



# Neoliberal energy transitions in the South: Kenyan experiences



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## ABSTRACT

What is the relationship between the direction and form of an energy transition and the political economy within which it is embedded? This paper explores how the nature of (low carbon) energy transitions is strongly influenced by the process of neoliberalisation that shape energy policy in the South. We seek to understand emergent energy transitions and to advance their theorisation through an account of the political economy of energy transition in Kenya. In contrast to the often techno-managerial orientation of literatures on socio-technical transitions, we explore the political terrain upon which competing visions of energy futures and material interests collide and seek to accommodate one another. We develop a political economy account that emphasises the structural and disciplinary power of capital and global institutions to set the terms of transition. This expresses itself in both delimiting the autonomy of state actors and by reconfiguring domestic institutional and social power in ways that shape the distributional politics of transitions.

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## 1. Introduction

Like many African countries, Kenya is at critical juncture with respect to defining its energy future. The challenge it faces is to enable a 'just transition' to a lower carbon economy: one that delivers poverty reduction and climate resilience simultaneously (Swilling and Annecke, 2012; Newell and Mulvaney, 2013). Although this presents a social and technical challenge of staggering proportions, thinking about who sets the terms of transition raises key political questions about the role of actors, interests and institutions as they seek to advance competing energy pathways and associated technologies. Despite the relative paucity of academic attention, or acknowledgement by policy-makers of their importance, issues of power and political economy play a key role in determining technological and social outcomes: the winners and losers from different energy pathways, on whose terms the trade-offs between competing policy objectives are resolved, and how.

This paper addresses these theoretical and practical challenges through an account of the political economy of energy transitions and the ways in which they are constrained and enabled by processes of neoliberalisation. We refer to neoliberalisation not as an end state, but rather as a contested and spatially and socially uneven process through which ever more areas of political life are subject to market discipline which increase the dependence on

private actors for the provision of public goods. With this endeavour we are responding to calls from others who find the 'political economy of energy transitions is a vastly understudied area' (Goldthau and Sovacool, 2012: 238) amid 'the need to foreground social processes and power relations' in transitions research (Lawhon and Murphy, 2012: 355). In particular, we suggest that forms of power derived from control over production, finance and technology should assume a central place in accounts of the politics of transition. We also emphasise the specificity of these processes in the global South, where configurations of power between states, donors and transnational capital have distinct characteristics that have not been well captured by the Eurocentric origins and focus of socio-technical transitions literature to date (Baker et al., 2014; Swilling and Annecke, 2012). We develop this argument through an account of several recent policy processes in the Kenyan energy sector, and suggest that a transnational reading of political and social relations – embedding domestic energy politics within global policy networks and circuits of power – illuminates the critical and contested role of the state in neoliberal energy transitions.

Kenya presents an interesting case study to explore these politics and the potential of theoretical tools to account for them. Kenya has enacted neoliberal reforms in the energy sector, while the state continues to play important roles in energy service delivery and coordination. The government has attracted significant investment in both renewable energy generation and conventional fossil resources. It has taken a pro-active role in articulating a national climate change strategy, while seeking the development

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of new hydrocarbon reserves. A new suite of constitutional reforms and development planning processes are re-shaping the way that formal governance structures are organised, while informal ways of doing politics persist. To build this account we draw on 29 interviews conducted during August–September 2013 with government officials, donors, businesses and non-governmental organisations engaged in the policy process; reflections gleaned from a dissemination event on this research held in Nairobi in 2014; and analysis of policy documents. This enables process-tracing of key initiatives and mapping of networks and relations of power between prominent actors, undertaken with participants and users of the research in Kenya to affirm or challenge our findings.

The paper is structured as follows. First we outline our case for moving beyond a socio-technical understanding of transitions towards a political economy understanding of how power operates through neoliberal processes of transition. Second, we develop a scalar account of how donors have influenced the 'landscape' of transition through the exercise of disciplinary power to embed neoliberal reforms in Kenya's energy sector. Third, we describe the role played by the Kenyan state and donors in directing the development of new renewable energy projects within the partially liberalised energy sector. We emphasise the importance of public risk-taking in the making of markets and the distribution of value, and the political support that has been mobilised behind particular technologies. We conclude with some reflections on the empirical and theoretical findings of the paper.

## 2. From socio-technical to neoliberal transitions

Insights from theories of socio-technical transitions provide a useful but limited understanding of the ways in which shifts in energy generation and distribution in Kenya are taking place. The term 'socio-technical transition' can provide both a description of transformation from one energy system to another, and a set of tools and concepts to explain and enable such transitions. Academic work on socio-technical transitions seeks to understand how, when and where transitions to low-carbon socio-technical regimes can come about (Rip and Kemp, 1998; Meadowcroft, 2011; Scrase and Smith, 2009). Transitions in this sense refer to 'deep structural changes' in systems such as energy that involve long-term and complex reconfigurations of technology, policy, infrastructure, scientific knowledge, and social and cultural practices to sustainable ends (Geels, 2011: 24). A transition implies 'major technological transformations in the way societal functions such as transportation, communication, housing, feeding are fulfilled' (Geels, 2002: 1257).

A great deal of insight (and debate) into the nature of socio-technical transitions has been generated through a 'multilevel perspective' (MLP) on transitions (Rip and Kemp, 1998; Geels, 2002, 2011). The MLP is used to analyse system change through three heuristic levels: established socio-technical 'regimes', broad exogenous 'landscape' factors that influence regimes, and 'niche' sustainability experiments that might disrupt them. The 'landscape' of a socio-technical system is seen to comprise the structuring forces of ideologies, institutions, discourses and political and economic trends that constitute enduring forms of socio-technical organization. The socio-technical landscape provides a point of departure for analysing the ways in which neoliberal principles of energy governance have been advanced through the institutional power of international finance institutions exercised in partnership with state actors. 'Regimes' in contrast are made up of the complex of practices, regulatory requirements, institutions and infrastructures required to achieve particular societal functions, such as mobility, cooking or heating. This formulation of a dominant socio-technical system of generating, distributing and consuming energy invites a

(critical) understanding of the role of the state in transitions, which we seek to provide below. 'Niches' meanwhile provide a potential space within which social and technological learning processes, networking, and expectations develop in relation to forms of socio-technical configuration that are alternative to those of a regime. This helps us to understand patterns of low-carbon innovation developing in Kenya and how they seek to compete for the attention and resources of actors at different scales.

Despite some recent attempts to pay greater attention to the role of politics and power in transitions (Geels, 2014; Scoones et al., 2015), the transitions literature to date has had relatively little to say about the politics of which energy sources are prioritised, by whom and why, and what this means for who secures access to energy. There is a growing recognition that 'regime resistance' (Geels, 2014) matters, and that governments need to exert authority over market actors to initiate more rapid transitions without detailed attention to the political processes and terrain upon which they play out. Recognising that varied institutional contexts give rise to very different forms of decision making and power asymmetries that may influence sustainability trajectories in different ways (Hansen and Coenen, 2015; Kern, 2011; Kuzemko et al., 2016), requires us to develop specific accounts of the politics and political economy of contending energy pathways in particular contexts.

In this regard much of the material that we discuss below addresses the trade-offs between inclusive development and the promotion of renewable energies. It brings into conflict competing visions within the Kenyan state with different fractions of domestic and international capital that have a stake in distinct energy pathways; the commitments of donors to see energy transitions achieved through market-based mechanisms backed by targeted state intervention; and the uneven power relations through which these visions are contested. We are sympathetic, therefore, to the suggestion from Lawhon and Murphy (2012: 371) to consider:

who is (or is not) represented and included in transition decisions; where and at what scale decisions are made; whose knowledge counts and why; how power relations influence regime dynamics, landscape features, and the prospects for niche innovations.

In this regard emerging literature in Geography has pointed to the importance of understanding energy transitions as uneven social and spatial processes (Calvert, 2016; Huber, 2015; Rutherford and Coutard, 2014). These processes involve the 'reconfiguration of current patterns and scales of economic and social activity' (Bridge et al., 2013: 331), in which 'people and places unevenly experience the costs and benefits of energy extraction, generation, financing, distribution and consumption' (Newell and Mulvaney, 2013: 4). These contributions have helped to address the neglect of power and social relations that configure questions of energy access and energy justice, and suggest important starting points for analysis of the specific features of colonial and post-colonial socio-technical energy systems that have developed in the South. However, to complement this emphasis on the uneven social consequences of energy transitions, we still require an account of the politics, power and social relations that produce those outcomes: an account of why the organisation of energy systems privilege some actors, interests and classes over others, as part of a broader account of how political economies influence energy transitions.

## 3. Political economies of energy transition

Few studies have sought to develop a political economy analysis of the role of competing energy pathways in Kenya. Most studies to date on the transition away from fossil fuels in the country have focussed on the promotion, diffusion and performance of renew-

able energy (van der Plas and Hankins, 1998; Wamukonya, 2007; Ondraczek, 2013; Jacobson, 2007). Political economy analysis is, however, increasingly utilised by donors seeking to understand the national political context into which development assistance is received (cf. Routley and Hulme, 2013). Political economy in these studies is typically understood as the identification of vested interests and systems of political incentives that frustrate governance reform programmes, limit the performance of public institutions, and dis-incentivise private investment (Desai, 2011). From this perspective, Kenya's failure in recent years to deliver on the promise of economic transformation has been attributed to a set of national political and socio-economic relationships characterised by 'competitive clientalism': fierce electoral competition enmeshed in systems of political patronage with strong ethnic dimensions (Booth and Golooba-Mutebi, 2014; Khan, 2010) where the political elite have been able to capture public institutions and resources to serve their private interests (Ng'ethe et al., 2004). While this literature has focused attention on the specificities of African polities, it is somewhat constrained by a national frame of analysis comprised of ruling political elites, state bureaucrats and domestic firms.

In contrast to these accounts, we develop a global political economy of energy in Kenya that describes the institutional embeddedness of socio-technical transition processes within particular political-economic contexts which strongly shape those processes (Lawhon and Murphy, 2012). We use this approach to stress that the relationship between transnational capital and the domestic political economy belies any sharp distinction between an external set of international donors and finance institutions on the one hand, and a bounded set of national and sub-national institutions on the other (Büscher (2009). Relationships between actors at different scales shape policy directions in particular 'transition spaces' (Coenen et al., 2012). This relational approach is important in the energy sector, where the relatively fixed location of resources – such as geothermal activity, solar radiation, and oil and gas deposits – connect particular places with the transnational circulation of capital that is mobilised to process resources into productive energy services (Bridge et al., 2013). The nature of investments in energy generation in Kenya necessarily involves trans-local dynamics and transnational networks of institutions and ideas. Global processes are hence best understood not as external forces on the local – but in relation terms.

To describe the geographically specific ways that particular energy pathways have become institutionally embedded in the Kenya, we focus our attention on the creation and beneficiaries of the rules that govern energy in Kenya and what this reveals about who sets the terms of transition and on whose behalf. This approach re-directs the attention of socio-technical transitions literature from the artefacts of renewable energy technologies to the ways in which differential power affects the inclusion and exclusion of different artefacts in the transition, and the social priorities that are reflected in the process. Our analysis is structured around three broad considerations that bring insights from global political economy to bear upon the literature on socio-technical transitions: (i) a political economic 'landscape' that is shaped by disciplinary neoliberalism (ii) the conditions under which some 'niche' technologies have been accommodated by an energy 'regime', and (iii) a reflection on the winners and losers of transitions pursued through neoliberalisation. First, we provide a brief description of Kenya's energy sector to contextualise the discussion.

#### 4. A global political economy of energy transitions in Kenya

Kenya has one of the lowest electrification rates in Africa with less than 25% of the population having access to the grid. Given

the low level of access and poor quality of electricity supply to both residential and commercial consumers, increasing electricity generation has become one of the government's highest priorities, a core strategy for driving economic growth, and a fiercely competitive electoral issue. For many years drought has affected the reliability of Kenya's hydropower capacity, forcing the government into expensive emergency diesel generation that leave the country vulnerable to the volatility of oil prices and currency exchange rates. Attempts to diversify Kenya's electricity supply are driven largely by these economic and political factors drivers, opening up opportunities for renewable energy to play a larger role in the country's electricity mix.

Electricity generation has failed to keep pace with demand, such that planned and unplanned service disruptions have been a regular experience for the largely urban population that has a grid connection. To meet the government's ambitions of attaining middle income country status by 2030 through agricultural modernisation and industrialisation, it is estimated that installed capacity will be required to increase dramatically from 1606 MW in 2012 to 19,200 MW in 2030 (Government of Kenya, 2006). Short term goals are no less ambitious. In 2013 the government announced plans to create 5000 MW of additional electricity generation capacity within 40 months, roughly tripling Kenya's capacity (Ministry of Energy and Petroleum, 2013). While these targets are widely seen as unfeasible outside of government, and exceed the demand forecast of the government's own power development plan (Ministry of Energy, 2011), they are nonetheless indicative of the political capital invested in rapidly increasing electricity generation capacity.

These ambitions require massive investments that the state alone is unable or unwilling to provide and which bring domestic political economy into play with transnational circulations of capital. The state and its development partners have now united behind formal policies that seek to develop a market and business-friendly environment for independent power producers through the provision of attractive tax regimes, regulation and infrastructure to attract international energy investors, particularly in electricity generation (Ministry of Energy and Petroleum, 2013). The range of electricity sources available to the Kenyan government and slated for significant investment includes both renewable and conventional resources: geothermal energy, coal, gas, fuel oil and wind power (Ministry of Energy and Petroleum, 2014). Importantly, geothermal energy and certain wind power sites have been identified as cost-competitive with conventional sources of electricity, making some renewable sources highly attractive to the Kenyan government (Ministry of Energy, 2011). In contrast to many African economies then, resource endowments, technological developments and institutional reforms have allowed a consensus to emerge around the idea that some indigenous sources of renewable energy can serve national development, growth and energy security as productively as conventional energy sources. In the account that follows, we discuss some of the trade-offs that are inherent in the pursuit of different energy pathways, and the power relations that shape the ways in which these trade-offs are accommodated or resolved, by whom and for whom.

##### 4.1. *The political economic landscape of transition (i) disciplinary neoliberalism*

As noted above, the prospects of successful socio-technical transitions are assumed to be effected by a diverse series of 'landscape' factors (Rip and Kemp, 1998). These include, for example, the role of donors and international finance in shaping, incentivising, and dis-incentivising particular energy policy choices at the national level. In countries such as Kenya that hold little sway in global trade relations, this dependence on aid and technical assistance

can circumscribe the degree of policy space available to pursue energy pathways that best align with their own development priorities. A critical political economy analysis can enhance an understanding of this terrain by providing an account of the relations of power that characterise the relationships between 'exogenous forces' and the state, which has to mediate, embed or challenge these forces.

First, we suggest the relevance of the 'disciplinary' power of global institutions and other economic actors in understanding the landscape of socio-technical change (Gill, 1995; Gallagher, 2005). This usefully describes the combination of structural and material power wielded by these actors over those states dependent upon them for financial loans and investment, combined with the discursive power to legitimise, validate and embed neoliberal models of transition. In developing this account we draw on insights from work on 'governance states' (Harrison, 2004), which describe the World Bank's attempts at 'reconciling a global political economy with its own designs and a specific set of challenges posed by the African region' (2004: v). A high level of external influence whereby the Bank is intimately involved in policy making means that any clear distinction between the Bank and an autonomous state become difficult to discern. Through these negotiations, energy pathways are narrowed or opened up by the presence and interests of global actors and their interactions with state elites.

The particular model of development that has been promoted through this combination of market discipline and state power is neoliberal in character. Energy transitions in sub-Saharan Africa are increasingly occurring in socio-political environments that are structured by the power and preferences of transnational capital, expressed as a key set of norms and objectives that are shared among donors, multinational companies, private financiers, multilateral development banks and state elites (Bayliss and Fine, 2007), given the paucity of public finance in most cases that can be dedicated to transform energy systems. This narrative was articulated clearly at the Paris climate change summit in December 2015 where the talk was of an impending 'clean energy revolution' for Africa, a vision in which the role for actors such as UNDP and REEEP (Renewable Energy and Energy Efficiency Partnership) is to 'de-risk' and scale-up private finance. The Africa Renewable Energy Initiative (AREI), for example, aims to build at least 100 GW of new and additional renewable energy generation capacity by 2020, and 300 GW by 2030. This coalesces around a model of energy development that is private-led (while allowing ample opportunity for the collection of rents by the state), has significant export-potential, is primarily grid-connected, and is able to meet the suppressed demand of commercial business. Disagreements persist among these actors as to which energy sources best meet those criteria and the extent to which they should be low carbon, but the overall (neoliberal) model of ownership, management, and control is rarely challenged. The World Bank has been instrumental in embedding this model of energy development in the South over several decades, through a combination of large development loans for privatisation, conditionalities for access to foreign capital, and the construction of epistemic communities and networks of advocates for the liberalisation of energy (cf. Goldman, 2007).

Neoliberalisation has involved a significant shift in the management norms and distribution of power in the Kenyan energy regime. Yet clear distinctions cannot be made between an era of state-led and privatised energy in Kenya. Prior to liberalisation, an energy regime characterised by highly centralised management and dependency on large hydropower had been created through large state-capital infrastructure projects, built by foreign investors and subsidised by the state, while providing ample opportunities for rent collection by Kenyan elites. Commissioned in 1986, the Turkwel Gorge Dam project was considered to have involved such

serious contractual irregularities, cost inflations, and evidence of bribery that a full aid embargo was imposed by Kenya's donor group including the World Bank and IMF (Hawley, 2003), but which was also driven by the government's refusal to initiate reforms that included greater private sector participation in the sector (Tellam, 2000).

Faced with stalled investments in generation capacity, power outages and rationing, the government then agreed to undertake the energy sector reforms laid down by the Bank. Consistent with the mode of discipline and reward that is applied to 'governance states' (Harrison, 2004), the embargo was then lifted and in 1996 the World Bank agreed to lend the Kenyan government US\$125 million as part of a \$700 million package of investments in the country's power sector, focused on legal and regulatory frameworks that were designed to attract private sector participation and achieve associated efficiency gains. Tellam (2000: 66) describes the Energy Sector Reform Project that resulted as a 'clear example of the World Bank applying pressure on a low-income country to commercialize and privatize its energy sector'. The World Bank's involvement in the Kenyan energy sector began in earnest, allowing the Bank to define the problems of the energy sector by linking state failure to load-shedding and reliance on one hydrological basin for hydropower (World Bank, 2005).

As in many other countries, this has resulted in the liberalisation of Kenya's energy sector, but not its wholesale privatisation. Publicly owned or partially privatised utilities in Kenya have been restructured towards operating on a commercial basis with limited public subsidy, and operating cost reflective tariffs for electricity consumers (Ministry of Energy, 2004; Vagliasindi and Besant-Jones, 2013). The partial privatisation of the energy sector reflects the World Bank's own shift in policy, which has recognised from experience that states cannot be replaced by markets in one-size fits all policy prescriptions for privatisation (World Bank, 2004). Yet, rather than a reconsideration of the role of state provision or the limits of private participation, the Bank's policy revisions have positioned states as the facilitators of investment and the enablers of conditions for private sector participation to flourish (Bayliss and Fine, 2007). Short of privatisation, citizens become customers, and the poorer ones rendered unprofitable for either private sector companies or corporatised public sector companies in a model that McDonald calls 'electric capitalism' (McDonald, 2009). This restructuring process has, nevertheless, made Kenya an attractive investment environment for independent power producers, creating a shift in the ownership and management norms of the Kenyan energy regime.

#### *4.2. The political economic landscape of transition (ii) technology choice in a partially liberalised market*

In the partially liberalised energy market then, international investors have gained a key foothold as Kenya looks to foreign investment in infrastructure, but the state and donors retain significant roles in the formal and informal governance of energy. Donors have played an important role in setting the tone for energy policy in this regard, using their collective power to steer Kenya toward cleaner forms of electricity generation for domestic consumption, while maintaining support for fossil fuels such as oil that are extracted by donor country firms and exported for consumption in the global North (AFD, 2013). A solar energy 'niche' was a beneficiary of this shift, supported by the UK Department for International Development and the German Technical Agency GTZ to conduct a Policy Dialogue process in parallel to the Government's drafting of the Energy Act in the early 2000s. In one of the first encounters of the solar energy niche with the Kenyan energy regime, solar advocates joined forces with

parliamentarians to ensure that references to renewable energy were not stripped from the Energy Act of 2006 (Byrne, 2009).

Kenya's adoption of neoliberal reforms in the energy sector has been rewarded by support from bilateral and multilateral donors, opening up opportunities for foreign capital to meet the shortfall in energy supply. Kenya has been described as an obvious choice of pilot country for climate finance mechanisms such as the World Bank's *Scaling-Up Renewable Energy Programme (SREP)*, because of the market-orientated governance of a sector dependent on international expertise and technologies (Climate Investment Funds, 2011). In this respect, Kenya has been described as 'the pilot for everything'<sup>1</sup> and is often compared favourably with neighbours, such as Tanzania, on the basis that, as a World Bank official put it to us, 'Kenya has always been private sector focused and avoided the virulent forms of socialism of some of its neighbours'.<sup>2</sup> This is not to suggest that investors do not face considerable uncertainty in Kenya – exemplified by devolution, delays in the revision of energy laws, the revoking of licenses, and short term revisions of electricity tariffs – but foreign investment that can generate rents has been facilitated by successive Kenya governments and ruling elites (Tellam, 2000; Ng'ethe et al., 2004).

China has nevertheless emerged as a potential contender to the power of western donors. The availability of Chinese financing could provide the basis of a broader shift in the geopolitical 'landscape' that shapes both technology choice and the policy autonomy of the Kenyan state. Particularly in relation to the large hydropower regime, Chinese loans are thought to come with fewer 'strings attached' such as the KSh150 billion (around US\$1.5 billion) High Grand Falls hydro project which was a focus of a trip in 2013 to Nairobi by senior officials from the Chinese Exim bank. According to Treasury officials, Kenya 'will never be left behind by the World Bank',<sup>3</sup> but it can increasingly look to China for alternative sources of finance that are perceived to be faster, come with fewer conditions, and are more flexible. As a World Bank official put it: the World Bank is 'not the only show in town... like 20 years ago'.<sup>4</sup> Specifically China might be tempted to benefit from the reluctance of Western development banks to invest in fossil fuels and insist on procedural norms of consultation in the development of large hydropower projects, to secure new projects with the Kenyan state. An IFC official suggested: 'With the discovery of oil in Turkana and coal in Kitui areas, the government is becoming more assertive. The government offered a 1000 MW opportunity on coal, but donors and investors are reluctant in investing in it because of the greenhouse gas effects'.<sup>5</sup>

Despite this potential for greater autonomy for the Kenyan state, traditional donors can present a powerful force when they coordinate their positions. Beyond differences in their preferences and power, Kenya's 'traditional' donors have operated as market facilitators in their interventions, paving the way for further penetration of the energy sector by transnational capital. This has included commercial diplomacy through, for example, 'Low carbon networking events' organised by UK Trade and Investment and attended by firms such as Balfour Beatty, EGS Energy and Aldwych International interested in opportunities to invest in new infrastructures around power generation, transmission and distribution projects. It also included finance capital in the form of carbon

finance and private equity groups such as Climate Change Capital and other investment funds wanting to invest in geothermal resources.

While the state-led, large hydropower-dominated energy sector has always required international investment in infrastructure, a shift in the Kenyan energy regime has occurred, in which there is a common material interest and discursive commitment on the part of both donors and the Kenyan state to the virtues and necessity of private sector investment across the energy sector, and the creation of investment conditions required to attract it. Patrick Nyoike, former Permanent Secretary in the Ministry of Energy, stated clearly in an address to investors, 'the Government appreciates that it is not possible to raise all the required funds and within the desired period without the participation of both public and private sectors ... Private sector participation is, therefore, actively encouraged through a number of avenues'.<sup>6</sup> In the following section, we consider how state actors have sought to accommodate these donor and private sector interests while seeking to retain material power and authority over the energy sector. We explore this through the case of climate change policy.

#### 4.3. Accommodating landscape pressures in the regime: climate change mainstreaming

To accommodate donor interests and to lever sources of international public and private finance, new national legislation has sought to mainstream climate change into Kenyan policy. As a product of fossil fuel consumption, climate change mitigation poses a direct threat to globally integrated energy systems that are based on the widespread use of oil, coal and gas, and the political and economic systems that benefit from the revenues that resource exploitation generates (Mitchell, 2011). Studies of energy transitions elsewhere in Africa, for example, have shown that the drive for a greater role for renewable energy is seen as a threat not only to the profitability of particular energy industries, but also to the power base of state-capital elites who are reluctant to open up the market to new players, or to cede control over the energy base of their economies (Baker et al., 2014). In other words, incumbent regimes will often accommodate and diffuse pressures to reform or transform existing energy systems.

In this regard a suite of legislative instruments and plans frame Kenyan government efforts to mainstream climate change into sectoral policies. The Climate Change Action Plan (CCAP) (Government of Kenya, 2013) in particular has been developed by the Ministry of Environment and Mineral Resources (MEMR) to reduce Kenya's vulnerability to climate change and to improve the country's access to climate finance. The CCAP aims to 'climate-proof' Kenya's long term development plan, *Vision 2030* (Government of Kenya, 2006). Meanwhile the Least Cost Power Development Plan (Ministry of Energy, 2011) identifies priority resources for power generation, which in turn informs the President's targets for additional power generation (Ministry of Energy and Petroleum, 2013) and the country's energy policy, which is being updated to align with the new constitution (2010) and to incorporate legislation to govern new petroleum discoveries.

While each of these policy processes and frameworks has a distinct mandate, they are united in their framing of energy as an 'enabler' of development (Government of Kenya, 2006). For Kenya's bilateral donors, the climate change mainstreaming process is one that should promote 'climate compatible development' (CDKN, 2013) in the hope that the integration of development, climate change mitigation, and adaptation might legitimise emission

<sup>1</sup> Interview with senior energy sector specialist, World Bank, Nairobi, 21 August 2013.

<sup>2</sup> Interview with senior energy sector specialist, World Bank, Nairobi, 21 August 2013.

<sup>3</sup> Interview with senior staff, Ministry of Finance, National Treasury 15 August 2013.

<sup>4</sup> Interview with senior energy sector specialist, World Bank, Nairobi, 21 August 2013.

<sup>5</sup> Interview with senior energy sector specialist, World Bank, Nairobi, 21 August 2013.

<sup>6</sup> Mr. Patrick Nyoike Permanent Secretary Ministry of Energy, remarks at Low Carbon Networking Event 3rd October 2012 Crowne Plaza hotel Nairobi.

reduction policies where historical responsibility for climate change is negligible. Indeed, it is perhaps indicative of the discursive power of ideas about mainstreaming climate change that the process of creating the Climate Change Action Plan was described as ‘smooth’, ‘efficient’, ‘inclusive’ and ‘consensus-forming’ by a range of actors for whom addressing climate change in policy would necessarily involve confronting the established interests of the energy regime. This includes the Ministry of Energy, for whom the Climate Change Action Plan was not anticipated to significantly alter the direction of its Energy Policy or the source of large scale power generation determined by the Least Cost Power Development Plan (Ministry of Energy, 2011).<sup>7</sup>

While potentially providing direction to the course of change, these visions tend to obscure some of the key trade-offs around energy choices and their implications. In 2013 President Kibaki rejected proposed legislation to institutionalise an independent climate change authority to ensure government compliance with its climate change aims, ostensibly on the basis of insufficient consultation. As a result, climate change policy coordination remained under the relatively junior Ministry of Environment and Natural Resources, with little power to circumscribe or direct the activities of more powerful ministries. Yet, partly as a result of the framing of climate change as an opportunity, revision of the rejected Climate Change Bill in Kenya remained a priority in Kenya for many politicians, as a means to attract international climate funds for adaptation and for ‘green growth’ opportunities in renewable energy markets. Mainstreaming climate change mitigation has been successful in so far as it can increase the attractiveness of low carbon options without dis-incentivising high carbon development activities, avoiding direct conflict with powerful incumbent interests within the state – especially the Ministry of Energy – and private sector.

Nevertheless, the framing of climate-compatible development ‘triple-wins’ disguises the competing criteria that guide the most recent energy policy: ‘To facilitate provision of clean, sustainable, affordable, competitive, reliable and secure energy services at least cost while protecting the environment’ (Ministry of Energy and Petroleum, 2014: viii). In these terms it is perfectly consistent for the policy to promote renewable energy to ‘enhance energy security, mitigate climate change, generate income, create employment and generate foreign exchange savings’ (Ministry of Energy and Petroleum, 2014: 42), while at the same time heralding coal as ‘one of the indigenous sources of energy that will drive the development of strategic initiatives for Vision 2030’ (Ministry of Energy and Petroleum, 2014: 37). Perhaps unsurprisingly, renewable energy is considered supplementary to established hydropower and fossil fuel investments.

What results is an eclectic and in many ways incompatible set of promises: to deliver on developmental commitments to tackle energy poverty, to assure investors and consumers that opportunities to exploit fossil fuels are not being ruled out, and to pursue these options in a low-carbon way. Donor interests can be accommodated by the Kenyan government through efforts to mainstream climate change in policy-making. The process of producing visions and strategies is revealing of competing ideas about energy trajectories and the material interests at stake across different parts of the state and among investors in different energy sources and technologies, which have to be accommodated in political deal-brokering. In this regard it is to the calculation and negotiation of commercial risk and reward that we now turn, discussed in relation to socio-technical transitions literature on the necessary conditions for ‘strategic niche management’ to support innovative breakthrough technologies.

#### 4.4. Accommodating niches in the regime

Beyond the forms of structural and disciplinary power at play on the terrain of energy policy, a political economy account also needs to account for the practices of market-making and bringing neoliberalisation into being in the energy sector. A common insight in political economy, informed by the work of Karl Polanyi in particular ([1944] 1980), is that markets have to be made and re-made through extensive political work. They do not emerge spontaneously and neither are they self-regulating entities. Rather, they have to be constructed, bought into being, regulated and re-regulated (Castree, 2008). The same is true of the development of the market for energy technologies and services in Kenya. Debates about transitions often assume a key and benign role for the state as facilitator and enabler of transitions, and in providing forms of transition management (Kern and Smith, 2008). Emphasis is often placed on the merits or otherwise of ‘picking winners’, that is, providing state support to energy sources or technologies that governments believe can best meet a set of policy objectives. As Lawton and Murphy note, ‘Importantly, and sometimes problematically, the state is typically portrayed as a progressive, collaborative, “facilitator-stimulator-controller-director” of the transition management process’ (Lawton and Murphy, 2012: 359).

In this regard it is important to consider the extent to which the Kenyan state has sought to accommodate different energy sources within the existing regime. Technological support has been provided or withheld through formal and informal mechanisms to define and serve national interests, while accommodating the preferences of donors. For large-scale domestic electricity generation the state is dependent on transnational companies to meet the level of demand and the expertise for both conventional and unconventional energy technologies. Calculations of private sector risk and reward have become highly contested, however, and have been central to the process of directing change through the distribution of value and responsibility for two renewable energy technologies that have seen recent growth in Kenya: solar photovoltaic (PV) technology, and geothermal energy.

##### 4.4.1. Solar power and the limits of the niche

Low levels of state support for solar PV technologies closely reflect the historic interests of Kenya’s energy sector institutions in on-grid, centralised provision of electricity from energy sources. Broadly speaking, off-grid solar technologies have been incompatible with the government’s framing of energy poverty and appropriate grid-based solutions, and have received limited state support (Ockwell and Byrne, 2016). Nonetheless the market for off-grid solar system in Kenya has grown since the 1970s into the largest in Africa in spite of the state, largely driven by socio-cultural change in rural Kenya and the role that solar PV and urban-rural financial transfers have played in meeting new demands for communicative technologies such as television and mobile phones (Jacobson, 2007). Through the private off-grid market, basic electricity demand is met, with the capital cost of infrastructure met by the consumer rather than the state.

Limited support for off-grid solar energy is typically justified with reference to powerful neoliberal narratives of the virtues of the market, private-sector-led development and the role of ‘energy entrepreneurs’ in Kenya (Hankins, 2000). Yet, while the Kenyan government has not provided consumer subsidies for solar PV technologies, neither has the growth of solar PV technologies in Kenya been the free market success story that it is often claimed to be (IFC, 1998). Historical accounts of market-making in Kenya have demonstrated the degree of donor support that has been necessary to build professional networks, create demand, absorb risk and support the early experimentation that was critical in the growth of the solar home systems market niche (Ockwell and

<sup>7</sup> Interview with senior staff, Ministry of Energy, Nairobi, 19 August 2013.

Byrne, 2016). Solar technicians and enthusiasts – the energy ‘entrepreneurs’ – did not build a market alone, but were dependent on donors to shoulder commercial risks that entrepreneurs themselves were unable to take. The description of Kenya’s off-grid solar market by the IFC (1998: 12) as ‘a true free market for PV products’ is therefore not reflective of the reality, but points to a powerful narrative of free market development that has shaped the limited role that solar PV technology has come to play in Kenya’s energy mix.

In contrast, more direct support has been created for independent power producers to supply the grid with electricity from renewable sources. The feed-in tariff has received donor support as a niche policy intervention throughout the region, but has been implemented in Kenya in a way that reflects the interests of the prevailing energy regime. Currently, solar power project developers can provide electricity only at a higher unit price than alternative options such as geothermal power, coal, or hydropower imports from Ethiopia. For solar power, the government has set the tariff that is paid to independent power producers at a level that is acknowledged to be insufficient to mitigate the commercial risks of project development. An interview quote from an official in the Ministry of Energy and Petroleum bears out the competing framings of the appropriate role of solar, and who stands to benefit from its promotion:

Investors are more concerned about making quick returns rather than large-scale impact and transformation of poor people’s lives. This is why they complain about feed in tariffs being low. The government thinks these tariffs are reasonable both for consumers and investors. This is the reason why solar production is low. The government does not want consumers to pay higher for energy.<sup>8</sup>

This defensiveness about the uncompetitive price for solar perhaps derives from claims about deliberate attempts within government to limit the role of solar in the energy mix. One member of the Kenyan energy regulator (the Energy Regulatory Commission) noted that: ‘As an advocate for renewable energy, I can say that the decision to price solar low was a deliberate one’, referring to the role played by the former Permanent Secretary in the Ministry of Energy in dictating that tariffs for on-grid solar, in particular, would be purposefully set too low to attract investment.<sup>9</sup>

Having formally adopted the feed-in tariff policy as a niche policy intervention, the scope to reject grid-connected solar power has been maintained through control of the risk and reward profile of the feed-in tariff, exercised by both individuals and institutions within government. Indeed, after five years of the feed-in tariff policy, no grid-connected solar power projects yet exist in Kenya, during which time there have been successive short-term changes in the level of incentives provided for project developers (Ministry of Energy, 2012). Donor-promoted feed-in tariffs have been sidelined by governments throughout the region in favour of direct power purchase agreements with private investors and associated risk mitigation tools, such as those developed to attract investment in large scale wind and geothermal energy projects which better fit the existing regime (EED Advisory, 2014). It to these projects that we turn next.

#### 4.4.2. Renewable energy in the regime

In contrast to solar power, large scale geothermal and wind power have both gained status as priority investment areas in Kenya and received greater state support. Like solar PV, the control

of risk and reward has been central to the political control of technology choices (Ministry of Energy and Petroleum, 2013). Geothermal energy in particular provides a least-cost, scalable source of low carbon, domestically available, base load electricity supply – a ‘win-win’ technology behind which donor and government interests align.<sup>10</sup> To attract foreign capital, the Kenyan state has sought to provide an enabling environment to develop the country’s geothermal sites, channelled through a government-owned special purpose vehicle – the Geothermal Development Company (GDC) – which has been established to assume the risk of resource mapping and exploration that the private sector is unwilling to take. This state support builds on a long history of public sector resources invested in the reduction of risk, dating back to seismic surveying and exploration activity of the Government of Kenya and the United Nations Development Programme (UNDP).

Where public money has been targeted towards the development of technology and technological capabilities, and has assumed commercial development risk, the state is then required to demonstrate its contribution to project development through negotiation of the risk-reward calculation with investors, typically through a power purchase agreement (PPA) between independent power producers and the Kenyan utility. To secure investment, the Kenyan government is required to provide both commercial incentives and ensure confidence that investors will realise a return on investment. For the Ministry of Finance, Kenya has done more than enough to comply with the disciplinary conditions of good economic behaviour, by providing adequate assurances for energy investors, complying with the norms of good governance, permitting repatriation of profits by investors, and improving political security in recent years that have improved the country’s credit rating. The Ministry of Finance has however, drawn the line at providing sovereign guarantees against the risk of default by its electricity sector institutions, refusing to ‘bow to the private sector’, as one Treasury official put it.<sup>11</sup>

The remaining commercial risk to large energy sector projects has created opportunities for multilateral development banks to remain relevant in Kenya amid global competition with the sorts of Chinese sources of infrastructure financing noted above. Partial Risk Guarantees cover private financiers against the risk of a public entity failing to meet its obligations to a power project, such as the construction of electricity transmission lines, or timely payment for electricity received.<sup>12</sup> Kenya’s largest renewable energy project, the Lake Turkana Wind Power project, was able to reach financial closure only with a partial risk guarantee from the African Development Bank, after the World Bank had withdrawn its support, judging that the power purchase agreement would burden the Kenyan electricity distribution company with the risk of paying for electricity that it was not able to receive if infrastructure was not completed on time.

These knowledge- and capital-intensive energy development processes necessarily deepen the mutual but uneven dependence of the Kenyan state upon transnational capital. For off-grid and on-grid solar technologies, and for geothermal resource exploitation, the risk of commercial development and the distribution of rewards have been central to the determination of how energy trade-offs are managed, and on whose terms. New sources of clean energy production are attractive to the Kenyan government, but, as described above, departments and individual bureaucrats have scope to resist landscape pressures to adopt policies to support

<sup>10</sup> Interview with senior staff, Ministry of Finance, Treasury. Nairobi, 15 August 2013.

<sup>11</sup> Interview with senior staff, Ministry of Finance, National Treasury. Nairobi, 15 August 2013.

<sup>12</sup> Interview with senior energy sector specialist, World Bank, Nairobi, 21 August 2013.

<sup>8</sup> Interview with senior staff, Ministry of Energy, Nairobi, 19 August 2013.

<sup>9</sup> Interview with Director of Renewable Energy, Energy Regulatory Commission, Nairobi, 15 August 2013.

low carbon technologies, which donor countries have pioneered. In this respect, efforts to build political support for deployment of renewable energy by downplaying trade-offs are ultimately unhelpful. Feed-in tariffs, for example, inherently produce trade-offs, yet the United Nations Environment Programme, cites the prospective benefits as ‘a “triple-win” of additional renewables-based generation capacity to the country; enhancing employment and poverty alleviation in the rural areas; and increasing income opportunities for business development’ (UNEP, undated).

These examples of technology support in Kenya each demonstrate the importance of market-making by a transnational set of actors operating at different scales. The form that this market-making process has taken in Kenya is mixed, but can be broadly described as guided by the logics of ‘green neoliberalism’, which precedes the emergence of renewable energy technologies as cost-competitive options for electricity generation (Goldman, 2007). Through network building and resource and infrastructure development, the Kenyan state and donors have been instrumental in creating the conditions in which renewable energy options have become an attractive energy solution in the emerging market-led Kenyan energy regime. Importantly, they have done so not simply through the creation of ‘enabling environments’ for supposedly free markets to flourish, but through active intervention and risk-taking that is rarely acknowledged. The role of development finance institutions in the Lake Turkana Wind Power Project was critical in this respect, as was the role of donors in supporting networks of off-grid solar entrepreneurs to develop technological capabilities through the local adaptation and development of imported technologies. Yet the primary role for the state has been to act as facilitator of a neoliberal model of energy development rather than an interventionist ‘green entrepreneurial state’ (Mazzucato, 2015), further embedding neoliberalism in the energy sector.

## 5. Neoliberal transitions: energy for whom and at what cost?

The literature on socio-technical transitions has devoted less attention to the winners and losers that are created by particular modes of governance, and it is instructive to consider who benefits from the model of neoliberal energy policy being rolled out in a given context as befits a political economy analysis of distributional issues. Assessing the impacts of these reforms at household level is beyond the scope of this paper, but tracing policy processes reveals how energy policy is framed and produced and for whom.

Transnational actors have been actively involved in creating the neoliberal market conditions under which renewable energy development has proceeded in Kenya to date. These have included waves of de-regulation and re-regulation, where initiatives around pricing and access seek to address the problems created by liberalisation as well as under-writing and distributing risk in ways favourable to capital. Opportunities have arisen for the large-scale deployment of wind energy in particular, financed and owned by an array of transnational actors and companies such as Aldwych International who co-developed the Lake Turkana wind power project with KPLC (Kenya Power and Lighting Company) and KETRACO (Kenya Electricity Transmission Company), and with investment from global giant Google, to connect the wind farm to the grid (which is expected to start supplying electricity in 2017). In the case of geothermal, the US company Ormat Technologies has developed Olkaria III – the first privately funded and developed geothermal project in Africa.

Running through all discussions and any attempt to de-carbonise the energy sector, are deeply politicised questions of who accesses electricity and other energy services. The respective demands of industrial and domestic energy users, off-grid and on-grid users, and wealthy and poor users in rural and urban

areas, all imply important social and environmental trade-offs that institutions and policy-processes have to manage and which will profoundly shape the social and spatial geographies of energy access. In a country where grid access stands at less than 25%, the beneficiaries of additional grid-connected electricity generation are the minority. Adequate and inexpensive electricity is a critical condition for frustrated industrial growth and agricultural modernisation, yet this often overlooks support for rural populations for whom electricity is typically not used for ‘productive’ purposes (Jacobson, 2007). For the advocates of neoliberal reforms, however, reducing public spending, increasing the role of the private sector, and the restructuring of publicly owned companies are essential to provide financial sustainability, attract investment, and extend grid services to the poor, even if the evidence of private sector performance against these assumptions in Africa is, at best, mixed (Bayliss and Fine, 2007).

Having implemented neoliberal reforms in the energy sector, initiating what McDonald (2009) refers to as ‘electric capitalism’, donors have also been involved in mobilising energy entrepreneurs to help provide energy access for those people left behind by power sector reforms, through projects to build markets for off-grid solar technologies targeted at citizens that are unlikely to receive a grid connection or be able to afford the electricity that is supplied at market rates. Recent developments in the off-grid solar market have seen Kenya’s successful mobile money transfer service, M-PESA, mobilised to eliminate the upfront cost of solar lighting and reduce the expenditure of the poor on kerosene (Roloffs et al., 2016). While these new financial and technological models are developed to enable profit making at the ‘bottom of the pyramid’ (Pralhad, 2005), there is little appetite among either donors or government for redistributive measures that would ensure adequate levels of secure electricity supply to meet basic living standards or productive uses. The dual approach to energy sector support is consistent with Harrison’s (2004: 4) emphasis upon the role of governance states in embedding neoliberalism in Africa, in which attempts are made to resolve the problem of low energy access generated or sustained by first wave structural adjustment policies through second-generation reforms.

A purposeful energy transition seemingly requires some level of centralised planning, rent management and state intervention. In a country where the Ministry of Energy has centralised control, who is represented in energy policy will determine who speaks for what transition and on whose behalf. The fact that the interests of elites who are involved in making key decisions on energy investment, technologies and institutions do not align readily with those without energy access highlights the importance of who controls the production, technology and flows of finance that will underpin a transition. These interests are complicated by the re-scaling of regional and subnational geographies: The route of planned pipelines to connect Ugandan oil fields to the East African coast have been associated with significant geopolitical shifts in the region, while the protracted process of devolution instigated by Kenya’s constitutional reforms has created new sites of political contestation within the state. Counties have been in conflict with the highly centralised Ministry of Energy over claims for control of resources and responsibility over grid extension. Who speaks for different energy technologies and socio-technical arrangements is important in shaping whose ideas and visions of development are enacted in policy. This includes different sections of the business community, where smaller business associations such as the Kenyan Renewable Energy Association (KEREAA) seek to make their voice over the larger industry associations such as the Kenya Private Sector Alliance (KEPSA) or the Kenyan Association of Manufacturers (KAM) that are better placed claim to speak for capital-in-general when calling for least-cost energy irrespective of whether or not it is fossil-fuel based.

Prevailing relations of power have a critical effect on who captures the value of energy booms, and who bears the price, including which social or ethno-regional groups are expected to offer sacrifices in the name of national economic development. Representation in Kenya's electoral system creates few incentives for national politicians to govern collectively or to create transformative developmental policies (Kelsall, 2008). Reforms targeting a reduction of executive power and devolution appear not to address the lack of ethno-regional inclusion in national politics (Booth and Gooloba-Mutebi, 2014), while the significant new financial flows to Kenya's 47 counties create significant new competition for the capture of state resources. Meanwhile new financial value is given to land that lies above newly valued renewable energy flows, such as wind and solar radiation. Turkana, one of the poorest regions of Kenya, is now home to the construction site of Africa's largest wind farm, as well as being the centre of oil and gas exploration activity. Samburu, Turkana and Rendile pastoralists have grazed livestock on this land in Northern Kenya for generations. The development of geothermal resources has added new value to land that is subject to long standing conflict and legal disputes, contested by Kikuyu landowners who claim private tenure dating from the post-independence allocation of land, and the Maasai, who have claimed rights over the land for some 400 years, and whose movements are restricted by a network of pipelines.

## 6. Economies in transition?

This is a critical time for Kenya in deciding its energy future, and whether and how it might pursue a more equitable, lower carbon pathway. Issues of power and political economy will play a key role in determining the winners and losers from different energy pathways, and on whose terms the trade-offs between competing policy objectives are resolved. The case of Kenya suggests the importance of further refining analytical frameworks for understanding the political terrain upon which competing visions about desirable energy futures collide and will have to be reconciled in a context of sharp inequalities in power. A failure to account for the institutions that govern regimes in specific contexts has limited the ability of transition literature to explain spatially uneven processes of transition (Lawhon and Murphy, 2012). To address this concern, we have emphasised a political economy account of energy transitions that focuses on institutions and relations of power to evaluate the structures and actors that govern energy regimes, and the uneven outcomes that they produce. While we have presented Kenya as a case study, the forms and sites of power that are evident in Kenyan energy sector cannot be captured within a national frame of analysis. Rather, global relations constitute the specific territorial, institutional and political-economic environments in which transitions occur.

Our account draws on the insights of literature that helps to account for the interface between domestic and international factors in shaping the politics of energy in Kenya, going beyond what scholars of socio-technical transitions refer to more benignly as 'landscape' and 'regime' factors respectively. We suggest the importance of 'disciplinary neoliberalism', as practiced by key development agencies and multilateral development banks, in constraining the policy autonomy and 'developmental space' of poorer countries over whom they exercise control through their lending practices (Gill, 1995; Gallagher, 2005). We suggest that this has occurred through first wave power sector reforms and then a second wave of interventions aimed at trying to address energy poverty and the challenge of de-carbonisation simultaneously, a dynamic usefully understood through the lens of governance states (Harrison, 2004). This raises key questions about what instruments states have available to them to address the challenges of de-carbonising their economies in a socially just manner, when many

have ceded direct control over the energy sector. The disciplinary role of international finance institutions in shaping energy sector liberalisation in Kenya requires an account that is transnational, with due attention to how capital and domestic political economies are intertwined.

A global political economy of energy emphasises the liberal market context in which energy transitions have to occur, and what this means for how, and for whom, they are organised. While competition over technology choice is highly visible, the dominance of market ideology in decision-making is more opaque, supporting existing regimes, and avoiding confrontation of more fundamental trade-offs with different forms of socio-technical ordering (Geels, 2014). Under such conditions, alternative energy futures that involve more radical socio-technical and political change than technology substitution can be easily side-lined and excluded. In this sense while the adoption of renewable energy is pluralising technology options, it is doing so without disrupting existing power relations in the energy system. Prospects appear remote for a 'just transition' in Kenya, in which energy pathways are shaped by the needs and preferences of the poor majority and questions of energy access and social justice are paramount. In an investor-led, donor-shaped policy context where finance and technology choices are shaped by private and international actors and state elites, the interests of poorer groups in Kenyan society are easily marginalised.

Key moments when competing policy objectives are openly discussed and attempts are made to reconcile and integrate them are revealing of the power dynamics at work. In a practical and concrete sense, a political economy analysis such as this provides a tool for those within and beyond Kenya wanting an understanding of the political landscape and terrain of power they have to navigate in order to affect change. At the moment the balance of power in Kenya is clearly tipped in favour of the advocates of neoliberal energy policies and those who stand to benefit most from them. But attention to the power relations that structure competing narratives and interests might provide opportunities for coalitions to emerge that better balance the inherent trade-offs of energy policies in the South.

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## References

- AFD [Agence Française de Développement], 2013. *Energy Sector Donor Matrix* (Unpublished). AFD, Nairobi.
- Baker, P., Newell, L., Phillips, J., 2014. The political economy of energy transitions: the case of South Africa. *New Political Econ.* 19 (6), 791–818.

- Bayliss, K., Fine, B. (Eds.), 2007. *Privatization and Alternative Public Sector Reform in Sub-Saharan Africa: Delivering on Electricity and Water*. Palgrave, London.
- Booth, D., Golooba-Mutebi, F., 2014. How the international system hinders the consolidation of developmental regimes in Africa. *Developmental Regimes in Africa Project Working Paper 4*. Overseas Development Institute, London.
- Bridge, G., Bouzarovski, S., Bradshaw, M., Eyre, N., 2013. Geographies of energy transition: space, place and the low carbon economy. *Energy Policy* 53, 331–340.
- Büscher, B., 2009. Connecting political economies of energy in South Africa. *Energy Policy* 37 (10), 3951–3958.
- Byrne, R., 2009. *Learning Drivers: Rural Electrification Regime Building in Kenya and Tanzania* PhD thesis. University of Sussex.
- Calvert, A., 2016. From 'energy geography' to 'energy geographies': perspectives on a fertile academic borderland. *Prog. Hum. Geogr.* 40 (1), 105–125.
- Castree, N., 2008. Neoliberalising nature: the logics of deregulation and re-regulation. *Environ. Plan. A* 40 (1), 131–152.
- CDKN [Climate and Development Knowledge Network], 2013. *Harnessing Geothermal Energy: The Case of Kenya*. Inside Stories on Climate Compatible Development. CDKN, London.
- Climate Investment Funds, 2011. *Scaling-up Renewable Energy Program Investment Plan for Kenya*. World Bank, Washington, DC.
- Coenen, L., Bennenworth, P., Truffer, B., 2012. Toward a spatial perspective on sustainability transitions. *Res. Policy* 41, 968–979.
- Desai, R., 2011. An Evaluation of Political-Economic Analysis in Support of the World Bank's Governance and Anticorruption Strategy. Independent Evaluation Group, The World Bank Group, Washington, DC.
- EED Advisory, 2014. *Energy Access Review: Renewable Energy Feed-in Tariffs (FITs) and the Changing Electricity Generation Landscape in East Africa*. EED, Nairobi.
- Gallagher, K. (Ed.), 2005. *Putting Development First: The Importance of Policy Space in the WTO and International Financial Institutions*. Zed Books, London.
- Geels, F., 2002. Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and case study. *Res. Policy* 31 (8/9), 1257–1274.
- Geels, F., 2011. The multi-level perspective on sustainability transitions: responses to seven criticisms. *Environ. Innov. Soc. Trans.* 1 (1), 24–40.
- Geels, F., 2014. Regime resistance against low-carbon transitions: introducing politics and power into the multi-level perspectives. *Theory, Culture Soc.* 31 (5), 21–40.
- Gill, S., 1995. Globalization, market civilisation and disciplinary neoliberalism. *Millennium: J. Int. Stud.* 24 (3), 399–423.
- Goldman, M., 2007. How "Water for All!" policy became hegemonic: the power of the World Bank and its transnational policy networks. *Geoforum* 38, 786–800.
- Goldthau, A., Sovacool, B., 2012. The uniqueness of the energy security, justice, and governance problem. *Energy Policy* 41, 232–240.
- Government of Kenya, 2006. *Vision 2030*. Government of Kenya, Nairobi.
- Government of Kenya, 2013. *National Climate Change Action Plan 2013–2017*. Ministry of Environment and Mineral Resources, Nairobi.
- Hankins, M., 2000. A case study on private provision of photovoltaic systems in Kenya. In: *Energy Services for the World's Poor*. World Bank Energy Sector Management Assistance Programme (ESMAP), pp. 92–99.
- Hansen, T., Coenen, L., 2015. The geography of sustainability transitions: review, synthesis and reflections on an emergent research field. *Environ. Innov. Soc. Trans.* 17, 92–109.
- Harrison, G., 2004. *The World Bank and Africa: The Construction of Governance States*. Routledge, London.
- Hawley, S., 2003. *Turning a Blind Eye: Corruption and the UK Export Credits Guarantee Department*. The Corner House, Sturminster Newton.
- Huber, M., 2015. Theorizing energy geographies. *Geogr. Compass* 9 (6), 327–338.
- IFC [International Finance Corporation], 1998. *India, Kenya, and Morocco: Photovoltaic Market Transformation Initiative (PVMTI)*, Project Document. International Finance Corporation.
- Jacobson, A., 2007. Connective power: solar electrification and social change in Kenya. *World Dev.* 35 (1), 144–162.
- Kelsall, T., 2008. Going with the grain in African development? *Develop. Policy Rev.* 26 (6), 627–655.
- Kern, F., 2011. Ideas, institutions and interests: explaining policy divergence in fostering 'systems innovations' towards sustainability. *Environ. Plan. C: Govern. Policy* 29 (6), 1116–1134.
- Kern, F., Smith, A., 2008. Restructuring energy systems for sustainability? Energy transition policy in the Netherlands. *Energy Policy* 36 (11), 4093–4103.
- Khan, M., 2010. *Political Settlements and the Governance of Growth-Enhancing Institutions*. Research Paper Series on Governance for Growth. School of Oriental and African Studies, London.
- Kuzemko, C. et al., 2016. Governing for sustainable energy system change: politics, contexts and contingency. *Energy Res. Social Sci.* 12, 96–105.
- Lawhon, M., Murphy, J., 2012. Socio-technical regimes and sustainability transitions: insights from political ecology. *Prog. Hum. Geogr.* 36 (3), 354–378.
- Mazzucato, M., 2015. The green entrepreneurial state. In: Scoones, I., Leach, M., Newell, P. (Eds.), *The Politics of Green Transformations*. Routledge, London, pp. 134–153.
- McDonald, D. (Ed.), 2009. *Electric Capitalism: Recolonising Africa on the Power Grid*. HSRC Press, Cape Town.
- Meadowcroft, J., 2011. Engaging with the politics of sustainability transitions. *Environ. Innov. Soc. Trans.* 1, 70–75.
- Ministry of Energy, 2004. *Sessional Paper No. 4 on Energy*. Ministry of Energy, Nairobi.
- Ministry of Energy, 2011. *Updated Least Cost Power Development Plan 2011–2013*. Ministry of Energy, Nairobi.
- Ministry of Energy, 2012. *Feed-in tariffs policy on wind, biomass, small-hydro, geothermal, biogas and solar resources generated electricity*. 2nd Revision 2012. Ministry of Energy, Nairobi.
- Ministry of Energy and Petroleum, 2013. *5000 + MW by 2016, Power to Transform Kenya – Investment Prospectus 2013–2016*. Ministry of Energy and Petroleum, Nairobi.
- Ministry of Energy and Petroleum, 2014. *Draft National Energy Policy*. Ministry of Energy, Nairobi.
- Mitchell, T., 2011. *Carbon Democracy: Political Power in the Age of Oil*. Verso, London.
- Newell, P., Mulvaney, D., 2013. The political economy of the just transition. *Geogr. J.* 179 (2), 32–40.
- Ng'ethe, N., Katumanga, M., Williams, G., 2004. *Strengthening the Incentives for Pro-Poor Policy Change: An Analysis of Drivers of Change in Kenya*. Department for International Development, London.
- Ockwell, D., Byrne, R., 2016. *Sustainable Energy for All: Innovation, Technology and Pro-Poor Green Transformations*. Routledge, Abingdon.
- Ondraczek, J., 2013. The sun rises in the east (of Africa): a comparison of the development and status of solar energy markets in Kenya and Tanzania. *Energy Policy* 56, 407–417.
- Polanyi, K., 1980. *The Great Transformation*. Beacon Press, Boston, MA.
- Prahalad, C.K., 2005. *The Fortune at the Bottom of the Pyramid—Eradicating Poverty through Profits*. Wharton School Publishing, Upper Saddle River, NJ.
- Rip, A., Kemp, R., 1998. Technological change. In: Rayner, S., Malone, E.L. (Eds.), *Human Choices and Climate Change Volume 2: Resources and Technology*. Battelle, Columbus, Ohio.
- Rolfs, P., Ockwell, D.G., Byrne, R., 2016. Beyond technology and finance: pay-as-you-go sustainable energy access and theories of social change. *Environ. Plan. A* 47, 2609–2627.
- Routley, L., Hulme, D., 2013. *Donors, Development Agencies and the use of Political Economic Analysis: Getting to grips with the politics of development?* ESID Working Paper 19. Effective States and Inclusive Development Research Centre, Manchester.
- Rutherford, J., Coutard, O., 2014. Urban energy transitions: places, processes and politics of socio-technical change. *Urban Stud.* 51 (7), 1353–1377.
- Scoones, I., Leach, M., Newell, P. (Eds.), 2015. *The Politics of Green Transformations*. Routledge, London.
- Scrase, I., Smith, A., 2009. The non-politics of managing low carbon socio-technical transitions. *Environ. Politics* 18 (5), 707–726.
- Swilling, M., Annecke, E., 2012. *Just Transitions: Explorations of Sustainability in an Unfair World*. UCT Press, South Africa.
- Tellam, I. (Ed.), 2000. *Fuel for Change: World Bank Energy Policy – Rhetoric and Reality*. Zed Books, London.
- United Nations Environment Programme, n.d. 'Feed in Tariffs in Kenya', Green Economy, <[www.unep.org/greeneconomy/SuccessStories/FeedintariffsinKenya/tabid/29864/Default.aspx](http://www.unep.org/greeneconomy/SuccessStories/FeedintariffsinKenya/tabid/29864/Default.aspx)> (accessed 04 March 2014).
- Vagliasindi, M., Besant-Jones, J. (Eds.), 2013. *Kenya. Power Market Structure: Revisiting Policy Options*. World Bank, Washington DC.
- van der Plas, R., Hankins, M., 1998. Solar electricity in Africa: a reality. *Energy Policy* 26 (4), 295–305.
- Wamukonya, N., 2007. Solar home system electrification as a viable technology option for Africa's development. *Energy Policy* 35 (1), 6–14.
- World Bank, 2004. *World Development Report 2004: Making Services Work for Poor People*. World Bank, Washington, DC.
- World Bank, 2005. *Implementation completion report on a credit in the amount of US\$125 Million to the Republic of Kenya for an energy sector reform project*. Report No: 32101. World Bank, Washington, DC.