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CHAPTER 7: POWER SECTOR REFORM AND REGULATION IN TANZANIA

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List of abbreviations

BOOT	Build, Own, Operate, Transfer
BRN	Big Results Now
CCM	Chama Cha Mapinduzi
EPP	Emergency Power Producer
ESAF	Enhanced Structural Adjustment Facility Programme
ESIRSR	Electric Supply Industry Reform Strategy and Roadmap
EWURA	Energy and Water Utilities Regulatory Authority
GE	Godinho and Eberhard
IDA	International Development Association
IMF	International Monetary Fund
IPP	Independent Power Producer
IPTL	Independent Power Tanzania Ltd
JICA	Japan International Cooperation Agency
kWh	Kilowatt hour
LDC	Least Developed Country
MEM	Ministry of Energy and Minerals
MW	Megawatts
MWI	Ministry of Water and Irrigation
NESP	National Economic Survival Programme
NORAD	Norwegian Agency for Development Cooperation
OCGT	Open Cycle Gas Turbine
ODA	Official Development Assistance
PPA	Power Purchase Agreement
PPP	Public–Private Partnership
PSRC	Parastatal Sector Reform Commission
PV	Photovoltaic

REA	Rural Energy Authority
REB	Rural Energy Board
SAP	Structural Adjustment Programme
SIDA	Swedish International Development Cooperation Agency
SOE	State-Owned Enterprise
SPP	Small Power Producer
TANESCO	Tanzania Electric Supply Company
TANU	Tanganyika African National Union
TZS	Tanzania shilling
USAID	United States Agency for International Development
WRI	World Resources Institute

1 Introduction

The power sector has long been singled out as a major obstacle to development in Tanzania. Despite abundant and diverse natural resources, sustained donor support in building technical capacity, and favourable macroeconomic conditions since the early 2000s, the sector continues to act as a bottleneck. In 2011, the lack of adequate and reliable supply of electrical power was identified as one of the most binding constraints to growth in the Partnership for Growth Diagnostics report.

The troubled development of the power sector in Tanzania may, to some extent, be attributable to the complex technical and steep financial imperatives involved in system expansion, including implementing various policies and best practice reforms. However, a retrospective sector analysis suggests that there are also considerable institutional blockages and entrenched dysfunctional (informal) institutional dynamics and processes that have played a determinative role. Yet, because these dynamics are often beyond the public purview, they are poorly understood or charted. This makes strategic interventions that may alter systemic challenges all the more difficult.

This paper will thus focus on the institutional evolution of the Tanzanian power sector and will be directed towards providing a comprehensive review of the sector's extended, and ongoing, developmental challenges. The basic question to be answered in this thematic paper is whether government's failure to implement the structural reforms that it has repeatedly committed to is due to institutional blockages or to purely technical, and possibly financial, factors. The authors examine *why it has not been possible for Tanzania to move from an institutional equilibrium that does not bring about the desired sector outcomes (investment, system expansion, and improved technical performance) to one that does.*

In order to answer this question, an extensive, desk-based analytical literature review of academic research, news reports, and primary documents was undertaken. In addition, a number of high priority in-depth interviews were conducted with key stakeholders. This approach allowed for a methodical analysis of key features in the sector's development trajectory.

The paper is structured in five main parts, beginning with an overview of the current structure and status of the Tanzanian power sector. A narrative account of the institutional development of the power sector is then provided, which is followed by an exploration of some of the resultant underlying political economy dynamics. In the final section, a number of conclusions are considered in parallel with potentially strategic reform interventions.

2 The Tanzanian power sector: structure and performance

2.1 Institutional structure

Despite over two decades of attempted institutional reforms, the structure of the power sector continues to most resemble that of the traditional industry model[1] – a model that has largely been dysfunctional in Tanzania and across the region for decades. Despite a period under private management contract (2002–06) and repeated policy commitments to unbundling and some privatisation, the Tanzania Electric Supply Company (TANESCO) continues to operate as a vertically integrated, state-owned *de facto* monopoly. Tariffs remain below cost recovery, planning has not translated into timely initiation of procurement of new power generation capacity, procurement has mostly not been transparent or competitive, and TANESCO's technical and financial performance is poor. Some 'standard model'[2] reforms, however, have been implemented – most importantly, the troubled introduction of private sector participation in generation and the establishment of an independent regulator. Tanzania is thus an exemplar of what has become known as a hybrid model, where private and public investment coexist in a sector that continues to be state-dominated (Gratwick and Eberhard, 2008; Victor and Heller, 2007).

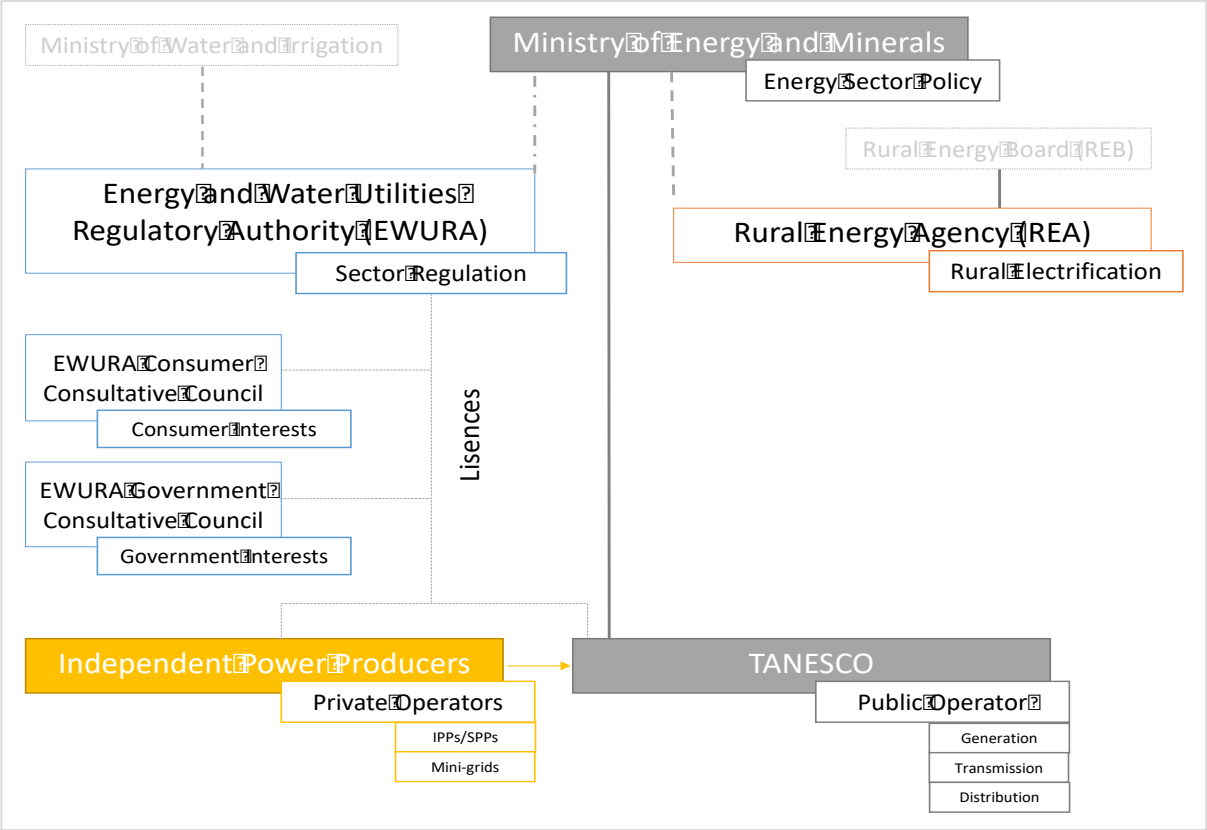
In this structure, depicted in Figure 1 below, the Ministry of Energy and Minerals (MEM)[3] is responsible for policy and planning in the sector, as well as governance of TANESCO. As the single buyer, TANESCO has power purchase agreements (PPAs) with independent power producers (IPPs) – including Songas, Independent Power Tanzania Ltd (IPTL), small power producers (SPPs), emergency power producers (EPPs), and the Mtwara Energy Project (formerly an off-grid generation and distribution concession). Responsibility for scaling up rural electrification was designated to the Rural Energy Authority (REA) in 2007, which also reports to MEM. Since June 2006, the Energy and Water Utilities Regulatory Authority (EWURA) has been responsible for sector regulation. It is part of the Ministry of Water and Irrigation (MWI), which gives the regulator a greater degree of (but still far from full) independence from political interests active in the energy sector. Due to capacity constraints in MEM and the generalised permeability of *de jure* institutional boundaries, both EWURA and TANESCO advise and play a technical support role to the ministry.

[1] A state-owned, vertically integrated (generation, transmission, and distribution) monopoly, regulated by the government (i.e. not an independent regulator), is considered to be the simplest form of the traditional industry model, which was the international norm from the early 21st century through to the 1980s (Eberhard and Godinho, 2017).

[2] At the most general level, the 'standard model' includes the following steps: the corporatisation and commercialisation of national utilities, the introduction of competition through restructuring, privatisation, and allowing for the entry of private power producers and distributors, the establishment of independent regulatory institutions, and the creation of power markets (Jamasb *et al*., 2015; Gratwick and Eberhard, 2008; Victor and Heller, 2007; Williams and Ghanadan, 2006; Bacon, 1999).

[3] In October 2017, President Magufuli spilt MEM into two parts and appointed ministers to each. Mining has been highly politicised under the Magufuli administration, with a major corruption scandal involving the previous Minister of MEM – regarding underreporting on export volumes – leading to his dismissal earlier in the year. In July, a new law was passed to increase mining taxes, force companies to renegotiate their contracts, and allow the state to own up to 50% of mining firms.

Figure 1: Tanzania power sector structure



The institutional governance of the Tanzanian power sector is also shaped by national-level legislative arrangements that confer significant power on the president and those directly appointed by him. Sector planning, operation, and management are as a result highly political – rather than techno-bureaucratic – in nature. This has contributed to the disempowerment of ministry, utility, and – more recently – regulator technical staff. Most decisions relating to sector planning, capital expenditure, and structural reforms have to be ratified by various ministers and/or the president according to the law. Though legislation related to the regulator, EWURA, provides for significantly greater independence when compared with TANESCO – there are no formal provisions in the law under which a ministry or other government body can overturn any of its decisions – higher-level institutional arrangements allow this to be subverted. For example, in 2017, the prime minister, presumably under the direction of the president, reversed an EWURA-approved tariff increase and later suspended its director general.

The *de jure* institutional relationships between the political executive and other sector entities have contributed to certain norms being established, including a fairly authoritarian culture which has undermined decision-making capacity and the necessary delegation of powers to make the implementation of various policies, plans, and best practice procedures possible. This is especially true in MEM and TANESCO, though perhaps less so in EWURA and REA.

Box 1: Authority of appointment across key entities in the power sector
MEM
The Minister, Deputy Minister, and Permanent Secretary of MEM are appointed by the president and hold office 'during the pleasure of the President'. They can be suspended, dismissed, or reassigned at any point.
TANESCO
TANESCO is 100% state owned, governed under the Public Corporations Act of 1992 and the Companies Act of 2002. A board of nine directors is responsible for the corporate governance and financial management of the company, including the appointment of management and officers. The President of the United Republic of Tanzania is responsible for appointing the chairman of the board and the chief executive, while the remaining eight board members are appointed by the Minister of MEM. Of these eight board members, the Treasury Registrar represents the shareholder (government) and another represents MEM. The remainder are typically government officials, independent businessmen, or professionals.
EWURA
In June 2006, an independent regulator – EWURA – became operational, reporting to MWI. EWURA's chairman is appointed by the president, with the remaining six board members appointed by the Minister of MWI. Before this, MEM – in coordination with TANESCO – was responsible for tariff setting, licensing, and the regulation of the sector.
REA
REA, which became operational in 2007, is governed under the Rural Energy Act (2005) by the Rural Energy Board (REB). The MEM Minister is responsible for selecting the REB's board members and the board chairman, from recommendations provided by recognised organisations and the board, respectively. The REB's members are representative of sector stakeholders, with strict rules around representation set out in the 2005 Act. The REB is responsible for appointing the REA's Director General and the management and oversight of the REA.

However, it is not only hierarchical and somewhat authoritarian norms that have contributed to a lack of efficacy among staff in MEM and TANESCO. Undue political influence and involvement in planning and procurement, unchecked by a disempowered technical and managerial staff, has also allowed for corruption in the sector on a grand scale (Gray, 2015). Most notoriously, the procurement of (and ongoing contract with) IPTL, the Richmond (later Dowans, then Symbion) EPP in 2006, and other EPP contracts in 2011 have allegedly been brokered between top public officials and their patrons. Recent moves against regulatory independence are definitely a warning against assuming that strong legislation is enough to withstand deep institutional dynamics and powerful political economy interests.

2.2 Power sector performance

The stunted institutional evolution of the power sector since the 1990s is mirrored by its performance and development trajectory, which has not been able to keep up with economic growth and demand. While net generation capacity has tripled to reach a current scale of just over 1.3 GW, high population and economic growth rates have meant that per capita capacity has only increased marginally (from 19.6 to 24.2 MW (megawatts) per capita – lower even than regional averages). Meanwhile, consumption per capita has increased at a slow and steady rate of 2.4% annually since 1990, just passing the 100 kWh (kilowatt hour)

per capita mark by 2014. Even if recent reports of a substantial uptick – to 137 kWh per capita in 2016 – are confirmed, current consumption rates still fall far short of the upper bound for lower-income countries – 490 kWh per capita – with real implications for Tanzania's ambitions to achieve middle-income status by 2025.

Electricity supply in Tanzania is persistently unstable, often inadequate, and insecure. In addition to the challenges of attracting sufficient investment at the necessary pace and stubbornly optimistic system expansion planning, Tanzania's continued (though reduced) reliance on hydropower leaves the country vulnerable to severe droughts that have recurred with some regularity, in 1994–95, 2005–06, and 2011–13. This has necessitated contracting (at different times) over 300 MW of short-term oil-based EPPs during times of supply crisis, at significant cost to the power utility and fiscus.

Due to the high coping costs associated with drought periods, the sector's financial equilibrium has remained precarious. The IPP IPTL, along with private EPPs Richmond/Dowans/Symbion and others running on imported liquid fuel, has undercut improvements in supply security by financially debilitating TANESCO at times of drought or under the pressure of peak demand. Dependence on liquid fuel imports and gas (which is denominated in US$) has also brought greater currency and fuel price shock exposure. Political pressures around tariff increases have also been a challenge, especially considering TANESCO's dependence on external sources of finance for system expansion – by 2013, 80% of TANESCO's total assets was financed by liabilities (loans, grants, trade payables), having increased from 40% in 2007 – and the government's policy ambivalence on private sector participation. This has made it difficult for the beleaguered utility to invest in system expansion or offer a risk profile favourable to investors. This has only been exacerbated by TANESCO's difficulty in implementing utility management and operations best practice – in part due to political conflicts and weak accountability mechanisms.

Given the prevalence of supply-side crises, the weak financial standing of the utility, and general governance challenges, it is perhaps not surprising that progress in advancing electricity access has been slow. As will be discussed below, access rates remained stagnant between the early 1960s and 1990 – at between 5 and 7%. Since the 1990s, grid access rates have gradually increased, reaching between 14 and 16% in 2014. This figure is likely around 20 to 25% today, with 30 to 40% now living in proximity to the grid[4]. Urban users have been the primary beneficiaries. Recent advances can be attributed to institutional reforms in the mid-2000s, increasing interest from the donor community in funding electrification programmes, technological developments offered by solar power for off-grid and mini-grid solutions, and growing political demands from citizens.

Yet, for Tanzanian electricity consumers, persistent supply insecurity has meant that load-shedding is an everyday occurrence, which – when the supply–demand balance is pushed to the brink, as at the outset of the 2011–13 drought – can reach up to 18 hours a day. Unsurprisingly, many businesses and private consumers that can afford to do so have

[4] It should be noted that Tanzania typically uses the following equation for calculating access, which provides an overestimation of access rates – such as the 41% reported in the 2016 Power Sector Master Plan or the 67% reported by REA.

- Power accessible population= Σ accessible village * Population in the village
- Electrification rate = Power accessible population / Total population * 100

backup generators to bridge the gap. The cost of supply insecurity to the economy, as well as individual households and businesses, thus goes beyond unserved demand or even the costs associated with emergency supply. Mitigating its persistence is critical to sector development.

Form a technical perspective, the disappointing development of Tanzania's power sector reflects planning and procurement failures over the longer term, including inadequate strategies to attract investment or affordable finance, and poor management of external shock events and supply-side crises. Critically, Tanzania has made little progress in introducing and enforcing best practice models of institutional restructuring as relates to the separation of planning, procurement, and investment functions, applying least-cost planning principles, or implementing transparent and competitive procurement processes.

The structural, institutional, and performance characteristics of Tanzania's power sector are indicative of a hybrid or dual market. According to Victor and Heller (2007), this is 'not a waystation to the standard textbook model but, rather, a stable equilibrium outcome' (p. 30). They go on to explain that, 'while not the most economically efficient outcome, the dual market arises and is held in place by strong political forces that favour a system in which parts of power generation and delivery are profitable even as other parts are plagued by non-payment, inadequate investment, and economically inefficient operation' (Victor and Heller, 2007, p. 30). In order to understand, and possibly address, those challenges identified from the technical perspective, it is thus imperative to go further, to the institutional and political economy core of the current dysfunctional equilibrium. The remainder of the chapter turns to this task, beginning with an overview of the institutional evolution of the sector, before moving to a political economy analysis of key features and outcomes.

3 The Tanzanian power sector's institutional development

When charting the institutional development of the Tanzanian electricity supply industry – from its inception during the colonial era, through independence and the nationalisation of electricity assets and industry, a period of extended structural adjustment and attempted market-oriented reform, to the return of more centralised governance in the present day – certain institutional features and patterns emerge.

The spatial distribution of electricity continues to reflect colonial/extractive interests, with most of the population still without access to power. Despite numerous attempts at commercialisation, including rationalising tariffs, staff numbers, and establishing the financial viability of TANESCO, the sector continues to place pressure on the national budget, while TANESCO accumulates debt and arrears. Supply is insecure, as disconnected policy, planning, and procurement have undermined timely system expansion and the exploitation of natural gas reserves – meaning that poorly maintained and balanced network infrastructure, volatile liquid fuel prices, and variable hydrological conditions persistently threaten availability. According to the World Bank enterprise surveys, businesses report nine outages per month (on average), lasting around 6.5 hours. The situation is likely worse in rural areas. The pervasion of certain (African) socialist ideological tenets in policy discourse has been more or less constant since independence, specifically around the 'public good' attributes of electricity, the need for state intervention and governance in the sector to

ensure social and developmental objectives, deep concern around private sector involvement and 'foreign' interference, and a certain leaning toward statist models. Corruption, rent-seeking, and patronage have been present at least since the mid to late 1970s. However, this is a politically sensitive issue and blame is typically shifted away from the dominant ruling party to 'aberrant' individuals acting in the sector, corrupting private sector interests, or to international actors. This has impacted human resource capacity development in the sector, as a number of high-level corruption scandals have led to rounds of dismissals, especially in government.

In this section, a chronological narrative account considers the development of some of these features – with special attention to the more recent period of attempted market-oriented power sector reforms and the political economy of sector outcomes.

3.1 Early institutional infrastructure in the power sector – the colonial period

Electric power was first introduced in Dar es Salaam, Tanzania (then Tanganyika) in 1908 by German colonialists in the service of the Dar es Salaam railway workshops, as well as predominantly European parts of the city. Following the transition to British rule in 1920, the electricity supply industry was governed by the colonial Government Electricity Department. It was then privatised in 1931, with the establishment of the private Dar es Salaam and District Electric Supply Company (DARESCO) and Tanganyika (now Tanzania) Electric Supply Company (TANESCO) utilities. Over the decades that followed, these utilities grew, with TANESCO exporting power to neighbouring Kenya. The legacy of the colonial export crops and mineral extraction in the region is still evident in the national grid, which correlates with the colonial railway system in East Africa. From a technical standpoint, this imbalance could stress the system as it expands. From a political standpoint, the persistent differences in services provided in different regions are starting to become a political issue and could push internal migration patterns that would be difficult to navigate socially.

3.2 From Ujamaa to structural adjustment – 1960s to 1980s

After gaining independence in 1961, Tanzania became a one-party, socialist state under the leadership of President Julius Nyerere (1962–85) and his political party, the Tanganyika African National Union – TANU (later Chama Cha Mapinduzi – CCM). The new regime set out to nationalise industry and commercial enterprise, which became national policy with the 1967 Arusha Declaration, and to establish a socialist command control economy. In the lead up to this, the government began the process of nationalising both power utilities in 1964 through an agreement to buy the East African Power and Lighting Company's TANESCO shares over a period of 10 years. Over the same time, TANESCO was established as the sole national power utility, responsible for generation, transmission, and distribution in Tanzania.

The Tanzanian power sector became a favoured recipient of financial and development aid in the form of Official Development Assistance (ODA) from the World Bank and the International Monetary Fund (IMF), as well as from bilateral institutions such as the Swedish International Development Cooperation Agency (SIDA), the Norwegian Agency for Development Cooperation (NORAD), the Japan International Cooperation Agency (JICA),

and others. This assistance was substantial when compared with other countries in the region, with the total ODA received in 1980 double the regional average – a significant proportion of which went to the power sector (Edwards, 2012). In addition to the provision of financial and technical support in various system development projects, sponsored training programmes were advanced to foster local expertise in the sector. Generation capacity increased steadily into the early 1970s (reaching 266 MW in 1975[5]), and sales increased at around 10% per year. Despite the socialist agenda, electricity access remained low, at around 7%[6].

However, external factors, including the 1973 and 1979 oil shocks, the 1979 Ugandan War, commodity price volatility, and hydrological variability, put undue strain on the economy and power sector. In addition, ODA decreased dramatically in the early 1980s, primarily in response to an emerging divergence in views on Tanzania's socialist development policies and what was seen to be excessive public spending.

The state and many state-owned enterprises (SOEs) became increasingly inefficient due to a lack of accountability, inadequate incentives, and the resultant pervasion of rent-seeking behaviour and corruption. The formal command economy began to collapse, progressively supplanted by informal and black-market economies. The institutions built in the first decades of independence had depended on the centralisation of political and economic power in the state and the party, through which resources (including jobs in government and SOEs) were distributed to the population. However, lacking sufficient state income, formal checks and balances, political competition, transparency, and certain civic freedoms, the system was vulnerable to external shocks and internal inefficiencies and malfeasance. By the early 1980s, Tanzania was rated not only as one of the poorest countries in the world, but corruption was becoming a national issue (Gray, 2015; Heilman and Ndumbaro, 2002; World Bank, 1998).

Around this time, there was a shift in donors' lending policies. Led by the Bretton Woods institutions, the provision of aid, loans, and other forms of development assistance became increasingly conditional on meeting a set of market-oriented macroeconomic policy prescriptions. Not only did these policies stand in opposition to the *Ujamaa* model, the fact that they were externally driven provoked overt hostility from President Nyerere and many in the ruling CCM party. In a bid to access financial support without losing independence, Nyerere launched the National Economic Survival Programme (NESP) in 1981, followed by NESP II in 1982, and then a local version of the IMF's Structural Adjustment Programmes (SAPs) in 1983. These programmes, however, failed to satisfy donor conditions.

In 1985, Nyerere stepped down as president – preserving his legacy of *Ujamaa,* by not publicly acquiescing to market reforms. His preferred successor, Ali Hassa Mwinyi (1985–95) was considered to be a moderate supporter of the liberalisation policies that the country would need to implement to regain access to aid. Once in power, he initiated structural adjustment reforms under the IMF Economic Recovery Programme (1986–89) and the

[5] Compared with other Least Developed Countries (LDCs) with similar populations in the 1970s, Tanzania's installed capacity was dwarfed. For example, Venezuela's installed capacity was already above 16,000 MW and Malaysia, much lower even than Venezuela's, was already above 3,000 MW.

[6] Access rates were on a par with much of the rest of the sub-Saharan Africa region (barring a few outliers, such as Senegal – 36%), but lower than LDCs in the rest of the world, such as India (16%), Mexico (~50%), or Korea (95%).

Enhanced Structural Adjustment Facility Programme (ESAF, 1989–92) with some success, initially renewing donor confidence. However, considerable resistance to reforms continued behind the closed doors of the CCM, where those with vested economic or political (including ideological) interests pushed against or subverted interventions, specifically privatisation.

In the power sector, these crises further impaired the underperforming traditional industry model. Unable to capitalise on economies of scale, reduce investment costs through securing low-interest long-term bonds, or steadily expand the system to meet demand, TANESCO's financial and operational performance deteriorated rapidly. Generation capacity and sales were especially affected, with TANESCO's financial ills further compounded by the mounting debts owed to the utility by the government (including SOEs) and rampant power theft (with system losses above 20%). The initiation of macroeconomic stabilisation policies in 1986 pushed the utility into an even more dire situation, as currency devaluation vastly increased the burden of foreign-denominated loans, as well as operational and investment costs. As the Tanzanian Government fell further behind the Weberian ideal of a techno-bureaucratic modern state, which underlies the traditional model, vested political and economic interests took advantage at every level.

3.3 Power sector reforms – on again, off again

3.3.1 Conditionality and 'standard model' reforms

By the beginning of the 1990s, generation capacity stood at only 300 MW[7], access had remained almost unchanged at between 5 and 7% (according to the 1992 National Energy Policy and World Bank data, respectively), and technical and non-technical losses[8] were above 20%. The sector was not self-financing and suffered substantial commercial losses. The institutional equilibrium – the rules governing tariff setting, collection, operations, planning, procurement, governance, management, and oversight – had become thoroughly dysfunctional. In Tanzania, the 'basic sectoral problem' identified in the seminal 1993 Policy Paper, *The World Bank's Role in the Power Sector,* in which what has become known as the 'standard reform model'[9] was first iterated, seems cogent.

> The basic sectoral problem relates to undue government interference in those day-to-day organisational and operational matters that should be under utility control. Such interference undermines the accountability of those responsible for day-to-day management functions. It has influenced procurement decisions, mitigated against least-cost fuel choice, resulted in an inability to raise power tariffs to meet revenue

[7] Where some LDCs were growing at an average rate of between 5 and 16% a year between the early 1970s and late 1980s (e.g. Malaysia ~10% p.a., South Korea ~13% p.a., India ~8% p.a., Venezuela, Pakistan, and Brazil at ~ 9% p.a.), Tanzania only managed to increase generation at a rate of less than 1% per year.

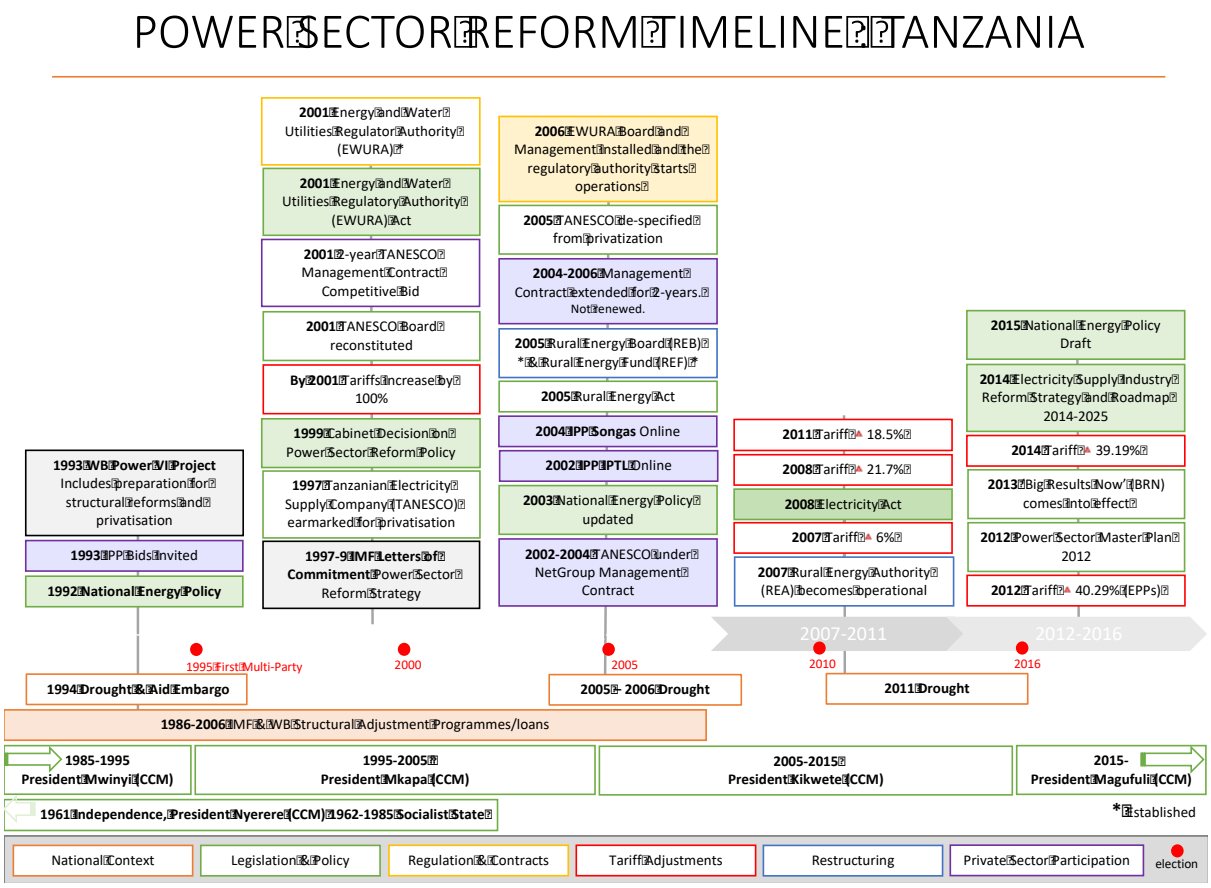
[8] Losses refer to the amounts of electricity injected into the transmission and distribution grids that are not paid for by users. Total losses have two components: technical and non-technical. Technical losses occur naturally and consist mainly of power dissipation in electricity system components such as transmission and distribution lines, transformers, and measurement systems. Non-technical losses are caused by actions external to the power system and consist primarily of electricity theft, non-payment by customers, and errors in accounting and record-keeping (World Bank, 2009).

> requirements, restricted utilities' access to foreign exchange, mandated low managerial and technical salaries that are tied to low civil service levels, and promoted excessive staffing and political patronage. These problems have, in turn, in many cases, brought about generally inadequate utility management and organisation; lack of accountability; flight of experienced and capable staff due to uncompetitive employment conditions; weak planning; inefficient operation and maintenance; high technical and non-technical losses; and weak financial monitoring, controls, and collection. (World Bank, 1993, p. 33)

Like many countries in the region, loans and grants in the power sector soon became conditional on the implementation of 'standard model' institutional and structural reforms that were being prescribed as the solution to this problem. The primary components of 'standard model' reforms include the commercialisation and corporatisation of electricity utilities, the introduction of independent regulation, unbundling vertically integrated utilities, and liberalising the sector to allow for private sector participation (Gratwick and Eberhard, 2008; Victor and Heller, 2007; Williams and Ghanadan, 2006; Hunt, 2002; Bacon, 1999). Through such reforms, the traditional industry model in developing countries would be supplanted with a model that allowed for competition, institutionalised checks and balances, alternative sources of investment, separation of and specialisation in sector functions, greater transparency, and transfer of private sector commercial expertise and resources.

Figure 2 below presents an overview timeline of reform interventions. In the remainder of this section, we consider different phases in the reform agenda and some of the determinants of the outcome of various components of 'standard model' reforms.

Figure 2: Power sector reform timeline Tanzania



3.3.2 First steps toward 'standard model' reforms

Needing to re-contextualise the role of the energy sector in national development and reconcile sector-level policy with the macroeconomic policy shifts of the SAPs and the thrust of the then-emergent 'standard model', the 1992 National Energy Policy was produced. The policy opened the sector to private participation, stating that 'private electricity generation and distribution will be encouraged' in areas where TANESCO had not yet developed power infrastructure (Government of Tanzania, 1992). It also provided for the establishment of a rural electrification fund, which – it was envisioned – would be supported by community involvement in the style of *Ujamaa*. Already in the midst of the first drought-related power shortages and load-shedding, significant emphasis was put on resource diversification away from hydropower. Like many of the later policies and legislation, the 1992 policy tentatively opened the door for market-oriented and governance reforms without actually providing a comprehensive set of actionable next steps and without reducing the scope for political interference in the sector.

Of course, weak or absent policy commitments in developing countries had informed the basis of the conditional lending agenda behind 'standard model' reforms. Unsurprisingly, the World Bank's Power VI project thus not only provided for the construction of the 180 MW Kihansi hydroelectric power plan, but also included sector reforms in its objectives. Explicit objectives included supporting the utility in preparing for and initiating restructuring and

privatisation, and the development and operation of private gas generation at Songo Songo. The 1993 International Development Association (IDA) loan agreement for the Power VI project was made conditional on TANESCO entering into a subsidiary loan agreement with the government and committing to the conditions set out in the loan – this could be considered the first instance where the government committed to 'standard model' type reforms (IDA, 1993). These included adhering to specific financial covenants and to the principles of international, competitive, and transparent procurement practices, the corporatisation and commercialisation of TANESCO's operations, undertaking an asset evaluation study and a tariff study, implementing the recommendations thereof and regularly updating both thereafter, and enforcing a plan of action for the recovery of overdue accounts from government agencies and parastatals. In addition, the government committed to undertaking and then implementing the recommendations of a privatisation study and to the development of a gas-to-power IPP at Songo Songo.

Box 2: Songas – Tanzania's first competitive and transparent IPP

Gas-based power generation at the Songo Songo gas field had been identified as a least-cost option in the 1991 Power Sector Master Plan. However, neither the government nor TANESCO had the necessary funds or expertise to develop gas-to-power generation alone. In 1993, MEM invited 16 companies to bid for the 60 MW gas project at Songo Songo under a Build, own, operate and transfer (BOOT) arrangement – thus initiating the first competitive IPP process – with support from the World Bank. However, no credit enhancement was provided (despite the poor investment environment), bidders were only given six months to submit their bids, and the plant size was small by international standards. As a result, only two bids were submitted and Over-the-Counter Market – a joint venture between Ocelot Energy Inc. and TransCanada Pipelines – was awarded the tender in 1994 and established the project company Songas. Negotiations were protracted, with additional equity partners coming on board in 1995 (Tanzania Petroleum Development Corporation and TANESCO) and then again in 1996 (Tanzania Development Finance Company Ltd, International Finance Corporation, Deutsche Investitions und Entwicklungsgesellschaft, and Commonwealth Development Corporation).

In order to mitigate the severe effects of drought-related load-shedding while the Songo Songo IPP was being negotiated, SIDA provided TANESCO with the funds to procure two 18 MW Open Cycle Gas Turbine (OCGT) plants at Ubungo and committed to covering operational (mainly fuel) costs for two years – with the expectation that Songas would be online by the end of this period. The government was able to procure a further two 35 MW OCGT plants through the World Bank facility. With this additional support, and a focused Songas procurement process, it might have been possible to emerge from the drought with improved capacity at competitive costs. Yet, although these plants mitigated the effects of drought-related shortages and provided much needed space for strategic sector planning, specifically the Songas procurement process, it did not allay the sense of emergency that load-shedding had brought about.

There is evidence to suggest that certain interested parties[10] seized upon this sense of panic to advance a specific agenda, interrupting efforts to rationalise the sector by entertaining

[10] Like later controversial deals in the energy sector, IPTL exposes 'similar patterns of contention within the ruling party and links between senior party figures and domestic and international business' (Gray, 2015). According to Brian Cooksy (2017), the IPTL deal hinged on the brokering efforts of local businessman, James Rugemalira (IPTL's local partner and 30% shareholder), who forged a path for the unsolicited bid from Merchmar (a Malaysian company piggybacking on former Malaysian Prime Minister Mohamed's campaign of 'South–South' cooperation) – using whatever means necessary to sway public officials, including through paying bribes. It

unsolicited bids – most prominently, a proposal for the procurement of 100 MW from a plant that would be built by IPTL.

Box 3: IPTL – the dark horse IPP and the subversion of procurement best practice

The IPTL project was not planned for or necessary. According to the Power Sector Master Plan, it was based on hugely overstated investment costs and expensive, outdated technology. Nonetheless, it was defended as a 'South–South cooperation', a politically shrewd cover as it played on Tanzanian's discomfort with western (capitalist) interest's involvement in the country since the initiation of the SAPs. It was also packaged as an 'emergency' supplier, allowing for a direct and un-transparent procurement process. Despite serious doubt being cast on the economic and financial viability of the PPA by some concerned state officials, TANESCO's board – under the sway of key government officials – signed the 20-year PPA in May 1995 (ahead of the national elections). This was done without the consent or knowledge of the World Bank, breaking a covenant of the Power VI project.

Creating a rift with the World Bank, the signing of the IPTL PPA resulted in delays in the Songas deal – which ironically proved to be one of the most cost-effective gas IPPs on the continent, due in large part to the competitive negotiation process of its PPA. IPTL, meanwhile, is one of the most expensive and has been detrimental to the financial sustainability of TANESCO and the sector as a whole.

While the costs of corruption and maladministration now widely associated with IPTL are substantial, the derailment of planning, management, and procurement processes is considered by some to be the more detrimental casualty of the fallout which ensued. The un-transparent, uncompetitive, and corrupt deal-making pioneered in the IPTL deal would be repeated in later procurement processes in the power sector – to the detriment of its financial sustainability and developmental mandate.

The IPTL deal was one of many incidences where the government had diverged from national plans and policies in the period between the early to mid-1990s and where evidence pointed to behind-the-scenes politicking. The implementation of conditions set out in the IMF Economic Recovery Programme (1986–89) and the ESAF (1989–92) had led to fundamental changes in the political economy landscape. Rent-seeking opportunities had opened in areas where the flux of new liberalisation and privatisation policies had created the space for vested or emerging interests to intervene directly in the processes of government. At the same time, the reintroduction of multiparty politics in 1992 created a more competitive environment for clientelism, as a larger and less cohesive group of political and economic interests vied for power in the lead up to the first multiparty elections in 1995. These developments led to a withdrawal of donor support in 1994.

3.3.3 Standard model' reforms after embargo

Benjamin Mkapa was elected as the CCM presidential candidate in the lead up to elections. A relative party outsider seen to be 'untainted' by scandal, Mkapa's campaign promised change, decisive action against corruption, and economic growth and development. Upon winning the 1995 elections, the Mkapa administration prioritised rehabilitating relations with donors, anti-corruption interventions, and refocusing reforms. At the time, development assistance accounted for 20–30% of GDP – there was no alternative.

should be noted that this deal, again like later instances of grand corruption, was negotiated ahead of a national election where a new CCM president would be elected to run.

In the power sector, this meant committing to more concrete steps to structural reform in line with donor conditions. According to the 1996 IMF ESAF, the restructuring and privatisation of public utilities would be accorded the highest priority over the 1996–99 ESAF loan period. In 1997, the government explicitly committed to restructuring and privatising TANESCO in a letter to the IMF and specified TANESCO for privatisation under the Parastatal Sector Reform Commission (PSRC) – meaning that TANESCO was no longer exempt from the law governing the transformation of other parastatals. This move irrevocably tied reforms to the ultimate privatisation of a public sector utility, a concept that was not only ideologically incongruent with the still-dominant socialist paradigm, but was also well on the way to becoming synonymous with corruption. This had a damaging effect on the feasibility of later reforms.

Over the following years, these commitments would be reiterated in IMF letters of intent while policy and legislation were in draft. In 1999, a Policy White Paper on the Restructuring and Divestiture Strategy for the Electricity Sector was submitted to and approved by Cabinet. Though the policy document and Cabinet decision are not publicly available, the policy commitments were articulated in a 1999 IMF ESAF policy paper and included the vertical and horizontal unbundling of TANESCO and the establishment of a neutral system and market operator, a centralised purchasing agency, and an independent regulator (IMF, 1999). According to the policy paper, the strategy would be implemented by year-end 2000.

This, however, was thoroughly undermined by the government's failure to fulfil important covenants designed to improve the financial, management, and institutional development of the sector in preparation for reforms. Crucially, the government consistently failed to support TANESCO on the issue of non-payment by preventing the utility from cutting power to defaulting customers – a subsequent report on the issue found that the problem was "75% political" (World Bank, 2003). In addition, no new legislation or policy was introduced, little stakeholder engagement was conducted, and there was little else that would suggest that the government intended to implement the ambitious strategy laid out in the ESAF paper.

After seven years of attempted (including internal) reforms, which were initiated in 1992, TANESCO was still an overstaffed, poorly managed, and financially insecure utility that, despite having strong technical capacity by Tanzanian standards, lacked commercial culture and autonomy. Toward the end of the Power VI project, World Bank supervision missions thus recommended that a new management team be recruited for TANESCO during the transition to privatisation, to which the government – at the level of the president – committed in late 2000. In addition, a number of 'next step' interventions were pressed for through the IDA Programmatic Structural Adjustment loan, as well as a number of other donor programmes. Two studies by international consultants were initiated – the first by Mercados (released in 2001) and the second by Stone & Webster (released in 2003). In 2001, the government passed the EWURA Act, providing the basis for the establishment of the independent regulator. In the same year, the PSRC initiated a competitive and transparent recruitment process for a two-year management contract for TANESCO.

3.3.4 Privatisation: one step forward – TANESCO under private management

In January 2002, the PSRC awarded the two-year TANESCO management contract to NETGroup Solutions – a firm from South Africa. The lack of genuine political and public

support surfaced almost immediately, when the start of the contract was delayed due to push back from the general public and TANESCO staff. The MEM Minister and TANESCO board openly cast doubt on the selection process and 46 MPs called for 'clarification' on the issue in parliament – undermining the legitimacy of the contract (Kapika, 2013; BBC, 2002). Tanzanians also viewed the contract as the first step towards the privatisation of a strategic public sector utility, which was an ideologically fraught issue. Meanwhile, TANESCO staff unions threatened sabotage unless a labour agreement was secured before the initiation of the contract, fearing the inevitable staff rationalisation process. Despite this push back, the NETGroup management team – consisting of only four resident managers – took over operations in May 2002. They required a police escort onto TANESCO premises.

Upon assuming management, the team first prioritised gaining the support of staff – a labour agreement was developed by TANESCO and accepted by the union later that year. From this point, staff relations were secure. In their activities, the management team focused on improving revenue collection and utility information systems, enforcing collections from sensitive public offices, and rationalising staff. In these activities, the management team was successful – monthly revenue increased from US$10–12 million to US$16 million per month by 2004, approximately 20% of the staff were amicably retrenched, and reporting systems were improved. The first contract was viewed as a categorical success by the donor community. However, broad-based political and public support was still lacking despite high-level, somewhat behind the scenes, backing from President Mkapa.

Under pressure from the World Bank, the management contract was renewed for a further two years in 2004. In the contract extension, the team was more explicitly tasked with translating revenue gains into improvements in performance. Monthly revenue doubled during the second contract, increasing to US$22–24 million. This was driven by improved collections – especially from large, politically sensitive customers such as the national police, post office, and Zanzibar – as well as increased tariffs. The tariff structure was rationalised by removing the cross-subsidisation between consumers, with industrial tariffs at -28% and residential/light commercial tariffs at +39%. The lifeline tariff was also reduced from 100 kWh to 50 kWh.

A significant portion of the increased revenue, however, was absorbed by the IPPs[11] coming online – IPTL was commissioned in 2002 and Songas in 2004. With the onset of the 2005–06 drought, the utility was compelled to use IPTL and Songas as baseload plants – both of which were more expensive than originally anticipated at the start of the contract in 2002. This put the utility back into a dire financial situation. The management team was thus not able to invest much in network infrastructure but, critically, also did not pay sufficient attention to customer service and connections. This meant that private sector participation was not translating into better quality or more reliable electricity services for most Tanzanians. When the management team reaped substantial 'success fees' for its interventions, it only added to public and political distaste for the team.

These shortcomings were in part attributable to the management team itself, the misaligned incentive structure of the contract, and external conditions. However, political interference played a role as well, compounded by tenuous lines of accountability between the TANESCO Board, MEM and other ministries, the PSRC, President Mkapa, consumers, the

[11] TANESCO began to purchase power from the IPPs, with per unit costs higher than their older plants.

public and the media, and donors. There have been reports that politically connected members on the TANESCO Board actively sabotaged the contract (through exercising their veto power, stalling decision-making processes, or providing misleading information to the political executive) in order to then be able to prove that the management contract, or privatisation more broadly, was a bad idea. The management team was certainly not operating in a wholly supportive political environment and tensions began to mount.

3.3.5 Privatisation: two steps back – TANESCO's despecification and return to public governance

In 2005, just ahead of the elections, President Mkapa despecified TANESCO – backtracking on plans to privatise the utility. In 2006, acting against the recommendations of a 2005 report conducted by the Presidential Privatisation Review Committee, incoming President Kikwete decided against renewing the management contract. It is clear that, under the management contract, many of the informal institutional arrangements had been challenged – including political involvement in tariff setting, staffing, collections, and procurement. With these two steps, the sector and utility governance reverted back to its previous institutional structure.

Coincidently, this recreated a situation where crisis (drought) conditions created an opening for corrupt political and economic interests to again craft an IPP deal around the time of national elections, bypassing power sector development plans and the principle of competitive and transparent procurement. Many suspect that the 2005 election – won by CCM's candidate, Jakaya Kikwete – was funded by faction benefactors that orchestrated the infamous Richmond IPP deal. Like the IPTL deal in 1995, it had disastrous and long-lasting consequences for TANESCO and the stability of the sector as a whole. It is worth noting that the management team actively resisted the Richmond deal.

Box 4: The Richmond EPP IPP – another scandal

The Richmond Development Company was awarded an expensive 100 MW power deal during the 2006 power shortages under controversial circumstances. It then turned out that the company had neither the technical expertise nor the capacity to meet its contractual agreements. In late 2006, Dowans Holdings took over the contract and eventually provided the agreed 100 MW – after the drought conditions had abated.

Despite Richmond, and then Dowans, not being able to supply the agreed amount of power in the agreed timeframe, TANESCO had to pay a steep daily 'take-or-pay' capacity charge to the company (Kapika, 2013). This caused acrimony in the media and parliament. Toward the end of 2007, a Select Committee was established to investigate the deal. In February 2008, the committee's report was presented in parliament and broadcast on live TV. This led to the resignation of the prime minister at the time, Edward Lowassa (2005–08), as well as the present and previous MEM ministers – Msabaha and Karamagi, who were implicated in the scandal. President Kikwete then dissolved Cabinet. In addition to the predictable disruption following the December 2005 elections and a change in the presidency, the Richmond scandal saw three different ministers serving between 2006 and 2009, as well as multiple shuffles among technical staff. This thoroughly destabilised the sector.

This matter was not dealt with in the courts, but rather 'internally' by the government and within the CCM party. Lowassa would later compete as a CCM presidential candidate in 2015. The lack of policy continuity between regimes, compounded by the shuffling of ministers and technical staff (including permanent secretaries), has been a near insurmountable obstacle to maintaining momentum in sector development and reform interventions. Relations with development partners – especially those such as the World Bank which were supporting reforms – also suffered over this period.

3.3.6 Some positive developments – policy, regulation, and rural energy

Notwithstanding the above, this period did see some other important reform steps implemented. To begin with, the second National Energy Policy was released in 2003. The policy commits to the principles of competitive, private sector involvement and efficiency, and to establishing a new governance system by 'differentiating the roles for (a) policy making and legislative functions carried out by Government and the Parliament; (b) the regulatory functions carried out by an independent regulator; and (c) other functions carried out by public and private operators' (MEM, 2003). Once again, however, much of the policy was far from actionable and sticking to the principles has been a challenge.

Rural energy was also given special attention in the 2003 policy, leading to the enactment of the Rural Energy Act in 2005, which established the REB and the Rural Energy Fund. Rural energy, however, did not benefit from much political interest or budgetary support in at least the first five years following these interventions. On the one hand, this reflects a similar state of affairs to that in neighbouring countries – where grid-extension was viewed as too expensive, off-grid was not yet attractive, and rural electrification had not become a politically salient issue. On the other hand, CCM was also doing very well when it came to public opinion polls and at the ballot box – meaning that the political pressures behind issues such as rural electrification were not yet determinative of national policy priorities.

EWURA – the independent regulator – finally became operational in June 2006. Intriguingly, this was the same month that the Richmond deal was signed. While delays were likely by default rather than design for the most part, in the case of EWURA and other components set out in policy or law, certain interests benefited from the regulatory gap and may have contributed to holding up processes at key junctures. TANESCO (an unregulated *de facto*

monopoly) certainly had an interest in delaying the effective functioning of EWURA, as did those involved in the IPTL and Richmond deals.

3.3.7 Public governance, independent regulation, and political interference – an incomplete reform model

Having repealed the management contract and backtracked on privatisation, the new Kikwete administration had a clear interest in 'proving' that the state-owned model could work if it was to maintain control over the sector. When TANESCO reverted back to local management in 2007, the more than capable Dr Idris Rashidi, formerly involved in reforms in the banking sector, was appointed managing director. During his three-year contract, Rashidi built capacity in the utility, creating and filling three new positions with competent staff – chief financial officer, chief internal auditor, and chief information officer. Remaining senior management positions were filled through competitive recruitment processes. Together with the senior management team, Rashidi introduced performance measurements into the human resources system with balanced score cards, launched a staff development programme, and amended relationships with energy-intensive users (anchor customers). He also arranged a US$300 million syndicated loan, with the support of the government, which allowed TANESCO to clear the debt backlog, introduce performance-based staff remuneration, and improve billing and metering systems. Hydrological conditions were also in TANESCO's favour over this period, which reduced the cost of generation. In 2008, TANESCO registered a profit. Other metrics of utility performance, however, worsened. Transmission and distribution losses peaked in 2009, collection rates – which had improved considerably under the management contract – decreased dramatically (from ~95% to ~56%) as politically connected customers forced to pay during the management contract slipped into old patterns of politically condoned non-payment, and access rates, which had increased from 10.5% to 12.6% under the management contract, actually dipped back down to 11.2% in 2009 (World Bank).

This mixed performance underscores the vulnerability of public governance to political interference in a country where the political economy system is prone to using publicly owned companies for rent-seeking and patronage, even where corporatisation efforts attempt to 'ring-fence' such interests. As reported in the media and according to Rashidi himself, 'the three-year contract was not smooth as there were internal problems with the Board of Directors and Ministers' – three different ministers served between 2006 and 2009. Rashidi has said that it was difficult for him to understand the 'special rights and interests' the ministry and the board had in management decisions. Though there have rarely been public confrontations between different factions operating in TANESCO and the government, the period when Rashidi was managing director proved an exception. Despite a stellar performance as managing director, his contract was not renewed and more 'politically suitable' candidates were appointed from 2010.

While these tensions played out at the utility, EWURA was steadily building capacity and authority as regulator. The five-year delay in operationalising EWURA had involved a dispute between development partners and the government about where the regulator should be placed. Eventually, it was agreed that it would fall under MWI, as advised by the World Bank. This allowed the regulator a greater degree of autonomy from MEM and distance from undue political influence. The pace of EWURA's development reflects the soundness of the

2001 EWURA Act, significant support from development partners, the realisation of existing technical capacity, and a suitable degree of independence from the government.

3.3.8 The resurrection of the reform agenda

In June 2008, it seemed as if reforms would be resurrected when the Electricity Act was passed, replacing the 1957 Electricity Ordinance Amendment. The Act was preceded by a Power Sector Reform Strategy in 2007, which is not publicly available. In relation to regulation, the 2008 Electricity Act further delineated policy and regulatory roles between MEM and EWURA. It also placed renewed emphasis on the issue of rural electrification, including certain provisions of support to the REA. Critically, the Act also provides a legislative foundation for sector restructuring – albeit a weak one. According to the Act, the minister may, in consultation with the Minister of Finance and the Authority [EWURA], restructure the electricity supply industry in order to foster competition for increased efficiency, enhance the development of private capital investment and promote regional electricity integration – giving full power to the minister and, behind the minister, the president (MEM, 2008). The Act also stipulates that the minister shall within one year after coming into force of the Act prepare and publish a policy for the reorganisation of the electricity market, though it also specifies that the minister can amend said policy at any time.

Though commitments to ‘standard model’ type reforms were made anew in 2008, it is important to note that there was a general movement away from ‘privatisation’ and toward public–private partnerships (PPPs) during this period. The PSRC was dissolved in 2007. In 2009, the government launched a PPP policy, which was followed by the PPP Act in 2010, and the publication of PPP regulations in 2011. The idea of publicly owned projects that allow for private sector participation certainly gained traction and provided an alternative frame for reforms – one that was more compatible with the Tanzanian socialist ideology and, in the case of the power sector, vested political and economic interests. While the policy components remain similar, this shift provided reforms with a new and improved frame. Yet concrete reform interventions have yet to follow, due in part to the onset of another electricity sector crisis, triggered by another drought and exacerbated by exchange rate volatility and political instability.

In 2010, Tanzania was again hit by devastating drought. By 2011, customers could experience load-shedding of up to 18 hours a day. As had been the case in previous periods of supply crisis, the government launched an Emergency Power Plan – adding 331 MW through short-term, emergency contracts which were neither transparent nor competitive. Under emergency procedures, EWURA approved a tariff increase of 40.29% starting in January 2012. Even with the tariff increase, TANESCO was not able to bear the extra financial pressure of expensive thermal generation. By the end of 2012, accumulated arrears to IPPs, EPPs, and fuel suppliers were estimated at US$276 million – and were forecast to increase.

3.3.9 Another crisis, another election season

The crisis prompted a bold policy response, a critical action in the lead up to the 2015 elections. The reform agenda seemed to again be resuscitated in 2013, with the politicised

Big Results Now (BRN) initiative. Part policy, part party manifesto, BRN focused on bridging the gap between policy planning and effective implementation in key sectors, including energy and natural gas. BRN recommended redefining the sector strategy and structure, including the gradual restructuring of TANESCO to bring about viability to the entire system. Tanzania also mended relations with some of the bigger development partners, including the World Bank. The World Bank Power and Gas Sector Development Policy Operation programmatic loans offered financial and technical support for the government's sector reform and development policies.

At the start of 2014, a second tariff increase of 39.19% was approved by EWURA in order to lift tariffs closer to cost-reflective levels, and the government agreed to retire two-thirds of EPP capacity, bringing costs down so that they could meet somewhere in the middle. TANESCO's 'financial gap' reduced slightly, though the utility was still in a precarious position. In the same year, a number of policies were approved – including the Natural Gas Policy, Petroleum Policy, and the Electricity Supply Industry Reform Strategy and Roadmap 2014–25 (ESIRSR).

Box 5: ESIRSR (2014–25)

In the ESIRSR, the government sets out an explicit timeline of structural reforms for the first time, including the unbundling of TANESCO's generation segment and allowing IPPs to sell directly to bulk off-takers (though paying wheeling costs) in the short term (by December 2017), the vertical unbundling of transmission and distribution in the medium term (by June 2021), and the horizontal unbundling of both distribution and generation in the long term (by June 2025). Together, BRN and the ESIRSR set the following targets for 2025: generation capacity of 10,000 MW (up from 1,500 MW), connections at 50% (up from 24% – this number is likely lower than reported in the ESIRSR), and the reduction of system losses to 12% (from 18% – though losses have been volatile in the past, soaring above 35% in 2009–10).

Despite various interventions and numerous bailouts, TANESCO's financial situation remained dire while internal accounting was kept relatively opaque, obscuring the impact of the injection of funds and limiting advances made in eradicating (official) operational subsidies and improving the transparency of government transfers. Planning was clearly characterised by short-term politics, rather than technically sound, long-term processes, and the lines between planning, policy, and procurement were frequently transgressed. Despite repeating commitment to the tenets of transparent and competitive processes, as well as attracting and facilitating private sector participation and investment, power projects initiated over this period lacked transparency and were bent towards publicly funded and owned models. Though EWURA's role in overseeing procurement and advising on policy and planning mitigated this to some extent, TANESCO's complex relationship with the government limited the scope of EWURA's influence. TANESCO is often treated as an extension of government – especially when it comes to procurement. While EWURA can regulate some of the formal processes, the informal processes between TANESCO and government are beyond the regulator's purview and reach. An example of this can be found in the letters between EWURA and the Ministry of Energy which show how the government propagated an 'unwritten' policy, according to which all future generation projects were to be PPPs (Eberhard *et al*., 2016, p. 196), highlighting the politics behind *de facto* policy and the weakness of *de jure* policy and regulation.

As 2015 was an election year, with the CCM again competing with a new president and facing stiff competition, the political drive behind BRN and other policies, especially those providing the basis for increased public expenditure, juxtaposed with the procurement of various power projects (such as the 308 MW Kilwa, introduced by retired public servants and a foreign investor, or the 600 MW Symbion Mtwara plant), should be interpreted with care. Political anxiety around another IPTL-related scandal – the Escrow scandal – also coloured this period, with funds pilfered through the Central Bank of Tanzania and distributed to government officials and politically connected persons in the lead up to elections. The scandal also cost Tanzania hundreds of millions of dollars of donor funding, just as the country was heading into a new administration.

3.3.10 A new regime – Magufuli's power

Tanzanians talk of a 'regime change' when referring to elections – despite the fact that the CCM (formerly TANU) party has been in power since independence (1961) and the fact that the country has operated as a multiparty democracy since 1992. However, this is not really a misnomer, considering the discontinuity in official policy between governments, the change in executive and technical staff following elections (even when the same president is in power), and the significant power that presidents wield when in office.

This pattern has certainly been evident in the most recent elections. In the two years that John Magufuli has been President, there have been significant changes across government – indicating that long-term policy frameworks may shift considerably. Specifically, there has been a distinct movement towards more centralised governance and a state-led growth model, alongside a 'commitment' to attracting private sector investment and industry. Whether Magufuli will be able to balance the increasingly autocratic dominant-developmental politics with the government's dependence on external sources of investment and funding is yet to be seen – especially as the 'natural gas economy' develops. Partnerships with Chinese investors might make this possible.

Given the 'regime change', it is somewhat unsurprising that many have relegated BRN to politics and expect that the timelines and objectives of the ESIRSR will be reviewed. With a return to the idea of big government and Magufuli's reinterpretation of Nyerere's self-reliance, many doubt that TANESCO will be unbundled under the current administration. Key steps to unbundling, as set out in the ESIRSR, have already been delayed. PPP development will most likely continue to be prioritised in the generation segment, with the government maintaining a stake in (and influence over) all future projects through TANESCO. This shift is concerning given the state of the utility, which had accumulated arrears to IPPs, EPPs, and fuel suppliers to the tune of US$490 million as of May 2016 – despite financial injections in previous years, increased tariffs, and the retirement of around two-thirds of EPP capacity.

Some actors have been able to ride recent political waves in the sector, while others have not. REA has benefited from the politicisation of access, attracting general budget support of TZS (Tanzania shilling) 534 billion (US$239 million) for 2016–17 (up 50% from 2015–16 and ~50 times the original budget of TZS 11 billion in 2007 – more in real terms). There are some concerns, however, over the likely inflated reporting of recent improvements in access – suggesting the influence of political (and potentially economic) interests.

EWURA, meanwhile, has managed to steadily build technical capacity. In addition to licensing and tariff adjustment, EWURA has played an important role in procuring SPPs[12] (Odarno *et al*., 2017). According to a recent report by the World Resources Institute, the number and installed capacity of mini-grids in Tanzania has nearly doubled since 2008, when the government introduced the SPP framework (Odarno *et al*., 2017). EWURA is seen to have brought 'sanity' back into the sector, resurrecting investor confidence through the technically adroit execution of its regulatory duties. However, political pressures are mounting.

The financial standing of TANESCO has improved somewhat and steady capacity additions are beginning to reduce supply-side risks that have plagued the utility since the 1990s. However, it is poised to fall back into old patterns as President Magufuli learns to hold the reins. Since the beginning of 2017, President Magufuli has tightened his grip – sending shockwaves through the sector. In January, he reversed the EWURA-approved 8.53% tariff increase and then fired the TANESCO managing director and demoted the deputy managing directors of transmission, distribution, and generation for implementing it. In May, he then fired the Minister of MEM for his alleged involvement in a mining sector corruption scandal. Breaking with his predecessors, Magufuli launched criminal proceedings against individuals implicated in the IPTL deal and related Escrow scandal through the criminal system. However, his dismissal of the EWURA director general following EWURA's non-renewal of IPTL's licence suggests that his motives may not have been based on curbing corruption but perhaps reflected some internal conflict within CCM around the IPTL deal. Then, in October, he split MEM into two separate ministries, appointing new ministers and staff to each.

With interventions in other key sectors and dramatic clampdowns on civil liberties to match, Magufuli is driving an alarmingly autocratic agenda in Tanzania. His agenda may transmute into a true developmental state model – which, as seems to be the case in Ethiopia, would depend on funding from China or similarly oriented states. This might disrupt the political economy system enough to allow for institutional development. For the time being, this seems unlikely. Instead, it is likely that Tanzania will see more continuity than discontinuity in the short to medium term as the key features of the dysfunctional institutional equilibrium in the sector do not seem incongruent with Magufuli's leadership.

4 Institutional structure of the Tanzanian power sector

4.1 Political economy of institutional reform and power sector development

Having presented a narrative account of the institutional development of the power sector, we now turn to consider the underlying political economy dynamics – including various institutional characteristics – that have shaped the sector's development trajectory and its

[12] Extract from Odarno *et al*. (2017): 'Tanzania has at least 109 mini-grids, with installed capacity of 157.7 MW (exact figures are not known, because some small systems may not have registered). They serve about 184,000 customers. Sixteen of these plants are connected to the national grid; the remaining 93 operate as isolated mini-grids. Not all the installed capacity goes to customer connections; some is sold to the national utility, the Tanzania Electric Supply Company (TANESCO). Hydro is the most common technology (49 mini-grids), although the 19 fossil fuel systems account for 93% of customer connections and almost half of total installed capacity. Mini-grid owners and operators in Tanzania include the national utility, private commercial entities, faith-based organizations, and communities'.

current dominant features. This section identifies and builds upon a few thematic areas: policy and legislation, transparency and accountability, rent-seeking and patronage, and dominant party politics.

4.1.1 Policy and legislation

One of the most interesting aspects of Tanzania's reform experience has been the disconnect between stated policy and implementation. The government has produced numerous policies on power sector reforms – including internal policies, which are not publicly available – but, with the exception of the 2001 EWURA Act and 2005 REA Act, policy has not been suitably translated into robust legislation. Policy is often vague, leaving the door open to interpretation, as is the legislation that follows. Considerable discretionary powers for political executives, most notably the Minister of MEM, are maintained – making little in legislation ultimately binding. There are too few accountability mechanisms built into legislation that could really bring key directives into force. Lacking continuity in sector leadership, with a revolving door in place of committed governance in TANESCO and the ministry, this type of policy and legislation makes implementation unlikely. In addition, there is a more general pattern of miscommunication and weak coordination between ministries, departments, the utility, and the regulator – meaning that internal accountability within the sector is also low. As a result, the president and other members of the political executive continue to wield considerable power over policy implementation, including in areas such as planning, procurement, utility management, and tariff setting.

Assuming that dominant political and economic actors do not have a genuine interest in reforms – implementation would likely disrupt the privileges and resources that the current institutional equilibrium distributes to the already powerful - why does the Government of Tanzania perennially resuscitate the reform agenda?

In this analysis, two explanations emerge. The first relates to the consistent politicisation of the power sector. There a number of reasons for this, including the (co)incidence of drought, load-shedding, and associated scandal in the years before elections. The second relates to the donor communities' interest in the sector, which has for over 30 years been identified as a primary impediment to development.

Retrospectively, it is interesting to note that publicly available policy has been released in the years before an election where the CCM will compete with a new presidential candidate (policy 1992 – election 1995, policy 2003 – election 2015, policy 2014 – election 2015), while the non-publicly available variety emerges shortly after elections (1999, 2007). It seems that publicly available policy has functioned as a campaign tool locally, while internal or non-public policy has allowed the government to access aid and loans from external actors such as the IMF and World Bank – possibly providing new administrations with essential general budget support following elections.

Understood in this way, policy has allowed the incumbent CCM government to reap some of the benefits of reforms without actually implementing them, while continuing to reap the benefits (including those related to rent-seeking) that their effective control over the sector and utility affords. The fact that there is often policy discontinuity between 'regimes' (presidents) is a natural outcome, as CCM's staying power is at least in part dependent on the party's ability to appear to be evolving in response to the public's needs and international

policy trends. Publicly available/official policy has not provided an adequate base for strong legislation (both in terms of the lack of specificity in policy proposals and the persistence of unresolved ideological discrepancies) and, as a result, the policy–legislative basis for reform has been weak – ultimately undermining implementation. In gauging 'commitment' to reforms, internal policies are certainly not indicative of genuine intentions and public policies need to be understood in the political context.

4.1.2 Transparency and accountability

An important component of the overall rationale behind 'standard model' reforms is that of transparency and accountability. It may not feature prominently, yet most aspects of the model – independent regulation, commercialisation and corporatisation, unbundling and separation of functions – are associated with greater transparency of information and a more dispersed system of accountability. Independent regulators typically provide a bridge between the utility, government, and consumers and are bound to make information public – whether it be on performance, licensing procedures, or tariff setting. As soon as part of the sector is privatised, as may be the case following an initial public offering, additional laws apply, specifically around accounting and financial reporting, and a more diverse shareholding protects against capture. In an unbundled system, where consumers have a choice in who their power providers are, distribution or retail utilities are held accountable. Meanwhile, IPPs – perhaps in competition with government-owned and operated generation – are held to a certain standard in order to gain a share of dispatch. Increasing the number of actors in the sector means that governance and accountability should improve in general, with diversity in represented interests and more decentralised power dynamics.

In Tanzania, 'standard model' reforms would clearly undermine the *status quo* – in which, at almost every level, power is centralised and certain interests predominate (whether they are financial/economic – linked to rent-seeking and clientelism – or political, the government's desire to maintain power and control over the sector). By resisting reforms, or implementing them only partially, levels of transparency and accountability are kept low. Current institutional rules do not provide enough protection against this. Instead, vertical appointment structures, strict guidelines on sector information and lines of communication, and the frequent application of *de facto* power by political actors work against the development of decision-making capacity, accountability, and trust in governance structures.

4.1.3 Stakeholder engagement

Stakeholder engagement, or the lack thereof, has been a serious impediment to reforms and is one of a number of indicators that suggest that genuine political interest in or will to implement reforms has been absent. Though there are examples of stakeholder engagement and public education drives, including public lectures and seminars, engagement has been inconsistent and political statements around reforms have been contradictory at key junctures, undermining other forms of stakeholder engagement. In the chronological narrative presented, public engagement and discourse around the management contract provides an example of this. More recently, President Magufuli has made inconsistent statements on the issue of IPPs – in some instances stating that private sector participation in generation would be actively supported and then, in others, that all new generation would be publicly owned.

In the short term, inconsistent stakeholder engagement impedes the smooth implementation of reform steps. Over the long term, however, inconsistent stakeholder engagement has undermined the viability of reforms as the possibility of building support for the rationale behind reforms has been eroded. This inconsistency is a common feature of hybrid or duel markets, which Tanzania is an example of, where uncertainty benefits those who are able to use political connections and power to determine key policy, procurement, and planning decisions.

Actors in the sector become disoriented, unsure of which direction would or should be taken. If the ESIRSR or another reform strategy is to be implemented, continuous and consistent stakeholder engagement with a clear message – ideally backed by government and driven by a reform champion – will be crucial in making reforms politically and socially feasible, in addition to strong legislation.

4.1.4 Politics and patronage

Tanzania's failure to restructure and privatise TANESCO seems inconsistent with the country's success in privatising the majority of SOEs and implementing other components of SAP-styled market liberalisation policies. This inconsistency can be understood to indicate a number of underlying factors.

The first is that the power sector is of national strategic importance and technically complex. This means that reforms are more politically sensitive and resource intensive than, for example, privatising state-owned hotels.

The second is that the sector is highly politicised and holds a special position in the socialist paradigm, where electricity is considered a public good that the government should provide – both as an input into economic growth and as a social service.

The third is the type of opportunity that the sector provides for rent-seeking and patronage. While privatising certain manufacturing or agriculture SOEs, especially those that were commercially viable, provided an opportunity for the establishment and/or strengthening of an existing economic and political elite class (especially after the strictures on the accumulation of wealth/capital were loosened post-Nyerere), increasing private sector ownership and participation in the power sector would do the opposite. In the current structure, politically connected actors are able to influence decisions in procurement and operations that benefit certain business interests (including shielding business from non-payment of electricity bills or tariff increases) – allowing political actors to 'buy' support and/or accumulate resources for political campaigning or to otherwise influence political processes. However, there are other businesses that would want to see change/reform. For the moment, these actors are largely excluded from political spheres, while a small and closely related (often overlapping) group of political and economic actors work together to maintain the *status quo*. This, to some extent, mirrors the difference in opportunities for rent extraction in the economy, which typically load onto trade, construction, and communication – with industry potentially more competitive and thus more difficult to extract rents from. While everyone has an interest in improving power supply, those with the greatest interest – competitive industry – have less influence and less to offer the clientelistic networks that 'make things happen' in Tanzania.

While there is no self-declared anti-reform coalition, it seems likely that a lobby against reforms does exist which coordinates at higher levels, beyond public purview. One example might be found in the 'reform narrative' which is presented more or less consistently in the media. When compared with neighbours such as Kenya and Uganda, which have each had their own battles with power sector reforms, the Tanzanian narrative is decidedly more 'anti-reform' in general and there is a lot of misinformation – for example, on the private management contract or Songas – that is repeated across platforms. Given that the press is only considered partly free in Tanzania (scoring between 50 and 60% in the Freedom House Press index, with 100 being least free) and that the government and political parties are seen to use the press media to advance political interests, the persistent anti-reform narrative might be one example of coordinated lobbying. The soft power of controlling the reform narrative and the public's understanding of reforms (i.e. private sector corruption, foreign interference, pro-profit/anti-poor, etc.) is then matched by the political executives' use of *de facto* power over decision-making processes. Excepting those that have been exposed in corruption scandals, this lobby acts behind a veil.

Without a dramatic change in government or a change in power between private sector 'insiders' and 'outsiders', existing patronage networks present a steep barrier to reforms.

4.1.5 Dominant party politics

Tanzania's political economy is characterised by the dominance of CCM and its socialist legacy. While the country has progressively adopted a more neoliberal economic stance since the mid-1980s, the political legitimacy of the state and of the ruling party is dependent on the continuation of first President Julius Nyerere's legacy of African Socialism or *Ujamaa*. Despite the apparent failure of Nyerere's model and the economic ideological shift following his abdication in 1985, socialist political ideology has remained embedded in the dominant political culture and paradigm, with the core components of self-reliance and state-led development providing the basis of political identity, along with the practice of paternalistic leadership and autocratic government. Maintaining this legacy is one part of CCM's strategy in maintaining power.

The other part is also in part a legacy issue. Under the stain of economic contraction and the strictures of socialist policies, a shadow culture of rent-seeking, low public service accountability, and clientelism emerged in the later years of Nyerere's government. This culture became entrenched as economic and then political competition spread following early economic liberalisation interventions and the introduction of multiparty politics in 1992. The incumbent CCM was able to use the state apparatus for rent-seeking in the lead up to the first elections, providing the necessary resources and patronage networks to ensure that the party stayed in power. The political and economic elites were thus intertwined and their fates have been interdependent since. Patronage plays a critical role in maintaining the current political economy system.

The development of these parallel but antithetical cultures spurred a third culture – one of cognitive dissonance and a common suspension of disbelief around the socialist model of government. While neoliberal economic ideology has been adopted, it has not permeated the political system. And though corruption scandals have exposed patronage networks at numerous points, the paternalistic CCM has been able to undercut formal punitive

institutions, using internal disciplinary processes to circumvent the law. This is not to say that the CCM has not encountered opposition. Rather, the socialist legacy and strong patronage networks have – thus far – insulated the party considerably.

Looking at the issue of power sector reforms, it is clear that genuine political will has been lacking. Acknowledging the close relationship between economic and political interests, what makes unbundling and privatisation – among other interventions – undesirable?

Firstly, key components of 'standard model' type power sector reforms are antithetical to the legacy of African socialism. The ideal of state-led development stipulates that certain essential industries are government owned or controlled – the power sector is such an industry. The ideal of 'self-reliance' is of particular relevance to policy choices – the unbundling and privatisation of the state-owned power utility are seen to be 'foreign' ideas. The idea of public goods is pervasive – electricity is considered a public good that should be provided by the government.

Unbundling and privatisation would thus undermine the legitimacy of CCM by eroding the ideological foundation of government. Implementing reforms in the power sector would be like admitting that the government could not provide for its citizens or lead economic development or live up to the legacy of it, and the country's, founding principles. While full unbundling and privatisation is no longer viewed as a feasible or suitable model for Tanzania, anxiety about these steps – and the expected implications for CCM's legitimacy – means that structural reforms in general are highly complex policy issues.

Secondly, as explored above, the current structure of the power sector provides the best opportunity for rent-seeking and patronage, through centralised and un-transparent procurement processes run between TANESCO and the government. If competitive procurement processes, facilitated by a restructured sector, replaced the current system, there would be little room for the still-underdeveloped local private sector or political rent-seeking.

'Standard model' reforms would thus limit CCM's (or factions within CCM) ability to use the state apparatus for rent-seeking and/or to establish and maintain patronage networks, which – with the increasing competitiveness of elections – is an important component in maintaining political power. Conversely, if you look at the issue of rural electrification – which has been bolstered by the 'unbundling' of rural electrification functions from TANESCO – REA has been able to attract significant resources, create jobs, and benefit certain actors through connecting villages and households (feeding into patronage networks), while at the same time bolstering the government's socialist image and winning the CCM votes. Institutional change in this area may create new incentives and opportunities in others, and has the potential to open the sector to more reforms.

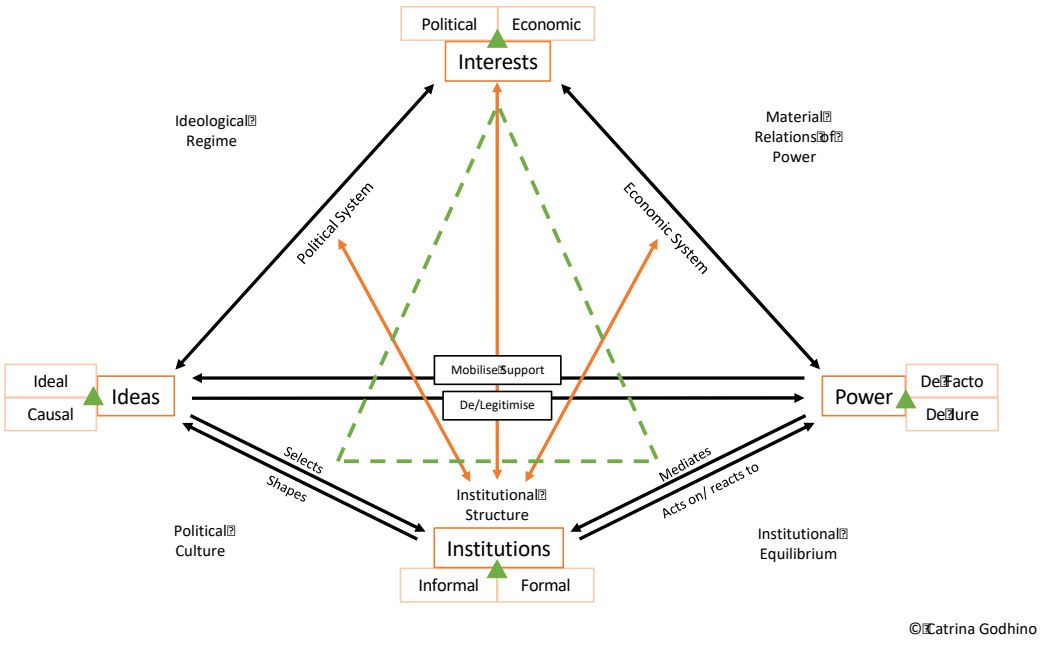
4.2 Political economy of institutional equilibrium in hybrid markets

When one approaches the issue of power sector development and reform from a techno-economic standpoint, Tanzania seems to be in a state of disequilibrium. The power utility is financially unsustainable and inefficient, recurrent drought-related crises seem to precipitate

reckless short-term decision making with dire consequences for longer-term planning, and sector outcomes are poor – less than 30% of the population has access to electricity, supply is inadequate and unreliable, and a perennial investment crisis undermines already-unrealistic system expansion and maintenance plans. Furthermore, pendular policy, inconsistent political signalling around reforms, institutional weakness, and evident capacity constraints seem to mirror (and thus confirm) a state of institutional disequilibrium.

Yet, from a political economy perspective, there are certain features of the current system that might indicate that this is a distortion – that the very indicators of economic disequilibrium may constitute a feature (and outcome) of a relatively stable institutional equilibrium. Recent work in institutional economics pays a good deal of attention to dysfunctional institutional equilibria – specifically that of Acemoglu and Robinson (2012), as well as exploring the political economy foundations thereof – such as the work on 'political settlements', led by the work of Mushtaq Khan (2010). Taking this further, we argue that institutional equilibrium might be conceptualised as a constituent part of a larger political economy equilibrium – understood as the relatively stable and mutually reinforcing structural relationships that exist between institutions, interests, ideas, and power, and the dynamic interactions that maintain them. In Figure 3, this is captured in the 'political economy diamond', which provides a concept map of political economy equilibrium.

Figure 3: Political economy diamond



According to this model, systemic change (i.e. a shift in equilibrium) – which is represented by the central green triangle – requires change at each of the core nodes: institutions, interests, ideas, and power. Significant change at just one of the nodes could bring about a situation of disequilibrium, which would be indicated by unpredictable outcomes and could catalyse change at other nodes. However, without change at all nodes, equilibrium will likely be restored – often through the 'see-saw effect', whereby an effective reform is undercut by countervailing interventions which maintain the overall balance in the system (Acemoglu *et*

al., 2008). A classic example is the intractability of subsidies, which has shown the multiplicity of distortionary instruments that can be thought up to satisfy the same politically powerful constituencies – maintaining power dynamics and incentive structures, often through the utilisation of ideational touchstones (e.g. state-led development through public investment).

The institutional equilibrium identified in the Tanzanian power system is consistent with the experience and outcomes of power sector reforms in many other developing countries, what Victor and Heller (2007) term a 'dual market' (also known as a hybrid market model). According to Gratwick and Eberhard (2008, p. 3958), 'most developing countries […] now have hybrid power markets, with elements from both the old and new industry', characterised by 'contested policy and institutional space[s]'. Understood this way, the introduction of 'standard model' reforms, along with the initiation of structural adjustment programmes from the 1980s and the reintroduction of multiparty democracy in 1992, created 'new organisations and [interests] that favour an alternative equilibrium – a type of "dual market" that combines elements of a state-centred and market-centred' system (Victor and Heller, 2007, p. 260). This 'market' – and the evolving, accompanying institutional (and political economy) equilibrium – might not be the 'most desirable in terms of efficient or good governance', but is a 'remarkably stable' outcome (p. 261).

As the literature on hybrid markets would suggest, TANESCO is best positioned to 'hold' the weakest parts of the system. The utility's access to concessional loans and government support (when need be) allows it to do so very differently from the private sector. In the past, this has been to the benefit of those with access to power who were indirectly or directly subsidised by government, for example through suppressed tariffs or politically condoned non-payment (especially for SOEs and government entities). More recently, the benefits have been more widely distributed through TANESCO's support of electrification. While TANESCO is not profit making, it allows for a certain type of rent extraction (procurement) and rent distribution (including jobs and contracts) which is favourable for dominant political and economic interests. The fact that TANESCO enjoys *de facto* soft budgets and can access state bailouts means that it can be used in this way, while incentives for greater efficiency are relatively weak. Because political power is highly centralised and cadre deployment is part of CCM's own patronage system, it is unlikely that the government will cede its control over TANESCO. This is true also of planning and policy functions, as well as top-down procurement norms. Meanwhile, TANESCO is likely to obstruct reforms that could disrupt its monopolistic position in the power sector.

In comparison, profit-making IPPs have provided an opportunity for rent extraction on a grander scale – made grander still by the supply-side crises that have been used as opportunities for the political executive's involvement in procurement. The only IPP that was transparently and competitively bid for, Songas, has been mired in corruption scandals and in the negative narrative promulgated by the government and the media. More recently, PPPs, especially those with China, are likely to have provided similar opportunities made easier through some institutionalisation – transparency remains low and there is room for direct political involvement.

EWURA has been one of the most positive reform interventions in terms of improving sector performance. However, there are many challenges raised by the hybrid model. Firstly, EWURA has to contend with the 'public good' characteristics of electricity – designated in

political rhetoric, policy, and legislation. This makes it difficult to regulate tariffs and state entities, including TANESCO and REA, where their actions are justified by sociopolitical considerations. Secondly, a key feature of the hybrid model is continued political influence, whether it be in procurement with a view to rent-seeking or tariffs with a view to appeasing voters – which makes regulation highly politicised and the regulator vulnerable to censure. Thirdly, there are extreme asymmetries of information between the regulator, market actors, and TANESCO – making it difficult to gauge true costs and calculate appropriate tariffs. These tensions are well captured by Victor and Heller (2007, p. 296), who describe how 'regulators pressured from multiple sides in pursuit of multiple goals with limited access to reliable information are highly unlikely to produce stable or predictable rules' that can withstand political pressures.

The hybrid power market is also consistent with other 'hybrid' features of the institutional, and greater political economy, system. Tanzania is considered to have a hybrid political regime (an illiberal democracy) where regular elections are not necessarily accompanied by the civil liberties that would translate into real political competition and accountability. Looking at ideology and policy discourse, Tanzania occupies a 'transitional' space between socialism and market-liberalism, except that the direction of transition seems to change frequently. The institutional space is similarly fraught, when one considers the tensions between fundamental institutions, such as the economic institutions fundamental to market-oriented development models (e.g. property rights), and the state-oriented nature of political institutions (e.g. the constitutional designation of far-reaching powers to the president). Much like the hybrid model in the power sector, many of these features are seemingly stable – if dynamic – and have been present since at least the 1990s.

5 Political economy, reform, and development – concluding comments

This chapter set out to investigate why it has not been possible for Tanzania to move from an institutional equilibrium that does not bring about the desired sector outcomes (investment, system expansion, and improved technical performance) to an institutional equilibrium that does.

It has been argued that the select 'standard model' reforms that have been implemented in Tanzania – the removal of TANESCO's *de jure* monopoly, the procurement of IPPs, the establishment of an independent regulator, and the unbundling of rural electrification functions to REA (and SPPs), alongside the political and macroeconomic reforms of the 1980s and 1990s – created a dynamic hybrid model that is supported by and informed by the broader political economy system. Some of the features of this system seem, at face value, to be examples of disequilibria. Yet at a system level there is an unexpected stability – one that has been able to keep CCM in power since the 1960s, perpetuates a deep political culture tied to the ideology of African socialism, and where the tension between informal and formal institutions creates a sort of balance that serves the interests of a highly centralised political and economic elite. Indeed, in terms of predictability and continuity, Tanzania is actually an outlier in the region.

The argument has been made quite strongly that the current hybrid model in the power sector is also relatively stable and, having survived 20-plus years, may continue to do so. Tanzania provides an example of how such systems do survive – with both positive and negative developmental outcomes. The question is then: what sort of interventions or policy options might tip the balance of the outcomes in favour of development and institutional evolution? Regarding insights for policy options, there are a number of standout messages from the literature.

The first is that the effectiveness of policies depends on the matching of instruments with institutional weaknesses and political economy realities. Much of the debate on power sector reforms and development tends to focus on increasing the role of the private sector, on the degree of independence of regulators, on the design of procurement rules, and on the quality of contracts as a key tool to stimulate performance in the sector. These are certainly relevant, but theory and experience also suggest that there might be room for other options which a) decrease the consequences of the current dysfunctional institutional equilibrium for sector development and b) work within the political economy system to fast-track its evolution and facilitate positive institutional development cycles. For instance, the potential role of local authorities in the design, selection, implementation, and monitoring of more local solutions to make faster progress in achieving rural access targets or secondary cities targets seems to have been underestimated in the past. However, Tanzania's experience with SPPs (and enabling regulation) shows that this is a policy option that mitigates the lack of incentives for TANESCO to expand into rural areas and corresponds to the more general pressures of decentralisation currently facing the CCM and government, as well as the long-standing ideological legitimacy of decentralised socialist governance.

The second insight of direct use to the policy debates in the Tanzanian power sector may be that when the institutional equilibrium generates systemic uncertainty in the choice of options, the best is often the enemy of the good. Picking options which limit regulatory failures initially at least, rather than focusing on the adoption expected to deliver an uncertain high payoff, may be the most effective way of building up institutional capacity, credibility, and accountability. EWURA's slow and steady development is an example of this. In general, smaller, simpler scale approaches tend to work better in this context, as they are easier to implement and to monitor locally. Moreover, simply trying to adopt solutions designed for other contexts, similar only in technical dimensions but quite dissimilar in terms of political economy, tends to be quite counterproductive. Increasingly, evidence suggests that designing options which recognise local contextualities – political culture, institutional norms, power dynamics, ideology, and interests - is critical to the success of interventions (Eberhard and Godinho, 2017).

A third insight is that, just as there are 'out of sector' determinants of the feasibility and outcomes of various reforms, there are also 'out of sector' interventions that can be leveraged to kick-start, support, or sustain sector interventions. Much of the literature indicates that the most important reforms lie in finance – specifically the application of hard budget constraints on state-owned companies like TANESCO. Hard budget constraints are typically made possible by increased transparency on subsidies and transfers – which can create political demand and will for financial accountability. Corporate governance is another important area, but should be designed with an eye to political channels of communication and authority. In general, moving the governance of power utilities and state-owned companies to the Ministry of Finance – away from minerals and energy ministries – can

support the realisation of 'better' corporate governance, as can the partial unbundling or partial listing of a state-owned company. Many of these 'out of sector' interventions, like standard model reforms, are decidedly 'against the grain' – but, in opportune moments, can make more ground than sector-level interventions.

A fourth insight, for which a case does not need to be made in the Tanzanian context, is building and protecting regulatory institutions. This is especially relevant given the recent transgressions against regulatory independence in Tanzania.

A fifth insight to be considered is that the assessment of the institutional context of the sector needs to account for all actors – not just local actors. For instance, investors will push for short-term returns in negotiations, while politicians are likely to be concerned with the next election and users with their own well-being rather the country's well-being. The main point here is that the analysis of the political economy of the sector needs to help the government and other actors to understand core features of the local system, but should consider the political economy of donors and other foreign actors (McCulloch *et al*., 2017). Over-optimism was mentioned as an issue in the design of the Master Plans earlier, but it is difficult not to wonder why donors are so keen to share this optimism and to continue choosing solutions that do not seem to address the local institutional limitations and opportunities. McCulloch *et al*. (2017) make the case that donors, specifically, have not really been keen or able to internalise the role of political constraints in their own diagnostics and most importantly in their support programmes. These concerns had already been raised by others such as Faustino and Booth (2014), Piron *et al*. (2016), or Tripp (2012), but McCulloch *et al*. (2017) add that donors also underuse the margin they have to do so within the new aid modalities, such as the possibility of engaging groups outside of government in favour of support. While donors continue to play a big role in policy design in the Tanzanian power sector, this is an issue that has to be addressed.

A final concluding insight is that the political economy lens allows one to identify obstacles *and* opportunities for reform, evolution, and development. Institutional reform has received special attention in the development literature and praxis because of the way that institutions shape incentives and determine interests, mediate power dynamics, and give shape to – and reshape – political culture and ideas. However, it is equally important to identify other possible entry points, such as the building of coalitions around certain issues in order to alter power dynamics, or the use public education drives to change the way people understand electricity services. Making the most of such opportunities can drive positive adaptations in the sector, as well as support, legitimise, and reinforce institutional reforms. Indeed, it is the absence of many such complementary interventions – stakeholder engagement, coalition building, mechanisms to increase transparency and accountability, support of free media and speech, strong legal imperatives and consequences – that helps us to understand the challenges to reform and development in the Tanzanian power sector.

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Discussion of 'Power sector reform and regulation in Tanzania'[13]

The main purpose of Godinho and Eberhard's paper (GE) is to conduct an assessment of the difficulties observed in Tanzania's power sector as part of a global diagnostic of Tanzania's institutional constraints on its ability to deliver economic policies. To do so, the authors provide an historical perspective on the sector's institutional evolution, highlighting governance and financing challenges as well as recurring political hesitations on key policy decisions. The diagnostic is extremely detailed, lucid, and honest and provides enough details to anchor a discussion of additional reform needs.

Their diagnostic is also quite humbling in terms of how much can be done at the policy design level with 'standard or imported' policy solutions. The country suffers from a lasting record of imperfect political and technical accountability for failures to deliver and these are unlikely to be addressed under highly centralised and standardised 'business-as-usual' approaches to sector reform. Tanzania's political preferences and current institutional constraints do not seem to be consistent with large standard reforms, delivering fast improvements more transparently.

This note argues that the GE diagnostic implies that unless alternative, possibly unusual, institutional and reform strategies are at least piloted on a reasonable scale, progress is likely to continue to be slower than stated in the Master Plans (including the 2016 plan). It is also unlikely that the sector will achieve the financial autonomy required to finance the needs of the 67% of the population without access to electricity (83% in rural areas) and of the many businesses rationed in quantity and in quality. To help in the identification of alternatives, the following comments on GE provide some suggestions to follow up analytical, policy, and political work.

Market context – the underestimated demand and supply bottom line

Before discussing broad institutional options to address market and government failures in the design and implementation of energy policies in Tanzania identified by GE, it seems useful to highlight the outcome of these failures at the very basic quantitative level. This helps get a sense of the size of the challenge and the specific issues to address, as well as possibly anchoring the recognition of the scope for innovative rather than standardised solutions.

Very concretely, for an observer unfamiliar with the country, the data suggest that the investment *level* is not the only problem. Investment *speed* is just as important. Supply has hardly been catching up with a fast-growing demand. Worse yet, the growth of this demand may actually be underestimated. Current consumption is at around 108 kWh/capita. This is only 20% of the sub-Saharan African average.[14] And this is a capacity development and

[13] I am grateful to F. Bourguignon, D. Camos, and R. Schlirf for useful discussions. Any mistake or misinterpretation is however my responsibility only.
[14] In 2014, this consumption per capita was 1,931 kWh in low- and middle-income developing countries, 745 kWh in lower middle income countries, and 2,060 kWh in middle-income countries.

management issue, a major weakness of Tanzania, hinting at a mismatch between the institutional choices and the capacity of the country to design and implement a policy in this sector.

The size of the capacity gap continues, indeed, to be huge. As of 2017, Tanzania had less than 1,500 MW of installed grid generation capacity running at 70% load on average to serve a population of 58.2 million which has one of the fastest growth rates in the world (3.1% in 2016).[15] In recent times, demand has been growing at an average annual rate close to 10% and since investment has not followed, about two out of three Tanzanians do not have a chance of seeing their needs met in the short term under the current technological characteristics of the sector.

It will take 10–15 years to close the gap, at least. Since the early 2010s, the successive Master Plans have converged towards estimates of investment needs sufficient to cater to a peak demand of 4,000–4,700 MW by 2025–30. The latest plans focus on rapidly developing gas-fired and coal-fired generation in the short to mid term (2017–19), while focusing on hydrogeneration capacity in the long term (2019–25) – in a region with a record of droughts.[16] The plans appear to be realistic in theory, but the details available to casual observers do not seem to internalise the lessons from the recurring delays observed in Tanzania for large-scale power projects and the factors driving demand growth. And this is a process-related issue which needs to be addressed in the design of reforms.

Progress has mostly benefited urban users. According to the 2016 Energy Access Situation Report, about two-thirds of the urban areas have access to electricity. The main beneficiaries of access rate improvements have been the capital city and the upper-income classes and businesses.[17] Technically, they also benefit from the lowest-cost solutions. Cost-effective grid electricity prevails in urban areas, with 96.4% of the households with access to electricity connected to the grid.[18] Grid connection is only available to 34.5% of the households in rural areas and, in many cases, the technological choices deliver a load level inconsistent with the willingness and ability of the populations to pay.[19]

The outcome is a heterogeneity of costs faced by users and a somewhat regressive investment plan timing. Currently, the poor, the majority of the rural population, spend about 35% of their household income on energy, 2.5 times what the rich spend.[20] This distributional issue linked to both investment costs and timing should be a much larger

[15] Transmission and distribution losses (18%) in Tanzania are standard for the region, but significantly higher when compared with countries around the globe.
[16] More specifically, the government plan under the BRN initiative to be implemented by 2020 is to generate 1,500 MW from gas, 160 MW from oil, 100 MW from wind, 60 MW from solar, 11 MW from small hydropower, and 200 MW from coal, as well as 650 MW from estimated geothermal potential. The strategy is partially anchored in the recent discoveries of 55.08 trillion cubic feet of natural gas reserves off the coast of Tanzania. For now, Tanzania is a net importer of petroleum products, although over 30% is re-exported to landlocked neighbouring countries (Zambia, Democratic Republic of Congo, Rwanda, Malawi, and Burundi).
[17] Only 16.9% of areas enjoy this service in environments in which efforts are being made to reduce poverty and improve standards of living.
[18] Dar es Salaam enjoys 99.3% of households connected to grid electricity. Another region with a high number of grid electricity is Kilimanjaro (88.0%). Least-connected regions to grid electricity were Lindi (24.5%), Njombe (36.6%), Mtwara (38.9%), and Katavi (41.1%).
[19] According to the United States Agency for International Development (USAID) (2018), a connection charge to the TANESCO grid in a rural area costs at least US$200, and this is for an unreliable service.
[20] Most of the rural population relies on expensive, hazardous, and low-quality fuels such as kerosene for lighting and charcoal for cooking.

concern to the various sources of financing supporting the transformation of the sector, given that there is now enough evidence that the decision-making process needs to be revamped to speed up the delivery of energy at a reasonable cost consistent with the preferences of the majority of the population outside of the major cities.

The timing and technological choices drive the investment financing capacity and options. Irrespective of any institutional or policy issue, the physical challenge boils down first to a financial challenge in the short run. The continued backlog, the slow investment speed, and the significant financing gaps are recognised in the 2016 Master Plan update. Various sources mention investment needs of around US$40 billion investment under current technological preferences.[21] If this were to be spread over 10 years, the high case scenario, it would roughly mean 10% of GDP. This is unrealistic. It means that closing the gap will have to be slower and that the sector needs to consider ways of cutting costs to make the most of the fiscal envelopes to be allocated to the sector. It also means that, unless technological choices are adjusted, it is hard to see how Tanzania will be able to produce enough electricity fast enough to meet its objective of becoming a middle-income country by 2025.[22] And this should matter to the assessment of the location and nature of investment decisions in the sector and to growth expectations.

How much scope is there to adjust technological options? Tanzania's successive Master Plans have long recognised that there are alternatives to the traditional energy sources and that these are expected to help during the transition to the 2025 access rate goals. Today, of the electrified households, about 25% are already not connected to a grid – 24.7% with solar power and 0.3% through individual electricity generated from sources such as small generators. But these technological approaches could also be considered for the medium to longer run to cater to the rural population as a way of managing both cost and time preferences. This is a serious option in an environment in which new low-cost technology relying on local renewable options is emerging fast and providing reliable, affordable service.[23]

So far, progress in making the most of the alternatives has been slow considering the potential they offer – even if it has been high by sub-Saharan African standards. According to a World Resources Institute (WRI) (2017) report, Tanzania has at least 109 mini-grids (93 operating as isolated), with installed capacity of at least 157.7 MW, but they only serve about

[21] E.g. Peng and Poudineh (2016).

[22] Kichonge *et al*. (2014) show the dominance of hydro, coal, natural gas, and geothermal as least-cost energy supply options for electricity generation in all scenarios. Under dry weather scenario, they argue for a shift to coal and natural gas to replace hydroenergy, with little scope for solar thermal, wind, and solar photovoltaic (PV), but this ignores the discount rate/rate of time preference dimension. Lower values favour wind and coal-fired power plants, while higher values favour the natural gas technologies.

[23] USAID (2018) explains that Devergy, one of the providers of alternatives to TANESCO catering to rural areas of western and eastern Tanzania, relies on an adaptive mini-grid system controlled by a wireless communication system allowing the monitoring of individual meters working with a pay-as-you-go system. Its mini-grids use distributed, networked solar PV with battery storage delivering reliable (at 99%) 24-volt direct current electricity to between 60 and 400 households. Each household receives up to 250 watts of electricity and compatible appliances can be purchased at local kiosks. The initial connection fee ranges from US$6 to US$12 per customer and covers the meter, wiring, installation costs, and two bulbs. This is less than 5–10% of the connection fees charged by TANESCO for connections to their grid. The recurring cost is based on consumption on a standard tariff structure allowing the recovery of operational expenditures.

184,000 customers, a far cry from meeting the needs of the 35 to 40 million living in rural areas.[24]

The growing interest in these alternative technological options has been matched and stimulated by the development of pay-as-you-go solar companies supported by mobile phone companies (MKopa, Zola, and Mobisol). This has smoothed cost recovery through mobile payment systems such as Airtel, Tigo-Pesa, or M-Pesa. Mobile operators have become essential drivers of the growth potential of these alternative providers in rural regions.[25]

In the short run, these solutions may be seen by some observers as a niche to be exploited to deliver faster in areas unlikely to see the benefits of the investment programmes before the end of the plan period.[26] But it is not unreasonable to argue that these solutions should be considered as more than a short-term niche. And the scope to make the most of this option should be included in the assessment of the potential changes in the design of institutions in the sector.

How much are current choices biased by the insufficient analytical support to decisions? For a newcomer to Tanzania going through the recent literature and the policy documents available on the web on the sector, it is difficult not to think that there may be a recurring optimism bias in the sector diagnostics used to anchor policy decisions.

First, on the demand side, the needs may be regularly underestimated. They seem to ignore the expected change in the purchasing power of the population, which implies much higher income elasticity than recognised by the Master Plan. They also underestimate important details on the consequences of the ambitious economic growth and diversification targets aimed at by the authorities in their strategic development plan. This implies that it may be useful to take a more precise look at the data anchoring the Master Plan. It would be beyond the main purpose of this note to go through a data and methodological diagnostic, but an independent audit of these basic quantitative dimensions would not be an unusual exercise in an environment in which institutional and governance weaknesses may reduce the incentives to take a cold look at the facts. This is what countries such as Vietnam or Laos have been doing recently as part of the sector-restructuring efforts, for instance.

Second, on the supply side, there is the common bias in favour of the lowest-cost technologies. This is fine if the assessments were not biased by the reliance on standard financial discount rates rather than rates accounting for the relevance of the time preferences of users. The rate of time preference is relevant to reflect the sense of urgency of regions otherwise expected to stay unconnected for a while. Over two-thirds of Tanzanians seem to have a much higher discount rate than reflected in standard project

[24] Hydro is the most common technology (49 mini-grids), although the 19 fossil fuel systems account for 93% of customer connections and almost half of total installed capacity. Tanzania has 25 biomass mini-grids, and 13 solar mini-grids (10 of them small donor-funded, community-owned demonstration projects). There are no wind mini-grids in Tanzania.
[25] Ohio State University (2017).
[26] This is not an irrational option under tight financing constraints, considering that the cost of grid extensions ranges from about US$6,500 per kilometre in densely populated regions to as much as US$20,000 per kilometre in regions with dispersed populations. This high cost of grid extension in remote areas and the slow speed at which these extensions tend to take place are two of the main reasons for considering opportunities for off-grid electrification more rigorously.

evaluations. This matters to the choice of technology since this choice impacts the time of delivery. The relevance of this time preference in Tanzania is actually quite clear from the craving for mini-grids. This craving reveals a willingness to go for more expensive marginal costs as long as delivery is faster. It would seem useful to consider the differences in investment costs accounting for these differences to see whether the resources allocated to the sector are going to the most cost-effective technology once more realistic discount rates have been accounted for. If the preference for alternative faster options is confirmed for the Tanzanian case, the next challenge would then be to see how best to internalise these in the institutional design, as discussed in the next section.

Towards an actionable institutional diagnostic

Reframing the GE diagnostic more conceptually. The walk through the history of the sector offered by GE is both fascinating and depressing as it highlights the recurring character of some of the mistakes and the high degree of 'politicisation' of decisions in the sector. In countries with stronger sector governance, these decisions are usually handled through simple administrative processes designed to cut the risks of capture and distortions, ultimately sustaining and increasing accountability. Just to name a few of the issues identified by GE and rephrased here to deal with them more conceptually, I would list:

- the inability to establish credibility (the repetition of promises unmet for over 25 years should simply have been internalised long ago in the design of reforms and institutions and has largely been ignored in successive reform waves);
- the excessive margin given to some agents, both public and private, to bias and/or capture processes and officials/authorities, or to be opportunistic in exploiting policy failures and random weather shocks (most notably in the award of IPPs);
- the inability of authorities to minimise the risk of cream-skimming in the preparation of PPPs, allowing private actors to get the rents from low-hanging fruits and leaving the government with the unmanageable fiscal and bureaucratic burden of dealing with the high-cost items (most notably in the preparation of service obligations and entitlements as well as in the distribution of cost and revenues in the design of IPPs); and
- the misuse of tariff reforms (notably when they ignored the fiscal limits on efforts to rely on direct subsidies) or the lack of continuity in the staffing and rules (which tends to be important for key technical and contractual dimensions, even if too much continuity may sometimes increase the risks of capture and corruption).

In sum, conceptually, each of the examples fit into the usual main characterisations of institutional weaknesses: non-benevolence, non-commitment, non-accountability, non-technical, regulatory or human capacity, and non-fiscal capacity problems.[27]

Recognising the predictability of the consequences of the institutional weaknesses. The consequences of these weaknesses have been quite well documented empirically.[28] All of them imply a lower welfare for the country and each of them have somewhat predictable consequences for the key dimensions of interest in any sector diagnostic, i.e. the quantity of

[27] See Estache and Wren-Lewis (2009) for a detailed discussion of this classification and for its implications for the restructuring of a sector and its regulation.
[28] See for instance, Estache and Wren-Lewis (2010) for a non-technical survey.

service delivered (both in terms of volume and coverage), its quality (which can be either insufficient or excessive), its cost (which can be influenced by the quantity and quality choices, and its price (which is related to costs but may also be linked to the specific regulatory regime adopted).

Table 1 summarises the likely impact of institutional weaknesses as identified in the academic literature. And they are quite consistent with the evidence available on Tanzania. Coverage (i.e. quantity) has been lower than it should be as a result of a combination of the various types of institutional weaknesses (there is no question mark for Tanzania on this dimension). Quality is lower on average, even if it may be better for some users, such as in the large cities. Costs have all been higher than needed in Tanzania as well. And prices may appear to be too low to cover costs, but they are all higher than they should be given the margin there is to cut cost through alternative technological choices and improvements in management approaches. Tanzania does not appear to be different in terms of the institutional weaknesses characterising the sector, based on the evidence available.

Table 1: Impact of institutional weaknesses on key sector service performance indicators

	Quantity	Quality	Costs	Prices
Limited technical, human, regulatory capacity	?/-	-	?	+
Limited commitment capacity	?/-	-	+	+
Limited accountability	-	?	+	?
Limited fiscal capacity	?/-	-	+	?

Based on the Estache and Wren-Lewis (2009) detailed survey of the literature.

Of course, this characterisation largely focuses on very basic correlations between institutional weaknesses identified and outcomes. Causality often runs both ways. For instance, high costs may limit the capacity to do more with the fiscal resources allocated to the sector. Moreover, interactions between the various types of weaknesses are relevant.

For instance, lack of accountability is often a good predictor of lack of commitment and hence lack of credibility, which tends to slow down the interest of the average private investor or lender. This may make specific deals in the sector easier in the short run because they focus on the easy transactions, or, worse, they get governments to come up with packages that guarantee that the low-cost/high profit margins are passed on to private investors and the high-cost/high-risk/low margins are left to the public sector without any room for cross-subsidies or risk of mitigation opportunities. But those ‘cream-skimming’ deals tend to be disproportionately more in the interest of specific public and/or private actors than in the longer-run country interest. This is why it is crucial to internalise in the design of procurement practices that the accumulated evidence shows that the tolerance for cream-skimming allowed by weak capacity and weak accountability tends to favour the few and penalise the majority. The biases in favour of Dar es Salaam and of targeted private actors provide good illustrations of this risk.

Note that theory and empirical evidence also explains some counterintuitive observations. For instance, the fact that prices may need to be higher than they are may be consistent with the fact that the various types of institutional weaknesses imply higher than needed risk levels. This implies a high cost of capital, which in turn implies a high average tariff to allow

the private investors to recover their risky investment. This is not an easy sell politically, but it can be addressed by making the most of tariff structure adjustment to minimise the social consequences of higher average tariffs, even when the ability to subsidise is limited.[29]

Using academic insights to identify solutions. This conceptualisation of Tanzania's problems does not simply serve to show that the consequences of the institutional weaknesses identified by GE are and were predictable. It is also useful because it allows the identification of institutional adjustments suggested by theory, and supporting evidence, to reduce the importance of these weaknesses and of their consequences. Once more, it would go beyond the scope of these comments to review the list of possible solutions, but a few of them seem to be particularly relevant to the Tanzanian context.

A first relevant insight is that the effectiveness of policies depends on the matching of instruments with institutional weaknesses. Much of the debate tends to focus on increasing the role of the private sectors, on deregulating, on the degree of independence of regulators, on the design of procurement rules, and on the quality of contracts as a key tool to stimulate performance in the sector. All are of course relevant. But theory and experience also suggest that other institutional dimensions, such as decentralisation or the extent to which mandates are shared within government or across government, may offer additional options. A decentralised energy system is characterised by locating energy production facilities closer to the site of energy consumption.[30] In many contexts, it makes it easier to optimise the use of local renewable energy. From an institutional viewpoint, it can also make it easier to reduce the consequences of institutional weakness inherited from history (including legal and constitutional history) or built-in culture, for instance.[31] This is because decentralised energy systems tend to put power sources closer to the end user. This increases the accountability of the local decision makers and gives them the option of reducing their need to wait for network expansions decided nationally. Whether the local managers are named by the local authorities or are simply local representatives from the national government, the pressure they will face to deliver faster is likely to be stronger than it currently is in Tanzania.[32] While these options seem to be realistic and have been adopted by other countries, the GE diagnostic suggests that they may not have been considered thoroughly enough in the Tanzanian case. And indeed, based on the information available publicly, it seems that the potential role of local authorities in the design, selection, implementation, and monitoring of more local solutions to make faster progress in achieving rural access targets or secondary cities targets may have been underestimated.

A second relevant insight from the theory and supporting evidence is that when there are multiple sources of institutional weaknesses, a ranking in terms of urgency may be needed. Moreover, particular attention needs to be paid to the impact of any policy across institutional weaknesses because solutions to one problem may make things worse on another

[29] See for instance Peng and Poudineh (2016) to see the scope for tariff adjustment available in the Tanzanian case.
[30] Decentralised generation facilities may be connected to a grid (national or mini) or simply serve a particular site without feeding potential excess generation into the grid. As the regions develop, mini-grids can become more common and eventually be upgraded to form a distribution network that is connected to a larger transmission network. This sequential approach has the advantage of increasing the system's reliability in the longer run (in particular when intermittent sources are used), while allowing consumption in the short run.
[31] For more details, see Estache (2017b).
[32] And, of course, this will require developing new regulations. For instance, an evaluation of the need to adapt ownership and pricing rules for off-grid and mini-grid services is likely to be needed.

dimension. For instance, regulatory capacity limitations argue for higher-powered incentive regulation (i.e. price or revenue caps), while commitment or credibility problems argue for low-powered incentive regulation (i.e. cost plus/rate of return). In the Tanzanian context, a casual observer of the evidence available thanks to the GE diagnostic would be more concerned with the commitment issue than with the regulatory capacity problem.

The third insight of direct use to the policy debates in the Tanzanian power sector may be that when institutional weaknesses imply systemic uncertainty in the choice of options, the best is often the enemy of the good. Picking options that limit regulatory failures initially at least, rather than focusing on the adoption expected to deliver an uncertain high payoff, may be the most effective way of building up institutional capacity, credibility, and accountability. Smaller, simpler-scale approaches tend to work better in this context as they are easier to implement and to monitor locally, for instance. Moreover, simply trying to adopt solutions designed for other contexts, similar only in technical dimensions but quite dissimilar in terms of institutional weakness intensity or nature, tends to be quite counterproductive. Increasingly, evidence suggests that designing options that recognise local traditions and norms is the way to go, as seen in research on the role of religious norms in the incentive to deliver in infrastructure.[33]

A fourth insight to be considered here is that the assessment of the institutional context of the sector needs to account for ***all*** actors. Each has its own agenda and each of these agendas is likely to only partially overlap with the others. For instance, investors will push for short-term returns in negotiations, while politicians are likely to be concerned with the next election and users with their own well-being rather the country's well-being. The GE diagnostic nicely illustrates the multiplicity of players, both local and foreign as well as both public and private. However, it may not do enough justice to the relevance of both national and sub-national players as well as to the potential role of civil society. The main point here is that the analysis of the political economy of the sector needs to help the government look into its strengths and weaknesses, but it also needs to get donors and other foreign actors to do the same. Over-optimism was mentioned as an issue in the design of the Master Plans earlier, but it is difficult not to wonder why donors are so keen to share this optimism and to continue going for solutions that do not seem to address the local institutional limitations and opportunities.

A final insight is that politics are the main determinant of many of the relevant outcomes. This has also been documented in various overviews of experiences of reform in the sector, in sub-Saharan Africa (Eberhard *et al*., 2016) or elsewhere (Scott and Seth, 2013). The relevance of the political economy of the sector is quite obvious in the GE overview and it is perhaps even more brutally stated in McCulloch *et al*. (2017). What they add is how surprising it is that donors have not really been keen, or able, to internalise the role of political constraints in their own diagnostics and most importantly in their support programmes. These concerns had already been raised by others such as Faustino and Booth (2014), Piron *et al*. (2016) or Tripp (2012). But McCulloch *et al*. (2017) add that donors also underuse the margin they have to do so within the new aid modalities, such as the possibility of engaging groups outside of government in favour of support. This is perhaps

[33] See for instance Pal (2010) and Pal and Wahhaj (2016).

more relevant to donors than to the Tanzanian authorities, but it is certainly relevant to the effectiveness of institutional reforms to improve the power sector performance in Tanzania.

So where can Tanzania go from here?

It would be inappropriate for this note to try to make specific suggestions to address the many issues raised by the GE diagnostic, since I did not have the opportunity to conduct detailed fieldwork. But it may be helpful to conclude the discussion by arguing that the information analysed and the GE diagnostic make a strong case to support the consideration, in much more detail than the available information suggests, of one specific institutional reform that may be of relevance in the debates on power sector reform in Tanzania. It addresses the underuse of both technological and institutional options.

itWorld Future Council, 2017; WRI, 2017; Grimm *et al*., 2015 Peters and Sievert, 2016; AfDB, 2015; Ahlborg and Sjöstedt, 2015; Moner-Girona *et al*., 2015; Ahlborg and Hammar, 2014).[34] The REA has already been working on its development (e.g. REA, 2016). These insights need to be matched with those produced by the analysis of the potential roles of local communities in the development of Tanzania's power capacity (e.g. Alstone *et al*., 2015; Goldthau, 2014; Kaundinya *et al*., 2009). The experience suggests that decentralisation of power sector decisions can fail to deliver, but it also shows that it can work if the homework is carried out to match technology, regulatory tools, institutional options, and institutional constraints (e.g. Peters and Sievert, 2016).

The challenges to get decentralised options implemented in Tanzania are unlikely to be minor given the current political context. But getting ready to make things happen and to go further than simply thinking through the fine tuning of regulation to allow renewable sources to grow seems like a desirable option. In doing so, WRI (2017) argues that it may be a good idea to take a look at success stories such as the one experienced by Bangladesh, for instance. Box 1 summarises the lessons for Tanzania from Bangladesh's increased decentralisation of decision processes sustained by national financial and technical assistance used to speed up rural access rates. It illustrates the long checklist of dimensions that need to be taken into account. All of them seem realistic in the Tanzanian context.

The adoption of a much more decentralised approach to cater to the needs of rural areas, combined with a large role for local stakeholders and civil society, would not be unusual in sub-Saharan Africa. Equivalent approaches have been adopted by many sub-Saharan African countries in the water sector. Over 80% of the countries in the region have implemented at least some form of shift of responsibilities in the sector to sub-national authorities, although often more in the form of devolution rather than full decentralisation.[35] For instance, an increasingly standard element of the institutional framework of the water

[34] The World Future Council argues that by deploying 100% renewable energy, Tanzania could provide reliable universal access to the level of industrialised countries by 2050. The study also argues that renewable sources are about 30% cheaper than fossil resources. This can be seen in the 2017 financing agreements for the West Lunga project under Zambia's first Scaling Solar mandate. It was signed between Bangweulu Power Corporation Limited (sponsored by Neoen/First Solar and Zambia's Industrial Development Corporation), the International Finance Corporation, and the Overseas Private Investment Corporation. This PV plant will bring a capacity of 47.5 MW of reliable solar energy for a 6.015 cent/kWh tariff, fixed for 25 years. This is much lower than the current price of a kWh in the country.

[35] See for instance Estache (2017a) for a longer discussion and additional sources and in particular Jaglin *et al*. (2011) for a useful and relevant discussion of decentralisation implementation challenges in the water sector.

sector in many countries of sub-Saharan Africa is the requirement for local public participation in water planning, management, and regulatory decisions, as well as consultation with local stakeholders. The role of local authorities in the design and implementation of policies has also increased.

Box 1: Learning from Bangladesh?

The recent World Resources Institute (WRI) (2017) report argues that Tanzania could adapt the Bangladesh experience with the fast development and adoption of renewable alternatives in rural areas. The main insights may be that the policy framework and long-term strategy need to address not only policy and regulation but also financing, maintenance, and technical assistance commitments.

At *the institutional level,* it requires a more decentralised vision of the implementation of energy policy in the country than currently considered by Tanzania. This implies local leader and stakeholder involvement and the management of synergies across local stakeholders, including local businesses, parliamentarians, media, and civil society groups.

At *the technical level,* to diminish the variability of intermittent renewable sources, several renewable energy sources will have to be connected to each other. This implies that Tanzania would be willing to facilitate and adopt the technical and structural changes needed for an energy system only fed by renewable energy. This could be done regionally at least initially as part of a pilot.

At *the financial level,* Tanzania would have to develop a comprehensive national finance mechanism for individuals, households, and possibly smaller businesses to access funds to invest in local renewable sources. This implies a willingness to develop dedicated affordable credit lines, for instance, as well as monitoring systems to ensure the transparency of funding. It also demands regulatory adjustments to link funding to performance.

At *the human level*, the approach also implies a commitment to invest in education and awareness of technological and financial options to make sure that the financial options and subsidies find takers, and that the beneficiaries of these support mechanisms are those who need them. This may require some nudging to help local communities make the right decisions rather than wait for options unlikely to come fast enough to meet their needs.

Ultimately, *at the political level,* the approach demands a willingness to adopt a national vision endorsing an unbundling and delegation of some responsibilities as part of an institutional reform of the sector. This may be the most important challenge to achieve the necessary improvements in autonomy and accountability. According to WTI, as of now, the challenge is unlikely to be met.

Source: Adapted from WRI (2017)

Besides an increased role for local authorities, there are other options that Tanzania could consider in the efforts to accelerate the efficient, equitable, and financially sustainable delivery of electricity in the country. But their discussion would demand a much more technical diagnostic of financial, planning, and regulatory tools than GE were expected to cover in their diagnostic. For now, there may be enough food for thought in addressing the institutional and political issues already identified and possibly arguing for a more thorough follow-up audit or diagnostic of the sector processes and tools available to address institutional weaknesses. More and better analysis is not only possible. It is needed.

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