Energy justice for whom? Territorial (re)production and everyday state-making in electrifying rural Indonesia

Fathoni, Hilman S.; Setyowati, Abidah B.

DOI
10.1016/j.geoforum.2022.07.012

Publication date
2022

Document Version
Final published version

Published in
Geoforum

Citation (APA)
Fathoni, H. S., & Setyowati, A. B. (2022). Energy justice for whom? Territorial (re)production and everyday state-making in electrifying rural Indonesia. *Geoforum*, *135*, 49-60. https://doi.org/10.1016/j.geoforum.2022.07.012

Geoforum 135 (2022) 49–60

Contents lists available at ScienceDirect

Geoforum

journal homepage: www.elsevier.com/locate/geoforum

Energy justice for whom? Territorial (re)production and everyday state-making in electrifying rural Indonesia

Hilman S. Fathoni [a,*], Abidah B. Setyowati [b,c]

[a] Human Geography, School of Social Sciences, Monash University, Australia
[b] School of Regulation and Global Governance (RegNet), Australian National University, Australia
[c] Faculty of Technology, Policy and Management, TU Delft, the Netherlands

ARTICLE INFO

Keywords:
Energy justice
Rural electrification
Just transition
The state
Territory
Indonesia

ABSTRACT

This article seeks to examine the material implications of the emergence of an energy justice (*energi berkeadilan*) vision in Indonesia, paying particular attention to the state's spatial practice to achieve such a vision in the form of rural electrification programs including the deployment of off-grid decentralised renewables. Informed by semi-structured interviews, participant observation and secondary data analysis, we contribute to the growing conversations on geographical political economy of energy transitions by closely attending to the multiple space-making processes characterising the Indonesian government's pursuit of their energy justice vision. Inspired by Henri Lefebvre's ideas on state space and territory, we begin by unravelling the historical connection between the rise of energy justice vision and the Indonesian state attempts to maintain and expand its territorial reach through rural electrification, as evidenced throughout the country's contemporary political economies and its earlier history of postcolonial struggles. We simultaneously unpack various legal mechanisms and instruments underpinning the government's efforts to deliver energy justice promises by way of universal electricity access, demonstrating the centrality of such strategies in the (re)production of state territories. Through inquiring how energy justice is mobilised by (and for) the Indonesian state, our study illustrates that such everyday state-making processes entail a calculative technique as another form of territorial intervention that obscures the reality of socio-spatially uneven and fragmented electricity access in rural Indonesia. Such findings, we suggest, reveal the contradictions in the state's repositioning as a main enabler of energy access provision and, more broadly, a socially just energy transition.

1. Introduction

This article investigates the manifestation of energy justice in Indonesia, taking the country's rural electrification development as a case study. In particular, we critically examine the emergence of the government-led energy justice (*energi berkeadilan*) vision under Joko Widodo's administration (2014 to present) as an underlying aspiration for Indonesia's energy development. One main objective stemming from such a vision is the improvement of rural electricity access in the country. This has manifested in the government's ambition to deliver a near 100 % rural electrification target by 2019 (MEMR, 2019a). In recent years, the government has made concerted efforts to achieve this goal through various strategies such as the provision of state capital to support grid extension programs by the Indonesian state-owned electricity company or *Perusahaan Listrik Negara* (PLN) (Kim, 2021), the distribution of government-financed off-grid small-scale renewables (Wirawan and Gultom, 2021) and the enactment of a regulatory framework to encourage private participation in developing off-grid renewable electrification projects (Fathoni, 2019; Setyowati, 2021). As a result, the recent government's claim indicates that the country's rural electrification ratio has improved considerably, from about 80 % in 2014 to 99 % in 2020 (MEMR, 2020a).

Within the literature, scholars have increasingly paid attention to the politics of energy transitions in the Global South. In particular, previous studies have shed light on the ideological contestation between market-driven neoliberal and state-led developmental approaches to rural electrification in the developing world (e.g. Byrne et al., 2018; Gore et al., 2019; Newell and Phillips, 2016; Power et al., 2016). The emergence of off-grid renewables as an alternative to electricity distribution further disrupts the monopoly of the incumbent, typically state-owned

* Corresponding author at: Human Geography, School of Social Sciences, Menzies Building, 20 Chancellors Walk, Monash University, Clayton, VIC 3800, Australia.
E-mail addresses: hsfathoni@outlook.com, hilman.fathoni@monash.edu (H.S. Fathoni).

https://doi.org/10.1016/j.geoforum.2022.07.012
Received 9 November 2021; Received in revised form 1 July 2022; Accepted 21 July 2022
Available online 30 July 2022

company in the sector, as has been documented in the case of South Africa (Baker et al., 2014; Baker and Phillips, 2019; Baker et al., 2021). Other studies also reveal the close intertwining of rural electrification and state-building. For instance, in their recent work in Mozambique, Power and Kirshner (2019) demonstrate how the extension of an electricity grid into the country's rural areas serves to symbolically and materially denote the state's presence in and connection to rural communities (see also Kale, 2014 in the case of India). The centrality of electricity infrastructure as an embodiment of the dominant power structures (Shamir, 2013) also comes with the prevailing, often state-sponsored modernist and developmentalist visions associated with the flow of electricity (Kirshner et al., 2020). Differentiated access to electricity in turn shapes and (re)configures state-society relations (Winther, 2008; Fathoni et al., 2021; Cross, 2019). Therefore, attending to the politics of electricity access provision in the Global South can highlight how energy infrastructures and socio-political dynamics are mutually constitutive (Gupta, 2015; Shamir, 2013).

Our study aims to demonstrate how efforts to enact socially just energy transitions through rural electrification in Indonesia are spatially constituted and serve to constitute spaces to accommodate certain political economic interests. To better unravel these co-constitutive relationships, we engage with the work of Henri Lefebvre on state space (Lefebvre, 2009) and his insights on territory (Elden, 2010; Brenner and Elden, 2009) to contribute to the growing theorisations of geographical political economy of energy transitions (see Bridge and Gailing, 2020). To that end, we argue that the rise of energy justice vision can be better understood through a historical lens that gives attention to the persistent role of developmentalist rhetoric in postcolonial Indonesia as a manifestation of a state spatial project to maintain and expand its territory through the provision of electricity infrastructure. Simultaneously, we demonstrate the processes of territorial (re)production underpinning the Indonesian government's efforts to deliver energy justice goals by way of universal electricity access. Integral to these government-led electrification attempts is what Elden (2010) terms "political technology", manifested in multiple legal instruments and mechanisms that aim to remake modern state territories. As our study also shows, embedded in this (re)production of state territories is a calculative technique as another form of territorial intervention that obscures the reality of unequal and fragmented electricity access distribution in rural Indonesia. Such everyday state-making processes then lead into what Lefebvre (2009) suggests as a paradoxical state space – one that is homogenous, fragmented and hierarchized all at the same time. Our findings, we argue, raise questions about the repositioning of the state as a main enabler of energy access provision and more broadly, a socially just energy transition (cf. Angel and Loftus, 2019).

This article proceeds as follows. Following the elaboration of our analytical approach (Section 2), we describe our research methods in Section 3. In Section 4, we unpack how the rise of energy justice vision is historically linked to the Indonesian state spatial project to arrange its territory through electricity infrastructure. We then demonstrate various legal instruments and interventions to (re)configure state territories underpinning Indonesia's rural electrification policies (Section 5). In Section 6, we shed light on the reality of socio-spatially uneven electricity access and the role of electrification ratio measurement in erasing such differences. We end our article with a discussion and conclusion (Section 7).

2. Analytical framework

In recent years, there is a fast-growing body of work examining the justice implications of energy transitions in various settings (Jenkins et al., 2021). Most of these studies on energy justice remain concentrated in the Global North, while relatively limited yet growing attention has been paid to the developing world context (Lacey-Barnacle et al., 2020). Despite its rapid growth, however, energy justice literature has been subject to several criticisms. Most notably, given the framework's origin in (Western) Europe, scholars have argued for developing a more reflexive approach that is attuned to the political economy as well as the historical contexts in which the pursuit of energy justice unfolds (see Fuller, 2021; LaBelle, 2017; Smith and High, 2017) – a call especially pertinent to Global South settings (Castán Broto et al., 2018; Kumar et al., 2021; Munro et al., 2017; Samarakoon, 2019; Fathoni et al., 2021). Methodologically, such contextual recognition means better acknowledging the need to develop a more bottom-up approach to understand how energy (in)justices materialise on the ground (e.g. Rasch and Kohne, 2017; Velasco-Herrejon and Bauwens, 2020). Furthermore, as Bouzarovski and Simcock (2017) suggest, the current conceptualisations of energy justice also tend to be spatially anaemic, often neglecting the impact of socio-spatial contexts in shaping energy justice manifestations. Indeed, as recent studies show, issues of scale (Nordholm and Sareen, 2021) and place (Bell, 2021) are deeply implicated in the on-going struggles over energy justice.

While previous work has clearly demonstrated the need for more geographically-informed accounts of energy justice, we suggest that two knowledge gaps remain relatively unaddressed. In particular, the main emphasis within the existing literature is on the constitutive role of spatial contexts in mediating energy justice, largely overlooking how attempts to deliver (just) energy transitions contribute to the *making* of spaces (cf. Bridge, 2018). This in turn provides an opportunity for closer examination of the *co-constitutive* relationships between energy justice and socio-spatial dynamics. Moreover, as highlighted in the case of Indonesia, adopting this approach can be productive in unpacking why energy justice as a vision has been mobilised by the state, and what this phenomenon means for state-building processes more broadly. To this end, we follow Walker (2009) in developing an analytical approach that recognises "spatialities of different forms, of different things and working at different scales" (page 615) that mutually shape everyday manifestations of energy justice. In doing so, we also concur with the scholars who suggest the need to better examine how geography and justice are closely and continuously co-produced (see for example Harvey, 1996; Holifield et al., 2009; Walker and Bulkeley, 2006; Walker, 2009).

To address the aforementioned gaps regarding energy justice, we draw inspiration from the burgeoning scholarship on energy geographies. Following the publication of several influential papers within the field (e.g. Bridge et al., 2013; Calvert, 2016; Huber, 2015; Zimmerer, 2011), scholars have increasingly recognised the constitutive nature of geographical categories in affecting the trajectory of energy transitions (see Baka and Vaishnava, 2020 for a latest review). Nevertheless, the main impetus emerging from this spatial turn in energy research has been mostly in "acknowledging geographical forms of difference" (Bridge, 2018, page 12) in relation to energy transitions. Such an objective tends to retain a Cartesian view of space as static and fixed, lying relatively external to the process of energy transition (Bridge, 2018). In their recent intervention, Bridge and Gailing (2020) problematize this tendency, arguing for the reframing of energy transitions as inherently space-making processes. This geographical political economic perspective, they argue, entails the rethinking of geographical concepts and how they have been brought to bear in energy transitions research. In particular, this shift foregrounds the co-constitutive relationships by investigating how energy transitions are actively reworking the existing geographical contexts and vice versa (Bridge and Gailing, 2020), from which (everyday) struggles surrounding energy justice manifest on the ground.

Embracing the call from Bridge and Gailing (2020), we mobilise the concept of territory to analyse the dynamics of energy justice in Indonesia's rural electrification program. In applying territory as an analytical lens, we pay particular attention to how its histories and spatialities are implicated in everyday state formation. To that end, we first turn our attention to the work of Henri Lefebvre, particularly his conceptual insights on the dialectic of state space. In a set of selected essays on the topic, Lefebvre (2009) discussed the co-constitutive

relations between state and space, by showing the integral role of state strategies in the re-configuration of diverse socio-spatial settings. Building on his earlier work on the politics of space (Lefebvre, 1991), he demonstrated how state-driven spatial policies often result in the perpetuation of inequalities and uneven outcomes (Lefebvre, 2009). State space is inherently a political and historical product, prone to the spatial strategies aimed at contradictorily erasing socio-spatial differences (Lefebvre, 1991; 2009). For Lefebvre, modern states figure prominently in this abstracting process, using diverse spatial mechanisms intended to reaffirm their political dominance (Lefebvre, 2009). Such state practices could amplify what Lefebvre characterises as the nature of modern state space that is "simultaneously homogenous and fractured" (Lefebvre, 2009, page 233). Abstracting this contradiction would also require the (re)entrenching of dominant spatial relations by the state – thus hierarchizing – as another intrinsic element of modern state space (Lefebvre, 2009). Such triad characteristics underpinning modern state space would often be found in the everyday, as the space where state power is lived and articulated (Lefebvre, 2009).

While the term "territory" did not receive a systematic treatment in Lefebvre's writings, Brenner and Elden (2009) have argued for recognising the importance of Lefebvre's work to inform the existing debates on territory as an integral dimension of modern state space. Insights from Lefebvre on state space resonate with the need to be cautious of what Agnew (1994) terms "territorial trap", a tendency to assume modern states exist within static spatial containers. This conceptual shift requires a more relational lens in understanding territory as both a material and symbolic basis for state power (e.g. Jonas, 2012; Moore, 2005, see also Hung, 2020). Therefore, territory is better understood as a "political technology" (Elden, 2010) through problematizing the historical relations between the state and emergent spatial categories. For Elden (2010), inherent in this re-making of modern state territories are state-led strategies that manifest beyond political-economic and political-strategic spheres, yet also within legal and technical realms (see also Allegra and Maggor, 2022; Ballvé, 2012; Brenner and Elden, 2009; Painter, 2010). This attention to the multiplicity of technical and legal interventions as a political technology is important to make sense of the historically and geographically contingent nature of modern state space and its territorial arrangement. Responding to Lefebvre's (2009) characterisation of the contradictory nature of modern state space, Brenner and Elden (2009) further suggest that integral in this production of state space is "territory effect" whereby the state attempts to "naturalize (at once to mask and to normalize) its own transformative, intensely patterning effects upon socio-spatial relations" through its territorial intervention (Brenner and Elden, 2009, page 354). Understood this way, territory, and therefore state space, is always in the state of becoming, provisionally reproduced and continually contested (Painter, 2010).

In mobilising the concept of territory to demonstrate the dialectic relationships between energy justice and socio-spatial contexts, we use the Indonesian case study to show how the rise of energy justice vision as a developmentalist rhetoric in the country is closely tied to the Indonesian state attempts in maintaining and expanding its territorial reach through rural electrification practice. Following the call to look at state space and its territorial arrangement through a historical lens (Brenner and Elden, 2009; Elden, 2010; Lefebvre, 2009), we trace this connection across Indonesia's contemporary political economies and earlier post-colonial struggles. Simultaneously, our study attends to the process of state territorial (re)production underlying such a state developmentalist goal, characterised by what Elden (2010) suggests as a "political technology", which comprises multiple legal instruments and mechanisms that underpin the Indonesian government's ambition to achieve their energy justice vision through ensuring universal rural electrification. By further problematizing how energy justice vision is mobilised by the Indonesian state, our findings highlight the contradictory material outcomes resulting from the ossification of a state's role as a main enabler of electricity access provision (cf. Angel and Loftus, 2019), and also shed light on a calculative technique in the form of electrification ratio measurement as a territorial intervention intended to abstract and mask such paradoxes. In doing so, we illustrate how such everyday space-making processes and their energy justice implications are co-constitutive of the Indonesian state and its (shifting) territorial boundaries.

3. Methods

In this study, we utilised multiple methods including stakeholder and community interviews (n = 76), participant observation and secondary data review. In particular, the lead author conducted the primary data collection from May to July 2019 in three different locations in Indonesia: Jakarta, Bali and Sumba Island (Eastern Indonesia). The fieldwork in Jakarta and Bali comprised semi-structured interviews with 35 stakeholders working in rural electrification and off-grid sectors in Indonesia, including PLN officials, Ministry of Energy and Mineral Resources (MEMR) representatives, private renewables developers, local and international NGOs, development aid donors, finance organisations and academics.

The lead author also undertook fieldwork in rural Sumba Island in the East Nusa Tenggara province. Sumba Island was chosen due its severe energy access problems, with less than 30 % of its population having electricity access in 2010 (ADB, 2016). Socio-economically, the island also remains among one of the poorest regions in Indonesia (Dagi Consulting, 2018). In response, the Sumba Iconic Island initiative was first established in 2011 and was subsequently formalised through a Ministerial decree in 2015 to alleviate rural energy poverty, utilising renewable energy as a primary source of power generation (ADB, 2016). Following this designation, multiple projects ranging from the PLN's grid extension to off-grid renewables were implemented on Sumba to improve the island's rural electrification progress.

For this study, three sites in rural Sumba were selected, and each represented different approaches to rural electrification. The first site is the private-led off-grid community-based solar project in a group of villages located in the southeast coast of Sumba Island (Fig. 1). The project was funded by the US-based aid agency, the Millennium Challenge Corporation (MCC) in 2013. The second location is Laipandak Village, also located in southeast Sumba (Fig. 1). Laipandak was selected as PLN had extended their grid into the village for the very first time in the beginning of 2019. The third site consisted of two villages, Maubokul and Walatungga, where the government-funded off-grid renewables in the form of solar lantern systems were distributed in early 2019 (Fig. 1). In all three sites, the first author conducted participant observation, paying close attention to the dynamics of different rural electrification schemes initiated by different actors (private company, PLN and the Ministry/government). Further, the first author conducted 41 semi-structured interviews with the local stakeholders in Sumba, village leaders and community members from all sites. Following the primary data collection, we triangulated the findings from both interviews and participant observation by undertaking an extensive review of secondary data, including policy documents, project reports, academic papers and more than 100 relevant news articles.

4. Tracing the emergence of energy justice vision in Indonesia: A historical lens

In response to the call for a more historical understanding of state space and its territorial form (Brenner and Elden, 2009; Elden, 2010; Lefebvre, 2009), this section illustrates historically how the emergence of energy justice vision as a developmentalist rhetoric is intertwined with the Indonesian state spatial practice in projecting its territorial reach through development programs such as rural electrification. The rise of energy justice vision as an embodiment of state developmentalist goals can be first linked to Indonesia's Constitution. In particular, Article 33 of the Constitution guarantees the utmost control of natural resources

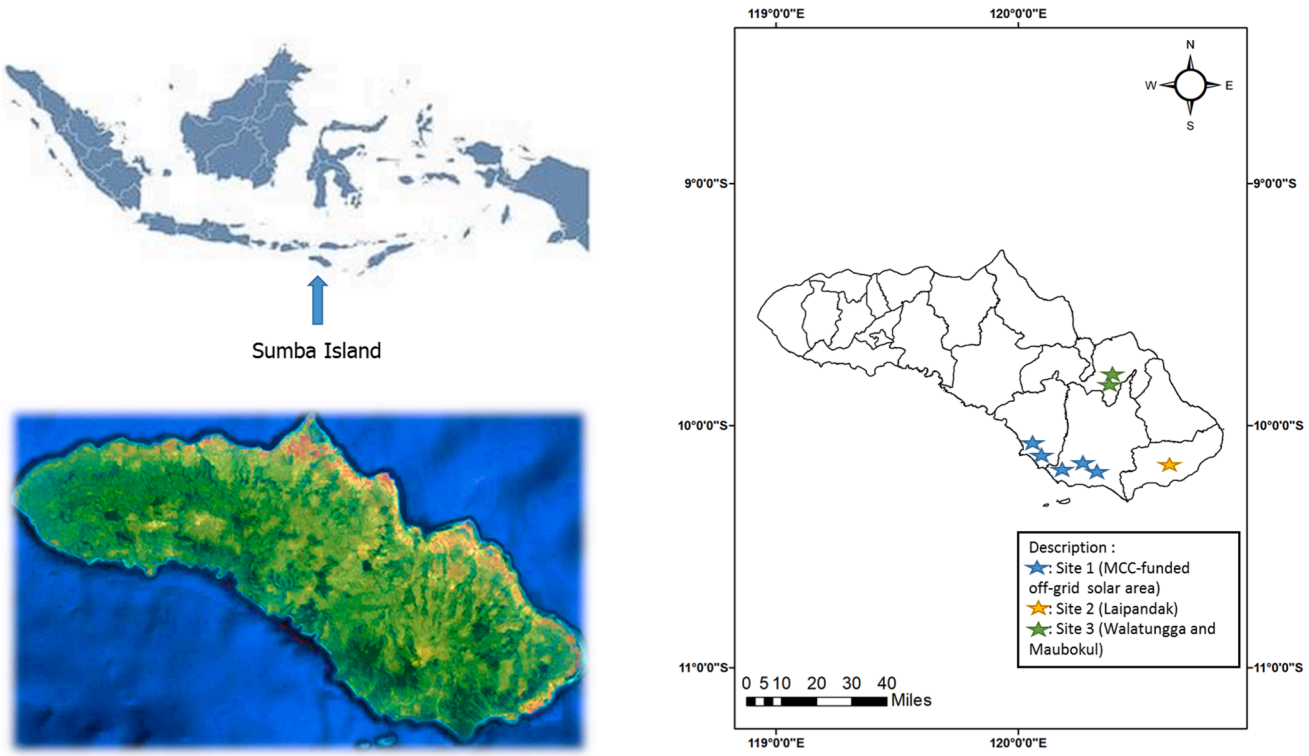

Fig. 1. Three site locations in Sumba Island (modified from Google Maps; BPS Sumba Timur, 2019).

by the state in which their utilisation must be directed for the greatest benefit of all Indonesians. Historically, the distribution of rural electricity access as a developmental objective has been understood to fall within the realm of state responsibilities, represented by PLN as a state electricity company. Further, the fifth principle of social justice within the nation's foundational ideology of Pancasila[1] serves as the basis for the Indonesian government's energy justice vision. In that regard, delivering universal electricity access demonstrates the government's objective to meet Pancasila's spirit of ensuring social justice for all Indonesians (MEMR, 2019b). Also underpinning the government's energy justice objective is a stipulation in Indonesia's Electricity Law No 30/2009, which states that electricity must be provided in sufficient quality, good quantity and at reasonable price for people's welfare in a just and equitable manner (Government of Indonesia, 2009). As noted by one key government official (Interview, 11 June 2019):

> *"For us who live here in Java Island, we might take this (electricity) for granted. But that is not the case for Indonesians who live there (in Eastern Indonesia). I think it is our (government's) job that they can have lighting and enjoy affordable electricity…..It is in line with what is (stipulated) in our Constitution and also Pancasila"*

As the above statement indicates, the rise of energy justice vision in Indonesia is closely entangled with the (re)emergence of a developmental state under Joko Widodo's leadership and his populist rhetoric (Davidson, 2016; Guild, 2019; Kim and Sumner, 2019). Under Widodo's developmentalist approach, the state spatial intervention to consolidate state territory (see Lefebvre, 2009) is therefore seen as imperative in order to alleviate socio-economic disparities that persist in many parts of Indonesia through extensive infrastructure development. To do so, the Widodo government has revitalised the role of state-owned enterprises (SOEs), including PLN, as agents of development (*agen pembangunan*) in advancing the country's development through infrastructure expansion (Kim, 2018; Ray and Ing, 2016; Warburton, 2018). To reinvigorate SOEs' position as agents of development, the central government has provided several forms of assistance, most notably by allocating a significant amount of state capital (Kim, 2018) (see Fig. 2). According to Kim (2021), between 2015 and 2016, state capital injection into various Indonesian SOEs was measured at 115.4 trillion rupiah (equivalent to around USD 7.9 billion) which is almost 5 times larger than the total of state capital injected during the second tenure of the previous Yudhoyono administration (2009 – 2014). In 2016, for example, nearly half of the total amount of state capital injection into SOEs was allocated to PLN alone (Hermansyah and Amindoni, 2016). PLN has been tasked to accomplish a number of infrastructure projects, most notably Widodo's ambitious project to deliver additional 35,000 MW of power into the country's electricity sector (Guild, 2020). Additionally, the government has instructed PLN to expand their existing transmission and distribution networks across the Indonesian archipelago to achieve a near 100 % rural electrification target (Setkab, 2016; Meilanova, 2020).

In addition to PLN-led grid extension program, the reduction of fuel

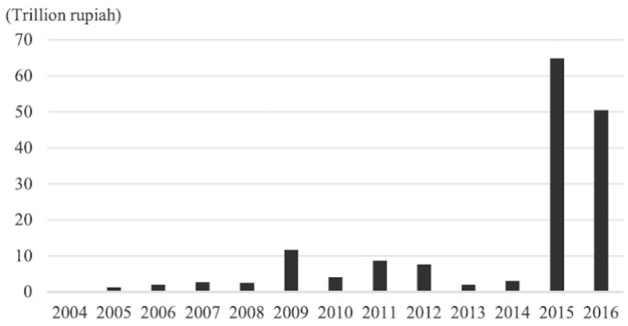

Fig. 2. State capital injection between 2004 and 2016 (reproduced from Kim, 2018). *Note:* The Joko Widodo government was first inaugurated in October 2014.

[1] Pancasila represents the philosophical foundation of the modern Indonesian state. It comprises five principles that are inseparable and interrelated with each other.

subsidies following the decline in global oil price has further enabled the Widodo government to increase the ministries' budget and to improve the spending for funding allocation to local governments (Pradiptyo et al., 2016; Negara, 2015). For the MEMR, major improvements in their budget have enabled the Ministry to embark upon a widespread distribution of solar lantern systems, often called the LTSHE (*Lampu Tenaga Surya Hemat Energi*) program, to support the government's rural electrification targets (Singgih, 2018a). With the increased funding devolution via the specific allocation fund scheme or *dana alokasi khusus* (DAK), some local governments were also able to construct small-scale renewables such as community solar and micro-hydropower projects in many non-electrified rural areas in Indonesia. As a form of state spatial practice, these government-funded programs were often focused on rural and remote areas whose locations are deemed outside the reach of PLN's existing electricity grid or whose populations are too sparsely distributed (Interview, 24 May 2019; Kirari et al., 2018).

Scholars have increasingly drawn a historical comparison between Widodo's style of governance and the previous New Order regime under Suharto's authoritarian rule (Diprose et al., 2019; Fealy, 2020; Power, 2018; Warburton, 2016; 2018). As Warburton (2016) contends, these "uncanny echoes of the past" (page 315) reflect the pragmatic developmental approach that took place during the New Order era. Dubbed the "Father of Development", President Suharto had emphasised the need for national economic transformation through the prioritisation of infrastructure-based projects (Hill, 2000; Hill and Narjoko, 2010; Warburton, 2016). Often invoking Pancasila's principle of social justice for all Indonesians, the New Order regime was also known for its pro-poor and populist policies to symbolise the state's central position as in advancing national development (see Bourchier, 2015; Diprose et al., 2019). Moreover, the mobilisation of PLN along with its rural electrification programs to extend state territorial and political economic interest is nothing new in Indonesia. For example, in examining rural electrification during Suharto's New Order era, Mohsin (2014) suggests that the PLN's village electrification program, which was commonly known as *Listrik Masuk Desa* (LisDes), had been deployed not only to deliver economic development but also to serve as a political means to garner votes and legitimise the Indonesian state's territorial presence among rural populations. For Mohsin (2014), the New Order's rural electrification program followed what he terms "patrimonial techno-politics" (page 65), embodied in the extension of political patronage through the establishment of electricity infrastructure.

The recent emergence of developmentalist narrative such as the energy justice vision as a manifestation of state spatial project in Indonesia can also be traced back to the country's early history of postcolonial struggles. In particular, in the subsequent years after Indonesia's independence in 1945, Indonesian nationalists led the attempt to recapture the ownership of the remaining Dutch and Japanese private electricity companies (Jarvis, 2012; Mohsin, 2015). The nationalisation of former colonial assets, which later became the foundation for the establishment of PLN, was also partly driven by the anti-colonial sentiments echoed by President Sukarno as Indonesia's first president in many of his post-independence speeches (Mohsin, 2015). Article 33 of the newly formed Indonesian constitution played a further role in cementing the state's central position as the primary guardian of country's energy resources, while legitimatising the notion of extending state-owned enterprises to champion national development and maintain territorial unity (see for example Butt and Lindsey, 2008; Elson, 2008; Jarvis, 2012). This resulted in what Jarvis (2012) suggested as a path-dependence that characterises the country's electricity sector, whereby PLN solidified its strategic position as the torch bearer of Indonesia's developmental agenda as well as the political apparatus for state elites. The history of nationalist sentiment coupled with the narrow interpretation of Article 33 of Indonesian Constitution, also contributes to the retaining of the PLN's spatial monopoly despite several attempts to liberalise the country's power sector in recent decades (see also Rosser, 2002).

5. Multiple political technologies in Indonesia's rural electrification programs

This section will illuminate various strategies that characterise the Indonesian government's pursuit of their energy justice vision through rural electrification policies, including the implementation of off-grid renewable projects to address energy poverty. As our findings indicate, embedded in such state strategies are diverse legal interventions and instruments as a manifestation of "political technology" (see Elden, 2010) that drive and enable the (re)production of modern state territory (see also Brenner and Elden, 2009). As we will show, these strategies include the demarcation of electricity business area, contestation over uniform electricity price and subsidy provision, as well as the re-territorialisation of state power in the deployment of government-funded off-grid renewable initiatives.

5.1. Contested electricity business area

One central strategy to maintain state's territorial dominance in Indonesia is through the establishment of electricity business area schemes. As described earlier, given the PLN's central position as an enabler of state developmentalist agenda, electricity regulations in Indonesia have been often geared towards maintaining the company's monopoly in the sector. For instance, according to Electricity Law 30/2009, PLN as a state-owned company possesses a monopoly over all regions in Indonesia as the company's electricity business area and holds territorial control in terms of electricity transmission and distribution. The Law also includes a provision that stipulates PLN's right of first refusal of other entities' application to request an electricity business area. This release of electricity business area from PLN is needed as a part of legal requirements for other actors such as private renewable companies to develop electricity business projects (see also Wijaya et al., 2020).

In the context of rural electrification, for example, the enactment of MEMR Regulation 38/2016 intended to increase renewable-based electrification in Indonesia has particularly allowed private actors to establish off-grid renewable projects in rural and remote areas. However, private companies interested in developing off-grid electrification projects will be first required to submit a request of an electricity business area to the government, represented by the MEMR.

While the issuance of an off-grid focused policy (MEMR Regulation 38/2016) can be seen as a shift in the governance of Indonesia's rural electrification, the existing legal procedures and political dynamics largely favour PLN's dominant position. Considering the PLN's right of first refusal under Electricity Law, such a request of an electricity business area would then be passed from the MEMR to PLN for the latter's approval. As interviewees have suggested, PLN often refused to relinquish control over the proposed electricity business area to private actors. Under such a procedural arrangement, priorities will still frequently be given to PLN as a state-owned company to undertake rural electrification in Indonesia, leaving little room for private companies' involvement in the sector. Consequentially, as also echoed by a number of interviewees, the limited delegation of electricity business areas to other non-PLN actors has reinforced the state's territorial control over rural electrification via PLN as a state-owned company. Furthermore, the renewed focus on PLN's role as an agent of development under Joko Widodo's developmental state approach (see Section 4) also results in the limited possibility for private actors to acquire electricity business area to develop off-grid projects in Indonesia.

5.2. Debates over uniform electricity price and subsidy provision

Following Joko Widodo's inauguration in 2014, ensuring energy affordability through setting up the uniformity of basic electricity retail price across all regions in Indonesia has been central to the government's strategies to realise their energy justice goals. Such a policy, as

many interviewees suggested, is hardly a surprise considering historically how sensitive Indonesian public is towards differences in energy prices (see also Kristov, 1995). Indeed, according to the government officers interviewed in this study, any difference of electricity retail price across spaces would be seen as a departure from the affordability objective under their energy justice vision. However, following the enactment of MEMR Regulation 38/2016, many private entities interested in developing off-grid renewables schemes have objected to this uniformity requirement. They argued that the existing electricity retail price in Indonesia (known as *Tarif Dasar Listrik* or TDL) is too low for private actors to be able to make profits from their investment in the off-grid sector. One private developer added that such a requirement tended to favour PLN, considering its status as a state-owned company backed by the government's support (Interview, 9 July 2019). In its monopoly over the transmission and distribution of electricity across Indonesia, PLN has been able to maintain the uniformity in electricity retail price at around IDR 1,400 (10 US cents) per kWh (PLN, 2019), using the cross-subsidy scheme across different consumer groups while also being on the receiving end of electricity subsidy allocation from the Indonesian government.

Interestingly, this "inability" of the private sectors to conform to the uniformity of electricity retail price has been used as another form of strategy to leverage PLN's dominant role, thereby reinforcing the Indonesian state's central position in providing affordable rural electricity access. For example, when asked about the private sector's objection regarding the uniformity in electricity retail price, a high-level official from the MEMR responded (Interview, 11 June 2019):

> *"There is no way that we (the government) would let (private companies) to require those rural communities (in Eastern Indonesia) to purchase electricity at a (retail) price that is higher than the amount paid by their brothers and sisters (fellow Indonesian citizens) who live here in Java. These private companies could not just come and act like businessmen. They need to have social objectives too."*

In another occasion, the Minister himself refused to approve the electricity business area requested by a private company who sought to develop off-grid solar project in a number of villages in Papua (see also Singgih, 2018b). As interviewees have suggested, the main reason for such a rejection was that the proposed price was considered too high relative to the existing electricity retail price as set by PLN. As quoted in Singgih (2018b), the Minister has remarked the following in response to the private company's request:

> *"They told us that the price of electricity sold to the public would be around IDR 10,000 (73 US cents) per kilowatt-hour. Then I asked them, would the public want to buy the electricity (at that price)?"* (Former Minister of Energy and Mineral Resource, during an interview with the Jakarta Post, dated 11 April 2018).

Further, another MEMR official interviewed in this study has also warned about the possibility of social frictions that could result from the spatial difference in electricity retail price (11 June 2019). He described a scenario whereby a village served by the private-led off-grid project with a typically higher retail price could be located next to rural areas served by PLN. In his view, such a situation could provoke tensions among village communities as they learn that they have to pay different electricity prices depending on their location.

Interestingly, this concern from the MEMR official has manifested in the case of a private-owned off-grid project in rural Sumba. Established as a result of development cooperation between Indonesia and the United States, the off-grid solar project in Sumba was among a handful of private-led off-grid projects in the country that managed to secure the Indonesian government's approval to operate (see MEMR, 2019c). Given the donor's strong financial support, the off-grid solar project had been able to keep their electricity retail price close to that of PLN's. In particular, the project had been approved to sell electricity to their customers near IDR 1,900 (13 US cents)/kWh. Notwithstanding this slight difference between the project's and the PLN's tariff price of around IDR 1,400 (10 US cents/kWh), many community members have reported that there had been rumours among villagers about comparing the cost of electricity consumption and the service quality between the private-led solar project and PLN. As a manifestation of President Widodo's recent developmental state and populist approach (see Section 4), the extension of PLN's electricity grid to the neighbouring villages in early 2019 next to the off-grid solar facility (see Fig. 3) further fuelled rumours among community members in the area. As noted by one village leader (Interview, 1 July 2019), some villagers have talked about their intention to abandon the off-grid solar project and turn to PLN's relatively cheaper service.

While the MEMR Regulation 38/2016 also stipulates the eligibility of private actors to receive the government's subsidy to support their rural off-grid project, the implementation of this particular provision proves to be challenging. As informed by interviewees, the government's subsidy could significantly enable private developers of off-grid projects to sell affordable electricity at the level of PLN's existing electricity retail price, thus meeting the requirement of maintaining price uniformity across spaces. However, the existing legal mechanism largely prevents the channelling of the government's subsidy to other actors besides PLN. As a state-owned company, PLN is eligible to receive the government's subsidy allocation contingent on the approval from Indonesia's House of Representatives. As several key informants have further noted, the idea of supporting private companies with the government's subsidy still proves to be controversial among many members of the parliament (see also Bridle et al., 2018). For instance, according to one interviewee (Interview, 24 May 2019), the word "subsidy" in Indonesia is strongly

Fig. 3. The (almost) overlap of two electricity systems in rural Sumba Island – the PLN's grid (right) and the private off-grid solar system (left) (First author).

associated with the act of helping the poor and needy. He noticed that many parliamentary members remain reluctant to approve the government's subsidy allocation to support what they perceive as "privileged" and "rich" businessmen in reference to private renewables developers.

5.3. Re-territorialisation of state power in the government-led off-grid projects

Despite the government's support for off-grid renewables, such a technical approach has often been positioned as a short-term solution to address rural energy poverty in Indonesia (see also Blum et al., 2013). For example, under the Indonesian government's regulation regarding the deployment of LTSHE solar home system program (see MEMR, 2017), it has been stated that the product is only designed to last for three years. After the three-year period, it is expected that rural households who receive such technologies will eventually be connected to PLN's electricity grid. Such findings show that off-grid electrification projects in Indonesia have been mobilised as another strategy to retain state territorial control (Brenner and Elden, 2009; Elden, 2010) through reinforcing PLN's dominant position in delivering rural energy access. Our study also illuminates the persistence of a centralised paradigm in the way the Indonesian government conducted their decentralised off-grid projects. Indeed, a number of interviewees have voiced their scepticism with regards to the long-term sustainability of government-led off-grid renewable projects and to the possibility that such initiatives herald a significant paradigmatic shift in Indonesia's rural electrification strategies. For instance, an NGO representative has stated that many community members were often not well-informed about the implementation of off-grid renewable projects in their area (Interview, 28 June 2019). In the case of a mini-grid project, the NGO representative personally heard stories about villagers being surprised as they witnessed the arrival of big trucks carrying cables, poles and solar panels. In rural Sumba, several interviewees from Walatungga Village where the LTSHE solar lamps were distributed in early 2019 also commented that villagers had no prior information about the project's arrival.

Notwithstanding the government's attempts to deploy off-grid renewables to alleviate rural energy poverty, another legal intervention to retain state territorial control emerges following the return of a strong developmental state in Indonesia. In the energy sector, this has manifested in the recentralisation of energy governance following the enactment of Law No 23/2014 on Regional Governments (see Setyowati, 2020). This re-territorialisation of state power in Indonesia has resulted in sub-national actors' inability to take part in the post-installation maintenance of government-led off-grid renewable program as they no longer have the authority and budget to do so. As one local government representative has noted, the absence of an energy department at the regency level has resulted in greater challenges for the local governments' participation in overseeing the sustainability of off-grid renewable electrification projects (Interview, 27 June 2019). As a result, the 2017 assessment from Indonesia's Financial Audit Agency has revealed that around 140 government-led mini-grid renewable projects have stopped operating, leading to the financial loss of nearly IDR 1.17 trillion or 82 million USD for the government (Prasongko, 2017; Primadhyta, 2018).

6. Territorial effect and the masking of uneven electricity access

In this section, drawing on Lefebvre (2009), we show the paradoxical outcomes in the repositioning of the state and its associated policies to enable universal electricity access in Indonesia, while also demonstrating how such material contradictions can be abstracted and obscured through a state territorial intervention (see Brenner and Elden, 2009). Despite the Indonesian government's recent claim of a near 100 % electrification ratio, findings from the ground reveal much different realities where access to electricity remains socio-spatially uneven. In particular, the positioning of PLN to advance developmental objectives has created tensions between its position as a state-owned company required by the government to make profits (Halimanjaya, 2019) and its public service obligation to deliver universal rural electrification programs. This on-going tension has resulted in a largely fragmented electrification pattern in rural Indonesia where the profit-driven logic still dominates the decision regarding PLN's grid extension. For instance, a development aid officer commented that the number and spatial distribution of households are two main factors that determine whether it is profitable for PLN to extend its grid into a particular area (Interview, 27 May 2019).

Further, despite the arrival of PLN's grid, households often face another barrier in which they are required to pay the initial connection cost. While the government has announced that there will be subsidy assistance for poor rural households to help cover their first installation cost (see MEMR, 2020b), not many could have access to such financial support. For example, findings from Laipandak Village in Sumba Island where PLN's grid was extended in early 2019 (see Fig. 4) revealed that many households remain unable to gain access to the electricity grid. As reported by community members in Laipandak, PLN would require a certain number of households to pay the connection cost before the company could supply electricity and operate the grid. At the time of fieldwork, less than 25 households had paid the connection cost, with the majority unable to fulfil such a requirement (Interview, Village secretary, 25 June 2019). As one villager also commented, the households who were able to pay PLN's connection cost typically lived near the village centre and were often socio-economically better-off (Interview, 24 June 2019).

In light of the complex reality of electricity access outcomes in rural Indonesia, the government's claim of a near 100 % rural electrification ratio (MEMR, 2020a) encapsulates a calculative technique intended to homogenise and abstract state space (Elden, 2010; see also Lefebvre, 2009). Consequentially emerging from this abstraction process is the "territory effect" (Brenner and Elden, 2009; Painter, 2010) as a manifestation of state territorial intervention that serves to obscure the modern state's own contradictory impacts on existing socio-spatial relations. Indeed, the current electrification ratio standard in Indonesia does not differentiate the large variations in reliability and quality of electricity access among rural households (see also ADB, 2016). Several interviewees have commented by stressing the need for a more transparent and nuanced approach to measuring electricity access. For example, one NGO official alluded that the government's electrification ratio claim can potentially obscure the very inequalities they seek to address by not providing an accurate depiction of the reality of electricity access on the ground (Interview, 27 May 2019):

> *"This is all about politics, right? I mean, the reality on the ground is far more complex than just coming up with (those) numbers. How can you equate households in Jakarta with 24 h access to electricity, with those living in the eastern side of Indonesia who only rely on solar lanterns for 3 – 4 h per day?"*

Using his own experience, another interviewee echoed the same sentiment regarding the lack of clarity about the metrics for measuring electrification ratio (Interview, 11 June 2019):

> *"It is not quite clear (to me) how the government measures (electrification ratio). In my personal experience, there are cases where a village that is claimed to be fully electrified but in reality, only a handful of and often wealthy households who actually have connection (to electricity)."*

Indeed, the findings from Sumba reaffirm the fragmented yet hierarchized nature of modern state space as suggested by Lefebvre (2009). For instance, it was very common for households living in village peripheries to be excluded from getting electricity access. Some community members in rural Sumba have further suggested that electricity access would typically be concentrated in the village centre, especially among local elites. In addition to a household's geographical location, the existing social hierarchy within Sumbanese society has often

Fig. 4. Newly extended PLN's grid in Laipandak Village, Sumba Island (First author).

disenfranchised those coming from the lowest social strata, commonly known as the servant/slave or *Ata* group, from gaining electricity access (Fathoni et al., 2021; see Hoskins, 1993; Twikromo, 2008 for in-depth discussions about Sumbanese society and its social hierarchy). Those who come from the highest social strata, locally called as *Maramba* (noble group/masters), often enjoy the most benefit from the arrival of electricity. The majority of poorer households who belong to the *Ata* social group would tend to utilise electricity mostly for lighting purposes, while still preserving the use of kerosene lamps. Consequentially, such a fragmented electrification pattern has resulted in the reinforcement of social injustices among many rural communities in Sumba Island.

Furthermore, several interviewees have also problematized the inclusion of the government-led off-grid renewables such as the LTSHE solar lantern and the micro/mini-grid projects in the government's measurement of electrification ratio (see also Thomas, 2019). Apart from the differences in terms of access quality in comparison with the grid-based connection, these interviewees also pointed to the multiple cases of unsustainable government-led off-grid projects described earlier. They posited that the existing data regarding the electrification ratio does not reflect the case of failed off-grid projects on the ground. For instance, in rural Sumba, community members from the village of Maubokul and Walatungga complained about the low quality of LTSHE solar lamps distributed by the government. One villager noted that the LTSHE's lights were often unstable and ran out of power very quickly a few hours after charging (Interview, 21 June 2019). She said that many households have reported the breakdown of LTSHE solar lamps in less than six months after the initial distribution. Other villagers also commented that they preferred to buy solar lanterns from local markets, given the limited durability of the government's solar products.

7. Discussion and conclusion

In response to Lefebvre's proposition to problematize state space and its emergent territorial form through a historical lens (Brenner and Elden, 2009; Elden, 2010), our study has first demonstrated how the rise of energy justice rhetoric in Indonesia is inextricably intertwined with the state spatial project in managing its territorial arrangement through rural electrification programs. We show the centrality of the role of electricity infrastructure across multiple government administrations in postcolonial Indonesia as an embodiment of developmentalist goal as well as territorial extension of the modern Indonesian state. Also embedded in this effort is PLN's pivotal position along with its continuing dominance in delivering state developmental objectives since the company's initial conception after the country's independence. Born out of Indonesia's early postcolonial struggles, PLN as a state-owned company has been historically perceived to represent a nationalist vision (see Mohsin, 2015) whereby the state plays a central figure in the provision of basic resource access and social justice objectives for its citizens. Under the current Joko Widodo's developmental state approach, the emergence of energy justice narrative has signalled a reinvigorated emphasis on the role of PLN and electricity infrastructure, both in grid and off-grid forms, in extending the territorial presence of the Indonesian state.

To examine how such a modern state territory is being constituted, our findings simultaneously unpack the existence of "political technology" (Elden, 2010) that characterises the Indonesian government's pursuit of energy justice goals by way of universal rural electrification. In doing so, we demonstrate multiple legal mechanisms and instruments to (re)produce state territories (see Brenner and Elden, 2009), underpinning Indonesia's rural electrification policies. In particular, we highlight the process of boundary making in the form of electricity business area (*wilayah usaha*) scheme and its implication in excluding non-state actors from participating in off-grid electrification. Our findings also show how such a representation of territory (Brenner and Elden, 2009; Lefebvre, 2009) has been historically enabled by the legal practices and procedures that aim to privilege and retain PLN's status as the torch bearer of state developmentalist agenda. Furthermore, underlying such territorial struggles is the government's mandate of ensuring uniform yet affordable electricity retail price for all Indonesians, in which PLN holds a prominent position in such a pursuit. As Kristov (1995) has also suggested, such a policy holds an essential role in ensuring fairness and maintaining territorial unity and has been largely unquestioned, despite the considerable variations of electricity

generation cost across different regions and islands in Indonesia. This historical understanding helps to explain the on-the-ground rumours and tensions in rural Sumba Island, whereby local communities from neighbouring villages perceive the difference over electricity price between PLN's grid and private-led off-grid project as a matter of their (equal) rights as Indonesian citizens through electricity infrastructure, with the former embodies the territorial presence of the Indonesian state. These everyday lived experiences also lend themselves to explaining the existing legal mechanism that tends to prohibit the allocation of government's subsidy to non-state actors, and the associated framing of private renewable developers as "rich" and "privileged" among parliamentary members, to strategically symbolise the state's territorial affinity to its poor rural citizens, manifested in the provision of affordable electricity via the government's subsidy allocation to PLN as a state-owned entity.

Our findings also demonstrate how the deployment of off-grid renewable infrastructure has been integral to the process of state territorial (re)configuration in Indonesia. In particular, we show the legal instrument and mechanism that aim to re-territorialise state power despite the Indonesian government's own initiative in implementing decentralised renewable projects for meeting rural electrification. For instance, under the existing regulation, the provision of government-funded small scale renewables has been designated as a temporary means to address energy poverty, which will be subsequently replaced following the arrival of PLN's electricity grid. Here, the household connection to large-scale infrastructure is seen as symbolically synonymous with the presence of the state and its emergent territorial form (cf. Harris, 2012). The return of a strong developmental state in Indonesia has also led to the enactment of a regulatory framework that was aimed at recentralising the country's energy governance through the dissolution of local energy departments. This transformation of state territorial organisation (Brenner, 1997) can be indeed found in the lived experiences of local stakeholders and rural communities who are deprived of their capacity to meaningfully take part in the maintenance of off-grid renewables as well as the persistence of centralised, top-down approaches in the project implementation on the ground (see also Derks and Romijn, 2019).

Despite the Indonesian government's recent claim of near universal electrification ratio, our study reveals the socio-spatially disparate outcomes of electricity access distribution in rural Indonesia. Such a narrow emphasis on electrification ratio represents "a calculative grasp of the material world" (Elden, 2010, page 809) as another form of political technology that constitutes modern state territory. The statistical data represented through a calculative technique such as electrification ratio measurement provides a simplistic picture of electricity access realities in Indonesia. As our findings have indicated, there remains a stark gap in both distribution and quality of electricity access across different regions in the country. As Lefebvre (2009) has suggested, the abstracting of such socio-spatial heterogeneities projected and imposed through numerical representation is important for the modern states to retain their political dominance despite the immanent contradictions in their spatial interventions. For instance, the repositioning of PLN as an enabler of state territorial interest has yielded largely fragmented patterns of rural electrification in Indonesia, mediated by both the company's profit calculation in the case of grid extension and the household's socio-economic ability to afford the grid's initial connection cost. Furthermore, the limited sustainability of government-financed off-grid projects and sense of disappointment among rural households that come with it, indicate the porosity of state space and its territorial form. Findings from rural Sumba have also shown how the impact of rural electrification is mediated by the existing social hierarchy. Indeed, in his writing on state space, Lefebvre (2009, page 228) has provocatively asked "Is not the secret of the State, hidden because it is so obvious, to be found in space?". As Brenner and Lefebvre (2009) note, responding to such a provocation would require close attention to the emergence of "territory effect", manifested in the state's attempt to mask its own transformative yet often contradictory impacts on socio-spatial configurations. Here, the mobilisation of a calculative technique such as the claim of near universal electrification ratio enables the perpetuation of what Agnew (1994) terms a "territorial trap", by allowing the Indonesian state to engender a mystified aura of apolitical yet seemingly homogenous state spaces (Brenner and Elden, 2009; Lefebvre, 2009) despite the reality of manifold electricity access inequalities and fragmentations among rural communities on the ground.

To conclude, we summarise our study findings. We begin by showing the historical underpinnings that give rise to the emergence of energy justice vision in Indonesia as an inherently state territorial project. Our study also carefully excavates multiple legal mechanisms and instruments that characterise the Indonesian government's attempts to pursue energy justice goals by ensuring universal rural electrification. This focus, however, has led to the use of a measurement parameter such as electrification ratio that narrowly defines and depicts the reality of energy access. The implication of such strategies is the exclusion of non-state actors to fully participate in rural electrification and the (re) entrenchment of inequalities and fragmentations in electricity distribution in rural Indonesia, contradicting the government's energy justice claim. All in all, our study takes the cue from Bridge and Gailing (2020) to advance the literature on energy justice as well as energy geographies by demonstrating the co-constitutive relationships between efforts to promote socially (just) energy transitions and socio-spatial contexts on which such phenomena unfold. In doing so, we contribute to the work on territory, especially in unpacking how its historical and spatial characters help to explain how state power is materialised in everyday lives (e.g. Ballvé, 2012; Brenner and Elden, 2009; Elden, 2010; Painter, 2010). As we have shown, integral to the (re)constitution of modern state territory is a "political technology" (Elden, 2010) that comprises multiple legal and calculative interventions that aim to abstract state space and retain state's political dominance. These strategies, however, have coalesced into what Lefebvre (2009) suggests as a paradox in modern state space – one that is simultaneously homogenised, fragmented and hierarchized. Our findings also echo the political ecological proposition from Angel and Loftus (2019) to conceptualise the state as inherently a reified form of socio-ecological struggles, while also illustrating how the crystallisation of such state spaces (and their underlying everyday struggles) is made possible through territorial intervention.

Finally, our study has demonstrated the utility of Lefebvre's insights on state space and territory to understand the energy justice manifestation in Indonesia's rural electrification programs and its mutual implications for everyday state formation and territorial production. However, we acknowledge that there are diverse and multiple ways of knowing and relating to territory such as the ones inspired by Indigenous People's movements and the implication of such differences in relation to energy transition (see for example Anthias, 2018), which is beyond the scope of our research. Therefore, future studies are crucial to explore these different perspectives while also accounting for the growing call within the literature to engage more closely with the role of non-humans in the struggles over territories (see Hung and Baird, 2017; Hung, 2020; Usher, 2020). Such conceptual engagement would remain critical in scrutinising how the notion of energy justice and its practice can be potentially misappropriated to maintain and entrench the status quo.

CRediT authorship contribution statement

Hilman S. Fathoni: Conceptualization, Methodology, Investigation, Formal analysis, Writing – original draft, Writing – review & editing, Project administration. **Abidah B. Setyowati:** Conceptualization, Methodology, Supervision, Resources, Validation, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

We thank the ANU Grand Challenge Zero-Carbon Energy for the Asia-Pacific, for providing financial assistance to support the fieldwork for this research project. The first author would like to extend his gratitude to the Australia Awards Scholarship for their generous support during his masters study in Australia. We also wish to extend our sincere thanks to the journal editor (Po-Yi Hung) and the two anonymous reviewers. This paper has greatly benefitted from their incisive, constructive and insightful feedback. Preliminary findings reported in this paper were presented virtually during the session on Rethinking Barriers to Sustainable Rural Energy Access at the 2021 RGS-IBG Annual International Conference. We thank the session participants for engaging in such an insightful and fruitful discussion. We are deeply thankful to all interviewees for their time and willingness to participate in our research.

References

ADB (Asian Development Bank), 2016. Achieving Universal Electricity Access in Indonesia, ADB: Manila, accessed online, 10 September 2019, https://www.adb.org/publications/achieving-universal-electricity-access-indonesia.

Agnew, J., 1994. The territorial trap: The geographical assumption of international relations theory. Rev. Int. Political Econ. 1, 53–80. https://www.jstor.org/stable/4177090.

Allegra, M., Maggor, E., 2022. The metropolitanization of Israel's settlement policy: The colonization of the West Bank as a strategy of spatial restructuring. Political Geography 92, 102513. https://doi.org/10.1016/j.polgeo.2021.102513.

Angel, J., Loftus, A., 2019. With-against-and-beyond the human right to water. Geoforum 98, 206–213. https://doi.org/10.1016/j.geoforum.2017.05.002.

Anthias, P., 2018. Limits to Decolonization: Indigeneity, Territory, and Hydrocarbon Politics in the Bolivian Chaco. Cornell University Press, Ithaca, US.

Baka, J., Vaishnava, S., 2020. The evolving borderland of energy geographies. Geography Compass 14. https://doi.org/10.1111/gec3.12493.

Baker, L., Phillips, J., 2019. Tensions in the transition: The politics of electricity distribution in South Africa. Environ. Planning C: Politics Space 37, 177–196. https://doi.org/10.1177/2F2399654418778590.

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

Baker, L., Hook, A., Sovacool, B.K., 2021. Power struggles: Governing renewable electricity in a time of technological disruption. Geoforum 118, 93–105. https://doi.org/10.1016/j.geoforum.2020.12.006.

Ballvé, T., 2012. Everyday state formation: Territory, decentralization, and the Narco landgrab in Colombia. Environ. Planning D: Soc. Space 30, 603–622. https://doi.org/10.1068/2Fd4611.

Bell, M.Z., 2021. Spatialising procedural justice: Fairness and local knowledge mobilisation in nuclear waste siting. Local Environ. 26, 165–180. https://doi.org/10.1080/13549839.2020.1867841.

Blum, N.U., Wakeling, R.S., Schmidt, T.S., 2013. Rural electrification through village grids – Assessing the cost competitiveness of isolated renewable energy technologies in Indonesia. Renew. Sustain. Energy Rev. 22, 482–496. https://doi.org/10.1016/j.rser.2013.01.049.

Bourchier, D., 2015. Illiberal Democracy in Indonesia: The Ideology of the Family State. Routledge, London and New York.

Bouzarovski, S., Simcock, N., 2017. Spatializing energy justice. Energy Policy 107, 640–648. https://doi.org/10.1016/j.enpol.2017.03.064.

BPS Sumba Timur (Central Bureau of Statistics of East Sumba)., 2019. Sumba Timur dalam angka (East Sumba in figures), Waingapu, Sumba Timur.

Brenner, N., 1997. State territorial restructuring and the production of spatial scale: Urban and regional planning in the Federal Republic of Germany, 1960–1990. Political Geography 16, 273–306. https://doi.org/10.1016/S0962-6298(96)00003-0.

Brenner, N., Elden, S., 2009. Henri Lefebvre on state, space, territory. Int. Political Sociol. 3, 353–377. https://doi.org/10.1111/j.1749-5687.2009.00081.x.

Bridge, G., 2018. The map is not the territory: A sympathetic critique of energy research's spatial turn. Energy Res. Social Sci. 36, 11–20. https://doi.org/10.1016/j.erss.2017.09.033.

Bridge, G., Gailing, L., 2020. New energy spaces: Towards a geographical political economy of energy transition. Environ. Planning A: Econ. Space 52, 1037–1050. https://doi.org/10.1177/2F0308518X20939570.

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.

Bridle, R., Gass, P., Halimajaya, A., Lontoh, L., McCullocah, N., Petrofsky, E., Sanchez, L., 2018. Missing the 23 target: Roadblocks to the development of renewable energy in Indonesia, IISD Report, accessed online 10 August 2019, https://www.iisd.org/system/files/publications/roadblocks-indonesia-renewable-energy.pdf.

Butt, S., Lindsey, T., 2008. Economic reform when the constitution matters: Indonesia's constitutional court and Article 33. Bull. Indonesian Econ. Stud. 44, 239–262. https://doi.org/10.1080/00074910802169004.

Byrne, R., Mbeva, K., Ockwell, D., 2018. A political economy of niche building: Neoliberal-developmental encounters in photovoltaic electrification in Kenya. Energy Res. Social Sci. 44, 6–16. https://doi.org/10.1016/j.erss.2018.03.028.

Calvert, K., 2016. From 'energy geography' to 'energy geographies': Perspectives on a fertile academic borderland. Prog. Hum. Geogr. 40, 105–125. https://doi.org/10.1177/2F0309132514566343.

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

Cross, J., 2019. No current: Electricity and disconnection in rural India. In: Abram, S., Winthereik, B.R., Yarrow, T., (Eds.), Electrifying Anthropology: Exploring Electrical Practices and Infrastructures, pp. 65–82, https://doi.org/10.5040/9781350102675.0009.

Dagi Consulting, 2018. Monitoring & Evaluation: Sumba Iconic Island Program 2018, accessed online 24 July 2021, https://sumbaiconicisland.org/wp-content/uploads/2015/09/Final-Report-Monev-SII-2018-English.pdf.

Davidson, J.S., 2016. Indonesia's Changing Political Economy: Governing the Roads. Cambridge University Press, Cambridge.

Derks, M., Romijn, H., 2019. Sustainable performance challenges of rural micro-grids: Analysis of incentives and policy framework in Indonesia. Energy Sustain. Dev. 53, 57–70. https://doi.org/10.1016/j.esd.2019.08.003.

Diprose, R., McRae, D., Hadiz, V.R., 2019. Two decades of *Reformasi* in Indonesia: Its illiberal turn. J. Contemporary Asia 49, 691–712. https://doi.org/10.1080/00472336.2019.1637922.

Elden, S., 2010. Land, terrain, territory. Prog. Hum. Geogr. 34, 799–817. https://doi.org/10.1177/2F0309132510362603.

Elson, R.E., 2008. The Idea of Indonesia: A History. Cambridge University Press, Cambridge.

Fathoni, H.S., Setyowati, A.B., Prest, J., 2021. Is community renewable energy always just? Examining energy injustices and inequalities in rural Indonesia. Energy Research & Social Science, 71, 101825. https://doi.org/10.1016/j.erss.2020.101825.

Fathoni, H.S., 2019. Contested Justice: The Politics of Powering up Last Miles in Eastern Indonesia, Masters' thesis, the Australian National University (ANU): Canberra.

Fealy, G., 2020. Jokowi in the COVID-19 era: Repressive pluralism, dynasticism and the overbearing state. Bull. Indonesian Econ. Stud. 56, 301–323. https://doi.org/10.1080/00074918.2020.1846482.

Fuller, S., 2021. The politics of energy justice. In: Hancock, K.J., Allison, J.E., (Eds.), The Oxford Handbook of Energy Politics, Oxford: UK.

Google Maps, Sumba Island (Accessed June 2021).

Gore, C.D., Brass, J.N., Baldwin, E., MacLean, L.M., 2019. Political autonomy and resistance in electricity sector liberalization in Africa. World Dev. 120, 193–209. https://doi.org/10.1016/j.worlddev.2018.03.003.

Government of Indonesia, 2009. *Undang-Undang Ketenagalistrikan No 30/2019 (The Electricity Law No 30/2009)*, GoI Jakarta, accessed online 12 April 2020, https://gatrik.esdm.go.id/assets/uploads/download_index/files/9ef73-03.uu-30-2009-tentang-ketenagalistrikan.pdf.

Guild, J., 2019. The state, infrastructure and economic growth in Jokowi's first term, Doctoral dissertation, Nanyang Technological University (NTU): Singapore.

Guild, J., 2020. Jokowi's 35000 megawatt dream, *Inside Indonesia*, accessed online 12 July 2020, https://www.insideindonesia.org/jokowi-s-35000-megawatt-dream.

Gupta, A., 2015. An anthropology of electricity from the Global South. Cultural Anthropology 30 (4), 555–568. https://doi.org/10.14506/ca30.4.04.

Halimanjaya, A., 2019. The political economy of Indonesia's renewable energy sector and its fiscal policy gap. Int. J. Econ., Financ. Manage. Sci. 7 (2), 45–64. https://doi.org/10.11648/j.ijefm.20190702.12.

Harris, L.M., 2012. State as socionatural effect: Variable and emergent geographies of the state in Southeastern Turkey. Comparative Studies of South Asia, Africa and the Middle East 32 (1), 25–39. https://doi.org/10.1215/1089201X-1545345.

Harvey, D., 1996. Justice, Nature and the Geography of Difference. Wiley-Blackwell.

Hermansyah, A. and Amindoni, A., 2016. PLN to draw most state capital injection this year, the Jakarta Post, accessed online 18 July 2021, https://www.thejakartapost.com/news/2016/06/24/pln-to-draw-most-state-capital-injection-this-year.html.

Hill, H., 2000. The Indonesian Economy, 2nd edition. Cambridge University Press, Cambridge.

Hill, H., Narjoko, D., 2010. Managing industrialisation in a globalising economy: Lessons from the Soeharto era. In: Aspinall, E., Fealy, G., (Eds.), Soeharto's New Order and its Legacy, ANU Press, pp. 49–66.

Holifield, R., Porter, M., Walker, G., 2009. Introduction spaces of environmental justice: Frameworks for critical engagement. Antipode 41, 591–612. https://doi.org/10.1111/j.1467-8330.2009.00690.x.

Hoskins, J., 1993. The Play of Time: Kodi Perspectives on Calendar, History and Exchanges. University of California Press.

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

Hung, P.-Y., 2017. From soldiers to farmers: The political geography of Chinese Kuomintang territorialisation in northern Thailand. Political Geography 58, 1–13. https://doi.org/10.1016/j.polgeo.2016.12.005.
Hung, P.-Y., 2020. Placing green energy in the sea: Offshore wind farms, dolphins, oysters, and the territorial politics of the intertidal zone in Taiwan. Ann. Am. Assoc. Geographers 110, 56–77. https://doi.org/10.1080/24694452.2019.1625749.
Jarvis, D.S.L., 2012. The regulatory state in developing countries: Can it exist and do we want it? The case of the Indonesian power sector. J. Contemporary Asia 42, 464–492. https://doi.org/10.1080/00472336.2012.687633.
Jenkins, K.E.H., Sovacool, B.K., Mouter, N., Hacking, N., Burns, M.-K., McCauley, D., 2021. The methodologies, geographies, and technologies of energy justice: A systematic and comprehensive review. Environ. Res. Lett. 16 (4) https://doi.org/10.1088/1748-9326/abd78c.
Jonas, A.E.G., 2012. Region and place: Regionalism in question. Prog. Hum. Geogr. 36, 263–272. https://doi.org/10.1177/2F0309132510394118.
Kale, S.S., 2014. Electrifying India: Regional Political Economies of Development. Stanford University Press, Stanford, California.
Kim, K., 2018. Matchmaking: Establishment of state-owned holding companies in Indonesia. Asia & the Pacific Policy Studies 5, 313–330. https://doi.org/10.1002/app5.238.
Kim, K., 2021. Indonesia's restrained state capitalism: Development and policy challenges. J. Contemporary Asia 51, 419–446. https://doi.org/10.1080/00472336.2019.1675084.
Kim, K., Sumner, A., 2019. De-industrialization, re-industrialization and the resurgence of state capitalism: The case of Indonesia, WIDER Working Paper No 2019/87, https://doi.org/10.35188/UNU-WIDER/2019/723-1.
Kirari, J.K., Adel, M., Andria, V., Lakaseru, B.O., 2018. Supporting Indonesia's renewable energy development in remote and rural areas through innovative funding, A conference paper presented the Indonesian Development Forum (IDF) 2018, Jakarta, https://www.undp.org/content/dam/indonesia/2018/Doc/ID_Supporting%20RE%20through%20Innovative%20Funding_UNDP%20Paper_IDF%202018_Smarter%20Funding.pdf.
Kirshner, J., Castán Broto, V., Baptista, I., 2020. Energy landscapes in Mozambique: The role of the extractive industries in a post-conflict environment. Environ. Planning A: Econ. Space 52, 1051–1071. https://doi.org/10.1177/2F0308518X19866212.
Kristov, L., 1995. The price of electricity in Indonesia. Bull. Indonesian Econ. Stud. 31, 73–101. https://doi.org/10.1080/00074919512331336835.
Kumar, A., Pols, A., Höffken, J., 2021. Urgency vs justice A politics of energy transitions in the age of the Anthropocene. In: Kumar, A., Pols, A., Höffken, J. (Eds.), Dilemmas of Energy Transitions in the Global South: Balancing Urgency and Justice. Routledge, Abingdon, UK, pp. 1–17.
LaBelle, M.C., 2017. In pursuit of energy justice. Energy Policy 107, 615–620. https://doi.org/10.1016/j.enpol.2017.03.054.
Lacey-Barnacle, M., Robison, R., Foulds, C., 2020. Energy justice in the developing world: a review of theoretical frameworks, key research themes and policy implications. Energy Sustain. Dev. 55, 122–138. https://doi.org/10.1016/j.esd.2020.01.010.
Lefebvre, H., 1991. The Production of Space, translated by Donald Nicolson-Smith. Wiley-Blackwell, Oxford.
Lefebvre, H., 2009. State, Space, World: Selected Essays, Edited by Neil Brenner and Stuart Elden and translated by Gerald Moore, Neil Brenner, Stuart Elden, University of Minnesota Press: Minneapolis, US.
Meilanova, D.R., 2020. Pemerintah beri suntikan Rp 9.63 triliun, ini rencana PLN, Bisnis Indonesia, accessed online 19 July 2021, https://ekonomi.bisnis.com/read/20200713/44/1265497/pemerintah-beri-suntikan-rp963-triliun-ini-rencana-pln.
MEMR (Ministry of Energy and Mineral Resources), 2017. *Presiden Joko Widodo terbitkan peraturan penyediaan LTSHE*, accessed online 15 October 2021, https://ebtke.esdm.go.id/post/2017/04/20/1631/presiden.joko.widodo.terbitkan.peraturan.penyediaan.ltshe.
MEMR (Ministry of Energy and Mineral Resources), 2019a. *Menuju rasio elektrifikasi 99% pada 2019*, ESDM Jakarta, accessed online 24 October 2019, https://ebtke.esdm.go.id/post/2018/04/27/1945/menuju.rasio.elektrifikasi.99.persen.pada.2019.
MEMR (Ministry of Energy and Mineral Resources), 2019b. *Program BBM satu harga perwujudan sila kelima dari Pancasila*, accessed online 22 September 2019, https://www.esdm.go.id/id/media-center/news-archives/program-bbm-satu-harga-perwujudan-sila-kelima-dari-pancasila.
MEMR (Ministry of Energy and Mineral Resources), 2019c. *Rencana Umum Ketenagalistrikan Nasional* (RUKN) 2019-2038, ESDM Jakarta, accessed online 18 September 2019, https://gatrik.esdm.go.id/assets/uploads/download_index/files/0e997-rukn-2019-2038.pdf.
MEMR (Ministry of Energy and Mineral Resources), 2020a. *Rasio elektrifikasi mencapai 99.20% Tahun 2020, ESDM One Map Update Peta Rasio Elektrifikasi Status Tahun 2018-2020*, ESDM Jakarta, accessed online 18 March 2021, https://onemap.esdm.go.id/news/rasio_elektrifikasi.html.
MEMR (Ministry of Energy and Mineral Resources), 2020b. 57,573 rumah tangga dapat sambungan baru listrik gratis, ESDM Jakarta, accessed online 22 July 2021, https://www.esdm.go.id/id/berita-unit/direktorat-jenderal-ketenagalistrikan/57573-rumah-tangga-dapat-sambungan-baru-listrik-gratis.
Mohsin, A., 2014. Wiring the New Order: Indonesian village electrification and patrimonial technopolitics (1966–1998). Sojourn: J. Social Issues Southeast Asia 29 (1), 63–95.
Mohsin, Y.A., 2015. Archipelagic networks of power: Village electrification, politics, ideology, and dual national identity in Indonesia (1966-1998), Doctoral dissertation, Cornell University.
Moore, D.S., 2005. Suffering for Territory: Race, Place, and Power in Zimbabwe. Duke University Press, Durham, USA.
Munro, P., van der Horst, G., Healy, S., 2017. Energy justice for all? Rethinking Sustainable Development Goal 7 through struggles over traditional energy practices in Sierra Leona. Energy Policy 105, 635–641. https://doi.org/10.1016/j.enpol.2017.01.038.
Negara, S.D., 2015. Jokowi's infrastructure focus: Is it Indonesia's new growth strategy?, ISEAS Perspective, Singapore, accessed online 22 July 2021, https://www.iseas.edu.sg/images/pdf/ISEAS_perspective_2015_18.pdf.
Newell, P., Phillips, J., 2016. Neoliberal energy transitions in the South: Kenyan experiences. Geoforum 74, 39–48. https://doi.org/10.1016/j.geoforum.2016.05.009.
Nordholm, A., Sareen, S., 2021. Scalar containment of energy justice and its democratic discontents: Solar power and energy poverty alleviation. Front. Sustain. Cities. https://doi.org/10.3389/frsc.2021.626683.
Painter, J., 2010. Rethinking territory. Antipode 42, 1090–1118. https://doi.org/10.1111/j.1467-8330.2010.00795.x.
PLN, 2019. Rencana Usaha Penyediaan Tenaga Listrik (RUPTL), PLN Jakarta, accessed online 22 July 2021, https://gatrik.esdm.go.id//assets/uploads/download_index/files/5b16d-kepmen-esdm-no.-39-k-20-mem-2019-tentang-pengesahan-ruptl-pt-pln-2019-2028.pdf.
Power, T.P., 2018. Jokowi's authoritarian turn and Indonesia's democratic decline. Bull. Indonesian Econ. Stud. 54, 307–338. https://doi.org/10.1080/00074918.2018.1549918.
Power, M., Kirshner, J., 2019. Powering the state: The political geography of electrification in Mozambique. Environ. Planning C: Politics Space 37, 498–518. https://doi.org/10.1177/2F2399654418784598.
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 Res. Social Sci. 17, 10–19. https://doi.org/10.1016/j.erss.2016.03.007.
Pradiptyo, R., Susamnto, A., Wirotama, A., Adisasmita, A. and Beaton, C., 2016. Financing development with fossil fuel subsidies: The reallocation of Indonesia's gasoline and diesel subsidies in 2015, International Institute for Sustainable Development (IISD), accessed online 19 July 2021, https://www.iisd.org/sites/default/files/publications/financing-development-with-fossil-fuel-subsidies-indonesia.pdf.
Prasongko, D., 2017. *142 proyek EBT mangkrak, diduga karena rencana ESDM tak matang*, Tempo, accessed online 12 September 2019, https://bisnis.tempo.co/read/1043960/142-proyek-ebt-mangkrak-diduga-karena-rencana-esdm-tak-matang.
Primadhyta, S., 2018. *Tejerat di lingkaran setan proyek energi terbarukan*, CNN Indonesia, accessed online 12 September 2019, https://www.cnnindonesia.com/ekonomi/20180125115623-85-271472/terjerat-di-lingkaran-setan-proyek-energi-terbarukan.
Rasch, E.D., Köhne, M., 2017. Practices and imaginations of energy justice in transition. A case study of the Noordoostpolder, the Netherlands. Energy Policy 107, 607–614. https://doi.org/10.1016/j.enpol.2017.03.037.
Ray, D., Ing, L.Y., 2016. Addressing Indonesia's infrastructure deficit. Bull. Indonesian Econ. Stud. 52, 1–25. https://doi.org/10.1080/00074918.2016.1162266.
Rosser, A., 2002. The Politics of Economic Liberalisation in Indonesia: State, Market and Power, Routledge: London and New York.
Samarakoon, S., 2019. A justice and wellbeing centered framework for analysing energy poverty in the Global South. Ecol. Econ. 165, 106385 https://doi.org/10.1016/j.ecolecon.2019.106385.
Setkab (Sekretaris Kabinet), 2016. Government launches policy package IX on electricity and livestock, the Government of Indonesia, Jakarta, accessed online 19 July 2021, https://setkab.go.id/en/government-launches-policy-package-ix-on-electricity-and-livestock/.
Setyowati, A., 2020. Mitigating energy poverty: mobilizing climate finance to manage the energy trilemma in Indonesia. Sustainability, 12, 1603. https://doi.org/10.3390/su12041603.
Setyowati, A.B., 2021. Mitigating inequality with emissions? Exploring energy justice and financing transitions to low carbon energy in Indonesia. Energy Research & Social Science, 71, 101817. https://doi.org/10.1016/j.erss.2020.101817.
Shamir, R., 2013. Current Flow: The Electrification of Palestine. Stanford University Press, Stanford, California.
Singgih, V.P., 2018b. Govt yet to agree to Engie's energy project in Papua, the Jakarta Post, accessed online 17 September 2019, https://www.thejakartapost.com/news/2018/04/12/govt-yet-to-agree-to-engies-energy-project-in-papua.html.
Singgih, V.P., 2018a. PLN to take over solar panels, mini-hydropower plant projects, the Jakarta Post, accessed online 22 July 2021, https://www.thejakartapost.com/news/2018/01/02/pln-to-take-over-solar-panels-mini-hydropower-plant-projects.html.
Smith, J., High, M.M., 2017. Exploring the anthropology of energy: Ethnography, energy and ethics. Energy Res. Social Sci. 30, 1–6. https://doi.org/10.1016/j.erss.2017.06.027.
Thomas, V.F., 2019. IMEF ragukan klaim pemerintah soal rasio elektrifikasi 98 persen, Tirto.ID, accessed online 19 July 2021, https://tirto.id/imef-ragukan-klaim-pemerintah-soal-rasio-elektrifikasi-98-persen-deBB.
Twikromo, Y.A., 2008. The Local Elite and the Appropriation of Modernity: A Case Study in East Sumba, Indonesia. Kanisius Printing and Publishing House, Yogyakarta.
Usher, M., 2020. Territory *incognita*. Prog. Hum. Geogr. 44, 1019–1046. https://doi.org/10.1177/2F0309132519879492.
Velasco-Herrejon, P., Bauwens, T., 2020. Energy justice from the bottom up: A capability approach to community acceptance of wind energy in Mexico. Energy Res. Social Sci. 70, 101711 https://doi.org/10.1016/j.erss.2020.101711.

Walker, G., 2009. Beyond distribution and proximity: Exploring the multiple spatialities of environmental justice. Antipode 41, 614–636. https://doi.org/10.1111/j.1467-8330.2009.00691.x.
Walker, G., Bulkeley, H., 2006. Geographies of environmental justice. Geoforum 37, 655–659. https://doi.org/10.1016/j.geoforum.2005.12.002.
Warburton, E., 2016. Jokowi and the New Developmentalism. Bull. Indonesian Econ. Stud. 52, 297–320. https://doi.org/10.1080/00074918.2016.1249262.
Warburton, E., 2018. A new developmentalism in Indonesia? J. Southeast Asian Econ. 35 (3), 355–368. https://www.jstor.org/stable/26545318.
Wijaya, M.E., Haesra, A.R., Mecca, B.M., 2020. Enhancing decentralised renewable energy investment to achieve Indonesia's Nationally Determined Contribution. accessed online 2 June 2022 Climate Policy Initiative.
Winther, T., 2008. The Impact of Electricity: Development. Desires and Dilemmas, Berghahn Books, New York and Oxford.
Wirawan, H., Gultom, Y.M.L., 2021. The effects of renewable energy-based village grid electrification on poverty reduction in remote areas: The case of Indonesia. Energy Sustain. Dev. 62, 186–194. https://doi.org/10.1016/j.esd.2021.04.006.
Zimmerer, K.S., 2011. New geographies of energy: Introduction to the special issue. Ann. Assoc. Am. Geogr. 101, 705–711. https://doi.org/10.1080/00045608.2011.575318.