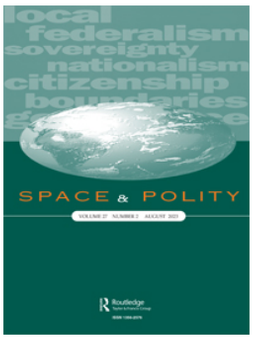

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When logics collide: uncovering the multiple gas exportation and importation transitions in Mozambique

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ABSTRACT

This study examines the contrasting dynamics of gas exportation and importation in Mozambique, challenging prevailing research that predominantly concentrates on energy export. While Mozambique's gas policy prioritizes exports, neglecting domestic processing and infrastructure development, increasing demand for LPG signals a shift. This transition reveals divergent governance logics, with exportation centralizing revenue, reinforcing state power, and raising concerns about citizen benefits. In contrast, importation governance, driven by fuel subsidies, emphasizes attempts to manage social unrest and balance economic incentives. This analysis exposes contradictions in Mozambique's energy development and challenges prevailing notions of energy governance in African states.

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Gas; governance; infrastructure; Mozambique

1. Introduction

The discovery in 2010 of significant offshore natural gas reserves in the Rovuma basin, near Mozambique's northern border with Tanzania, heralded a wave of cautious optimism regarding gas in Mozambique's national development (Blanes et al., 2023; Hanlon & Nuvunga, 2015; Kirshner & Power, 2015). The new reserves will likely transform Mozambique's political economy of energy and reshape access to energy infrastructures for Mozambicans. Current estimates suggest the presence of 180 trillion cubic feet (TCF) of new reserves, which could propel Mozambique from the world's 34th largest gas exporter to one of the largest (Parker & Kreuze, 2013). Gas developments in Mozambique have recently received attention as a 'solution' to the global energy crises (Reuters, 2022). Projected government revenues from such reserves are estimated to be US$49.4 billion through to 2048 (Republic of Mozambique, 2018).

The discoveries have sparked renewed interest in the political, economic, institutional, and infrastructural aspects of gas development, while raising promises of economic transformation to reduce poverty and aid dependence (Niño & Le Billon, 2013). As

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evidenced from the synopsis above there are many 'grand narratives' (Bridge et al., 2018) surrounding gas development in Mozambique. However, the renewed interest has also raised questions over the 'rescaling' of state control and legitimacy over gas developments (both institutionally and infrastructurally). In this article, we focus on the rescaling of state power concerning ongoing gas transitions in Mozambique; specifically, how political interests, institutional frameworks and infrastructure investments are (re)created around particular scales (of investment and policy attention) to serve broader political and economic ambitions and to support political legitimacy (Bouzarovski et al., 2015; Bridge et al., 2018).

Despite the significance of gas developments, a surprising lack of critical analysis focuses on gas's role in Mozambique's *domestic* energy transitions. In 2000, gas was barely used in Mozambique, but this has since significantly increased for electricity generation, industry (Cuvilas et al., 2010) and residential use. For instance, in 2014 97% of Mozambique's electricity was generated through hydropower, but by 2019 gas accounted for 20% (IEA, 2023). To analyze such developments, we are interested in the 'changing role of the state as a provider, regulator and owner of networked infrastructures' and the relation of this to 'energy demand, resource endowment and geographical configuration' (Bouzarovski et al., 2015, p. 217).

We critically compare the underlying governance logics of gas exportation *and* importation. While the relations between governance, the state and resource extraction are crucially important (Blanes et al., 2023; Bridge, 2014), much research on African states has focussed solely on export-orientated spaces, economies, and infrastructure development (Boone, 2003; Ferguson, 2005; Ovadia, 2016). Similar debates have occurred in Latin America, focusing on popular resistance to the extractive economy (Arce, 2014). As Baptista (2018, p. 31) has observed, 'some authors would argue that many countries in Sub-Saharan Africa have participated in this geopolitical order largely as sites for resource extraction.' Debates have centred on issues such as the resource curse (and cure), the 'scramble for Africa,' and extractive 'enclaves,' or spaces of enclosure emerging as extractive industries have expanded into resource peripheries, with limited or no linkages to surrounding national economies (Brown & Spiegel, 2019; Mohan, 2013). More broadly, the territorialization of energy and mineral resources has been a crucial part of debates on political economy and broader state formation in African countries (Herbst, 2000; Smith et al., 2022).

In this paper, we argue that the focus solely on extractive spaces has produced a crude view of resource-rich African states as solely characterized by high rates of rent seeking, corruption, and authoritarian practices, amid growth of centralized extractive projects that distort macroeconomic conditions (Hönke & Cuesta-Fernández, 2017; Watts & Ibaba, 2011). This perpetuates the notion that African states/governments are unresponsive and detached from the pressures of everyday energy politics and wider civil society contestation. By analysing both gas exportation and importation, we suggest that multiple energy transitions coincide, revealing *contrasting* governance logics and dynamics. We show how such divergent (and often contradictory) logics perpetuate uneven access to energy while potentially opening new sites of political contestation and accountability. In what follows, we critically analyze the role of gas in Mozambique's multi-stranded energy transitions (cf. Hodson et al., 2017).

2. Energy, space and territory

Many countries worldwide are experiencing fundamental changes in the spatiality of energy extraction, finance, production, distribution and use (Bridge et al., 2018; Huber, 2015). Meanwhile, many African states and governments are wrestling with multiple development imperatives, including promoting inclusive economic growth while encouraging universal access to basic services such as energy (Sokona et al., 2012). Such tensions are often exposed through the uneven socio-spatial development of energy. Thinking through the socio-spatiality of energy systems is an approach that 'foregrounds questions about spatial difference' (Bridge et al., 2013, p. 339). This is important because, historically, the exploitation of energy resources such as gas, petroleum and minerals in Africa is linked to political instability and uneven development.

Concerning the relationship between energy and wider political processes, scholars have examined the role of state power in energy infrastructure production (Power et al., 2016). Such work follows recent conceptualizations of the state as a 'non-unitary, porous, and relational array of practices' (Painter, 2006, p. 752). Researchers have explored how state presence and power is established through multiple and often contradictory performances (Bertelsen, 2016). This nuanced view sees state authority as spatially differentiated and non-uniform but developed, contested, and continually remade. Energy infrastructures in Mozambique have been one example of how the State has attempted to 'narrate its presence' (Power & Kirshner, 2019, p. 513) as a physical and symbolic display of its authority in politically contested areas. This has occurred in the wake of privatization and the retreat of the state from key sectors of the economy, as promoted by international donors and financial institutions (Ferguson, 2006). Evidence suggests that the state has acted selectively in this process, yielding a landscape of uneven energy access, with market-based models of off-grid energy provision increasingly common in rural areas (Castán Broto et al., 2018).

Such claims are linked closely to territoriality and territorialization, widely used in energy studies, which refers to how 'social and political power are organized and exercised over space' (Bridge et al., 2013, p. 336). Following the 1980s and 1990s, in which the 'hollowing out' of the state was considered a key feature of neoliberal economic development (Peck & Tickell, 2002), a resurgence of state-led efforts to 'reterritorialize' energy, mining and agricultural investments has taken hold in much of sub-Saharan Africa (Boone, 2003; Ferguson, 2006). Following Rasmussen and Lund (2018:, p. 388), we understand territorialization as a 'strategy of using bounded spaces for particular outcomes'. Following independence, the FRELIMO (*Frente de Libertação de Moçambique*) government took over and nationalized key energy sites, most significantly the Cahora Bassa dam (Pitcher, 2002), built on an ideology of 'national unity' (Salimo et al., 2020). In the following decades, Mozambique experienced the increasing fragmentation of national territory and the disintegration of FRELIMO's postcolonial nationalist and socialist development project (Blanes et al., 2023; Pitcher, 1996), in tandem with a rescaling of many energy investments. In 2000, a partnership was formed between SASOL and the State to exploit gas, which Salimo et al. argue was 'used to increase even further privileged access to rents from the gas sector by competing elite factions' (1228).

Researchers have explored the uneven territorialization processes enabled through energy resource exploitation. An example is the concept of 'secured enclaves' which

for Ferguson (2005, p. 378) comprises the spaces of concentrated economic activity and ensuing infrastructural development, which are starkly 'walled off,' often with 'little or no benefit to the wider society' (ibid, 378). Moreover, scholars and popular commentators have viewed non-renewable resources as a 'curse' for African states, in that the economic and wider developmental value of such resources distorts development pathways, often due to weak institutional environments (Watts & Ibaba, 2011). Recent critiques, however, have questioned the ubiquity of a 'curse' and what the condition entails (Badeeb et al., 2017).

Such literature is dominated by a strong interest in export-oriented, extractive spaces and political economies in sub-Saharan Africa (Bridge, 2014; Enns & Bersaglio, 2015; Salimo et al., 2020; Watts, 2005). Some argue this focus 'places the subcontinent in distinctive spatial and political economy relationships with regards to energy systems' (Baptista, 2018, p. 31). African countries are often inserted into a web of predefined international economic and geopolitical relations and processes. Notably, research has largely overlooked the socio-political and socio-technical spaces of energy importation in African countries and ensuing domestic dynamics and developments.

Conventionally, domestic gas investments, such as pipeline distribution systems, are not seen as economically viable solutions for many countries in the Global South, particularly concerning the cost of renewable alternatives (Muttitt et al., 2021). However, growing evidence from contexts such as Nigeria shows that despite possessing vast crude petroleum reserves, oil and gas are increasingly imported to meet growing domestic demand and consumption patterns (Chikwem, 2016). Such importation is frequently embroiled in contestation over territory and political influence (Iwayemi, 2008), most noticeably importation subsidy regimes and clientelism, which lead to selective, highly politicized investments in domestic infrastructures (Chikwem, 2016).

Despite such outliers, there is a lack of analysis concerning transitions from fuelwood and charcoal to non-biomass fuels (e.g. LPG, natural gas) in contexts such as Mozambique, which 'extends beyond the territories of energy production/extraction' (Power et al., 2016, p. 12). Existing research has either focused on the local-scale through ethnographic studies of energy access/use (where energy resources, such as gas, are not well connected to wider energy planning efforts) (Castán Broto et al., 2018), or the political-economic dimensions of energy exploitation at national and international scales. This article departs from previous approaches by examining the political economies and socio-material infrastructure configurations of gas exportation *and* importation in Mozambique, linking processes of territorialization with the embedded socio-spatial contexts of these multiple transitions.

2.1. Transitions to gas and the role of infrastructures

Closely linked to the notion of territoriality is the role of infrastructures. Infrastructures are socio-technical systems that embody relationality between the social life and the technical systems that distribute resources (Coutard & Rutherford, 2016). Researchers have highlighted how infrastructures, while embodying socio-political forces, shape 'space' through everyday practices and consumption while potentially opening forums for political contestation and democratic participation. Recent attention has turned to what Bridge et al. (2018) refer to as the 'infrastructural moment' of energy development,

understood (in part) as the 'way energy infrastructures draw together and advance the material interests of specific actors and groups across multiple scales, including international capital' (2018:, p. 2).

In parallel, researchers have also examined the role of infrastructures in energy and broader 'transitions' (Bridge et al., 2013; Monstadt et al., 2022). Although diverse, transition-thinking explores the enabling and constraining factors that shape pervasive socio-technical shifts, with a normative orientation to influence such shifts in recent debates on 'sustainability transitions' (Frantzeskaki et al., 2017). Such thinking has drawn attention to how the incumbency, technical lock-ins, and path dependencies of infrastructure systems restrict and limit development pathways (Baptista, 2018). Recently, Hodson et al. (2017, p. 2) emphasize the 'contextual forms of reconfiguration' of infrastructure transitions. They underline how socio-spatial context shapes transitions through divergent underlying conditions, drawing attention to the spatial embeddedness and *multiplicity* of 'transitions', with frequent competition, conflicts, and contradictions between them.

Analytically, such thinking focusses on the underlying infrastructural, political, and institutional conditions, how such conditions coalesce into cohesive and stable 'configurations', and their subsequent effects on transition pathways. In adopting this lens, two issues emerge with importance for energy developments. First, transitions in countries such as Mozambique are shaped by postcolonial legacies (Castán Broto et al., 2018, p. 646). Many energy access initiatives 'reveal complex stories of symbolic domination' (ibid: 654) and limitations in institutional capacity and infrastructure development (Power et al., 2016). Second, underlying conditions shape socio-technical transition pathways both figuratively, surrounding the production of socio-technical discourses (either explicitly in political declarations or implicitly in critiques of dominant processes) and materially concerning how selective investments in infrastructures are made and go on to shape future developments. Thus, contrasting these *multiple* transition pathways reveals the complex, often conflicting, political logics implicit in socio-technical shifts and uneven spatial production of infrastructures.

Here, the case is once again crucial. As argued, much research in African countries has focused on extractive spaces (Ferguson, 2006). What can a comparative focus on the transitions within importation spaces offer? First, this focus reveals that multiple (but interrelated) gas transition pathways exist in countries such as Mozambique, agitating against a reductive view of energy exploitation and its relation to governmental and political systems. Second, it offers an alternative view of state-society relations and 'rescaling' processes through which energy infrastructures are unevenly produced and governed. Concerning importation, the characterization of political and economic elites exploiting resources for their economic and political potential has less explanatory power; instead, legitimacy and popular consent is secured through alternative means.

Furthermore, it is crucial to open dialogue between research on the national and international politics of energy transitions and the socio-spatiality of everyday energy access in embedded spatial contexts. As Baptista (2018, p. 33) has argued, energy studies in sub-Saharan Africa 'rarely draw on the wealth of information about the politics of energy in the respective countries.' Here, we focus on two aspects of the everyday politics of gas in Mozambique. First, political contestation from civil society organizations surrounding modifications to gas policy frameworks, international agreements, and infrastructural

investments. Second, the everyday politics surrounding gas importation subsidies, specifically how popular protests have become entangled. Thus, by contrasting these multiple transitions, alternative understandings of territorialization processes are opened – as are opportunities to critically assess the role of gas in addressing key development goals.

3. Research approach and methods

The following questions guide the paper: (i) To what extent are there multiple gas transitions concerning exportation and importation, and how do they differ? (ii) What governance logics underpin transitions in gas importation and exportation? And (iii) What insights can be generated by analyzing multiple transitions concerning territorialization, state-society relations, and widening energy access? We take a qualitative approach focusing mainly on *current* gas exportation and importation arrangements pertaining to changes to (a) institutional frameworks and (b) infrastructure developments supporting importation and exportation. We focus on the 2000–2021 period, as many important changes in policy frameworks, discourses, and practices were made in this period. Although recent discoveries have generated renewed (international) attention, our approach interpretatively explores how existing socio-technical configurations and political economies can be 'read' to uncover the persistent 'logics' shaping such transitions. The findings are based mainly on a review of secondary sources. Firstly, we examine key (gas and broader energy) legislation and policy documents to show how gas governance has shifted and present available data from published reports to highlight contradictions in such shifts. Secondly, we examine published reports from civil society organizations (including *Instituto de Estudos Sociais e Económicos* (IESE), *Centro para Democracia e Desenvolvimento* (CDD), and *Centro de Integridade Pública* (CIP)), independent auditor reports, academic literature, and local and national media to highlight the highly contested nature of gas developments, while synthesizing such arguments into a novel understanding of the divergent logics of gas governance. Lastly, our analysis draws on several research projects undertaken by the authors in Mozambique during the previous five years, including an interview survey among 62 residents of Maputo in 2018 concerning energy access practices and several related research visits to Mozambique across the respective period.

4. (Re-)Framing gas: the shifting pathways of gas legislation and policy

In the following section, we review energy and gas-specific policy and legislative shifts to show how they have prioritized and supported exportation, enabling centralized revenue generation and creating tensions with the goal to universalize energy access and domestic gas use. The Mozambican government recognizes and promotes the value of national energy reserves for the country's development. The World Bank (2018:viii) suggests that gas exploitation in Mozambique can lead to 'increased fiscal revenue […] increased foreign investment […] and capacity development in the gas sector.' Energy policy is guided by a series of overlapping laws, with policy and planning determined by the Ministry of Mineral Resources and Energy (MIREME). This ministry oversees key public institutions, such as the regulator *Instituto Nacional de Petróleo* (INP), the national

energy utility *Electricidade de Moçambique* (EDM), and the national oil company *Empresa Nacional de Hidrocarbonetos* (ENH). Energy planning is also guided by the 10-year (2014–2023) National Energy Strategy, whose primary objectives are to 'reinforce Mozambique's position as an important regional energy producer, to support social development and poverty alleviation, and to promote general economic growth' (NEA, 2018: 20).

Following these tenets, public authorities have attempted to create a 'positive environment for investment in the oil and gas industry' (Ovadia, 2016, p. 27). Accordingly, while gas is recognized as a key development resource, state discourses frame this potential narrowly, predominantly referencing its extractive and revenue-bearing qualities. Mozambican civic organizations, such as CIP and IESE have criticized this framing. Moreover, since discovering new offshore gas reserves in the Rovuma Basin, existing policies and legislation have been systematically revised, and infrastructure investments have been redirected to predominantly offshore gas facilities. Investments in oil and gas exploration increased from $1.6 billion (US) in 2017 to $4.6 billion in 2021 (INE, 2023). One significant development therein has been the reformulation of the Petroleum Law, which was initially legislated in 2001 and updated in 2014. Comparing the old and reformulated legislation, the previous document states 'petroleum resources are assets whose proper exploitation can contribute significantly to national development' (Republic of Mozambique, 2001, p. 1). The reformulated law now asserts that 'the state ensures that part of the national petroleum resources is destined to the promotion of national development' (Republic of Mozambique, 2014a). Thus, the energy ministry has made two subtle but significant changes. First, a more modest assertion concerning the role of petroleum resources in stimulating national development, and second, a stronger claim that the state ensures this development.

Undoubtedly, this latter change reflects a desire for the Mozambican government to reassert its territorial control and national sovereignty over petroleum reserves (cf. Rasmussen & Lund, 2018). During the Mozambique civil war, lasting from 1977 to 1992, RENAMO (*Resistência Nacional Moçambicana*), the former rebel group turned opposition party, controlled substantial rural territories, particularly in central Zambezi valley (Bertelsen, 2016; Newitt, 2017). Large-scale energy projects have served as a means for the ruling party, FRELIMO, to extend its control and reengage disconnected links with citizens in such areas, bolstering its legitimacy (Power & Kirshner, 2019). Concerning the former modification, while some new state-given protections are afforded to local workers, suppliers, and national companies (cf. Andrews & Nwapi, 2018), this more modest assertion (i.e. that only 'part' of gas can stimulate development) reflects the role that multinational companies are expected play in gas exploitation/development and desire/need to attract foreign investment.

The revised Petroleum Law outlines the role that Mozambican (para-)statal entities should have in gas projects. This is realized through mandatory state participation in all petroleum operations (extraction, production, and research). ENH (and its subsidiaries) is the primary institution to achieve this. The law also states that Mozambican entities should get preferential rights in petroleum exploitation. To qualify as a 'Mozambican entity,' a company must have at least 51% of its equity held in Mozambique and listed on the Mozambican stock exchange. Intuitively, such measures improve prospects for national economic development. However, as the CIP have shown, due to financial

constraints, ENH has instead entered into 'carry' agreements, such as with the Paris-based international petroleum company Total in the Rovuma basin, whereby the international companies cover initial capital costs (see Feijó, 2023; Nuvunga, 2015). This means the Mozambican state does not earn substantial revenues from such agreements for many years and prevents ENH from entering the whole value chain (i.e. selling to international markets) (ibid). Accordingly, state companies such as ENH are left simply as vessels through which revenues pass without a long-term strategy for increasing their capacity. This raises critical questions over the autonomy and effectiveness of institutions such as ENH (Andrews & Nwapi, 2018; Salimo et al., 2020).

The revised petroleum law does establish some broad principles relating to sustainable development. However, the revisions have shifted gas frameworks towards redefined economic relations, structural relations of Mozambican state entities in gas exploitation, and the infrastructures and institutions needed for exportation. Thus, a more profound tension has emerged between the potential revenues from gas and achieving universal energy access. This is acknowledged in the National Gas Masterplan of 2014, which states, 'the impact of the natural gas still has not benefited the poorest districts in the country' (Republic of Mozambique, 2014b, p. 16). It asserts, 'despite the fact that such discoveries represent an important economic gain for Mozambique, they also pose serious challenges for the government. These challenges concern how the resources will be exploited to produce benefits for the country and its population' (ibid: 8). Accordingly, government policies (tacitly) acknowledge a growing conflict between gas for export, domestic access, and the institutional arrangements for managing such resources.

5. The political economy and infrastructures of gas production and exportation

Below, we examine the political economy of current gas production and 'allocation', and secondly, gas-related infrastructure investments. We argue that agreements with private companies and investment decisions have entrenched a path-dependent gas exportation system limiting attention to domestic gas developments, creating contradictions with policy statements and blurring the benefits for citizens.

5.1. The political economy of gas 'allocation'

Producers currently extract natural gas within Mozambique's territory from two fields in the southern Inhambane province, Pande and Temane, which have estimated reserves of 5.504 TCF (JICA, 2013). In 2016, gas was Mozambique's fourth-largest export, with revenues of US$348 million (INE, 2019). Gas is thus a significant economic asset for Mozambique's national development. Approximately 80% (147MGJ) of the gas produced domestically is 'allocated' and exported to neighbouring South Africa (Table 1). In previous years, this comprised 95% of total gas production (EITI, 2018). Exportation is governed through a Petroleum Production Agreement (PPA), a 25-year agreement that the Mozambican government signed with South African chemicals and energy giant Sasol in 2000, following a joint US$1.2billion investment (CIP, 2013; Salimo et al., 2020). Sasol, through its Mozambican subsidiary, *Sasol Petroleum Pande*, holds a 70% stake in the

Table 1. Domestic and international allocation of gas production from the Pande and Temane (Source: Adapted by authors from EITI, 2018).

Destination	Agreement	Allocation (MG j/a)	(%)	Organization	Energy Use
South Africa	PPA	147	(80.3%)	Sasol	Consumed in South Africa
Mozambique	Commercial Sales (PPA)	8	(14.8%)	Matola Gas Company (MGC), SA, Gigawatt Park	Mozal aluminium smelting plant, Cimentos cement production, Gigawatt Park (thermal power station), and other industrial users.
		6		ENH-KOGAS	Distribution pipeline network in Maputo/Marracuene (35 households)
		11		Ressano Garcia Thermal Power Plant	Thermal power station
		2		ENH/Electrotec	Thermal power station
	Royalty Gas	0.5	(4.9%)	Lonhro	Tomato Paste Production Plant in Chókwe
		0.8		Autogás	Compressed natural gas to buses and vehicles
		1.75		GS Cimentos	Cement production factory
		3		MGC	Industrial zones in Matola/Machava
		3		Kuvaninga	Thermal power station
		0.2		ENH	Pipeline supplying residential consumers in Inhambane province (1,131 households)
Total	**183 MGj/a**				

production from Pande and Temane, while *Companhia Moçambicana de Hidrocarbonetos* (CMH), a state-owned subsidiary of ENH, has a 25% stake, with the World Bank's International Finance Corporation (IFC) holding the remaining 5% (ibid.).

The Mozambican state benefits from this agreement mainly through capturing revenues. These include direct dividends on shareholding, tax on profits, taxes on locally registered companies (i.e. Sasol Petroleum Pande), and 'royalty gas' payments, amounting to 5% of gas production (CIP, 2013). Such 'royalty gas' is a percentage of production taken by Mozambican entities either directly as gas or as cash. In 2014, only 46% of royalty gas available to Mozambique was taken as gas, increasing to 67.2% in 2016 (EITI, 2018). Antecedent agreements included more ambitious intentions for an overall 50–50 gas split (between Mozambican and South African entities), but these were altered in final negotiations (Salimo et al., 2020). Thus, only a small proportion of gas produced in Mozambique is, and has been, used and distributed domestically. Furthermore, domestic gas used in Mozambique is predominantly distributed commercially by Sasol Petroleum Pande, as part of the PPA (see Table 1). In this way, gas exploitation's fiscal incentives through export have generally been a stronger driver than increasing domestic gas utilization/distribution.

Furthermore, as Table 1 shows, domestic gas allocation falls under three distinct uses; electricity generation (42% to 63%), industrial production and/or public transport vehicles (15.9% to 37%) and domestic pipeline systems (16.3%). As discussed below, much of the electricity generated from gas is also exported to neighbouring countries (notably South Africa). As such, the relatively small allocation of gas domestically is dominated by large-scale gas-fired power plants and large industrial consumers, with direct distribution to residential consumers playing a relatively small part (Salimo et al., 2020).

5.2. Gas production and exportation infrastructures

Materially, Mozambican gas is exported through a 865 km pipeline linking the Pande and Temane fields to a storage facility in Secunda, South Africa, constructed as part of the PPA (see Figure 1). While en-route to South Africa, there are a small number of domestic 'take-off' points, including a gas-to-electricity power station in Chókwe in the southern Gaza province and several power stations at Ressano Garcia, on the South African border. At Ressano Garcia, most of the royalty and commercial gas allocated to Mozambican entities is extracted (19 out of 29 MGJ/a (Salimo et al., 2020)). Although a small amount (8.0 MGJ/a) is allocated to a pipeline distribution system serving Maputo-Matola (Figure 1), most domestic gas stays in Ressano Garcia for two commercial gas-to-power electricity plants.

The gas-fuelled power plants at Ressano Garcia have two different operating structures worth examining. The first, Gigawatt Power Park, is operated and majority-owned by the South African company Gigawatt (Kirshner, 2017), a subsidiary of a larger group, Gigajoule. Gigajoule also operates and holds a 49.6% equity stake in the Matola Gas Company (MGC). The Gigawatt Power Park can produce 120MW of electricity, with 100MW currently allocated to EDM, and the remainder exported to Southern African Development Community (SADC) countries through the Southern African Power Pool (SAPP) (EDM, 2018). The second power station is a joint venture between a subsidiary of Sasol (which owns 49%) and EDM (51%), with an operating capacity of 155MW. Sasol and EDM signed a long-term agreement to distribute power generation domestically while once again exporting surpluses to SADC markets via SAPP, a long-term strategy for EDM, which exports electricity as a key means to bolster its revenues to cover electricity

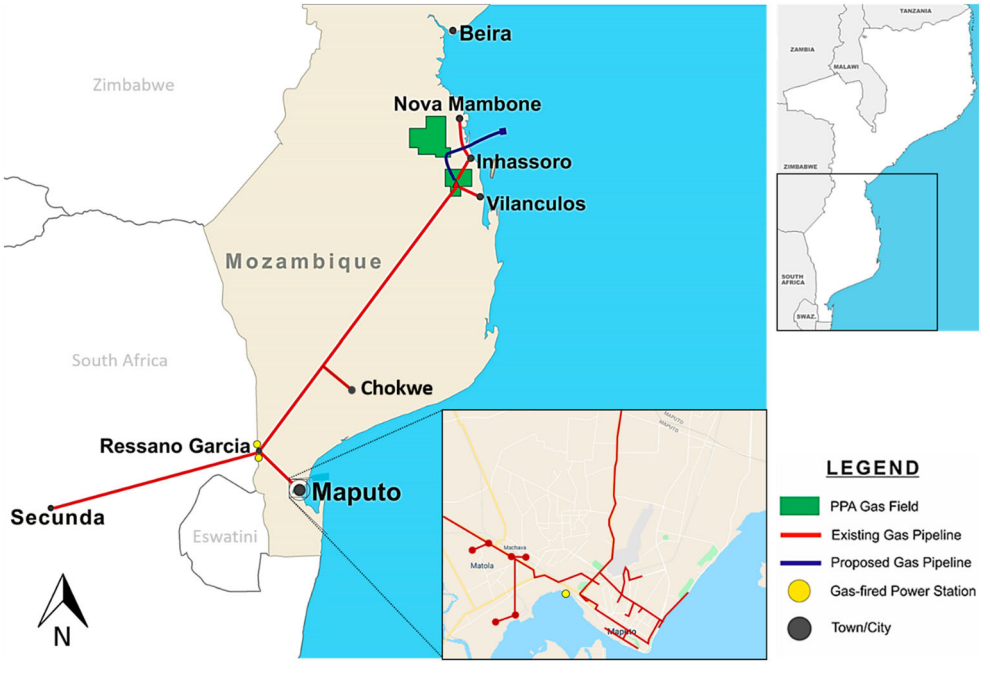

Figure 1. Current gas infrastructure network in Mozambique (Source: Authors).

provision in areas where users are unable to pay high tariffs (Castán Broto et al., 2018; EDM, 2018).

The domestic household consumers provided with Mozambican-sourced gas are supplied through two independent pipeline systems (Figure 1). The first is a 326 km network of pipes in Inhambane province, directly surrounding the gas fields, through which 1,131 domestic and industrial consumers are connected, built, and operated by ENH. The second is an 80 km network of pipes in the Maputo city region, jointly operated by the MGC, ENH, and the Korea Gas Corporation (KOGAS). Constructed in 2013, public officials have made frequent promises of increased connections (Club of Mozambique, 2018b) but these have met with a reality of implementation delays and only 30 large industrial users becoming connected. Only in 2020 did ENH initiate a pilot project to connect 35 households to the pipeline system. Recently, political impetus has shifted towards supplying the Beluluane free-trade zone, on the city's outskirts, where large-scale gas-fired powerplants are planned. Accordingly, a disconnect exists between the spatiality and scale of investment in gas exportation and electricity generation infrastructures compared to domestic distribution infrastructures.

Evidently, gas allocation and gas infrastructure development in Mozambique have been strongly shaped by financial and material dependence on South Africa. An ongoing energy crisis in South Africa (Baker et al., 2014) has resulted in it turning to Mozambique for energy production and electricity generation. This geopolitical relationship has strongly shaped gas policy and, likewise, infrastructure transitions, contributing to a longer spatial and temporal trajectory of 'extractive-developmentalist expectations' (Blanes et al., 2023, p. 6) juxtaposed with shifting of state power and authority and territorial dispossession, including through population resettlement programmes. This extends beyond mere gas exportation to a broader political economy of gas transformation for electricity generation. In contrast, the impetus to use or process gas domestically has remained limited, with domestic use/distribution centred nearly exclusively on gas for electricity generation, leaving the available capacity (i.e. royalty gas) open to Mozambique underutilized. In short, gas infrastructure developments are not benefitting many ordinary Mozambicans (Hanlon & Nuvunga, 2015). This process is reflected in emerging gas 'complex' (Watts, 2005), where finance, infrastructures, legislative support, and technical expertise are assembled towards encouraging extraction, export flows, and large-scale power generation, as shown in Figure 1.

5.3. Unpacking the logic of gas exportation

Some argue, therefore, that gas in Mozambique fits into a broader logic of centralized revenue collection projects, creating opportunities for business and political elites to capture resource rents, and widening socio-economic inequalities (Kirshner et al., 2020; Salimo et al., 2020). This has consolidated the ruling party's hold over state power, as social provisions and public employment have served to strengthen FRELIMO's legitimacy (Sumich, 2010). Moreover, domestic infrastructure investments have been highly selective, dominated by centralized extractive pipeline configurations heavily shaping subsequent developments. The financial capacity of international firms and the identification of the SADC area as a 'significant commercial opportunity' (EDM, 2018, p. 8) by state institutions has had an unquestionable 'pull' on the

reconfiguring (Hodson et al., 2017) and rescaling of gas infrastructure transitions. Specifically, para-statal firms have entered into long-term public-private partnerships and production agreements with Sasol and its subsidiaries, who build and operate large-scale infrastructure projects. Thus, the impetus has been to utilize gas deposits for centralized revenue generation. However, such revenues in the case of new gas developments will only occur after 20 years, once international oil and gas companies have recuperated investment costs. Moreover, recent plans stipulate that revenues from gas will be split 50/50 between a state budget and Sovereign Fund account, leaving open the potential for revenues to be used for purposes other than infrastructure investment (CDD, 2022).

Such developments are at odds with many energy goals and policies outlined earlier. The Petroleum Law of 2014, for example, states that 'The government shall guarantee that a quota of no less than 25% of the oil and gas produced in the national territory is dedicated to the national market' (Republic of Mozambique, 2014a, p. 6). It is unlikely that (and unclear how) this is being met in the current PPA. As detailed by the CDD, which draws on interviews with Mozambican energy policymakers, allocation of future gas exploitation for domestic uses is 'contingent on the availability of concrete projects that can use such resources' (CDD, 2022). To date, such concrete projects have not materialized at scale, and the first agreement to exploit gas in the new fields has already sold all gas to British Petroleum (BP). We also argue that use of 'commercial' and 'royalty' gas to generate electricity blurs the notion of national benefits since a proportion of generation is exported. Salimo et al. have described the notion of 'domestic' gas as a 'compensatory instrument' (2020:, p. 1222), representing a disconnect from the goal to universalize energy access by 2030, instead representing a 'quick win' of increasing state revenues. While safeguards such as the 25% quota remain unclear, several planned projects can potentially enhance domestic gas consumption/processing, such as offshore processing facilities and other gas-to-power power plants in Maputo.

Despite this, the impetus of infrastructural development has consistently been on capital-intensive mega-projects territorialized in highly selective spatial zones and at scales where the benefits have 'so far have eluded the poorest Mozambicans and have only marginally improved the life prospects of communities in the projects' immediate locality' (Gqada, 2013, p. 20). In contrast, efforts to increase domestic gas consumption/transformation have been dwarfed by the scale of investments in export-related projects. Here, the energy transition in Mozambique fits into many now well-trodden arguments. The effects of geopolitical forces are evident, with an uneven balance of power between regional states. This is complicated by Mozambique's position as a country with massive energy access gaps and limited policy autonomy vis-à-vis donors and investors (Power et al., 2016). Here, the reterritorialization of state power over gas resources and the (re)framing of many developments as 'vital national projects' (Bridge et al., 2018, p. 7) have advanced highly centralized economic interests while prioritizing short-term economic growth. However, while Mozambique's territorial gas resources have predominantly been exploited following an extractive logic, parallel practices have emerged surrounding the importation and appropriation of gas, which we turn to in the following sections.

6. Shifting focus: the political economy and infrastructures of gas importation

The following sections outline and explore the institutional, infrastructural and political arrangements for gas importation. Liquefied petroleum gas (LPG) is almost exclusively imported into Mozambique. We first show how demand has increased since 1996 (IEA, 2018), further highlighting the policy neglect of domestic gas use. Secondly, we argue that while revenue generation underpins gas exportation, the subsidization of LPG importation highlights how the government has sought alternative forms of legitimacy to maintain political support while deterring popular cost-of-living protests.

6.1. Increasing demand, nascent infrastructures, and new spatial differentiations

Currently, all LPG used in Mozambique is imported. For many years Mozambican suppliers sourced much of this LPG from South Africa, however, recent tenders have been awarded to international suppliers. The importation of LPG into Mozambique results largely from a lack of investment and political prioritization of domestic gas processing and storage facilities (Boune, 2016). Currently, imported LPG largely enters through the port of Matola, a satellite city of Maputo and to a lesser extent the port of Beira in the central region. LPG is then stored and typically filled into 11 kg canisters and predominantly used by private residential customers for cooking. Data suggests LPG importation has increased from 5,000 tonnes in 1990 to 43,000 tonnes in 2021 (see Figure 2). The CIP (see Nuvunga & Mapisse, 2017) have suggested such amounts are currently below market demand, a finding corroborated by a study commissioned by the Maputo Municipal Council examining the potential for LPG uptake (Falzon et al., 2013).

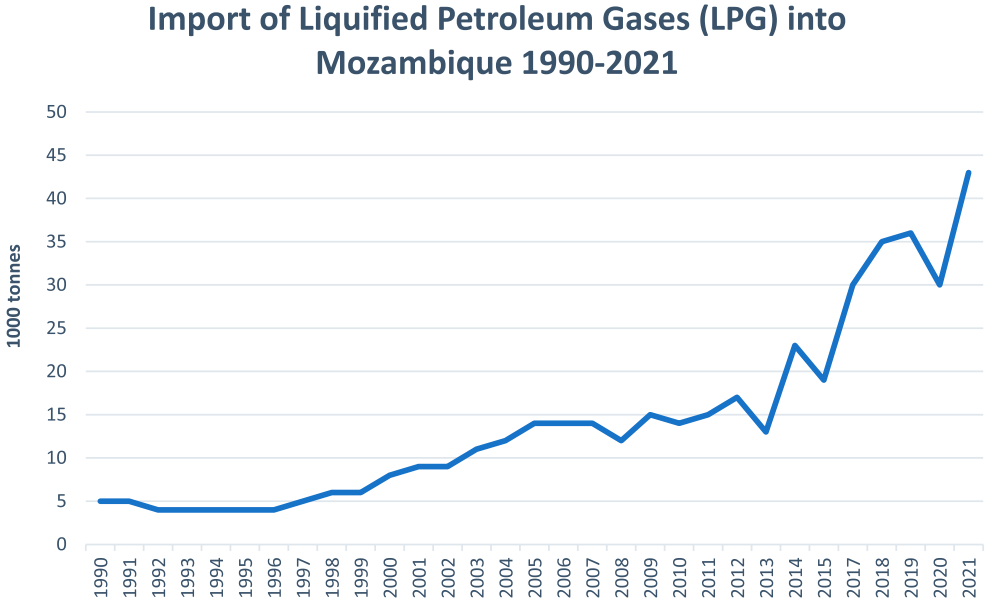

Figure 2. Importation of LPG into Mozambique has rapidly increased since 2013 (Compiled by Authors from (IEA, 2018, p. 2022)).

Canisters are transported by private companies by road, mainly to petrol stations in major cities. A secondary distribution network has developed in Maputo, with canisters increasingly available in middle – and lower-middle-income neighbourhoods in shops/warehouses (household survey). Road transport adds substantial costs to the price of LPG. At the time of writing, an 11 kg LPG canister costs 720 MZN (US$11.98) in Maputo. In contrast, the equivalent price in the northern city of Nampula is 900 MZN (US$14.98) (personal communication), a 25% increase. This is significant as charcoal prices (i.e. the dominant energy source for cooking in urban areas) in Maputo/Matola are higher than LPG. In other cities, the relationship is reversed (survey and personal communications). This indicates a demand for LPG even when/where it is costlier than charcoal. Notably, the Northern provinces have lower HDI and economic indicators than Southern region, especially Maputo (Globaldatalab.org, 2018). This variability throws into question a central government policy goal of equalizing the rate of poverty (World Bank, 2018).

6.2. Institutional arrangements for fuel importation

Importation of all liquid fuels (including LPG) is controlled and coordinated through a quasi-private company, *Importadora Moçambicana de Petróleos* (IMOPETRO). Established in 1998, Imopetro is in principle owned and managed by 'distributors,' typically private distribution companies. Any distributor wishing to operate in Mozambique is obliged to join Imopetro. Distributors typically sign a six-month tender agreement authorizing importation/distribution (IMF, 2016). In Imopetro financial reports for 2018, companies listed as quota holders include Shell Mozambique and Total Mozambique; however, the most important are the state-owned Petromoc (having a 51% stake in IMOPETRO), Petrogal Mozambique Lda., and Galp Mozambique, both part of the *Galp Energia* group of Portugal (Ernst and Young Limited, 2018). Independent reports suggest a lack of transparency at IMOPETRO surrounding tendering arrangements, debt financing, and publicly available information (CIP, 2016).

Upon importation, the Mozambican government has for many years implemented a state subsidy of petrol, diesel, and LPG prices through debts incurred by distributors of Imopetro. Debts are securitized through the government's foreign exchange reserves (CIP, 2016). MIREME uses Imopetro as the intermediary institution through which price controls are implemented. In 2014, under the administration led by then President Guebuza, these debts reached US$330 m (Allafrica.com, 2018), representing 1.1% of GDP (IMF, 2016). In 2017, Mozambican Association of Fuel Companies AMEPETROL members wrote to the Prime Minister complaining that the debts were too high (Club of Mozambique, 2017).

The exact mechanism through which the Mozambican State determines subsidy rates (and, therefore, fuel prices) has often been unclear. Seemingly, officials in MIREME review international fuel prices monthly and alter the price when importation costs (expressed as Meticais) increase/decrease by 3 percent (Club of Mozambique, 2018a). This means the strength of the Metical (MZN) against the US dollar is an essential factor in petrol/diesel and against the South African Rand for LPG. However, from 2011 to 2016, MIREME did not make price adjustments despite international fuel prices fluctuating during this period. Therefore, such controls have often been imposed in an ad-hoc and non-transparent way.

Generally, evidence suggests that the government has kept prices artificially low in a policy labelled by news organizations as the 'generalized fuel subsidy' (Club of Mozambique, 2018a). While this is a general subsidy, it tends to benefit higher and middle-income groups (i.e. those who regularly use cars or LPG for cooking), predominantly in the Maputo/Matola urban region. These are typically strongholds for FRELIMO support (Sumich, 2010). While petrol and diesel are the primary targets, LPG is increasingly implicated through the increased diversity of uses; from cooking, to powering other appliances such as freezers/fridges to professional uses in medicine and other industries (Sprague & Woolman, 2011). The household survey revealed that while residents perceived LPG as expensive, its use is increasing among middle- and lower-income households, particularly in areas closer to petrol stations. Residents frequently raised the issue of fluctuating LPG prices, with most unaware of the link to public price controls. MIREME's bulletins, which announce fuel price changes, state that subsidies are in place to protect critical sectors, such as public transport and agriculture. Donors, however, have reiterated the argument that fuel subsidies disproportionately benefit higher and middle-income populations, advocating for Mozambique to abandon fuel subsidies (IMF, 2016; World Bank, 2017).

6.3. Unpacking the everyday politics fuel importation

The centralized control of fuel prices has had a tumultuous political history in Mozambique in recent years. Here, we examine this history, focusing specifically on the role of fuel subsidies and civil society contestation, which have reshaped state-society relations by increasing the obligation for the state to ensure energy accessibility. In 2008, the Mozambican government suddenly raised the price of imported fuels, while *chapa* (private minibus) fares also increased substantially, leading to a popular uprising initially in several neighbourhoods of Maputo (Bertelsen, 2016). These protests, which resumed and spread to other cities in 2010 (Bertelsen, 2016), have been explained from various perspectives. Groes-Green (2010) argues underlying 'sentiments of anxiety' coalesced with growing inequality and poverty, particularly among marginalized young men who partly fuelled the uprisings to simultaneously subvert and reassert a form of 'sovereignty'. Bertelsen (2016) emphasizes the significance of how protestors took over infrastructural spaces and how the uprisings 'destabilized the image of a powerful sovereign state under the control of Frelimo' (p.45). While it is clear these uprisings were a significant moment for many Mozambicans, the role and importance of the fuel subsidy regime (including gas) has gained relatively little attention.

Nevertheless, the causes and initial response (from the government) deeply implicated the fuel-subsidy import regime. Leading up to the 2010 protests, the focus was on the price of food. However, LPG also increased by 7.9% and was therefore directly and indirectly (i.e. impact on food prices) implicated in the protests (De Brito et al., 2015). IESE has suggested the protests represented a 'new phase' in the relationship between the Mozambican State and its citizens (ibid.). The FRELIMO-led government, which had previously ruled with a degree of impunity, was forced into a contradictory position of both condemning the protests (through state-controlled media) while making various proclamations to address the cost of living such as cementing the fuel subsidy regime it had created (Azevedo-Harman, 2015; De Brito et al., 2015). This ultimately materialized

into various populist policies, such as wage cuts for high-earning public workers and the consolidation of the fuel subsidies associated with public transport vehicles and foodstuffs (De Brito et al., 2015).

One specific outcome of the 2008 protests was an agreement between the government and licensed chapa owners to subsidize fuel costs for public transport journeys. A single chapa fare has stood at a low level of 7 or 9 meticais (11 or 14 US cents) within Maputo for many years. However, in February 2018, fares increased from 9 to 12 meticais. This raised fears of further unrest among municipal authorities and the police. The government has suggested subsidies intend to benefit the urban and rural poor. Influential international donors' advocacy to end fuel subsidies ignores the potential for political protests and the fact that many low-income residents also depend on such subsidies. We argue, therefore, for a more nuanced reading of these subsidies concerning popular political protests. In part, prices have been kept low as a means for the government to provide subsidized consumption to its relatively more affluent supporter base in the southern provinces, however, have also served as a tool to avert political instability. To some extent, the subsidy regime also represents an attempt to deliver a broader social policy.

Unlike the extractive logic of energy exportation, in which the Mozambican government has sought to maximize 'quick' revenues, energy importation shows a different logic characterized by public debt expenditure in the least socially and politically damaging way in a complex relationship between political and social culpability. This has been described as a 'kind of authoritarian response […] resulting from the combination of global price volatility, the system and the culture of national politicians and the popular moral economy' [*translated from Portuguese*] (De Brito et al., 2015, p. 47). The reference to the 'popular moral economy' hints at the social policy that has become entrenched. The government has sought to maintain control and legitimacy through reacting to events, noticeably popular uprisings, *while* maintaining a system of economic incentives. This shows not necessarily a government detached from the wider population's political and economic realities solely focussed on revenue generation, but rather a deep connection between the two. The socio-spatial implications of such processes merit further research. Still, new socio-spatial distinctions and divisions become prominent through this logic, such as between cities (capital-secondary), regions, and the urban poor and middle class.

7. Conclusion: the contradictory logics of gas transitions in Mozambique

As we have demonstrated, state agencies in Mozambique appropriate natural gas both through exportation and a parallel system of LPG importation and domestic use. By examining both exportation and importation simultaneously, new contradictions emerge that nuance previous perspectives concerning energy and resource extraction in Africa. The first nuance is that Mozambique has considerable energy resources but increasingly imports energy to meet domestic needs. We have argued this primarily emerges through path-dependent institutional and technical models of gas exploitation and through selective political will to build and invest in domestic gas processing and distribution infrastructures. The second nuance is that while gas importation and domestic use are fiercely political realities, domestic gas is largely omitted from any integrated energy policy or planning. As Nuvunga (2015, p. 4) has argued, the 'allocation of gas for

domestic use, the legal regime for domestic gas is not entirely clear.' Governmental discourses and policies that refer to domestic gas nearly exclusively refer to electricity generation or large-scale industries (ibid.), with the increasing possibility of domestic use and distribution ignored.

Relatedly, while independent evaluations suggest that gas processing can serve as a vital tool for industrialization and national development (USAID, 2018), concrete proposals that address national unity challenges have not been developed in detail. Most future proposed policies and projects continue to focus on export (ibid). Long-touted domestic national and urban pipeline systems remain technical and political possibilities without crystallizing into firm policy. In 2012, a governmental steering committee submitted a report to the World Bank titled, 'The Future of Natural Gas in Mozambique: Towards a Gas Master Plan' (ICF International, 2012). This report acknowledges the growing importance of LPG use. It describes urban areas as a 'natural market for natural gas' (ibid:24). However, the final *Natural Gas Masterplan*, published in 2014, ultimately omitted any mention of LPG for residential use, instead focusing on future gas-to-power projects and gas for large-scale industrial purposes and small-scale enterprises (RoM, 2014b). Here, gas conforms to an 'extractive-developmentalist' ideology (Blanes et al., 2023), favouring large-scale economic development through centralized spaces of accumulation (Andrews & Nwapi, 2018). Gas developments are 'scaled as national concerns' (Bridge et al., 2018, p. 14) through selective policy developments that disregard alternative transition pathways (Hodson et al., 2017) along with the selective reordering of infrastructural investments to support the gas complex (cf. Watts, 2005).

Nevertheless, the nuance and complexity we have attempted to introduce is that there are, in fact, multiple gas transitions 'on the ground', revealed through engaging with the everyday politics of energy use and importation (Baptista, 2018). The first concerns exportation where the territorial model of gas pipelines is being superseded by offshore facilities, with questionable benefits for local populations. The State's (and key institutions therein) initial interest in gas pipelines has shifted to gas 'take-off', primarily for gas-to-electricity power plants, which have proliferated in Southern regions. The second transition concerns gas importation, which is increasing rapidly, complemented by a rise in gas use, a higher diversity of gas uses, and domestic infrastructure systems of LPG distribution (mainly road-based through petrol stations). As we argue, institutional frameworks and investments have failed to address the latter, leaving open points of popular contestation and political protest.

Contestation surrounding fuel importation is potentially generative of alternative development pathways. Public protests and local civil society contestation have exposed the disregard for domestic gas consumption/distribution and its potential role in advancing energy goals (Nuvunga, 2015). Moreover, the continuation of fuel subsidies highlights complex governmental practices, state-led efforts to reterritorialize energy investments and alternative state-society relations. Here, energy distribution and the needs of the population are increasingly managed. To a certain extent, this has placed nascent demands on government officials to address bottom-up/alternative energy transitions. Despite the need for a pragmatic understanding of Mozambique's postcolonial and geopolitical position, and indeed pressing issues such as lowering emissions and climate change adaptation, policy options are opened by these multiple transitions,

such as increasing domestic distribution/infrastructures and improving the institutional capacity of Mozambican entities, which are currently being disregarded.

The findings highlight the importance of engaging with both energy exportation and importation in African contexts. This analysis revealed how multiple, parallel, and often contradictory 'transitions' have emerged, underpinned by distinct governance logics. This perspective agitates against a reductive view of energy politics and governance in African states characterized only by centralized extractive logics inevitably leading to corrupt practices. The findings also shed light on the territorial dimensions of this process, including the reordering of space through selectively governing access to investments, revenues and resource flows (Rasmussen & Lund, 2018). This is reflected in the socio-material character of infrastructural developments supporting gas production and distribution, installed in selective spatial zones, and the emerging gas 'complex' (Watts, 2005) with its assemblage of finance, infrastructure, legislative and technical interventions, combining to influence the pace and scale of extraction and channelling it largely towards export flows while bypassing the majority of Mozambican beneficiaries or consumers (notwithstanding the central government's developmentalist and egalitarian rhetoric). More research is necessary in other contexts to compare the governance and politics of energy exportation with importation processes. In other energy-rich countries such as Nigeria, for example, gas importation is high and increasing. Such a shift in focus may be potentially generative of new understandings concerning alternative pathways for infrastructure transitions, highlighting the importance of everyday energy politics in shaping such transitions.

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References

Allafrica.com. (2018). *Mozambique: Fuel subsidies cost Mozambique huge sums*. Retrieved April 21, 2021, from https://allafrica.com/stories/201804180091.html.

Andrews, N., & Nwapi, C. (2018). Bringing the state back in again? The emerging developmental state in Africa's energy sector. *Energy Research and Social Science*, *41*, 48–58. https://doi.org/10.1016/j.erss.2018.04.004

Arce, M. (2014). *Resource extraction and protest in Peru*. University of Pittsburgh Press. https://doi.org/10.2307/j.ctt9qh8z9.

Azevedo-Harman, E. (2015). Patching things up in Mozambique. *Journal of Democracy*, *26*(2), 139–150. https://doi.org/10.1353/jod.2015.0036

Badeeb, R. A., Lean, H. H., & Clark, J. (2017). The evolution of the natural resource curse thesis: A critical literature survey. *Resources Policy*, *51*, 123–134. https://doi.org/10.1016/j.resourpol.2016.10.015

Baker, L., Newell, P., & Phillips, J. (2014). The political economy of energy transitions: The case of South Africa. *New Political Economy*, *19*(6), 791–818. https://doi.org/10.1080/13563467.2013.849674

Baptista, I. (2018). Space and energy transitions in sub-saharan Africa: Understated historical connections. *Energy Research and Social Science*, *36*, 30–35. https://doi.org/10.1016/j.erss.2017.09.029

Bertelsen, B. E. (2016). *Violent becomings: State formation, sociality, and power in Mozambique*. Berghahn.

Blanes, R. L., Rodrigues, A. C., & Gonçalves, E. (2023). The multiple paths of extraction, dispossession, and conflict in Mozambique: From Tete's coal mines to Cabo Delgado's LNG projects. *Journal of Social Encounters*, *7*(1), 4–25.

Boone, C. (2003). *Political topographies of the African state territorial authority and institutional choice*. Cambridge University Press.

Boune, A. (2016). *Pre-Assessment Report of the Mozambican Energy Sector Under the Principles of the International Energy Charter and the Energy Charter Treaty*. Occasional Paper Series:Energy Charter Secretariat Knowledge Centre.

Bouzarovski, S., Bradshaw, M., & Wochnik, A. (2015). Making territory through infrastructure: The governance of natural gas transit in Europe. *Geoforum; Journal of Physical, Human, and Regional Geosciences*, *64*, 217–228. https://doi.org/10.1016/j.geoforum.2015.06.022

Bridge, G. (2014). Resource geographies II: The resource-state nexus. *Progress in Human Geography*, *38*(1), 118–130. https://doi.org/10.1177/0309132513493379

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. https://doi.org/10.1016/j.enpol.2012.10.066

Bridge, G., Özkaynak, B., & Turhan, E. (2018). Energy infrastructure and the fate of the nation: Introduction to special issue. *Energy Research and Social Science*, *41*, 1–11. https://doi.org/10.1016/j.erss.2018.04.029

Brown, B., & Spiegel, S. J. (2019). Coal, climate justice, and the cultural politics of energy transition. *Global Environmental Politics*, *19*(2), 149–168. https://doi.org/10.1162/glep_a_00501

Castán Broto, V., Baptista, I., Kirshner, J., Smith, S., & Neves Alves, S. (2018). Energy justice and sustainability transitions in Mozambique. *Applied Energy*, *228*, 645–655. https://doi.org/10.1016/j.apenergy.2018.06.057

Centro de Integridade Pública. (2013). Primeiros grandes projectos do sector extractivo frustram as expectativas dos moçambicanos.

Centro de Integridade Pública. (2016). *Importação de Combustíveis Líquidos: Quadro institucional, processos, riscos, perspectivas*.

Centro para Democracia e Desenvolvimento. (2022). *Energy transition In Mozambique opportunities and challenges*. Centro para Democracia e Desenvolvimento (CDD).

Chikwem, F. C. (2016). The political economy of fuel importation probes and development of refineries in Nigeria. *Insight on Africa*, *8*(1), 18–39. https://doi.org/10.1177/0975087815612287

Club of Mozambique. (2017). *Fuel subsidy costs over US$300,000 a day – Mozambique*. Retrieved April 21, 2021, from https://clubofmozambique.com/news/fuel-subsidy-costs-us300000-day-mozambique/#:~:text=The%20Mozambican%20government's%20current%20fuel,of%20Fuel%20Companies%20(AMEPETROL).

Club of Mozambique. (2018a). *Fuel subsidies cost Mozambique huge sums – govt*. Retrieved April 21, 2021, from https://clubofmozambique.com/news/fuel-subsidies-cost-mozambique-huge-sums-govt/.

Club of Mozambique. (2018b). Maputo homes to have mains gas from 2019 – Mithá. Retrieved April 21, 2021, from https://clubofmozambique.com/news/maputo-homes-to-have-mains-gas-from-2019-mitha/#:~:text=The%20chairman%20of%20the%20Board,starting%20in%202019%2C%20AIM%20writes.

Coutard, O., & Rutherford, J. (2016). *Beyond the networked city: Infrastructure reconfigurations and urban change in the North and South*. Routledge.

Cuvilas, C. A., Jirjis, R., & Lucas, C. (2010). Energy situation in Mozambique: A review. *Renewable and Sustainable Energy Reviews*, *14*(7), 2139–2146. https://doi.org/10.1016/j.rser.2010.02.002

De Brito, L., Chaimite, E., Pereira, C., Posse, L., Sambo, M., & Shankland, A. (2015). *Revoltas da Fome: Protestos Populares em Moçambique (2008–2012)*. Instituto de Estudos Sociais e Económicos (IESE).

Electricidade de Mocambique. (2018). *EDM Strategy 2018–2028*.

Enns, C., & Bersaglio, B. (2015). Enclave oil development and the rearticulation of citizenship in Turkana, Kenya: Exploring 'crude citizenship'. *Geoforum; Journal of Physical, Human, and Regional Geosciences*, *67*, 78–88. https://doi.org/10.1016/j.geoforum.2015.10.010

Ernst and Young. (2018). *Financial Statements: IMOPETRO-Importadora Moçambicana de Petróleos, LDA*.

Extractive Industries Transparency Initative. (2018). *Final Report: Independent Administrator of EITI in Mozambique*.

Falzon, J., Vignati, F., Halstead, M., Linden, N. v. d., & Poles, D. (2013). *Accelerating uptake of LPG in Maputo for lower income households: A study to support scoping of an intervention*. SNV Netherlands Development Organization.

Feijó, J. (2023). Return of the populations and reconstruction of the northeast of Cabo Delgado – from the weaking of the state to the emergence of Totaland. OMR, Destaque Rural N° 211, 6 March.

Ferguson, J. (2005). Seeing like an oil company: Space, security, and global capital in Neoliberal Africa. *American Anthropologist*, *107*(3), 377–382. https://doi.org/10.1525/aa.2005.107.3.377

Ferguson, J. (2006). *Global shadows: Africa in the neoliberal world order*. Duke University Press.

Frantzeskaki, N., Broto, V. C., & Coenen, D. L. (2017). *Urban sustainability transitions*. Routledge.

Globaldatalab.org. (2018). *Subnational Human Development Index (4.0)*. Retrieved April 21, 2021, from https://globaldatalab.org/shdi/shdi/?levels=1%2B4&interpolation=0&extrapolation=0&nearest_real=0.

Gqada, I. (2013). A boom for whom ? Mozambique's natural gas and the new development opportunity. *South African Institute of International Affairs*, *Issue 151*, 1–32.

Groes-Green, C. (2010). Orgies of the moment: Bataille's anthropology of trans-gression and the defiance of danger in post-socialist Mozambique. *AnthropologicalTheory*, *10*(4), 385–407.

Hanlon, J., & Nuvunga, A. (2015). *Gas for development, or just for money?* Centro de Integridade Pública.

Herbst, J. (2000). *States and power in Africa: Comparative lessons in authority and control (STU-Student edition, 2)*. Princeton University Press.

Hodson, M., Geels, F. W., & McMeekin, A. (2017). Reconfiguring urban sustainability transitions, analyzing multiplicity. *Sustainability*, *9*(2), 299. https://doi.org/10.3390/su9020299

Hönke, J., & Cuesta-Fernández, I. (2017). A topographical approach to infrastructure: Political topography, topology, and the port of Dar es Salaam. *Environment and Planning D: Society and Space*, *35*(6), 1076–1095. https://doi.org/10.1177/0263775817707762

Huber, M. (2015). Theorizing energy geographies. *Geography Compass*, *9*(6), 327–338. https://doi.org/10.1111gec3.12214

ICF International. (2012). *The Future of Natural Gas in Mozambique: Towards a Gas Master Plan Executive Summary*.
IEA. (2023). *Energy statistics data browser*, IEA, Paris. https://www.iea.org/data-and-statistics/data-tools/energy-statistics-data-browser.
Instituto Nacional de Estatística. (2019). *Recenseamento Geral Da População E Habitação 2017 Resultados Definitivos Moçambique*.
Instituto Nacional de Estatística. (2023). Estatísticas de Investimentoem Petróleo e Gás em Moçambique 2017–2021.
International Energy Agency. (2018). *Mozambique: Balances for 2015*. Retrieved April 21, 2021, from https://www.iea.org/statistics/statisticssearch/report/?year=2015&country=Mozambique&product=Balances.
International Monetary Fund. (2016). Republic of Mozambique: Selected issues. *IMF Staff Country Reports*, *16*(10), 1. https://doi.org/10.5089/9781513539065.002
Iwayemi, A. (2008). Nigeria's dual energy problems: Policy issues and challenges. *International Association for Energy Economics*, *53*, 17–21.
Japan International Cooperation Agency. (2013). *Preparatory study on gad-fired power plant development in Southern Mozambique: Final report*. Produced for Electriçidade De Moçambique and The Republic of Mozambique. https://openjicareport.jica.go.jp/pdf/12119798_01.pdf
Kirshner, J. (2017). A Luta Continua: Contending high and low carbon energy transitions in Mozambique. In S. Bouzarovski, M. Pasqualetti, & V. Castán Broto (Eds.), *The routledge research companion to energy geographies* (pp. 347–361). Routledge.
Kirshner, J., Broto, V. C., & Baptista, I. (2020). Energy landscapes in Mozambique: The role of the extractive industries in a post-conflict environment. *Environment and Planning A*, *52*(6), 1051–1071. https://doi.org/10.1177/0308518X19866212
Kirshner, J., & Power, M. (2015). Mining and extractive urbanism: Postdevelopment in a mozambican boomtown. *Geoforum; Journal of Physical, Human, and Regional Geosciences*, *61*, 67–78. https://doi.org/10.1016/j.geoforum.2015.02.019
Mohan, G. (2013). Beyond the enclave: Towards a critical political economy of China and Africa. *Development and Change*, *44*(6), 1255–1272. https://doi.org/10.1111/dech.12061
Monstadt, J., Torrens, J. C. L., Jain, M., Macrorie, R. M., & Smith, S. R. (2022). Rethinking the governance of urban infrastructural transformations: A synthesis of emerging approaches. *Current Opinion in Environmental Sustainability*, *55*, 101157. https://doi.org/10.1016/j.cosust.2022.101157
Muttitt, G., Sharma, S., Mostafa, M., Kühne, K., Doukas, A., Gerasimchuk, I., & Roth, J. (2021). *Step off the gas: International public finance, natural gas, and clean alternatives in the Global South*. International Institute for Sustainable Development.
Netherlands Enterprise Agency (2018). Final energy report Mozambique. *Ministry of Foreign Affairs*, 1–43. https://www.rvo.nl/sites/default/files/2019/01/Final-Energy-report-Mozambique.pdf.
Newitt, M. (2017). *A short history of Mozambique*. Hurst.
Niño, H. P., & Le Billon, P. (2013). *Foreign aid, resource rents and institution-building in Mozambique and Angola*. WIDER Working Paper No. 2013/102.
Nuvunga, A. (2015). *'Carry' for ENH and Gas for the domestic market short of needs: Government negotiates problematic terms with anadarko*. Centro de Integridade Pública.
Nuvunga, A., & Mapisse, I. (2017). *Sasol's development plan under the PSA is problematic*. Centro de Integridade Pública.
Ovadia, J. S. (2016). Local content policies and petro-development in Sub-Saharan Africa: A comparative analysis. *Resources Policy*, *49*, 20–30. https://doi.org/10.1016/j.resourpol.2016.04.003
Painter, J. (2006). Prosaic geographies of stateness. *Political Geography*, *25*(7), 752–774. https://doi.org/10.1016/j.polgeo.2006.07.004
Parker, M., & Kreuze, H. (2013). *Angola and Mozambique gas monetization for economic development: Gas based industry feasibility study*. The African Development Bank.
Peck, J., & Tickell, A. (2002). Neoliberalizing space. *Antipode*, *34*(3), 380–404. https://doi.org/10.1111/1467-8330.00247

Pitcher, M. A. (1996). Recreating colonialism or reconstructing the state? Privatization and politics in Mozambique. *Journal of Southern African Studies*, *22*(1), 49–75. https://doi.org/10.1080/03057079608708478

Pitcher, M. A. (2002). *Transforming Mozambique: The politics of privatization, 1975–2000*. Cambridge University Press.

Power, M., & Kirshner, J. (2019). Powering the state: The political geographies of electrification in Mozambique. *Environment and Planning C: Politics and Space*, *37*(3), 498–518. https://doi.org/10.1177/2399654418784598

Power, M., Newell, P., Baker, L., Bulkeley, H., Kirshner, J., & Smith, A. (2016). The political economy of energy transitions in Mozambique and South Africa: The role of the rising powers. *Energy Research and Social Science*, *17*, 10–19. https://doi.org/10.1016/j.erss.2016.03.007

Rasmussen, M., & Lund, C. (2018). Reconfiguring frontier spaces: The territorialization of resource control. *World Development*, *101*, 388–399. https://doi.org/10.1016/j.worlddev.2017.01.018

Republic of Mozambique. (2001). *Petroleum Law No 3/2001*. Maputo, Mozambique.

Republic of Mozambique. (2014a). *Petroleum law no. 21/2014, dated 18th August*. *21*, 1–13.

Republic of Mozambique. (2014b). Natural Gas Masterplan.

Republic of Mozambique. (2018). *Projected government revenues from gas projects*.

Reuters. (2022). Amid energy crisis, EU plans to help gas-rich Mozambique boost security. Retrieved December 30, 2022, from https://www.reuters.com/world/africa/amid-energy-crisis-eu-plans-help-gas-rich-mozambique-boost-security-2022-08-16/.

Salimo, P., Buur, L., & Macuane, J. J. (2020). The politics of domestic gas: The Sasol natural gas deals in Mozambique. *Extractive Industries and Society*, *7*(4), 1219–1229. https://doi.org/10.1016/j.exis.2020.05.017

Smith, L., Van Alstine, J., & Tallontire, A. (2022). The making of an oil frontier: Territorialization dynamics in Uganda's emerging oil industry. *Extractive Industries and Society*, *12*, 101188. https://doi.org/10.1016/j.exis.2022.101188

Sokona, Y., Mulugetta, Y., & Gujba, H. (2012). Widening energy access in Africa: Towards energy transition. *Energy Policy*, *47*, 3–10. https://doi.org/10.1016/j.enpol.2012.03.040

Sprague, C., & Woolman, S. (2011). VidaGas: Delivering better health to Northern Mozambique with LPG. *Journal of Enterprising Communities People and Places in the Global Economy*. http://doi.org/10.1108/17506201111119590

Sumich, J. (2010). The party and the state: Frelimo and social stratification in post-socialist Mozambique. *Development and Change*, *41*(4), 134–153. https://doi.org/10.1111/j.1467-7660.2010.01653.x

USAID. (2018). *Power Africa natural gas roadmap for Southern Africa*. Usaid Southern Africa Energy Program. https://www.usaid.gov/sites/default/files/2022-05/Southern_Africa_Power_Africa_Gas_Roadmap.pdf

Watts, M., & Ibaba, I. S. (2011). Turbulent oil: Conflict and insecurity in the Niger Delta. *African Security*, *4*(1), 1–19. https://doi.org/10.1080/19392206.2011.563181

Watts, M. J. (2005). Righteous oil? Human rights, the oil complex, and corporate social responsibility. *Annual Review of Environment and Resources*, *30*(1), 373–407. https://doi.org/10.1146/annurev.energy.30.050504.144456

World Bank. (2017). *Urban Safety Nets and Activation in JUNE 2017*.

World Bank. (2018). "*Strong but not Broadly Shared Growth" Mozambique* (Issue April).