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Design and Assessment of water-energy-food-environment Mega-Systems

Structural reform and the politics of electricity crises in Ghana: tidying whilst the house is on fire?

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Abstract

For the electricity sector, the 1990s good governance agenda produced a programme of change called the standard reform model. It involves privatising utilities, the creation of markets and unbundling of electricity-system functions into formally separate, 'independent' regulated units. Pushed by the World Bank and others, elements of this programme have been widely adopted across developing countries, including in Ghana. However, Ghana, like many countries in Africa, continues to suffer from major power crises. In the last decade, the country has lurched from unprecedented shortages to electricity over-abundance, entailing spiralling debt. Donors, researchers and policymakers in Ghana have pushed further privatisation and institutional-separation reforms as a solution. However, this paper demonstrates that thus far, attempts to create 'good governance' through the standard reform model have been overwhelmed by Ghana's politics. Using the political settlements framework, the article demonstrates how intense competition entailing an all-consuming focus on elections overcame the formal organisational separation and the inclusion of expertise in planning and operating the electricity system. Alongside high modernist ideological beliefs in the power of megawatts to produce industrialisation, this created Ghana's crises of absence and abundance. The paper consequently highlights a disconnect between a continuing focus on the good governance model and the politics driving policymaking: Too much focus on democratic institutions, formal organisations and market motivations miss the importance of political power and how its manifests within ruling coalitions to shape governmental decision making. Greater questioning is therefore needed of the standard reform model and its assumptions about how to improve electricity outcomes.

Keywords

Electricity crises, governance, privatisation, politics, policymaking

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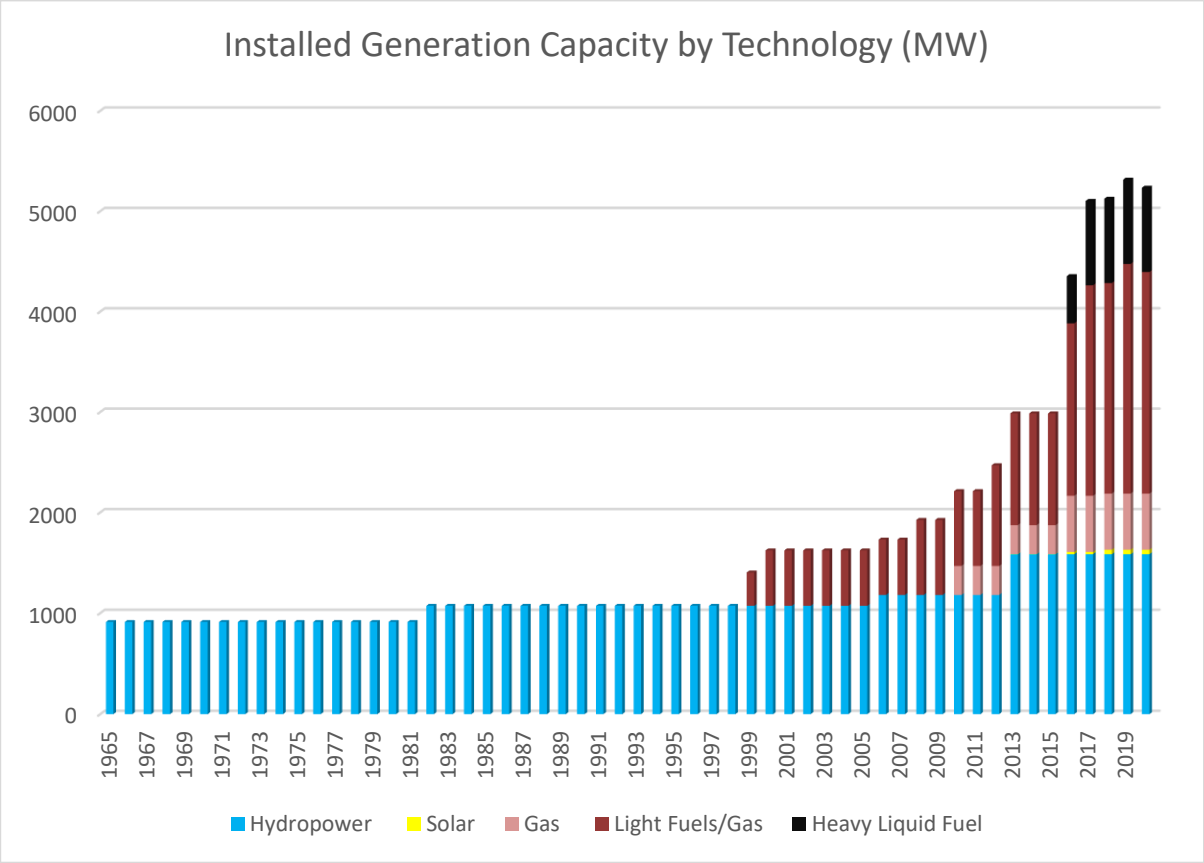
Contents

1 Introduction

On 27th August 2012, a small group of pirates triggered the first of two major power crises in Ghana. Attempting to escape from the Togolese Navy on a captured oil tanker, the pirates left the ship's anchor trailing. It snagged on the West African Gas Pipeline, which transports Nigerian gas to Togo, Benin and Ghana. This sparked a major fuel shortage for some of Ghana's power plants, combining with drought and fiscal issues, to plunge the country into four years of electricity shortages and widespread load shedding. However, this crisis of shortage was quickly replaced with one of overabundance: Ghana went into a power plant construction overdrive, resulting in electricity-generation capacity equalling twice the country's demand by 2018. This increase is particularly problematic as it came from 'take-or-pay' contracts that involve the government's distribution utility, the Electricity Company of Ghana (ECG), promising to pay private electricity companies for typically 90% of the power they make available, regardless of whether it is used. Ghana's large imbalance in supply and demand leaves a costly bill, reaching 4-5% of GDP in 2018 (World Bank, 2018).

Figure 1: Ghana's recent power surge and diversification



Source: Author's calculation using Energy Commission statistics

Arguably, these crises are surprising. As shown in figure 1, the country has diversified from hydropower to fossil fuels (gas and imported oil). Additionally, Ghana has adopted the majority of the recommended 'standard reform model' for the electricity sector, pushed by the World Bank from the 1990s across developing countries. In Ghana this has involved the unbundling of utility companies, introduction of corporate management, the creation of two

independent regulators[1] and growth of private generation companies. However, this paper demonstrates how Ghana's underlying politics were always likely to overwhelm these formal institutional reforms, creating the conditions for the two electricity crises: individual and party-political interests, alongside ideological rationales, trumped long-term strategies and reduced the influence of professional planning.

This questions the underlying theoretical assumptions behind the standard reform model and the ongoing application of the 'good governance' agenda in development and electricity policy. This agenda emerged from critiques of structural adjustment programmes in the 1980s, which argued that alongside economic reform, 'apolitical' institutions were needed to ensure the 'rules of the game' were maintained, that property rights and markets could function efficaciously (North, 1990). The 'standard reform model' is the name given to the good governance agenda's application to the electricity sector. However, its underpinning theoretical assumptions, principally 'new institutional economics', have been widely critiqued for their one-size fits all approach and their inadequate attention to the way political power shapes the functioning of institutions. This prompted the emergence of a new mainstream that involves greater appreciation of politics, as illustrated by Acemoglu and Robinson (2013) and North et.al. (2009, 2013). Their work is reflected in the electricity sector by academics (Ahlborg et al., 2015; Gore et al., 2019; Gregory and Sovacool, 2019) and policy makers (Foster and Rana, 2019; Lee and Usman, 2018) who have advocated for an increased appreciation of the political conditions enabling standard reforms. However, this approach has continued to focus chiefly on institutional separation and the introduction of the market. Thus in Ghana, a number of donors and sectoral experts[2] argue that to address electricity crises, and ensure financial stability, further reform is required with privatisation, unbundling and tariff-changes; to paraphrase Rodrik (2006), they just need to "get the prices and institutions right".

This paper argues that these mainstream understandings of the electricity sector fail to account for Ghana's electricity crises. This paper therefore asks the question, what caused the two crises of under and over-supply? Its answer lies in the manifestation of the political power in Ghana and the way this drives policymaking. Thus, questions of who has power in society, of its distribution and stability, are fundamental to understanding the politics of policymaking in the electricity sector. Equally, the paper demonstrates the importance of ideology in rationalising over-optimistic investment decisions. To provide a theoretical grounding, the paper draws on research using Khan's (2010) theory of political settlements, and its refinement by others, particularly in regards to the inclusion of ideas (Behuria et al., 2017; Gray, 2018; Lavers and Hickey, 2016). Academic political-settlement studies reveal Ghana competitive, unstable system and the way this drives a short-termist, clientelist politics. This use of political settlements advances the literature on the politics of development as electricity reform has itself been rarely linked to ongoing debates about the evolution of good governance, or new 'new' institutional economics (a partial exception being Gore et al., 2019).

This paper is the product of research carried out between 2018-2019 that primarily involved conducting 49 semi-structured interviews with key electricity-sector experts in Accra and Kumasi. This included academics and researchers studying the sector, donor officials

[1] For tariff setting and wider sectoral regulation
[2] E.g. interviewees from, MCC, MIDA, World Bank, JICA and an Ex- Ministry of Energy Minister

engaged in energy-sector programmes and civil servants from the utility companies, VRA, GRIDCo and ECG, and the Energy Commission and Ministry of Energy. In addition, academic and policy research alongside government documents, were examined. This helped create a database of projects, helpfully made by Dr Simon Bawakyillenuo using official statistics (Energy Commission, 2014, 2019). Analysis followed an inductive, qualitative process of re-reading interviews and gradually discerning key themes to construct a timeline of policymaking and the key actors involved. The paper is not therefore a strict political settlements analysis, as these involve an archaeological approach that traces societal power, its social foundation and shifts over time. The paper proceeds by outlining the application of good governance ideas to structural reform of the energy sector and its recent mainstream evolution. It then outlines the alternative understandings of the politics of policymaking before shifting to examine the empirics of the two energy crisis in Ghana. This is followed by an analysis of the drivers behind these crises and their political foundations in high modernist ideology and Ghana's political settlement.

2 The history of structural reforms in development: reimagining the role of politics?

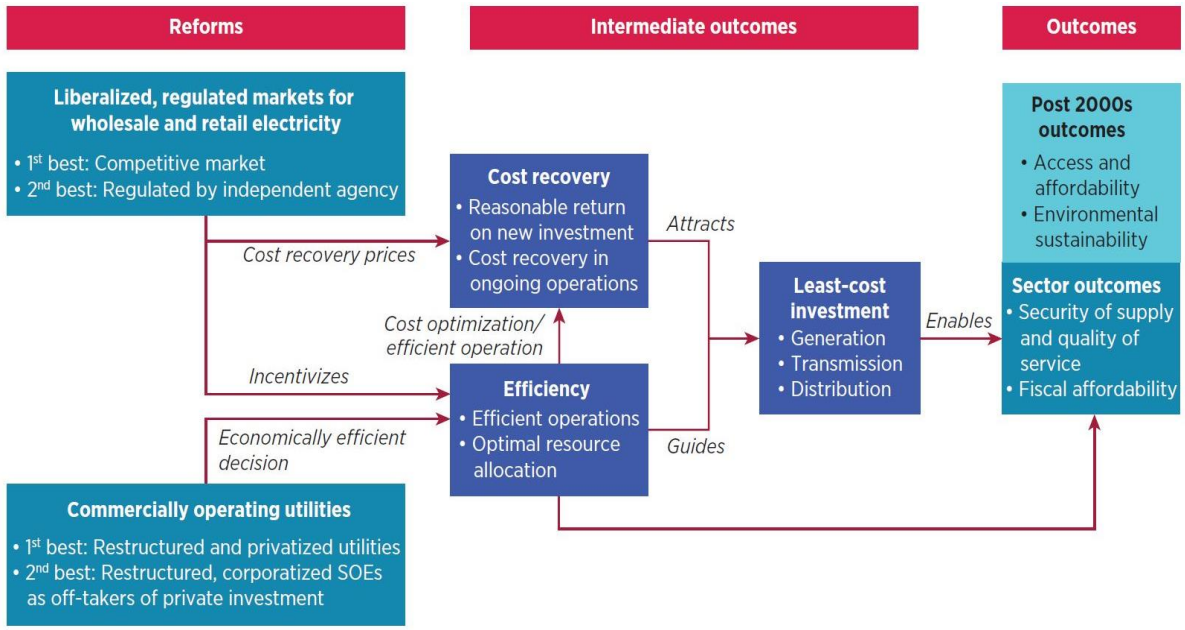
2.1 Good governance and its application to the Standard Reform Model

The good governance agenda took shape in reaction to Structural Adjustment Programmes (SAPs) of the 1980s. With the assumption that profit motives could better allocate capital and increase economic efficiency, the SAPs centred on austerity, monetarist policies and the introduction of markets through decreased regulation and privatisation (Bayliss and Cramer, 2003). However, by the 1990s, new institutional economics, particularly associated with North (1990), called for change. Critiquing the state's potential for inefficiency, it used a rational-actor model to argue that the interests of individuals within the civil service and political leadership are merely to maximise personal returns and/or maintain power. To achieve development, individuals' rational interests need to be aligned to longer-term goals. Thus, rather than the earlier SAP's focus on 'getting the prices right', on introducing market reforms, now initiatives would additionally aim to 'get the institutions right', to build the governance structures enabling an efficient, free market (Rodrik, 2006). Crucial here were the disruption of patron-client relations through the creation of markets ruled by profit motives rather than state-monopolies and the separation and devolution of power. Democracy, rule-of-law and accountability were the new watch words : "political stability and economic development in developing countries [were assumed to stem from] ... institutions of political representation, accountability and market competition (Gray and Khan, 2010: 1).

This institutional turn in development also applied to the electricity-sector. Having been largely overlooked in the 1980s' SAPs, donors, especially the World Bank, began advocating for sectoral restructuring in the 1990s (e.g. World Bank, 1993). Gore et.al. (2019) and Lee and Usman (2018) describe what became known as the 'standard reform model' involving seven policy themes (see figure 2): regulated, transparent tariff setting; independent power producers (IPPs); corporatizing, commercialising and ultimately privatising utility companies; the unbundling of generation, transmission, distribution and retail roles; the creation of wholesale, retail and generation markets; independent regulation; and underpinning

legislation. The model therefore closely followed good governance rationales: it decreases the role of the state, introduces market competition and supposedly creates accountability through independent regulation whilst disrupting patron-client relations with the separation of powers and initiation of for-profit rationales. Competition and the 'right' institutions would create efficiency, better allocate capital and bring down power production costs whilst meeting consumer needs. The end-point in the model would be something akin to the UK's electricity sector, which is among the most unbundled and privatised in the world. Typically, this boiled down to prioritising unbundling, the separating-out the functions of generation, transmission and the distribution into separate utility companies, and then privatisation of these utilities. With an independent regulator to ensure a level playing field, competition could then occur; multiple independent power producers (IPPs) would vie to sell electricity whilst others could compete over concession deals to own and operate the grids transmitting and/or distributing electricity.

Figure 2: The Standard Reform Model's Theory of Change



Source: Foster and Rana, 2019, p.5

2.2 The increasing attention on politics role in development and the electricity sector

However, since being gradually introduced over the 1990s and 2000s, the standard reform model has not resulted in the outcomes hailed by proponents. A recent World Bank report cited only 12 countries globally who took up all seven policy areas in full (Foster and Rana, 2019). One of the most complete adopters in Africa (more than Ghana) is Uganda, with fully unbundled utilities under private management. Although Uganda's electricity system is financially-sustainable, with tariffs covering system-costs, this entails a relatively high consumer tariff and limited investment in increasing electricity access (Gore et al., 2019; MacLean et al., 2016b). In contrast, in the last 50 years those countries who have engineered the largest economic rise, and built underpinning electricity systems, are Asian Tigers like Korea and Taiwan alongside other East and South East Asian states ranging from China to

Vietnam and Malaysia. These countries have adopted a very different political-economy model to SAP or good-governance reforms, with far stronger state leadership, government economic intervention and degrees of authoritarianism (Chang, 2006; Gray, 2018).

The limited achievements of the good governance agenda, and success of a more state-interventionist model, prompted further evaluation of the role politics has in development. There are two notable mainstream manifestations here by Acemoglu and Robinson (2013) and North et al. (2013), both of whom look to further interrogate underlying political power structures. In brief, Acemoglu and Robinson (2013) identify the importance of what they term the 'political equilibrium' underpinning[3] the key to development, inclusive institutions, those that defend universal rights to the rule of law and security of property as oppose to extractive institutions (those preventing new market entrants and creating unequal 'rules of the game' around property rights or the rule of law). North et.al. (2009; 2013) present a similar 'access orders' theory. It categorises states on whether they allow new market entrants through established universally-applicable market rules (e.g. guarantees around property rights and equal treatment of companies by the state) and whether the ruling elite has a sufficient monopoly on violence to enforce this status quo. Gray (2018) argues that this represents 'new' new institutional economics, intellectually adapting to evidence about the state's role in creating development whilst continuing a focus on liberal-democratic institutions and assumptions about rational-actors and the benefits of markets.

Research on electricity also increasingly asserts the important influence of politics (Dye, 2020a; Gregory and Sovacool, 2019; MacLean et al., 2016b, 2016a). Frequently, this has manifested in assessment of the factors behind the official adoption and implementation of the standard reform model (Kapika and Eberhard, 2013). For example, Gore et.al. (2019) assess the influence of donors, chiefly the World Bank, in pushing these reforms. Others alternatively see change resulting from 'political will' (Chineke and Ezike, 2010) but this is unpacked by recent World Bank policy studies. Alongside identifying technical factors such as a small grid size[4], being a middle-income economy and institutional capacity, these studies (Foster and Rana, 2019; Lee and Usman, 2018) identify a series of democratic institutions and norms as key to the adoption of the standard reform model: they find that pre-existing political competition, decentralised government and market ideology helped create trust in the benefits, and safety, of handing policymaking power to independent institutions and private companies. Additionally, they advocate close attention to a country's politics, the tailoring of policies to specific places and use of political-influence analyses to identify local champions and convince the public.

Although these studies represent far greater attention to politics they retain an underlying focus on institutions and an assumption that privatised, unbundled and transparent electricity markets represent the solution for sectoral financial sustainability, reliable power supply and low energy costs[5]. Despite recommending tailored approaches, Foster and Rana (2019) continue to advocate for the ultimate goal of a UK-style electricity sector and argue that as a

[3] Involving *de jure* -defined through brought force or other informal mechanisms- and *de facto -that granted by formal institutions*- power
[4] Defined as below 1GigaWat
[5] Albeit state intervention is understood as important for electrification and carbon emissions

basis, countries should aim for full cost recovery using a transparent tariff-setting process, economically-based power generation dispatch, corporatized utilities and competitively tendered IPPs. The below demonstrates actors in Ghana similarly focusing on tariff setting and greater privatisation as solutions for the sector. Moreover, this recent inclusion of politics, whether in policy circles (Foster and Rana, 2019; Lee and Usman, 2018) or academia (Ahlborg et al., 2015; Chineke and Ezike, 2010; Gore et al., 2019; Gregory and Sovacool, 2019), pays less attention to the politics of the policymaking process itself rather focusing on 'standard reforms' and institutions. This is partly because the recent literature largely continues to, either implicitly or explicitly, adopt the new institutional economics framework for understanding politics through rational-actor assumptions. The result, demonstrated in this paper's case study, is a limited ability to account for the key drivers behind electricity crises and fiscal issues. country is perceived to meet many of the conditions indicated above: Ghana has an established democracy with competitive elections. It is a middle-income economy, has the institutions for the rule of law, and a relatively experienced and regionally-respected[6] electricity bureaucracy (at least in the VRA and GRIDCo). It has also adopted the majority of the standard reform model (Gore et al., 2019).

2.3 Political settlement and the electricity sector

An alternative theoretical understanding comes from heterodox political economy. The last decade's most influential advance has been Khan's (2010) 'political settlements approach' that examines the distribution of power in society and the way this manifests to form a ruling business and political elite coalition. Rather than focusing on institutions and security like 'new' new institutional economics, Khan's framework is premised on the idea that informal institutions and political process are ubiquitous in developing countries; clientelist practices work outside formal institutions to and yet are not necessarily detrimental to development. Patron-client relations and rent seeking were central to the economic growth of the many of rapidly advancing East Asian countries. Thus, we need to have tools to assess the different types of clientelist politics and how they shape possibilities for economic growth. Khan conceptualises two axes of power[7] as particularly influential. The vertical assesses ruling groups' cohesion, pertaining to the challenge posed by junior levels within the coalition. The horizontal assesses the ruling coalition's societal dominance and how powerful excluded factions are (how likely/able they are to take power). The two axes of societal power allow placement of a political settlements in a typology that focuses on the level of societal control and the stability of the ruling elite from internal and external competition.

This paper focuses on the influence of political settlements on policymaking. Coalitions that dominate society, that have weak competitors, and that are internally cohesive have numerous advantages. Their position of strength incentivises them to focus on longer-term developmental goals in order to maintain their power over time and benefit members of the coalition. The stability of this political settlement allows the ruling business-politician group to invest slowly in long-term development and the creation of more effective bureaucracies. Cohesion within the ruling coalition also increases implementation capabilities as it can

[6] Based on interviews and upcoming FutureDAMS research

[7] In Khan's framework, called holding power which typically relates to control over key economic areas, political processes and large-scale organisational capabilities

ensure the key state and non-state actors follow the same agenda. Dominant, cohesive coalitions can also practice some disciplining against excessive rent-seeking that doesn't support productive economic activity. Weaker clientelist societies, such as Ghana, conversely focus on short-term objectives. The plausible threat of being usurped from political power by an excluded rival faction requires a focus on winning and maintaining popular support. In democracies like Ghana, this means winning four-year elections. The ruling coalitions' must also worry about internal contestation, with lower echelons able to mount challenges to usurp or obstruct those at the coalition's top. Again, this focuses rulers' attention on meeting the immediate needs to keep their coalition together. The focus is therefore on using governmental power and rents to fight elections and to maintain the support of businessmen, political financiers and the coalition's junior members. These pressures, and the political weakness of the incumbent faction, can also supress technical advice in policymaking. Short-term objectives that facilitate strategic personal and/or factional objectives will likely trump consideration of what the most fiscally or developmentally prudent, whether in choosing infrastructure investment, setting electricity tariffs or following merit-based recruitment.

The underlying political settlement therefore provides a framework for understanding the political pressures on the ruling coalition and governmental decision making. However, this type of analysis can tend towards analysis that simply aims to place countries under particular labels, something that is arguably too reductive and unable to capture the dynamism of politics (Lavers and Hickey, 2016). Therefore, this paper follows Behuria et.al. (2017) by using political settlements research as a tool for asking questions about the manifestation of political power and dynamics of ruling-elite politics. This approach also allows critical treatment of Khan's work, particularly concerning the narrowness of 'holding power' and its presumption that the ruling elites know the policy choices that are in their strategic interest. As Lavers and Hickey (2016) point out, this presumption relegates ideas and ideology to the status of tools to win support and thereby does not explain why some policies are chosen over others, when all might conceivably support the ruling coalition. This paper finds ideas influential to the substance of policymaking. Here, high-modernist-like ideas about the power of electricity to create economic growth and industrialisation mattered in rationalising the oversupply crisis and the creation of high megawatt targets[8]. We now turn to overviewing Ghana's political settlement.

3 Ghana's political settlement: competitive, clientelist and short-termist

Broadly, Ghana falls into an unstable, competitive, clientelist political settlement (Abdulai and Hickey, 2016; Mohan et al., 2018; Whitfield, 2018). It is characterised by competition between two long-standing political traditions that, although changing their identity, have exchanged political power through elections and coups since independence. However, the countries' political settlement has varied, experiencing periods of stronger dominance during periods of one-party and military rule. The longest of these came under President Jerry Rawlings (1981-2001) who was effectively a dictator from 1981-1992. The introduction of democracy in 1992 has created a stable political settlement defined by open competition between to the two major traditions, now formalised in two political parties, the National Democratic

[8] Dye (2018, 2020, 2020b) analyses as a key applied tenant of a high modernist ideology

Congress (NDC) and New Patriotic Party (NPP). Competition is intense but has been kept relatively peaceful with the 'rules of the game' worked out by institutions such as the Ghana's Inter-Party Advisory Committee (Nugent, 1999; Whitfield, 2009). Winning is key given the degree of centralised presidential power in Ghana's winner-takes-all form of government. Those excluded from power therefore have a strong incentive to throw all-resources into competing. This creates a status quo of fiercely fought elections both within and between political parties. Nationally, elections since 2000 have been won with small margins, with the winner only getting between 0.2 to 3 over the 50% threshold. This partly stems from a stable political map, with Volta region and the North constituting NDC heartlands, the South, particularly the Asante region, being an NPP stronghold whilst greater Accra and Central province are swing areas.

Table 1: List of Incumbent Presidents and Parties

Incumbent President	Party	Years
President Jerry J. Rawlings	NDC	1979; 1980 – 2000. Democratically elected: 1996
President John A. Kufuor	NPP	2000 – 2008
President John E. Atta Mills	NDC	2008 – 2011 (died in office)
President John D. Mahama	NDC	2011 – 2016
President Nana A. Akufo-Addo	NPP	2016 –

Moreover, competition is also fierce within the parties (Nugent, 1999; Whitfield, 2018). With a constituency model, MPs in safe seats are not secure: given the lack of decentralised government, status as an MP is one of few ways to gain local power and negotiate government's geographic delivery of services (Abdulai and Hickey, 2016; Whitfield, 2018).

The result, according to Whitfield's comprehensive political-settlement inspired research (2018), is a political economy defined by short-termism, regardless of who is in power. Without security, but with the need for MPs and President to finance elections and patronage networks, attention is overwhelmingly placed on immediate policies delivering financial and electoral advantage. The steep rise of elections' cost only adds to the short-term pressure. Research on the 2016 parliamentary elections (CDD and WFD, 2018), for example, found an increase of 58% with MPs spending US$85,000 each on average to secure selection and election. This only increases the pressure to recoup money and reward financial backers once in office. consequently The state is used to reward party foot soldiers with jobs and financial backers with contracts, subsidies and other special treatment (Abdulai and Hickey, 2016; Mohan et al., 2018). Presidents, and incumbent MPs, can also maintain and increase support and bringing physical development and material gain is a central strategy. This can be directly delivered by government projects, as demonstrated by Nugent's (1999) analysis of roads and other infrastructure alongside current incumbent President Akufo-Addo's 1 village pledges (e.g. 1 village … 1 dam/1 factory/1 ambulance) that act to centralise direction of

small development projects otherwise involving local government. Banful (2011) finds more spending on the most contentious districts.

Consequently, the Ghanaian government's finances face significant pressure. The World Bank concludes that "the sate plays the role of rent-seeker and distributer" in order to capture resources and direct them to party-political ends (World Bank Group, 2018: 2). Such spending reaches a peak in election years, causing a recently-predictable post-election financial crisis (World Bank Group, 2018: 32). The 2012 election, saw a 11.5% of GDP fiscal deficit, for example. This also matters for state agencies given their role in providing public services. The formal rules governing their spending and sectoral regulation are frequently overridden in order to enable the targeted provision of contracts, jobs and public goods, such as water and electricity (Hirvi and Whitfield, 2015). Moreover, as demonstrated in the case of electricity here, the state's attempts to cut corners in paying their bills and providing funding given pressures to reorient such formally- mandated spending on elections. Overtime, this increases such agencies debt and harms their ability to run efficient systems and infrastructure.

This is particularly evident in the electricity-sector decision making over the last three decades. Statistical and qualitative analysis demonstrates that the incumbent influences the timings and geography of electrification (Briggs, 2012; Cuesta-Fernández, 2018). Another clear impact is on pressure to lower tariffs. According to the standard reform model, the creation of an independent regulator, the PURC in 1998 was supposed to prevent such manipulation (Wolf et al., 2007). However, the presidency's power to appoint PURC's board, alongside its informal influence has, stymied this. Automatic tariff increases occurred between 2003-06 and 2010-2012 (Rupp, 2013) but these have been too contentious to sustain (Cuesta-Fernández, 2018; Edjekumhene and Dubash, 2002). Ghana is one of the few countries in Africa subsidising household tariffs with those from businesses; in 2019, average household tariffs were US$0.064 per-kWh against US$0.138 for businesses[9]. Even when the PURC does announce increases, its lack of de facto power is signified by the Presidency or Ministry of Energy overriding its policies, stating what the tariff will be and promising to pay the difference[10]. In 2017, for instance, the new NPP government, in line with campaign promises announced decreases of 18%[11], leaving a 9% gap between prices in 2016 and those in 2019[12]. Similarly the NDC stopped an automatic tariff increase in the 2012 election year (World Bank, 2012). Therefore, tariff setting is "a black box"[13] and subject to political interference. As one explained, the head of PURC "goes to see the President beforehand"[14], they "don't' want to upset their friend the President"[15]. Formal separation of powers and the transparent processes of the PURC are usurped by the *de facto* power of the presidency and its attachment to appeasing voters.

[9] As calculated by GlobalPetrolPrices.com (accessed 26/6/2020)
[10] Interviews, Researcher, Kumasi; Researcher, Kumasi
[11] Interviews, Senior Official, MiDA; World Bank, 2018
[12] Interview, Senior Official, MiDA
[13] Interview, Planner, ECG
[14] Interview, Ex-Minister, Ministry of Energy
[15] Interview, Senior Planner 1, Energy Commission

Overall then, the literature analysing Ghana's political settlement suggests a strong short-termism prevails in policymaking by both competing factions. Additionally, it indicates that where possible, investment, jobs and public services from the electricity will be bent towards obtaining an electoral advantage. Thus, accountability mechanisms and any formal institutional separation is trumped by the concentration of power on the presidency, the informal status of politicians and parallel forums which negotiate the 'rules of the game' between political parties. The above suggests, in line with Whitfield (2018), that this political settlement persists through changes of government between the two factions. Whitfield goes further however, arguing that this continuity means that ideological differences between self-professed centre-left NDC and centre-right NPP, matter only in rhetoric and in galvanising their base, not in policymaking. This contrasts with analysis of earlier governments in Ghana, and particularly founding President Nkrumah. A number of academics analysing the Akosombo Dam scheme see the project as high modernist, influenced by a belief that the dam represented modernity in the country and that it would linearly bring development by replacing traditional farming with modern technology and electricity (Hoag, 2013; Miescher, 2014). The below assess if such ideological influences continue. The following sections turn to the empirical analysis of Ghana's electricity sector. This starts with a brief overview of Ghana's electricity history of standard reform, proceeding to analysis of the two electricity crises. The explanations for these crises are then assessed, with the paper contrasting the conventional, good-governance approach, with its analysis of the politics of policymaking in Ghana.

4 Ghana's two electricity crises: from absence to abundance

Ghana works as a case study to test the good governance model's underlying assumptions partly because both political parties have been relatively keen adopters of the standard reform model. Unlike many countries in Africa, the majority of distribution[16] was separated from the main utility, the Volta River Authority in 1967, creating the Electricity Company of Ghana (ECG)[17]. The government embarked on market reforms only after the World Bank made it a condition for financing a new thermal power plant in 1993 (Gore et al., 2019). This produced the 1994 Strategic Framework for Power Sector Development Policy. However, Ghanaian actors shaped implementation and details of this reform. In 1997, they rejected the World Bank's preferred consultant and drove change through a Power Sector Reform Committee, selecting a Chilean firm to provide support (Edjekumhene et al., 2001; Edjekumhene and Dubash, 2002). The committee also rejected the World Bank's formula for selecting tariffs. By 1998, the government had partially implemented the committee's recommendations: IPPs were legally introduced and two regulatory agencies were formed, the Energy Commission, an arms-length regulator for licensing IPPs and advising government, and the Public Utilities Regulatory Commission (PURC), supposed to be completely independent and charged with approving Power Purchase Agreements with IPPs and consumer tariff setting (Wolf et al., 2007). Further change came in 2006, with transmission and system-management functions handed from VRA to a new state-owned company, GRIDCo. According to the standard reform model, this should have put Ghana

[16] Covering the country's South
[17] Officially incorporated in 1963 but enacted by a 1967 government decree

electricity in a strong position, with the separation of the different institutions ensuring the influence of technocratic management, efficiencies and prudent investment decisions. However, the below demonstrates that undertaking standard reforms did little to improve electricity-sector decision making and did not fundamentally change the politics of policymaking. The below demonstrates that whilst the first power crises had external triggers, governmental decisions underpinned by political rationales deepened these a power shortage and dug a significant fiscal hole.

4.1 The triple whammy behind *Dumsor*

Ghana experienced previous power shortages[18] but the 2012-2016 episode represented a new level, earning the Akan nickname *Dum-Sor* meaning off and on, or even *Dum-Dum* (off and off). The economic impacts were severe. In 2016 alone, *dumsor* caused an estimated GDP loss of $320-924million; 2-6% of Ghana's GDP (Eshun and Amoako-Tuffour, 2016; Kemausuor and Ackom, 2017: 4)[19]. As outlined at the start of this paper, the immediate trigger for *dumsor* was the West African gas-pipeline's rupture. It, alongside Ghana's absence of liquefied natural gas infrastructure, knocked out the exclusively gas-fuelled plant Sunon Asolgi (200MW) until the pipeline was fixed by 2014 (Acheampong, 2016; Eshun and Amoako-Tuffour, 2016; Kemausuor and Ackom, 2017)[20]. A compounding factor was below-average rainfall in 2012[21]. Hydropower's contribution fell, particularly after 2014, after a five year period of reservoir overuse and heavy reliance on hydropower as illustrated by figure 3 (Oxford Business Group, 2017)[22].

[18] In 1982-85, 1998-2000 and 2006-2007

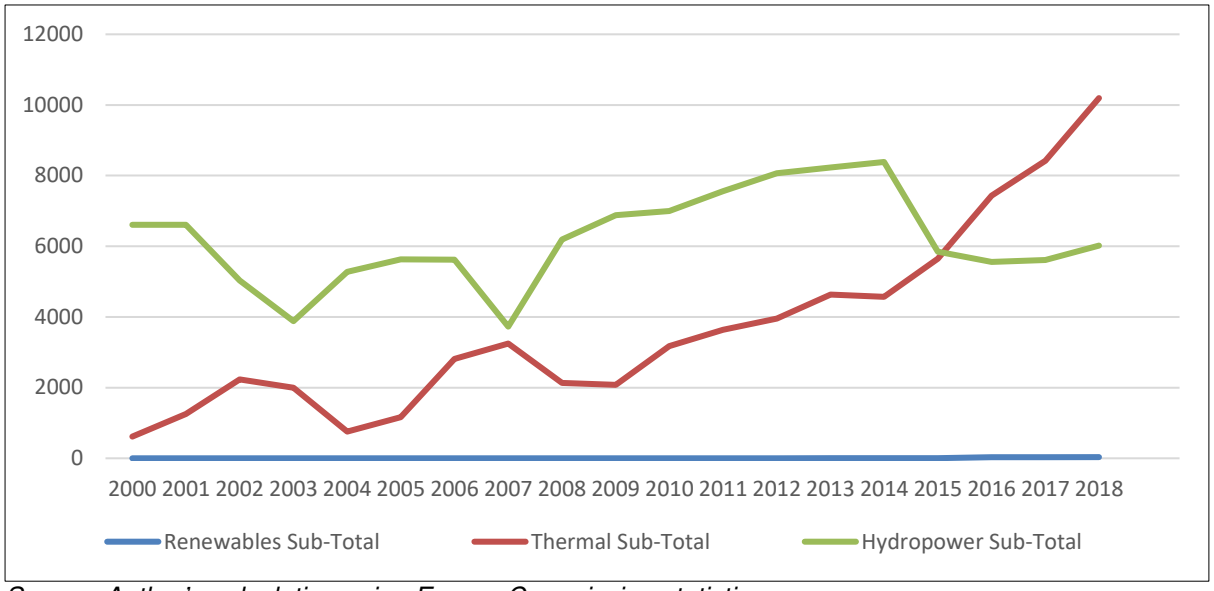
[19] See also surveys of impact on small business and destruction of hospital and industrial equipment (e.g. Rupp, 2013)

[20] Interviews, Senior Managers 1&2, VRA; Senior Planner 1, Energy Commission

[21] Even claiming that the Volta reservoir went below minimum operating level for a time, although this could have been because of overuse rather than the rainfall (Interview, Researcher, Energy Think Tank)

[22] Interview, Senior Planner 1, Energy Commission

Figure 3: Power generation by technology in GwH. Illustrating the high use of hydropower until 2014 and stagnation in thermal power until 2015.



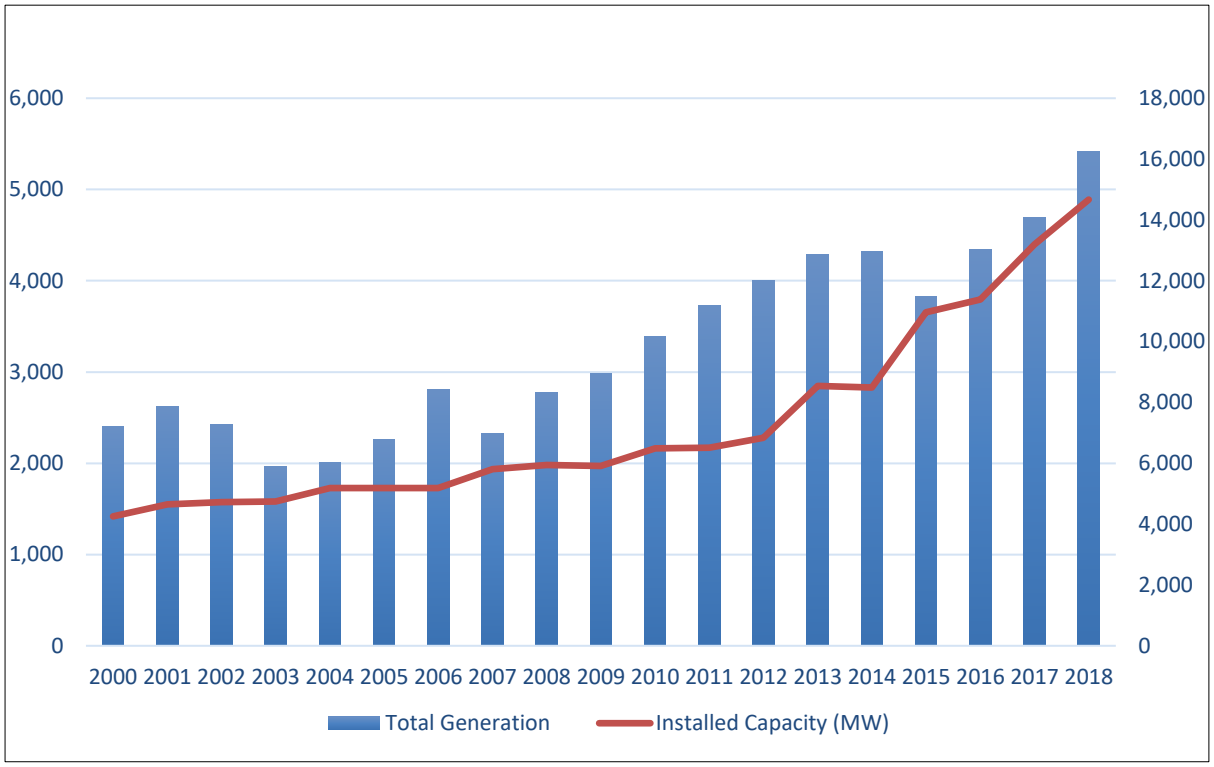
Source: Author's calculation using Energy Commission statistics

However, the country's remaining thermal capacity of 1003MW in 212 or 1113MW by 2013 could run on imported light or heavy crude oil with only 287MW exclusively dependent on gas[23]. However, both these fuels are typically more expensive than pipeline gas, especially as they had to be bought on the spot market whose prices were rising in-line with the boom in commodities until 2014 (Kemausuor and Ackom, 2017)[24]. The expense of averting the power crisis was significantly worsened as the norm for Ghana's Power Purchase Agreements (PPAs) with private companies designate ECG, via VRA, the fuel provider[25]. Whilst this does reduce the risk for incoming investors, this choice burdened the utilities ECG and VRA with extra fiscal strain[26]. ECG proved unable to cover these costs and became increasingly indebted to VRA for fuel-delivery. Officials stated that light crude cost $140 a barrel[27] making the equivalent of three weeks supply $400million[28] and on-top of this, VRA needed to run emergency jet-engine generators to cover the peak demand, a more expensive fuel[29]. VRA paid $2.2 billion for light crude over 4 years (Adam and Boakye, 2014). A lack of payments between utilities and between the utilities and the power-producing companies, was therefore plunging the country into power crisis. Crucially, the ministries of energy and finance were limited in their support: in May 2012, the VRA requested finance for six cargoes of light crude to make-up for the lost gas but the government only provided three[30].

[23] Author's statistics compiled from Energy Commission (2014, 2019)
[24] Interview, ex-CEO, GRIDCo
[25] Interviews, Senior Manager 1, VRA; Interview, Senior Planners 1&2 and Planning Team, Energy Commission; Interview, ex-CEO, GRIDCo
[26] Interviews, Senior Planners 1&2, Energy Commission; Interview, Senior Manager 1, VRA
[27] Interview, ex-CEO, GRIDCo
[28] Interview, Senior Planner 1, VRA
[29] Interview, Senior Manager 1, VRA
[30] Official Letter from VRA to Energy Ministry ("Light Crude Oil Support for VRA in 2012", 13th September, 2012)

Moreover, only US$107.0 million of the US$937.0 million light crude purchased by VRA between November 2012 to January 2015 came from government promissory notes[31].

Figure 4: Generation (GwH) vs installed generation (MW). Illustrating the fall in generation during Dumsor against rising power-production capacity.



Source: Author's calculation using Energy Commission statistics

The VRA and IPPs were therefore unable to run their plants at full capacity because they didn't have enough money. Thus, many commentators[32] conclude that *dumsor* was "baffling" and "not necessary"[33]; "if [all the thermal] plants were going [Ghana] would have been ok. The challenge was fuel"[34]; "it was a capacity constraint too but came a time when they had enough so [the key issue] was fuel"[35]. This argument is reinforced as in 2012, another IPP, Cennit (126MW, sometimes called TT2PP) was commissioned alongside an expanded 132MW at the VRA's Takoradi III plant, increasing thermal capacity to 948MW. Then in 2013 the TICO plant was expanded whilst Bui Hydropower Dam also came online, adding 510MW. Figure 4 demonstrates how generated power stagnated and fell between 2012-2016 whilst installed capacity rose; "[there was capacity but] not enough money to buy fuel"[36]. Therefore, Ghana had enough plants to cover electricity demand. However, the government and the utility companies were unwilling or unable to stump up the money to

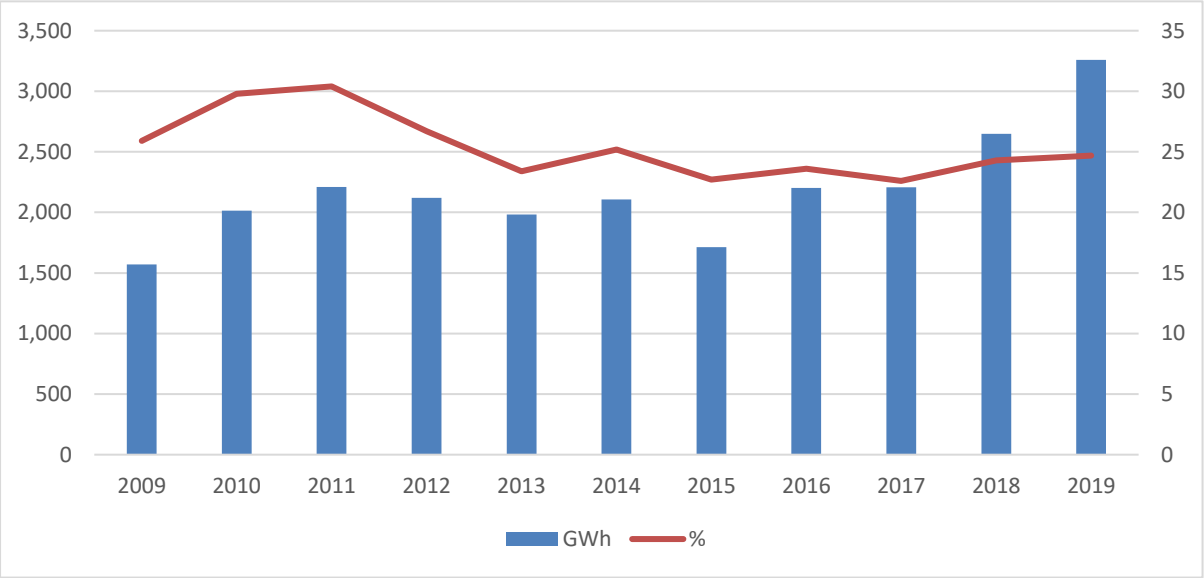
[31] Official Letter from VRA to Energy Ministry ("Submission of Status Reports of Handing-Over Notes", 19th December, 2014)
[32] E.g. Interview, Senior Manager 1, VRA
[33] Interview, Planner, ECG
[34] Interview, Senior Planner 1, Energy Commission
[35] Interview, Ex-Minister, Ministry of Energy: Echoed in interviews, Researcher, Accra; Researcher, Kumasi; Senior Planner 1, VRA
[36] Interview, Senior Planner 1, Energy Commission

purchase sufficient the fuel. This financial position has deeper political roots stemming from political settlement.

4.2 Dumsor's long-term exacerbating fiscal problems

In addition, Ghana's political dynamic caused longer-term fiscal issues in the utilities that significantly hampered their ability to purchase the fuel to prevent Dumsor. This issue starts in distribution functions. Figure 5 depicts the significant losses.

Figure 5: ECG's distribution combined technical and distribution losses



Source: Author's calculation using Energy Commission statistics.

These reduce ECG's revenue, contributing to the utility's substantial deficit of around $800million a year[37]. Technical losses are those due to distribution lines' inefficiency and to faulty or old equipment[38]. This is worsened by the aforementioned drive to electrify the vast majority of Ghana, something that necessarily decreases the system's efficiency. Moreover, the above recounts the political rationales influence electrification infrastructure, rather than a model of the most efficient infrastructure expansions. On top of this are commercial losses due to illegal tapping and incomplete bill collection (Kemausuor and Ackom, 2017)[39], but most important is non-payment by state agencies and federal ministries. Although ECG is officially separated and supposed to be run commercially, government institutions know that "they don't necessarily have to pay for the electricity as they can't [be taken off-line]"[40] "you can't cut them"[41]. Despite attempts by the ministry of finance to give specific electricity bill budget lines or pay bills directly to ECG[42], the government's total arrears are $2.7billion[43].

[37] Interview, Officials, JICA
[38] Interviews, Officials, GIZ; Researchers, Accra; Researcher, Kumasi
[39] Interviews, Researchers, Accra
[40] Interview, Senior Planner 1, VRA
[41] Interview, Ex-Minister, Ministry of Energy: Interviews, Officials, GIZ; Senior Planners 1&2 and Planning Team, Energy Commission; Senior Manager 2, VRA; Senior Officials 1&2 World Bank; Senior and Junior Planners, ECG
[42] Interview, Senior Official 1, World Bank
[43] Interview, Senior Official 2, World Bank

Market mechanisms, democratic norms and organisational separation and corporatisation did not figure. This stems from Ghana's political settlement. The overview above, demonstrates the pressure on ministerial budgets to divert state resources to elections, creating a predictably debt issue after elections. Additionally, analysis above records interventions by government to prevent tariff increases that would improve ECG's budget, again in order to appeal to voters. The result is insufficient revenue for ECG to pay power producers, particularly harming VRA arguably because as a state agency, it is easier to default on; officials there stated that "we all know that one of the main problems (with our budget) is ECG"[44], ECG "defaults a lot"[45] and VRA is rarely paid on time[46]. VRA consequently borrows from the market repeatedly (World Bank, 2018) and receives money from the World Bank and government to meet short-term costs (Eshun and Amoako-Tuffour, 2016)[47]. This situation is worsened by less enforcement of transactions between government entities[48] but has particular ramifications for the supply of gas: VRA is responsible for paying Nigeria for the West African Pipeline supply but its repeated defaults caused "erratic supply until 2017/18"[49]. The use of Ghana's own domestic gas has only been possible since 2019 with the reversing of the gas pipeline so that it can flow from Ghana's oil fields in the West to the Tema gas plants in the East. Overall, interventions in regulation, the diversion of budgets and infrastructure construction worsened the electricity sector's fiscal position over time. Therefore, despite abiding by democratic norms and adopting a market ideology, the standard reform model was overwhelmed by party-political interventions result in Ghana's utilities being unable to address the dumsor fuel shortage. The below analyses the role of Ghana's political settlement in driving this, but first we turn to the second crisis.

4.3 Oversupply

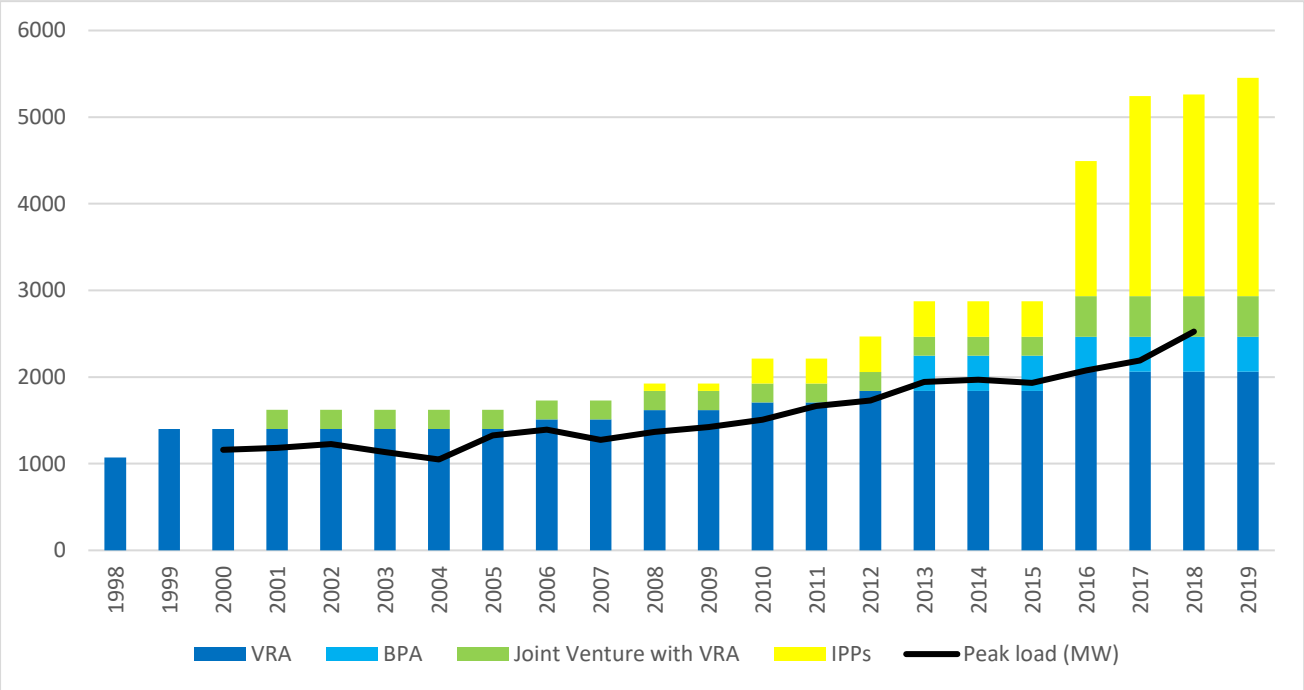
Following Dumsor, President Mahama's administration inadvertently set another crisis in motion. Between 2014-2016, the government orchestrated 43 new PPA deals (World Bank, 2018)[50] taking total power capacity to over 5000MW (see figure five). This process was government-led, by-passing official processes. Officials described how the newly created Ministry of Power in 2014 usurped the normal IPP contracting process excluding the energy commission, GRIDCo and ECG despite the latter officially signing the PPAs[51]. First, existing IPPs such as Sunon Asolgi were asked to increase installed capacity. Then, the ministries

[44] Interview, Researcher, Energy Think Tank
[45] Interview, Researcher, Energy Think Tank
[46] Interviews, Senior Official, MiDA; ex-CEO, GRIDCo
[47] Interview, Senior Manager 1, VRA
[48] E.g. non-implementation of a waterfall payment system (Interviews, Senior Planners 1&2, Energy Commission; Senior Planners 1&2, VRA)
[49] Interview, Senior Manager 1, VRA; Echoed in: Interviews, Researcher, Accra; Senior Planner 1, VRA; Researcher, Energy Think Tank; Senior Planner 2 and Planning Team, Energy Commission
[50] And 55 Licences under review by the Energy Commission. Interviews, Officials, GIZ; Senior Officials, 1&2, World Bank; Senior Official, World Bank
[51] Interviews, Senior Planners 1&2 and Planning Team, Energy Commission; Senior and Junior Officials, Renewables, Ministry of Energy. "Ministers acting independently" (Interview, Senior Planner, ECG)

negotiated with new companies[52], although reports[53] and interviewees[54] indicate little to no due diligence was carried out.

Ostensibly, this dramatic contracting of generation plants fitted an official target for 5000MW by 2015 in the National Energy Act 2010 (Ministry of Energy, 2010). However the contracting did not follow the project or construction timeline: the 2010 act features a number of hydropower plants including the Brazilian-government backed Juale Dam (90MW) and the Micro-Hydro Western Rivers Scheme (625MW). In contrast, the new PPAs were almost all thermal plants commissioned in 2016 and 2017. Thus, although reaching a pre-determined ministerial target, the official, technician-led planning process had not occurred. The 'independent' regulatory agencies and technical utilities had different predictions. The energy commission's 2006-2020 plan was for 3000-4000MW by 2020 (Energy Commission, 2006) whilst VRA's predictions and GRIDCo's forecasts agreed that demand would near 3000MW by 2020[55]. However, the ministry unusually usurped VRA and GRIDCo's officially-mandated planning role and the Energy Commission's independent vetting and approval function; as one official stated "some (PPAs) not official but in the system anyway"[56]. Thus, the ministry rapidly implemented the 2010 target against advice and planners' demand-forecasts, usurping their formally assigned roles.

Figure 6: Ownership of installed power generation against demand (MW). Illustrating the increase in IPPs against electricity demand.



Source: Author's calculation using Energy Commission statistics

[52] Interviews, Senior& Junior Officials, Renewables, Ministry of Energy; ex-CEO, GRIDCo; Senior Officials 1&2, World Bank. 8 new IPPs have come online
[53] E.g. the Parliamentary Committee to restructure the Build Own Operate and Transfer Deals' 2017 report on Ameri
[54] E.g. Senior Planner 1, Energy Commission;
[55] Interview, Senior Planner 1, VRA
[56] Interviews, Senior Planners 1&2 and Planning Team, Energy Commission

Figure 6 demonstrates how electricity supply fell widely out of step with demand. In 2016, capacity was under 3000MW against roughly 2000MW in demand[57], but this grew to 5000MW by 2017, with demand approximately 2500MW by 2018 and 3,115.2 MW in 2020[58]. This gap presents a challenge as the supply increases came almost universally through private sector deals where the industry standard in Africa is to de-risk investments using "take or pay" deals involving ECG paying for 90% of the power made available. The Ministry of Finance underwrote the deals with sovereign guarantees, rushed through parliament[59]. The easiest mitigation for electricity oversupply, and an aim of the 2010 plan, is for Ghana to become a regional power exporter across international transmission lines. However, this hasn't materialised, partly because of a lack of infrastructure[60] but also because neighbouring countries want to achieve their own energy independence, not least given past experiences of being cut-off during Ghana's power shortfalls (World Bank, 2013)[61]. Equally problematic is Ghana's high electricity tariff which, boosted by the new PPA deals, make its electricity unattractive[62]. Consequently, neighbours like Togo and Benin are building their own plants: The government "did not do due diligence on other countries who were building plants"[63]. The result is a deepening of debt in Ghana's energy utilities. Interviewees[64] backed up reports putting ECG's annual deficit at $580million (Dzawu, 2020) whilst the World Bank (2018: 13) recorded that in 2018 overcapacity payments reached $680m, 4-5% of GDP, for the roughly 1,900 MW of spare capacity. Reportedly, by July 2020, unpaid bills to the IPPs reached $1.4billion (Dzawu, 2020).

A similar process happened with liquefied natural gas (LNG). A separate Ministry of Petroleum (until 2017) and state-organisation, Ghana's National Gas Corporation, signed take-or-pay contracts to buy gas and build associated infrastructure[65]. Most prominent is the Sankofa Agreement involving payment for 90% of the gas produced by that field regardless of if it is used, amounting to annual payments of 0.7% of GDP (The Economist Intelligence Unit, 2019). With 640 mmscf[66] per day contracted compared to a demand of 250 mmscf (Adam and Boakye, 2014), overly-optimistic gas-demand projections were similarly based on supplying 5000MW alongside industries[67]. When combined with the cost of these LNG contracts (a potential excess gas capacity charges of between $550 and $850 million every year for just Sankofa [Adam and Boakye, 2014]) one official cited predictions for the sector's debt

[57] Interview, Senior Manager 2, VRA
[58] Interviews, Senior Planner 2 and Planning Team, Energy Commission; Energy Commission Statistics, 2020
[59] Interview, Ex-Minister, Ministry of Energy
[60] Medium capacity lines link Ghana with Cote d' Ivore, Burkina Faso and Togo/Benin. A high capacity line to Burkina Faso and Mali is under construction
[61] Interview, Ex-Minister, Ministry of Energy
[62] Interviews, Senior Planners 1&2 and Planning Team, Energy Commission; Senior Manager 2, VRA
[63] Interview, Senior Planner, ECG
[64] Interviews, ex-CEO, GRIDCo; Officials, GIZ
[65] Interviews, Senior Planner 1, Energy Commission; Senior Planners, GRIDCo. Deals were signed for further deals after two initial contracts were cancelled in 2017 (Adam and Boakye, 2014)
[66] Million standard cubic feet per day
[67] Interview, Senior Official 2, World Bank

reaching 20% of GDP[68], and others, an accumulated US$12.5 billion (The Economist Intelligence Unit, 2019).

5 Understanding the underlying politics to Ghana's electricity crises

5.1 The conventional understanding

What are the conventional understandings pushed by the standard reform model to solve these sectoral crises? The most frequently touted solutions assert the importance of getting *the prices* (the tariffs) and *the institutions* right, by privatising ECG whilst further unbundling VRA. The first prescription argues that changes to the tariff will bring the necessary cash-flow to ensure the sector's fiscal sustainability. However, there are disagreements here. Some argue that tariffs should be cost reflective, covering maintenance and operation (Edjekumhene and Dubash, 2002)[69]. However, Ghana's high levels of electrification[70], standing at around 85% today, render it expensive. Given Ghana's unequal regional development, parts of the country do not have sufficient demand to cover grid costs. Moreover, whilst VRA sells at $0.06 per-kWh on average, and Bui Power Authority $0.8 per-kWh, the IPPs are $0.09-0.14 per-kWh (Acheampong, 2016). Additionally, the PPAs are paid in dollars which have often appreciated against the Ghana Cedi. With overcapacity and ECG's losses, the full cost reflective tariff in 2019 would be around $0.4 per-kWh, over double the present non-lifeline[71] household rate of $0.18 per-kWh[72]. Thus, donors, and other sectoral experts, advocate tariff increases[73]. Conversely, others argue for decreased tariffs to boost electricity consumption and thereby funds. This argument is also used to deny that there is an oversupply issue: "Nothing wrong with the (5000MW) prediction" the issue is just the price[74]; "5000MW is not enough, there are still plants off and Valco not operating at full capacity"[75]. This argument proposes that tariff adjustments alone could unlock rapid industrialisation[76]. However, both groups agree on transparent, independent tariff setting by the Public Utilities Regulatory Commission. The solution for the sector's underlying financial issues it thus for an enhancement of the standard reform model, stressing formal organisation separation and technocratic independence.

Another advocated element of the standard reform model is the privatising of ECG, or at least the placement of it under a management contract. This introduction of market rationales is supposed to insulate decision making from party politics, ensuring ECG plans its work according to commercial, for-profit motives, translating into better revenue collection, organisational efficiencies and payment to generators; as one interviewee summarised

[68] Interview, Senior Official 2, World Bank
[69] Interviews, Senior Officials 1&2, World Bank; Officials, GIZ; Officials, JICA
[70] 2nd if one discounts the exceptional cases of South Africa and the small islands of Mauritius, Seychelles and Reunion (Cuesta-Fernández, 2018; Eshun and Amoako-Tuffour, 2016; Kemausuor and Ackom, 2017)
[71] The subsidised rate for poor households
[72] Interview, Senior Official 2, World Bank.
[73] For instance, in 2007, the World Bank[73] advocated the raising of tariffs should rise to $0.1 per-KwH to be reflective of system costs.
[74] Interview, Senior Planner 1, Energy Commission
[75] Interview, Researcher, IEG
[76] Interview, Ex-Minister, Ministry of Energy

"modernise ECG" and the sectors problems are solved[77]. Such ideas are not new. In 1983, the Ireland Electricity Supply Board agreed a collaborative performance concession agreement with ECG, and in 1994, Électricité de France signed a more extensive concessional performance-management contract (Edjekumhene et al., 2001; Edjekumhene and Dubash, 2002). Between 2014-2019, the USA's Millennium Challenge Cooperation organised a management concession agreement with a consortium led by the Philippine utility Manila Electric (Meralco). It fell through over rent-seeking squabbles, which go beyond the scope of this paper. Nevertheless these attempts illustrate the ongoing belief amongst international and Ghanaian actors that for-profit motives and performance-based contracts will resolve the sector's fiscal issues. Similarly, this logic sits behind proposals to split VRA into hydropower and thermal operations. Spinning-off, and potentially-privatising, the latter will supposedly increase sectoral competition and thereby operational efficiency[78].

Overall, these proposals are premised on the idea that further formal institutional separations and transparency will solve Ghana's underlying electricity-sector challenges. They would theoretically prevent repetition of these crises as they would mean that tariffs would cover costs and the private and state-owned utility firms would have sufficient finance to afford fuel costs. Moreover, management of the infrastructure and decisions about future generation would be governed by market logics given further insulation and independence of the regulators PURC and the Energy Commission, and the privatisation of VRA and ECG. This understanding of the problems and solutions for the electricity sector are therefore rooted in the 'good governance' school of thoughts which seeks to separate political influence from the sector's policymaking processes through the devolution of power, the separation of governmental functions and introduction of the private sector. This paper's analysis provides a contrasting view, demonstrating that such formal institutional creations are not allowed to function in Ghana. Independent regulation has never been achieved and formal governance rules, particularly around finance and infrastructure construction, are not practiced in reality. This evidence is not easily explained by the recent mainstream literature on rethinking 'standard reform'. It assumes that democratic norms, the adoption of market ideology, middle income status and relatively developed electricity grids, all of which Ghana has, enable the successful functioning of electricity system. It therefore has offers limited insight to the electricity systems' crisis and the politics of policymaking behind it. In contrast, this paper offers such explanation using analysis of Ghana's political settlement and ideological rationales.

5.2 Dumsor: The product of competitive politics?

Whilst clearly triggered by particular external events, political factors drove fiscal problems that caused the Dumsor crises' depth and longevity. These fiscal issues were chiefly produced by different governments intervening to keep tariffs low, constructing inefficient infrastructure and redirecting budgets from the utilities towards short-term electoral concerns. In particular, the large deficit caused by the 2012 election limited government support for fuel purchases (IMF, 2013: 4). The dynamics of Ghana's political settlement therefore negatively influenced the finances of government and utility companies, in-turn meaning that they were in a poor fiscal position at the

[77] Interview, Ex-CEO, GRIDCo
[78] Interview, Ex-Minister, Ministry of Energy

moment when they needed to stump-up for light-crude fuel. Unpopular policies like tariff increases or cuts to government programmes to cover bills, have proven near-impossible to sustain, even when they might slowly work to build a financially-resilient electricity system; the slow grind of achieving long-term sustainability has been ditched in favour of short-term appeasement, overriding formal institutional separations and market mechanisms. The pressures created by Ghana's competitive, unstable political settlement created a short-termism and electoral-focus undermined the government's financial position and that of its state agencies, thereby transforming an initial fuel shortage into the four-year *dumsor*. Measures getting "the prices and institutions right" are overwhelmed by deeper political objectives.

5.3 Oversupply: The Expectation to Deliver?

The political settlement also helps explain the oversupply crisis. This is partly rooted in electricity's historic status in Ghana. Founding President Nkrumah, through the Volta River Project and Akosombo Hydroelectric Dam, equated electricity with development and seeded ideas about the technology as a citizenship right (Cuesta-Fernández, 2018; MacLean et al., 2016b, 2016a). This idea was cemented by President Rawlings (1979, 1981 to 2001) who used electrification projects to build a voter-base. MacLean et.al. (2016a) argues that by 2010, this resulted in a norm that providing electricity was an unquestionable governmental responsibility, a basic test of competence. Thus, *dumsor* crashed the incumbent NDC's popularity: News coverage ("the first middle class revolution [in Ghana]"[79]), protests and popular slogans like 'no electricity, no vote' capture the popular mood (Destrée, 2019). Interviewees reported that most diagnoses for *dumsor* amongst the elite and press blamed generation capacity and not fuel, as demonstrated above. Consequently, fear particularly grew within the NDC when by 2014, the Nigerian gas pipeline's restoration and new plants did not stop power cuts. With the approaching 2016 election, politicians pushed rapid implementation of the aspirational 5000MW target: "central government was hot, the election was approaching"[80], "panic" buying followed[81], with normal channels of procurement suspended and official advice and regulatory processes of the Energy Commission side-lined. GRIDCo, the agency mandated to coordinate generation expansion and ensure stability, was excluded. Unlike the orderly commissioning of former IPPs featuring lower tariffs[82] and involving all the utilities and regulators, deals were rushed, even through parliament (Kasapa FM, 2015)[83]. Therefore, concern about the 2016 election drove a short-termism demanding "emergency decisions"[84] that suspended usual processes. Ghana's competitive political settlement, the need of the incumbent coalition to maintain power by winning elections, thus drove a rash boom in unnecessary IPPs contracts, pushing the sector into a future debt crisis.

[79] Interview, Researcher, Centre for Democratic Development
[80] Interview, Senior Planner 2, Energy Commission
[81] Interview, Senior Planner 1, Energy Commission
[82] Namely the 1998 Takoradi International Power Company (TICO) (220MW), the 2010 Sunon Asolgi (200MW) and 2012 CENIT (126W)
[83] Interview, Ex-Minister, Ministry of Energy
[84] Interview, Ex-Minister, Ministry of Energy

Alongside electoral panic, an additional likely motivation was rent seeking. The signing of so many IPPs, with relatively little scrutiny, presented a major opportunity to divert public funds to private profit. One particularly controversial deal involved the Ameri plant, which a newspaper investigation claimed was overpriced by US$290 million (Bakke Foss et al., 2016). Many interviewees in the sector reported that the IPPs had political connections[85]; "every minister in the cabinet had their own pet project"[86]. Indeed this use of IPPs for rent seeking continued post-2016: Again the Ameri plant caused scandal[87], potentially costing $1 billion and involving current President Akufo-Addo's close circle (Antwi, 2019)[88]. As established above, such rent seeking is strongly incentivised by Ghana's political settlement, as it enables the gathering of electioneering costs and channels support to key coalition members. Short-term political interventions therefore overrode the good governance model whereby sectoral experts' demand-driven modelling drove independent longer-term planning and regulatory processes.

5.4 The Overlooked Influence: High Modernist Ideology

However, political-settlement explanations exclusively focusing on strategic interests about keeping power do not wholly account for the oversupply crisis. Such interests do not count for the fact that, this boom in power plants, although not following the timeline or technologies of 2010 electricity act (detailed above), did meet its 5000MW target. According to interviewees, the target stemmed from the NDC's manifesto which "included a lot of industrial activity"[89], export-orientated industrial growth and universal electrification[90]. The National Development Planning Commission help turn this into an updated national growth plan (NDPC, 2010: 61)[91]. It envisioned VALCO, an aluminium smelter launched through Nkrumah's Volta River Project (Miescher, 2014), returning to full capacity and the reopening of factories closed in the 1990s, such as a juice factory and glass smelter privatised under President Rawlings[92]. Despite the lack of economic justification for whether such a scenario was realistic given the known difficulties of what the literature terms 'late' late, 21st Century industrialisation (Behuria, 2019), and in contrast to Ghana's unsuccessful history of industrialisation attempts, the Energy Commission translated these ambitions into forecasts, describing the processes as: "you want to build a skyscraper-we will give the projections"[93]. This planning process occurred in parallel to that conducted by the utilities. As stated above, 5000MW disagreed with the Strategic Energy Plan of 2006 and VRA and GRIDCo's forecasts. Indeed, the latter weren't involved in the plans, concluding that the 5000MW figure was "a matter of politics"[94]; it "was done without recourse to analysis. We (VRA) know demand on the grid (and this was) far above any realistic reserve margin"[95]. Key electricity-

[85] Interviews, Senior Official, MiDA; Senior Official 1&2, World Bank; Senior Planner 1, Energy Commission
[86] Interview, Anonymous, Accra
[87] Interview, Researcher, IEG
[88] Interview, Researcher, IEG
[89] Interviews, Senior and Junior Officials, Renewables, Ministry of Energy
[90] Interview, Ex-Minister, Ministry of Energy
[91] Interviews, Senior Planners 1&2 and Planning Team, Energy Commission
[92] Interviews, Senior Planners 1&2, Energy Commission
[93] Interview, Senior Planner 2, Energy Commission
[94] Interview, Senior Planners, GRIDCo
[95] Interview, Senior Planner 1, VRA

system experts therefore disagreed with the assumption that increasing demand would animate industrialisation, that supply should come first.

According to Dye (2016, 2018: 1, 2020) this type of linear, technologically-centric thinking in the electricity sector has roots in high modernist logics coined by Scott (1998): They suggest an overriding belief in technology to create socio-economic change and a self-confidence in top-down planning expertise. Modernist ideologies have historic roots in Ghana, particularly associated with President Nkrumah and the scale of ambition and optimism of his Volta River Project (Hoag, 2013). Moreover, a similar belief in the megawatt to by itself create development is visible elsewhere, for example Rwanda's and Tanzania's rapid building of power plants (Dye, 2018: 4, 2020a). The overruling of expert advice and their forecasts suggests that at some level, an ideological belief in the power of megawatts to deliver economic demand and development, a self-confidence that technology could overcome structural constraints. Ideology, alongside the strategic interests of Ghana's political settlement, consequently drove Ghana's oversupply crisis. This analysis consequently refutes Whitfield and other's assertion that policymaking in Ghana is not influenced by ideology, demonstrating they ideas sit alongside strategic interests as influencers of Ghana's policymaking.

5 Conclusion: The Standard Reform Model and the Undermining of Electricity Planning

How to understand electricity crises and the sector's policymaking? The mainstream explanation asserts that there has been an insufficient application of the standard reform model: to fix Ghana, we just need to 'get the prices and institutions right'. This explanation sees solutions in the privatisation of utilities, and thereby the introduction of further commercialised, for-profit institutional norms, alongside greater regulatory independence. Ghana should also have the preconditions to make such a system work, according to the World Bank's assessment of electricity-sector reform. Foster and Rana's (2019) identified factors enabling successful standard-reform implementation include democratic, competitive elections and support for market economics, both of which Ghana demonstrates, not least given both parties have pursued the creation of independent regulation, the introduction of market-mechanisms, corporatisation and unbundling in the electricity sector[96]. Gore et al. (2019) rank Ghana as having implemented 5.5/8 of the standard reform policies.

This paper contrasted this focus on institutions, prices and the surface-level function electricity sector, with a deeper understanding of the politics of policymaking in the electricity. Analysis links Ghana's two crises of absence and abundance to the country's underlying political settlement and high-modernist ideological rationales: The *dumsor* crisis' immediate triggers were external, coming from the pipeline break and drought, but its depth and length were caused by inability of ECG and VRA, and thereby the state, to pay for fuel. Similarly, pre-election panic, alongside a dose of high-modernist ideology and opportunities for rent seeking, led to the costly boom in power plants. Thus, this paper demonstrates that attempts to 'get the prices and institutions' right have proved impossible, at least thus far. This is evident in the inability to formally separate functions and ensure their operational

[96] Admittedly features limited decentralisation and no history of transparent tariff setting

independence, best demonstrated by the PURC, the tariff setting body. It is also evident in other areas where utility companies have undergone good governance reforms, such as the water utility, whose ability to set prices and operate independently was overwhelmed by party-political drivers (Hirvi and Whitfield, 2015). They are frequently unable to implement their technical recommendations due to political pressure, or are formally or informally overruled by the Ministry of Energy and Presidency. Equally, the corporatizing and commercializing of the state utilities was supposed to bring efficiency through making them companies with for-profit motivations. However, this has seemingly done little to change their practices, whether that is in ECG's tariff collection or in the sector's financial sustainability. *De facto* state powers render formal rules and the honouring of contracts relatively insignificant.

Fundamentally then, this paper demonstrates that analysis of institutional change shouldn't merely focus on the formal policies and organisations created to govern the electricity sector, nor should it read significant explanatory value into the presence of generic identifies such as elections, 'democratic norms' or political competition. Rather, analysis should appreciate the societal manifestation of power and the way this shapes the political status quo; analyses of the wider political settlement reveal the pressures on policymaking and the way in which formal institutions can be overwhelmed. The very competition and democracy identified by Foster and Rana (2019) as an enabler of reform can consequently be revealed as detrimental to long-term planning and the inclusion of expertise. Additionally, the paper, echoing the author's work elsewhere (Dye, 2020a) asserts that ideology matters in policymaking and should be considered as an influence alongside strategic, more materialist interests.

Arguably analysis here also questions the benefits of the good governance model and why it remains so influential, particularly over electricity sector thinking. In Ghana, the introduction of standard reform policies appear to increase opportunities for electricity distortion. This is most evident in the introduction of IPPs. Arguably, made the by-passing of long-term planning easier given that the VRA did not support, and would have been unable to enact, the construction of so many plants. Additionally, rather than increasing efficiency within the sector and bringing down costs, these deals offered new chances for rent-seeking. IPPs also incentivised high tariffs that would benefit investors and connected politicians, primarily punishing the utilities. Indeed, given increasing evidence of particularly-high fiscal obligations caused by booms in IPPs elsewhere on the continent[97], evidences the need to reappraise the policy's riskiness. Moreover, the continued focus on implementing the standard reform model also contrasts with pressing 21st century developmental challenges. Should unbundling institutions, introducing competition and market logics remain a top priority when decarbonisation of electricity grids and the achievement of universal access has not been reached?

[97] e.g. in Rwanda (Dye, 2020a)

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