 31)". The negative effects of these deemed energy payments have

prompted the government to stop the inclusion of deemed energy clauses in new PPAs (London Economics & Grid Advisors, LLC, 2021). As mentioned in Chapter 3, a great limitation of this study is being unable to confirm the extent to which GET FiT projects' deemed energy payments contributed to this problem. Though a basic analysis of tariffs and deemed energy was done through public information, there was no way to confirm the exact amount of deemed energy payments the GET FiT project received, as this information is not public.

The removal of the deemed energy clause from the standardized PPA has been lamented by researchers, reports on the sector and participants alike (London Economics & Grid Advisors, LLC, 2021; Meyer et al., 2018)[48]. Regardless of the risks these deemed energy clauses pose to the sector, it is seen as a step backwards for electricity development under the standard model. Meyer et al. (2018) finds it 'ironic' that the private sector is now being blamed by the GoU for these deemed energy charges, placing the blame for the deemed energy payments on the delayed interconnections. However, I argue that more could have been done to allocate risks away from the GoU and consumers.

World Bank Payment Risk Guarantee

Early in the program, in 2014, the World Bank offered a Partial Risk Guarantee (PRG) to support small-scale renewable energy projects in Uganda (Multiconsult-Norplan, 2013). The World Bank was offering to commit $160 million to provide to risk-mitigating components, including: (1) "Facilitate the provision of short term liquidity support to the benefit of UETCL's Power Purchase Agreement Obligations; (2) Termination compensation for events of governmental/utility default under the PPA/IA (Multiconsult-Norplan, 2013, p. 12).

Despite the growing risk of deemed energy payments to the GoU, the World Bank PRG, which would have sufficiently covered deemed energy payments, was not used. When this was realized the GET FIT reports stated:

> "Due to *various reasons* [emphasis added], GET FiT developers did not utilize the PRG facility. In some aspects, this can be viewed as positive, indicating that the investment climate (hereunder the regulatory, technical and financial frameworks) of the Ugandan power sector

[48] Participant 6

was sufficiently reliable and *stable* [emphasis added] for developers to manage without it (Multiconsult & KfW, 2016, p. 48)."

Upon analyzing the outcomes of the interconnection issues and deemed energy payments, this statement has proven false. GET FiT's 2016 performance review stated an alternative reason for why the PRG may not have been used: "The commercial lender providing project financing said that PRGs were too cumbersome, and that other risk coverage was preferable (Castalia, 2016, p. iii)." Additionally, amongst the 17 projects, only two investors were even qualified to apply for the PRG in the first place (Castalia, 2016).

The reasons behind the PRG withdrawal likely involve the complexity of donor financing. However, a limitation of this study was not being able to confirm why the World Bank PRG was not used. However, this is not the only time a World Bank PRG has been removed from a Sub-Saharan African project. In 2012, the World Bank purposefully withdrew a PRG for a large windfarm in Kenya, owing to concerns over electricity consumption rates and interconnection (Newell & Phillips, 2016). This reflects a larger trend of questionable risk allocation in green transformations throughout the region.

6.2 Risks to Public/End User's Financial Burden

As the public Ugandan electricity consumer is inextricably linked to the financial burdens of the electricity sector, this group's interests were the most neglected. Though the influence of deemed energy payments on the public/end user's financial burden has been mentioned, there are other ways that modelling the program after the standard model resulted in this outcome. GET FiT was strongly incentivized to allow the REA and UETCL to implement the interconnection projects because otherwise the developer cost would have to be reflected in the tariff. Unfortunately, these deemed energy payments will now be reflected in the consumer tariff anyways. When I spoke with someone who worked for the ERA and who was deeply involved in the project, it was their opinion that the developers should have been responsible for the interconnections all along. When I asked about what this would have meant for the consumer tariff, they replied:

"I think for me, because even then we are paying for deemed energy. Now why should you prefer going to pay for deemed energy when actually you can pay a reasonable tariff to

> actually get the thing on board. Now we are paying for power we are not able to evacuate, so which is which. In principle for me, it's a better solution to the public because we are able to export this power, eventually. You see. Than paying for what...[49]"

This idea of shifting the responsibility of connection onto the developer is further reflected in the Lessons Learned brochures produced by GET FiT (KfW & Multiconsult, n.d.-a). While this is a sound line of reasoning—consumers pay more but they are using the energy—it assumes that consumers would be able to afford the increased tariff. The price of electricity remains a key barrier to energy access in Uganda (C. Gore, 2017; Kakumba, 2021). In all my interviews, only one participant acknowledged the extent to which cost-reflective tariffs potentially hamper electricity access, rather than focusing on cost-reflectiveness. Though even this participant yielded that "for a market that's in its nascent stage it's very important for early investors to have a secure market and to be able to carry in its operations and maintenance [50]."

There is no easy solution to the problems of the Ugandan electricity sector, nor are the many viewpoints without nuance. However, a resounding sentiment that was expressed by participants[51] and throughout the literature is the idea that Ugandan electricity consumers who are already connected display entitlement to having a lower price of electricity. Even though the Ugandan electricity tariff is nearly double what most consumers pay in the developed world, while the population has one of the lowest GDPs per capita in the world (*GDP per Capita, PPP (Current International $) | Data*, n.d.).

Despite this outcome for public consumers, very little is said about protecting consumer interests throughout the reports. Even though one of the main problems GET FiT was designed to address was 'Promoting renewable while minimizing public/end-user financial burden'. While other problems that arose throughout the program implementation, like interconnection problems, were added to the 'GET FiT Toolbox', considerations over unaffordable electricity tariffs were never formally addressed.

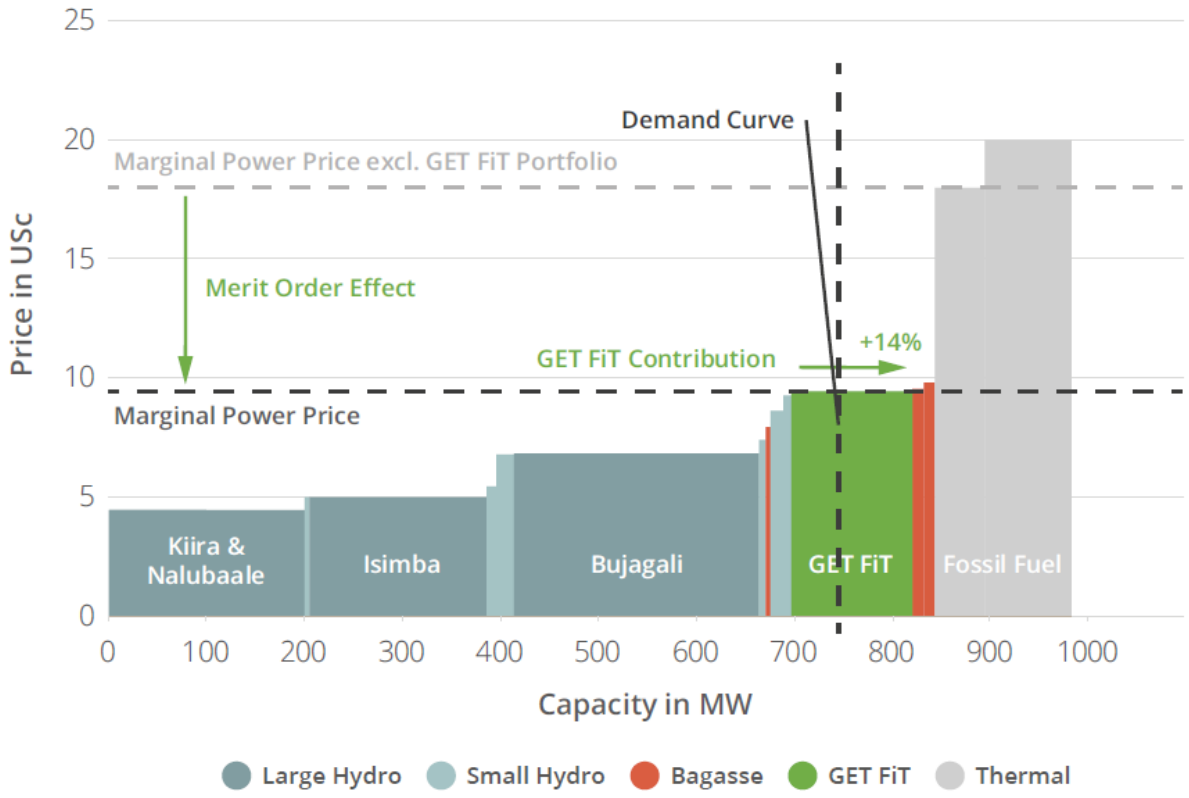
Merit Order Effect

[49] Participant 5
[50] Participant 4
[51] Participant 3 & 6

While this problem is not given a direct intervention tool, the reports address this with a pricing analysis mechanism, the 'merit order effect' (MoE) (Multiconsult & KfW, 2018). The MoE is a way of ranking available sources of energy based on the ascending order of price (marginal price[52]), where the assumption is the renewable energy sources will deliver cheaper energy because of their lower cost of production (Acemoglu et al., 2017; Multiconsult & KfW, 2018). The GET FIT report highlights the MoE in 2020 in Figure 6.1.

Figure 6.1

Schematic Representation of the Merit of Order Effect of GET FiT



Note: GET FiT's schematic representation of how the MoE should lower costs. Reprinted from "GET FiT Uganda Annual Report 2020," by Multiconsult & KfW, 2020, *GET FiT Uganda*, p. 25

[52] The marginal price refers to the incremental price of electricity as generation is added, rather than the average price.

While the GET FIT portfolio's added generation likely reduced the need for expensive thermal energy, the report acknowledges that this is only a 'schematic representation of the effect' (Multiconsult & KfW, 2020). This representation does not account for the deemed energy payments that raise prices, the 7 MW of guaranteed generation in thermal energy PPAs[53], or the effects low demand has on end-user tariffs (Multiconsult & KfW, 2020). Since the first GET FIT projects began operating the consumer tariff has risen from UGX 718.9 (.20 USD) to UGX 751.7 (.21 USD) in 2020 (*Tariffs*, n.d.). Though there are a confluence of factors, including the Covid-19 pandemic, that may have raised prices this raises questions about the assumptions of the MoE; even more so when applied to Uganda. One study on the MoE suggests that oligopolistic competition in the power supply of diversified energy portfolios may neutralize the MoE (Acemoglu et al., 2017). In Uganda, the power supply is transmitted by a monopoly and demand is constrained by high pricing, which suggests that the MoE may be neutralized in a similar manner. Though, this requires further study to confirm.

Generation over Access

According to GET FiT Logframe, one of the final impacts of the program would be that Uganda's 'climate resilient development path' would 'reduce poverty.' Though it is not explicitly stated in the reports, the assumption is that the program designers adhered to the theory that energy access reduces poverty (C. Gore, 2017); which aligns with the principle of a just transition. However, like the GoU, the focus for GET FiT was always centered around MWs produced, rather than access granted. The structure of the Ugandan electricity sector would not have allowed for GET FIT to include customer connections in program design[54]. Still, the assumption that added generation would lead to poverty reduction further reflects the program's neoliberal assumptions.

During the design phase of GET FiT there were strong assumptions that electricity demand would continue to grow. However, that growth did not manifest for reasons, according to some scholars, include "the pending industrialization of the country, the absence of expected large-demand consumers from the oil industry as well as lagging progress in electrification and change in consumer demand patterns in off-peak hours (Meyer et al., 2018, p. 86)."

[53] Note: The GoU continued to export thermal energy throughout the course of the program.
[54] Only the UEDCL, UETCL and REA are authorized to connect new customers

Though GET FiT was designed to avoid a worsening energy crisis that did not manifest, they continued to exude the same principles of Electric Capitalism that pervaded Uganda's neoliberal reforms. Stating that the improved regulatory framework for renewable energy investment in Uganda is

> "far more important than fluctuations in the demand vs. supply balance. One could also argue that developing a power sector is a stepwise process. The inevitable chicken and egg nature of electricity supply and demand makes it challenging, particularly in a context with political uncertainty, to maintain a continuous and perfect balance. Whereas power generation is characterised by large up-front investment and provides instant capacity increase once commissioned, growth in electricity demand is more incremental in nature (Multiconsult & KfW, 2017, p. 68)."

The report's focus on the improvement of the investment climate is understandable, as this was always their main aim. However, this statement reflects the 'build-ahead-of-demand' strategy that has been pervasive in Uganda's electricity development since colonialism (Hirschman, 2015). What these explanations do not include is that a significant barrier to electrification remains the high costs of the tariffs and connection fees, which likely effect demand (Kakumba, 2021).

6.3 THE LEGACY OF GET FIT

Though GET FiT may have resulted in certain negative outcomes for the Ugandan energy system, it may yet prove to build adequate niches for small-scale renewable energy. Though, as Participant 6 notes, the GoU "removed significant portions of the deemed energy clause out" and the take-or-pay clause has been "significantly diluted", small-scale renewable energy projects are still being commissioned using GET FIT documentation. Suggesting, that perhaps these provisions were effective in supporting a nascent market. Though, commissioning of new generation projects is likely to remain low until the problems of increased demand and consumer connections can be addressed.

Furthermore, GET FiT members seem to be learning from the legacy of not making energy access a central component of the design. One participant noted that there are currently discussions

between donors and the REA regarding a second iteration of GET FiT focused on improving off-grid electrification schemes in a similar manner; fittingly named GET ACCESS[55].

Now, moving to off-grid technologies, the next iteration of GET FiT may find itself in similarly dubious waters as the last. As the main aim of GET ACCESS is to promote access rurally, they will have to work closely with the REA. As one participant noted, "the REA is not the ERA.[56]" As previously mentioned the REA is mired in corruption scandals and has an unimpressive track record of successful project implementation. Furthermore, there is currently a power struggle between the REA and the MEMD over a substantial credit line for off-grid projects being supplied by the World Bank ("Inside Story of Rural Electrification Agency Instrigue, Fights," 2020). While navigating the political problems of on-grid entities may be avoided with GET ACCESS, there is still a politically complex electricity sector to navigate.

6.4 Limitations of Findings

Before discussing the insights gained from these findings, I'd first like to consider the limitations. A strong limitation of these finding is the lack of participation and evidence from Ugandan electricity consumers and the GoU. Like many students over the past year, the Covid-19 pandemic made fieldwork unethical and logistically impossible; which in turn made access to these groups difficult. This is unfortunate because the basis of this study's argument relies on how these groups were influenced by GET FiT policies. Not having their voices in this study significantly depletes the richness of any findings.

Another concern of this study revolves around the measurement validity of this analysis. "Valid measurement is achieved when scores (including the results of qualitative classification) meaningfully capture the ideas contained in the corresponding concept (Adcock & Collier, 2001, p. 530)." While previous studies measured the technological and institutional outcomes of GET FiT, this study was concerned with the program's influence on Uganda's just energy transition. As seen in the findings, this widened the scope of analysis to consider indicators such as: increased energy access, long-term

[55] Participant 6
[56] Participant 6

economic sustainability of Uganda's electricity sectors, as well as the proliferation of small-scale renewable energy. Though this allows for a more in-depth analysis, it also makes assumptions about the extent of the program's influence. Though I strived to provide evidence relating this program to the wider trends of neoliberal electricity development that encompass it, there are many variables that were outside the scope of this analysis that may have caused these outcomes. This brings to question the 'face validity', the measure that reflects the content of the concepts in question (Bryman, 2016), of these findings. However, the aim of this case study was not just to assess the outcomes but also the policy processes of this program and the causes of these processes. With this positionality, the analysis focused on how interests were prioritized or ignored due to neoliberal assumptions and designs. This aspect of the analysis lends more *replicability* to this study, as this disciplinary neoliberalism is "generalizable to theoretical propositions (Pal, 2005, p. 223)" of other green interventions.

7 DISCUSSION AND CONCLUSION

As this study endeavors to contribute to the wider literature on energy transitions in developing countries, this section will explore the insights and significance of these findings. By highlighting the significance of these findings, this section will provide concrete recommendations for future research.

Role of GET FiT

Upon first analysis, the role of GET FiT in Uganda's energy transition reflects the principles of the MLP model. Uganda's energy regime was on a path dependent technological trajectory of large-scale hydropower, while small-scale renewable energy was unable to proliferate due to market and regulatory restrictions; refer to Chapter 4. Designed as a program to address these problems, GET FiT manifested as a niche, through coalition building, to provide a protected space for small-scale renewable energy to proliferate. Furthermore, the flexibility of design in GET FiT and the inclusion of capacity building elements, followed the trends of designing green interventions in developing countries as packaged programs (Hansen et al., 2018).

However, from the start of the program differences to the standard MLP model quickly emerged. Unlike developed country niches, this niche emerged through a transnational linkage with western donors. This had large implications for both the role GET FiT had within Uganda's energy transition and for the program's outcomes. In terms of program outcomes, the GoU favoring large-scale hydropower created a lackadaisical mindset towards GET FiT. This manifested most greatly in the lack of priority given to the interconnection component of GET FIT projects. Though the investment climate has improved for small scale renewable energy technologies, support continues to be heavily reliant on donor funding. Thus, without the means to influence the energy governance of Uganda these technologies will remain donor dependent for the foreseeable future.

Yet, the role of GET FiT extends beyond technological selection and stems from neoliberal ideologies. GET FiT was conceptualized as the GoU continued to award Chinese developers with direct contracts and ignored standard model bidding practices. Though GET FiT's intention was undoubtedly to proliferate small-scale renewable energy, improving Uganda's investment climate

was the only means for western donors to promote the neoliberal model that the GoU was abandoning. Though, instead of reinforcing the standard model, GET FiT's and subsequent IPP developers' negative outcomes for the sector, are further pushing the GoU away from this model. The government's most recent National Development Plan (III) lists restructuring and increasing government involvement as key, stating that: "In sectors like energy [...] the state is more ideally suited to invest, as it can invest for the long term is not seeking immediate short-term gains (National Planning Authority, 2020, p. 38)." This statement's focus on 'short-term gains' suggests that the GoU recognizes the trade-offs required to maintain investment climates, trade-offs they are less willing to participate in. This means that if GET FiT's role in the Ugandan energy transition was to promote a neoliberal model of electrification, it's success was questionable.

Disciplinary Neoliberalism of GET FiT

As has been exemplified in these findings, GET FiT, in partnership with the ERA, relied heavily on neoliberal design and assumptions. As the results of this have been thoroughly explored in this study's Findings and Analysis, I'll discuss here the most negatively impactful assumption. This was the program's adherence to the 'build ahead of demand' strategy for electrification. The program relied heavily on the assumption that the MoE would lower the price of tariffs, as it did in Germany, and that electricity demand would continue to grow with the economy. When these assumptions proved false, advocates of the program blamed economic factors for the low demand. Yet, this ignores the fact that consumer tariffs were nearly doubled by 2012, just one year before the program was implemented. Ironically, this was done, in part, to attract IPPs to increase generation, which there is now lower demand for because of the increased costs. Something that was fundamentally overlooked at the start of this program was how prices would affect consumer habits and access. This oversight reflects the profound lack of acknowledgment by green interventionists that the prioritization of investment climates creates economic barriers to consumers, whom the success of the model relies on.

Niche Building in the Context of Uganda

GET FiT's design and assumptions also reflect how energy transitions and niche building must be conceptualized and implemented differently in developing countries. This program modelled after the feed-in-tariffs of Germany that were successful in proliferating small-scale renewable energy in

Germany's energy transition. Exemplifying Germany's feed-in-tariffs caused the program to be heavily reliant on techno and economic-centric strategies by improving technological efficiency and the investment climate. This reliance fails to acknowledge the anomalous nature of developing countries' electricity sectors.

First, focusing on small-scale renewable technologies as a niche and only including renewable energy sectors at the start of the program, ignored the larger infrastructure needs of these projects. Though the mistake of not including the UETCL in early stakeholder-engagement is widely acknowledged, this lack of consideration exemplifies how niche capacity building ignores the wider capacity needs of developing countries' electricity sectors. Rather than focusing solely on the source of energy, just transitions require greater consideration of the deeper structural changes that must take place in developing countries.

Second, as GET FiT was not originally packaged to include transmission needs, it was unable to account for the difficulties in navigating Uganda's electricity sector. As explained in Chapter 6, there may have been alternative reasons for Ugandan entities to take responsibility for the interconnection components they were under resourced for. However, adhering to a cost-reflective tariff necessitated that the program avoid putting these costs onto the developers. Considering that the transmission needs were already on a pressing timeline, leaving this responsibility to the REA and UETCL reflects the lack of understanding the program had to the nature of these entities and their interests.

Third, modelling niche building on assumptions of energy transition processes of developed countries ignores the lack of stability in developing countries' energy regimes. As explained in Chapter 2, there is an increasing understanding in the energy transition literature that destabilizing energy regimes in developing countries does not open pathways for niche proliferation. Rather, evidence shows that destabilization hampers niche proliferation. As shown in this study, the Ugandan energy regime is characterized by instability in the form of political struggles and low capacity. This instability led to a host of problems for GET FiT, including lengthy negotiations of standardized documents, interconnection issues, regulatory issues, etc. However, rather than answer the call of transition scholars to research how unstable regimes influence niches (Hansen et al., 2018), I ask how protected spaces for niches negatively influence energy regimes.

Call to Research

While GET FiT aimed to create a protected space for niche technologies, in line with the MLP, it did not consider the trade-offs required to do this. Praise for GET FiT focuses on how it influenced grid stability, knowledge transfer and the investment climate for small scale renewable energy generation. All these outcomes align with the processes of niche building, according to energy transition literature; especially the MLP. However, none of these studies acknowledge how GET FiT's niche-building contributed to further destabilization of Uganda's energy regime. As shown in Chapter 6, prioritizing investors over the GoU and consumers negatively impacted the long-term sustainability of Uganda's energy system. These trade-offs contributed to regime instability by increasing public debt through deemed energy payments, and thus contributed to lower electricity demand. Now, Uganda's energy transition must take place under regime conditions of mounting public debt and lower electricity demand. Considering the negative impacts the GET FiT niche had on Uganda's just transition, I call for more research on how niche building in developing countries is conceptualized within these models.

Conclusion

In this study, I endeavored to advance understandings of how green interventions influence developing countries' just energy transitions. To do this, a widely acclaimed green intervention, GET FiT, was selected as a case and a critical policy analysis was conducted to interpret its influence on Uganda's energy transition. This case was selected not only because it exemplified the neoliberal strategies common to green interventions in developing countries, but also because of the international community's failure to acknowledge its negative outcomes resulting from these strategies.

By providing a lengthy background of Uganda's first wave of neoliberal reforms, this study established how GET FiT is a second wave manifestation of neoliberal interventions; carrying on these ideologies in Uganda's energy system. This ideology of electrification sees market and technology improvements as the most direct and efficient means to ensuring electricity development. However, these strategies did not result in GET FiT's overarching goal of: *'Uganda pursues a low carbon, climate resilient development path, resulting in growth, poverty reduction and climate change mitigation'*. Rather, GET FiT's neoliberal assumptions and design led to negative outcomes that now cause the government to deteriorate the very model they aimed to promote.

More importantly, these negative outcomes are now slowing the progress of Uganda's energy transition, rather than accelerating it. By placing costs and risks on the Ugandan government and electricity consumers to protect investors, the program has contributed toward higher electricity costs, which lowers demand. Now, the investment climate for small scale renewable energy that GET FiT improved may be hurt by the low energy demand caused, in part, by creating it.

Looking at the greater social and political outcomes of this program instead of looking at what it contributed towards the advancement of selected niche technologies, answers the call for more human-centered research in the field of energy research. This study endeavored to help fill the gaps in the literature on energy transitions in developing countries. In doing so, this study suggests that integrating considerations of justice into transition models calls to question some of the foundational assumptions of prominent transition literature. GET FiT applied niche building strategies ubiquitous throughout transition models. Considering the results of these strategies, the fundamental neoliberalism in transition models, like the MLP, must be called into question.

The world needs effective green interventions, based on just models, to transform global energy systems. Especially now, as the Intergovernmental Panel on Climate Change's most recent report provides stark warnings that the intense climate events experienced around the world in 2021 are set to intensify if global temperatures are not reduced (IPCC, 2021). Reconceptualizing energy transition models and niche building to fit the context of green interventions in developing countries could prove indispensable to the green transformation.

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