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Study on Polarisation and Development of Alternative Narratives in the Just Energy Transition in Indonesia

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Published in Indonesia in 2023
by the Asia Research Centre, University of Indonesia
Jakob Oetama Multipurpose Scholar Room
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Depok, West Java 16424
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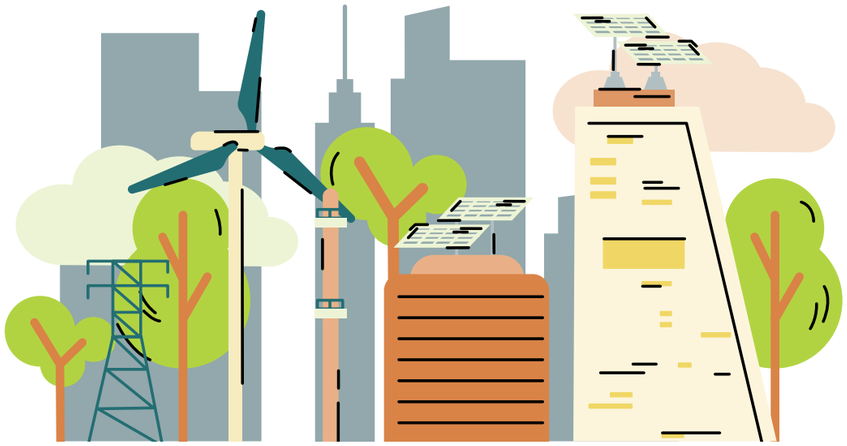
Executive Summary



In the last two centuries, the consistent rise in global surface temperatures has become a global concern, prompting international collaboration to reduce the use of fossil fuels (dirty energy). Energy transition, which takes into account environmental and socio-economic impacts, has become a top priority for world leaders in these reduction efforts. In response to climate change and international pressure, countries, including Indonesia, have committed to transitioning from dirty energy to more sustainable energy sources. However, the prevalence of dirty energy still dominates the energy mix, partly due to the interests of energy oligarchs, and political subsidies and energy prices, as indicated by our study.

The Asia Research Centre, University of Indonesia (ARC UI), in collaboration with the Yayasan Indonesia Cerah (CERAH), conducted a study on the Polarisation and Development of Alternative Narratives on the Just Energy Transition in Indonesia. This study aims to examine how the polarisation of the energy transition issue unfolds on social media, particularly among non-elite groups, who constitute the majority of individuals impacted by dirty energy. We explore perceptions of energy transition issues and hope that the study's findings can serve as a foundation for developing alternative narratives based on our summarised insights. Therefore, our focus is on the perceptions and positions of various stakeholders across sectors: private, government, civil society organisations, local communities, and journalists.

We also explore the understanding and perceptions of young people, whom we consider key stakeholders, regarding the energy transition issue. Our findings align with the aspirations and concerns of young individuals as policymakers, aiming to reduce daily consumption of dirty energy and actively participate in the period following the implementation of the Just Energy Transition Policy (JETP) (including achieving net-zero emissions, which is generally expected to be realised by 2050).

Key findings 1

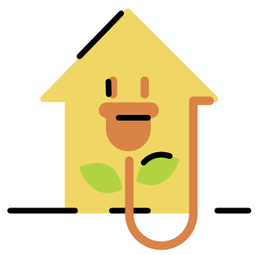
The social media network analysis we conducted reveals three dominant clusters of conversations. The first is influenced by social media accounts affiliated with the state electricity company (PT PLN). The second is influenced by the accounts of public figures and international institutions in the JETP. The third cluster is influenced by international, national, and local CSOs connected to the JETP movement.

Key findings 2

Social media discussions in Indonesia regarding the energy transition are heavily influenced by transnational events and decisions (inter-country agreements on the direction of just energy transition policies). The discourse is more driven by international agreements and the participation of local leaders than internal polarisation. For us, this signifies the absence of national dynamics and the lack of capacity among local actors to sustain public attention on policy issues.

Key findings 3

Two notable findings emerged from our exploration of young people's perspectives on the energy transition issue. Firstly, concerns about the future of clean energy have not been expressed politically or directed towards relevant policies. Secondly, these concerns also focus on air pollution and electric vehicles, indicating that the imagination of young people is limited to daily consumption within roughly 1-5 years rather than several decades ahead.



Key findings 4

Through action research in the form of focus group discussions, we discovered that stakeholders in East Kalimantan – an extractive industry region – and Cirebon – where the Coal-Fired Power Plant (PLTU) will be retired – already have an idea of the ideal characteristics of an energy transition. According to them, the transition should be fair, involve the community, be affordable, and be environmentally friendly. However, they expressed concerns about several challenges in implementing the energy transition agenda at the regional level.

These challenges include (1) conflicts of authority between central and regional governments; (2) insufficient community involvement; (3) transparency in funding; and (4) the potential for corruption. From the action research, we also found that the government is not a monolithic actor. Some officials have critical views on dirty energy extraction, especially coal. Interaction with them needs to be maintained to strengthen support for the implementation of the energy transition agenda.

Strategic communication recommendations

Based on these four key findings, and considering the study's focus on social media narratives, we argue that young people (17-30 years old, residing in urban areas on the islands of Java, Sumatra, Kalimantan, and Sulawesi, and belonging to the middle class), as the majority of digital technology users in Indonesia, are strategic actors in the narrative of a just energy transition on social media. They need exposure and a central role to build a more participatory agenda for just energy transition. However, at the same time, special attention to their characteristics needs to be accompanied by the engagement of stakeholders of other age groups and social media users in rural areas and Eastern Indonesia, thereby strengthening the narrative of a just and socially inclusive energy transition.

In the context of urban social media users, trending issues such as increasing pollution and PT PLN's advocacy for electric vehicles can be utilised to reveal the energy sources of the batteries powering electric vehicles. Academic and scientific stakeholders can collaborate with CSOs and science journalism to enhance knowledge and awareness about dirty and clean energy, as well as material solutions according to young demographics. This strategy can be applied in developing more participatory alternative narratives, through collaboration with CSOs and awareness, focusing on youth issues and regularly and consistently conducting advocacy.

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01. Introduction

Worldwide, as well as in Indonesia, the consistent rise in Earth's surface temperature over the past two centuries has prompted governments to collaborate in reducing greenhouse gas emissions (IPCC, 2023). One of the priorities in this international cooperation is the reduction of fossil fuel or dirty energy consumption (IPCC, 2023). The partnership between economically developed nations and developing economies focuses on overseeing the reduction of dirty energy consumption, taking into account both environmental and socio-economic impacts—a concept gaining popularity as a just energy transition policy (JETP)[1].

Government efforts committed to the agenda of a just energy transition are observable through policy formation (Perdana, 2023). In Indonesia, the largest economy in Southeast Asia and the third-largest democracy globally (Maurer, 2021), there has been an increase in policy initiatives by the Ministry of Energy, Natural Resources, and Mineral (ESDM), as well as state-owned electricity providers like the State Electricity Company (PLN) (2023). Simultaneously, studies indicate that the dirty energy sector is dominated by major capital holders (Traction Energy Asia, 2020).

The aforementioned conditions give rise to contradictions in Indonesia's government policies regarding energy transition (Ordonez et al., 2022; Wijaya, 2022). On one hand, the government adopts a 'green' rhetoric in its policies and expresses a commitment to address global warming, responding to international pressure and domestic urges to mitigate climate change and environmental damage. For instance, in 2016, Indonesia signed the Paris Agreement, targeting a 29% reduction in greenhouse gas emissions by 2030 through domestic efforts and a 41% reduction with technical assistance and international funding. Additionally, as outlined in the 2017 National General Energy Plan, the government aims for 23% of Indonesia's total energy supply to come from renewable sources by 2025. On the other hand, the prevalence of dirty energy seems continuously maintained to ensure national development, low electricity tariffs, and a secure market for the coal industry (Ordonez et al., 2021).

One way to identify economic and political interests, especially concerning public participation, is by observing the narrative of the energy transition issue on social media. Social media serves as a political arena where stakeholders from various sectors—government, political parties, civil society institutions, and companies—can participate in expressing opinions on the energy transition issue (Li et al., 2019; Loureiro and Allo, 2020). Simultaneously, social media, as a political arena, is also populated by buzzers—individuals paid to strategically build issues (Camil, Attamimi, and Esti, 2017) as part of the political campaign industry (Rakhmani and Saraswati, 2021). Political campaign actors may align with elites or civil society and may take a pro- or anti-stance on just energy transition.

[1] The Just Energy Transition Partnership is a collaboration between Indonesia and the International Partnership Group, led by the United States. Its primary objective is to expedite Indonesia's transition to cleaner energy sources, with the target of reducing emissions from the electricity sector and increasing the share of renewable energy to 34% by 2030.

Numerous studies on social media as a political arena indicate a tendency for a uniform grouping of opinions on political issues, leading to conflicts or polarisation. Social media issue polarisation occurs in developed countries like the United States (Jeong & Lowry, 2021) and Germany (Zilles & Marg, 2022), but also in developing countries like South Africa (Mare, Mabweazara, Moyo 2020) and Indonesia (Lim, 2017). The reason, according to various scholars, is the social media algorithms' inclination towards monetizing user engagement, encouraging controversial and extreme opinions advocated by their supporters.

With these considerations in mind, our study focuses on the issue of polarisation regarding the energy transition on social media. The authors take a position in favour of groups outside of power holders (elites), aiming to provide an overview of varied opinions and positions on the energy transition issue among non-elites. We hope that with a detailed depiction of this, proponents of civil society can develop alternative narratives on just energy transition by identifying actors who are pro-, neutral, and contra- to the issue.

This study is divided into five sections. The first describes the background of the study's focus on polarisation and the development of alternative narratives on a just energy transition in Indonesia. The second states the study's objectives, followed by a brief overview of the methods used in the third section. In the fourth section, the study's findings are presented, and divided into three sub-sections (issue polarisation, youth perceptions, and alternative narrative development). The study concludes with recommendations for alternative narrative development actors based on the evidence gathered.

Objective

This study has one main objective and three specific objectives. Our primary goal is to comprehend the evolving discourse on energy transition in Indonesian society. The specific objectives of this study are as follows:

1. To illustrate the polarisation of the energy transition on social media.
2. To illustrate the perceptions regarding the energy transition.
3. To provide recommendations based on data for stakeholders involved in developing alternative narratives concerning the just energy transition (civil society organisations (CSO), academics, media, etc.).

Methodology

This study employs an applied research approach in the field of communication. Applied communication research focuses on the study of a social issue with the primary goal of identifying solutions and recommendations to address the social problem at hand (Carmack, 2017). Specifically, we loosely adopt the Social Network Analysis (SNA) method. In essence, this approach seeks to understand how conversations on social media provide insights into underlying issues.

We depict the dynamics of power struggles on social media to comprehend the trajectory of the energy transition narrative, with a focus on actors and networks relevant

to Indonesia (Rakhmani and Saraswati, 2021). The loose application of SNA aims to explore the character of social media conversations by mapping users as actors within these networks, observing their attitudes through tweets, and delving into user interactions and their tendencies (Williams, Hywel T.P. et al., 2015). Analysing user interactions and their inclinations towards specific issues can also be leveraged to examine the potential for collaboration among stakeholders with diverse characteristics (Cunningham et al., 2016; Corlew et al., 2015). As part of the study design, we collaborated with Yayasan Indonesia Cerah, a non-profit organisation in Indonesia dedicated to advancing the just energy transition policy agenda.

To achieve the study's objectives, we conducted three parallel mini-research efforts. The first involved an exploratory study on Twitter (now called X) social media content, extracted using the Talkwalker platform. We conducted online observations of Twitter activities related to the energy transition hashtag from November 1, 2022, to June 30, 2023. This timeframe coincided with the launch of the JETP in mainstream media.

Simultaneously, we designed an exploratory survey instrument targeting young individuals. Participants were chosen through convenience sampling (Neuman, 2014) to provide an overview of the majority of social media users in Indonesia falling under the young age category (We Are Social, Hootsuite, DataReportal, 2021). This exploratory survey was conducted in four regions through student networks at Universitas Indonesia, Universitas Kutai Kartanegara, Universitas Swadaya Gunung Jati, and Universitas Sriwijaya. The selection aimed to engage student groups, a key demographic in the energy transition issue, within the Yayasan Indonesia Cerah network, ensuring continued involvement of young stakeholders through knowledge organisations and civil society focusing on youth issues.

We also employed action research methods through a series of workshops with field researchers from Yayasan Indonesia CERAH in three key regions—East Kalimantan, Cirebon in West Java, and South Sumatra. The objective of these workshops was to understand the knowledge and practices of stakeholders, as well as build networks with fellow stakeholders related to the energy transition (Asia Research Centre Universitas Indonesia & Yayasan Indonesia Cerah, 2023). Discussion participants included representatives from CSOs, local communities, local government, journalists,

mining companies, and academics. We chose workshops as the action research method, allowing researchers to become part of the community under investigation, reflecting our level of engagement in this issue in daily life (McNiff & Whitehead, 2006).

Based on these three mini-research efforts, we formulated recommendations for stakeholder engagement in the energy justice issue in Indonesia. Specifically, these recommendations are devised to develop alternative narratives through action research practices accessible to non-specialists.

Literature review

In the modern era, energy policy issues have become a subject of increasingly intense polarisation, especially in developed countries with political structures tending towards greater flexibility. Polarisation occurs between groups with conservative tendencies versus those more progressive or democratically liberal. We conducted a review of previous literature, identifying several determinant factors in the reality of energy transition policy polarisation, a phenomenon not significantly observed in developing countries like Indonesia. The academic references drawn upon are diverse in terms of years, methods, and cases, aiming to represent the complexity of literature discussing this issue. From this literature review, two themes emerged: (1) the rising significance of energy-environment issues in public discourse, and (2) the emergence of populism linked to anti-science politics. In these themes, energy policy issues become increasingly intertwined with the dynamics of political elites and civil society movements in dynamic ways.

Firstly, energy-related polarisation arises as a response to the oil crisis, global warming, and climate negotiations. Literature indicates that the energy transition issue is gaining strength and eliciting responses from various quarters, including political parties benefiting from policies either maintaining or reducing the use of dirty energy. The higher the frequency of major events highlighted in the public sphere, the stronger the need to respond and take a stance (Jeong, et al. 2021). Electoral politics in economically advanced countries, though not entirely generalisable, is generally coloured by Western liberal values, where each political candidate promises specific energy-related policies. Meanwhile, electoral politics in developing economies, especially post-authoritarian states like Indonesia, is marked by campaign promises that change in line with elite consolidation within and among political parties. Thus, the energy policy polarisation that emerges in each country is highly specific and requires careful comparison.

Next, the rise of populism in the Western world is marked by post-truth politics (see Frauen and Knodt, 2018). In the case of Germany and other European countries, populist political figures with more conservative supporting parties advocate for the energy resilience demands of the impacted community. Consequently, energy transition policies often clash with local resistance, fuelled by the spread of misinformation inconsistent with social and scientific facts (Zilles and Marg, 2022). In Indonesia, Rakhmani and Saraswati (2021) note that the positions of political candidates on energy policy are part of campaign promises traded during campaign periods. In both streams of study, the potential of mass and social media in mobilizing the aspirations of the masses for the victory of political elites, or what is popularly and academically known as populism, tends to benefit specific political figures rather than the public.

Considering studies on the rise of populism in 21st-century democracies, resulting from the convergence of the interests of certain conservative political elites with the aspirations of ordinary people during electoral moments, polarisation is a symptom rather than a phenomenon that can be generalised across all democratic countries. Therefore, in the issue of the energy transition, polarisation does not form between political elites taking a pro- or contra- stance on energy issues but rather manifests as temporary alliances between various actors and CSOs either opposing or supporting the interim policies promised by political candidates. With this in mind, we provide a general overview of the energy transition issue.

Overview of the Energy Transition Issue in Indonesia

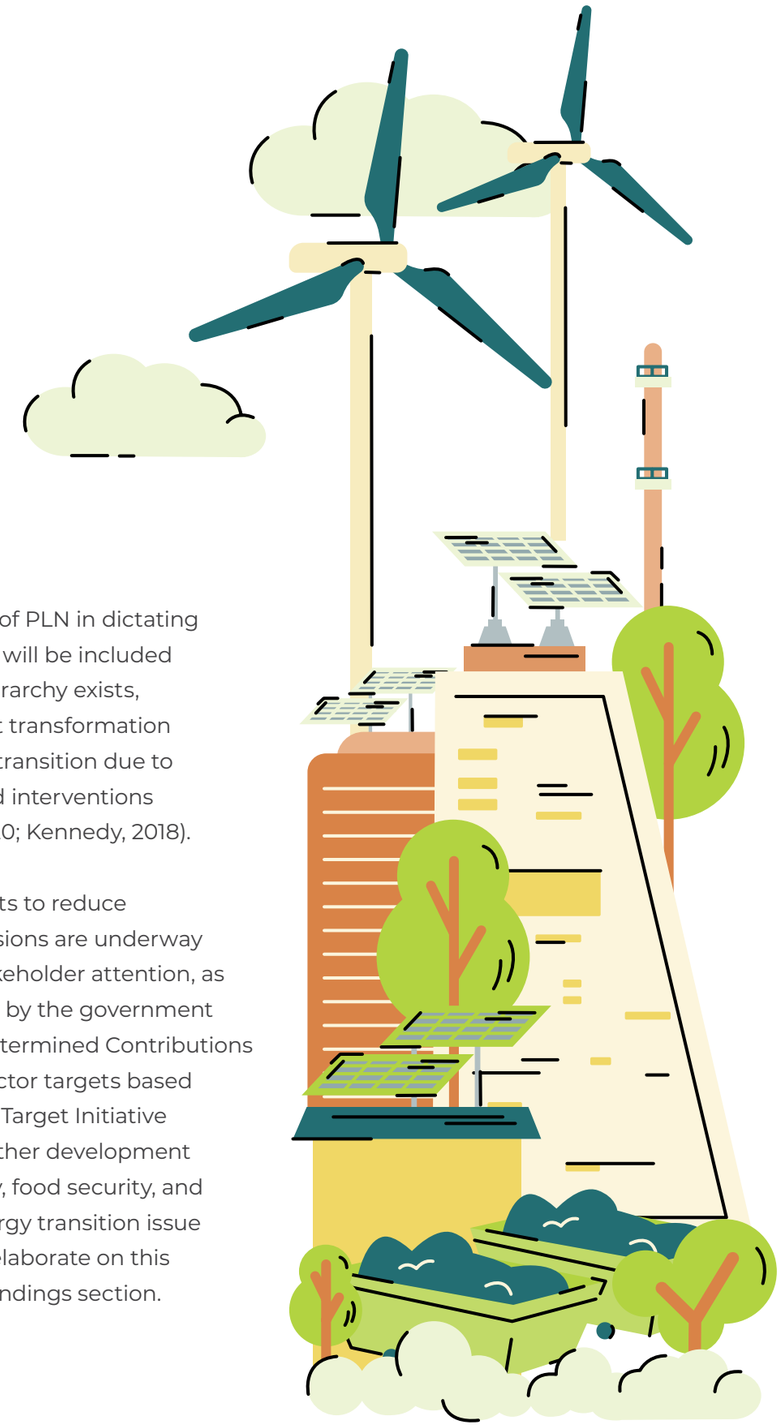
The transition of energy has become an increasingly discussed issue among the Indonesian public, particularly following the issuance of Presidential Regulation No. 98 of 2021 on Carbon Pricing. This regulation directly introduces incentive schemes for reducing greenhouse gas emissions from energy production activities, especially coal. The development of energy transition towards new and renewable sources (EBT) began to take shape with the establishment of the Directorate General of EBT at the Ministry of Energy and Mineral Resources through Presidential Regulation No. 24 of 2010. Since then, transitioning to environmentally friendly and low-carbon energy resources has been highlighted as a key element in the future energy mix

to safeguard humanity on Earth amid climate change and global warming, aiming to achieve a net-zero target by 2060.

The increased use of EBT stands out as a major focal point in both public and private discussions on energy transition. The government aims to achieve a 23% share of EBT in the national energy mix by 2025 and 31% by 2050. However, these targets are still far from the realisation based on 2021 data, which only showed a 13.55% achievement. The national energy supply continues to heavily rely on fossil resources such as coal and crude oil, accounting for over 70% of the total. The development of transitional energy in Indonesia is progressing slowly due to a policy focus that still favours non-EBT sources and the persistence of subsidies and incentives for fossil energy, especially coal, to operate in Indonesia. Simultaneously, concerns arise regarding the potential vulnerability of energy supply, considering Indonesia's energy demand has not yet reached its peak, and EBT production remains uneconomical and highly intermittent (Berlianto & Wijaya, 2022; Setyono, 2021).

In Indonesia, the focus of energy transition still revolves around economic aspects, addressing the stability of future energy sources and providing energy access in remote, unconnected areas. This focus remains distant from environmental justice aspects, which we consider a pivotal driver for energy transition, minimizing negative impacts on both the environment and society. The government concentrates on maintaining energy prices, which are still far from market prices, ensuring supply meets the continuously increasing demand, and reducing government expenditures on subsidies. This is also heavily influenced by the monopoly role of PLN in dictating which energy sources will be included in their portfolio. A hierarchy exists, hindering a significant transformation in Indonesia's energy transition due to limited innovation and interventions (Ialnazov & Keeley, 2020; Kennedy, 2018).

Decarbonisation efforts to reduce greenhouse gas emissions are underway and require multi-stakeholder attention, as various targets are set by the government through Nationally Determined Contributions (NDCs) and private sector targets based on the Science Based Target Initiative (SBTi). Compared to other development issues such as poverty, food security, and the economy, the energy transition issue is not yet robust. We elaborate on this in more detail in the findings section.



02. Findings

The findings section will be divided into three parts. Firstly, we will describe the polarisation of issues on Twitter social media, focusing on the hashtag energy transition. In the second part, we will present the results of an exploratory survey regarding the perception of young people as key players in the development of a just energy transition narrative. The third part will provide an overview of the practices of engaging alternative narrative development actors through action research that can be conducted by non-specialists in communication.

Issue Polarisation: Exploration of #energytransition on Twitter Social Media

We collaborated with the digital team of Yayasan Indonesia Cerah to explore hashtags on the Twitter social media platform. Social media platforms such as Twitter are crucial channels for discussions and debates on climate change issues (Pearce et al., 2019). Twitter is identified as an ideal platform for studying communication-related climate issues due to its widespread use by politicians and journalists (Arlt and Schäfer, 2019). Using Talkwalker and focusing on Twitter and Instagram, we limited the study's scope to the period from November 2022 to July 2023. It's important to note that real-time data collection from Twitter is no longer freely accessible since the company closed free access to the Applications Programming Interface (API) commonly used by researchers to study user conversations on Twitter (Ledford, 2023; Binder, 2023). During this period, we gathered 3,618 Twitter and Instagram posts by searching for content based on 24 keywords relevant to the issue's development in Indonesia, as determined by the digital team of Yayasan Indonesia Cerah, as follows:

Table 1. Exploring keywords tagged with #transisienergi

No.	Keywords
1	JETP
2	Just Energy Transition
3	Rencana Investasi
4	Pekerjaan Hijau
5	Green Jobs
6	Investment Plan
7	PT SMI Country Platform
8	ETM
9	Energy Transition Mechanism
10	Equitable Energy Transition
11	Pendanaan Transisi Energi
12	Pendanaan Energi Hijau
13	Utang Energi Terbarukan
14	Pensiun Dini PLTU
15	Transisi Energi Berkeadilan
16	Green Energy
17	Renewable Energy
18	Coal Plant
19	Retirement
20	Phase Out
21	Invest
22	Divest
23	Tambang
24	Tambang Batubara

Source: ARC UI dan Yayasan Indonesia Cerah.

To explore the trends of network polarisation, we employed the ideological polarisation framework focusing on observing differences in views, attitudes, beliefs, or political

preferences (Kubin and Sirorski, 2021). Through Twitter conversation analysis, we aimed to identify various types of social media users, hashtags, and factors contributing to the formation of conversation clusters during the specified period. From the applied Twitter data study, we used retweet data as a representation of specific views or positions on a political issue, in this case, the energy transition. In essence, we applied network analysis to examine how users and influencers, where accounts with similar retweet interactions are closely ranked together (see Falkenberg et al., 2022). The ideological polarisation of actors within the network will be distributed based on content, interactions, and post frequency.

We organised the content data (data cleaning) to separate Instagram and Twitter content and categorise retweets and source content. This process aimed to identify Twitter account IDs that were still attached to content links in the scraped data results. After the data cleaning process, we analysed 3,553 tweets on Twitter, both for the entire period and monthly. Data analysis was conducted using Netlytic and ReTD to present a social network analysis, hashtags, and top user overview. Conversation analysis delved into user dynamics, hashtags, and retweets. In the context of Twitter as a microblogging platform, a retweet is considered a form of information diffusion and participation. By reposting a tweet, users engage in the conversation while validating the tweet's message (Boyd et al., 2010).

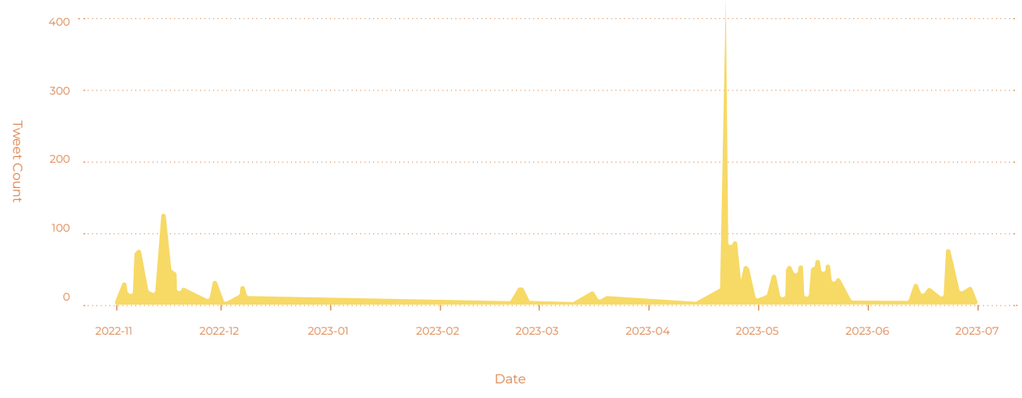
Of all the tweets, 44.9% were retweets from the top 40 users, 17.2% were retweets from users outside the top 40, and the remaining 37.9% were non-retweet content. The top 40 users' group dominated the conversation in X. The composition of the top 40 users who experienced the most retweets consisted of accounts from Indonesia and beyond. The most dominant Indonesian user in terms of retweets was "@_pln_id," the official account of PLN, while the most dominant users from outside Indonesia were "@LandNoli" and "@PresidencyZA" from South Africa and the U.S. Treasury Secretary Janet Yellen's account, "@SecYellen."

Figure 1. Top 40 Users in Energy Transition Discourse on Social Media.

Source: ARC UI and Yayasan Indonesia Cerah.

To observe trends based on relevant milestones related to energy transition and JETP, we also examined tweet volumes based on the data collection period. This data was contextualised with relevant moments that were the main content in amplified tweets through retweet mechanisms or authentic tweets.

Figure 2. Tweet Volume Trends



Source: Purnama Alamsyah, ARC UI, and Yayasan Indonesia Cerah

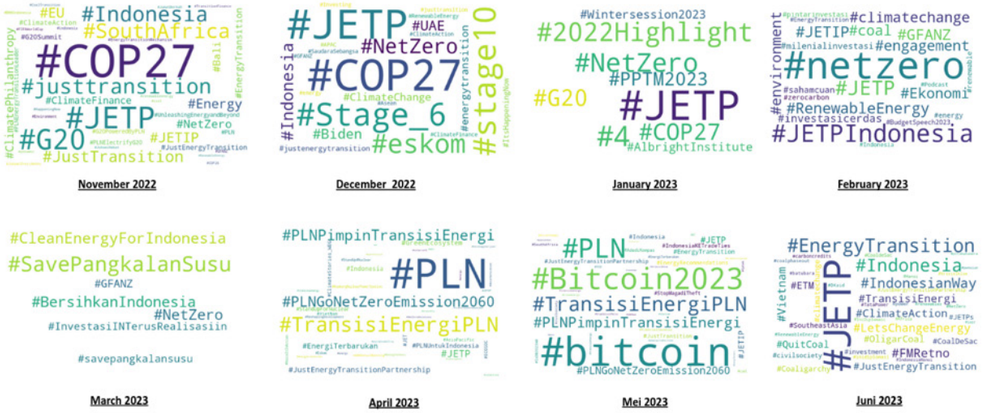
Examining Figure 2, the tweet volume spiked between November 14-15, 2022, coinciding with the G20 Summit in Bali. On November 14, 2022, Indonesia launched the Energy Transition Mechanism Country Platform ahead of the G20 Summit. The tweet volume on November 15, 2022, also spiked with the launch of JETP Indonesia. On both dates, one of the most retweeted tweets was from the U.S. Treasury Secretary Janet Yellen's account ("@SecYellen"). Additionally, the highest tweet volume came from April 20-23, 2023, when PLN officially announced a collaboration with the International Energy Agency (IEA). The most retweeted tweet during this period was from the official PLN account ("@_pln_id"). On April 21, 2023, a tweet from a South African Twitter account named "@LandNoli" quoting South African President Cyril Ramaphosa's announcement of early retirement for coal-fired power plants in the country also received many retweets.

Figure 3. Tweet from US Secretary of the Treasury, Janet Yellen, on November 14, 2022

(Source: Twitter account "@SecYellen")

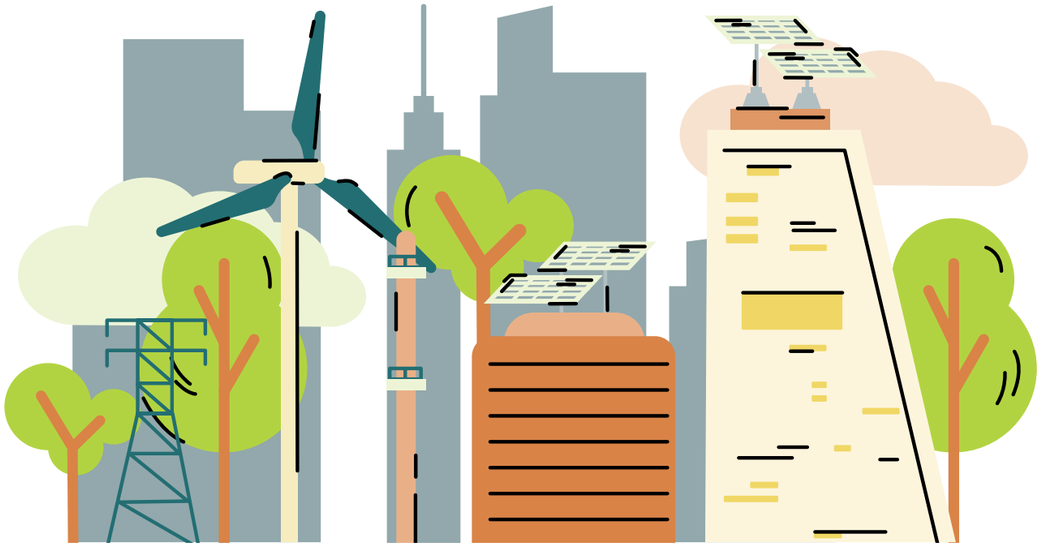
The fluctuation in tweet volume, as described above, indicates that on social media, expressions regarding the energy transition are transnational. On one hand, this shows that events beyond national borders, related to the shift from dirty to clean energy, also influence online discussions in Indonesia. On the other hand, this trend suggests that domestic online discussions are more inclined to respond to developments outside the country rather than evolving coherently within the country. For us, this reveals at least two things: the absence of monumental developments related to the implementation of the energy transition agenda domestically and/or the absence of domestic users who can sustainably manage public attention significantly towards that agenda. In this context, CSOs can strategise to play a larger role in increasing social media attention to the energy transition agenda in a fair and sustainable framework.

Figure 4. Top 40 Hashtags during November 2022 - June 2023



Source: Purnama Alamsyah, ARC UI, and Yayasan Indonesia Cerah

Exploring monthly hashtags from November 2022 to January 2023 reveals that social media is dominated by internationally oriented hashtags. Among these are #COP27, #JETP, #JustTransition, and #NetZero. Although the country indicator hashtag #Indonesia is quite dominant from November 2022 to January 2023, in February 2023, the use of hashtags with an Indonesian context, such as #JETPIndonesia, #TransisiEnergiPLN, #BersihkanIndonesia, started to surface. In March 2023, one of the most popular hashtags, #SavePangkalanSusu, was driven by tweets from a local CSO advocating for the early retirement of the Pangkalan Susu Power Plant in Langkat, North Sumatra. Starting in April and May 2023, hashtags like #PLN, #TransisiEnergiPLN, and #PLNPimpinTransisiEnergi dominated alongside tweets from the official PLN account.



During the same period, PLN announced a collaboration with the IEA to finalise the Just Energy Transition Partnership Investment and Policy Plan (JETP IPP) to accelerate Indonesia's energy transition. In May 2023, a tweet from a Bitcoin information channel quoting West Java Governor Ridwan Kamil at the Bitcoin 2023 conference emerged. Ridwan Kamil stated that Indonesia is open to bitcoin investment by leveraging renewable energy. In June 2023, dominant hashtags were quite diverse, with #JETP #Indonesia and #EnergyTransition, indicating a more diverse range of users engaging in discussions on this issue. During this month, more CSOs highlighted environmental and energy issues, and national media outlets expressed their positions on the energy transition issue, such as Bisnis Indonesia and Katadata.

Based on these findings, we traced key dates related to the energy transition issue in Indonesia. We did this through unstructured interviews with key actors and tracing mainstream media with applied communication research logic (Carmack, 2017).

Table 2. Timeline of Key Events in the Energy Transition in Indonesia.

Date	Event
14 November 2022	Official launch of the Energy Transition Mechanism (ETM) country platform
15 November 2022	Announcement of the launch of JETP for Indonesia at the G20 meeting
14 December 2022	Announcement of JETP for Vietnam
16 February 2023	Formation of the JETP Indonesia Secretariat
6 March 20223	PT PLN collaborates with Japan for the acceleration of the Energy Transition through the JETP and ETM schemes
21 April 2023	PT PLN collaborates with the International Energy Agency (IEA) to finalise the JETP scheme
22 May 2023	Governor of West Java, Ridwan Kamil, statement at the Bitcoin 2023 conference regarding bitcoin investment to harness the potential of renewable energy in Indonesia

Source: ARC UI and Yayasan Cerah Indonesia.

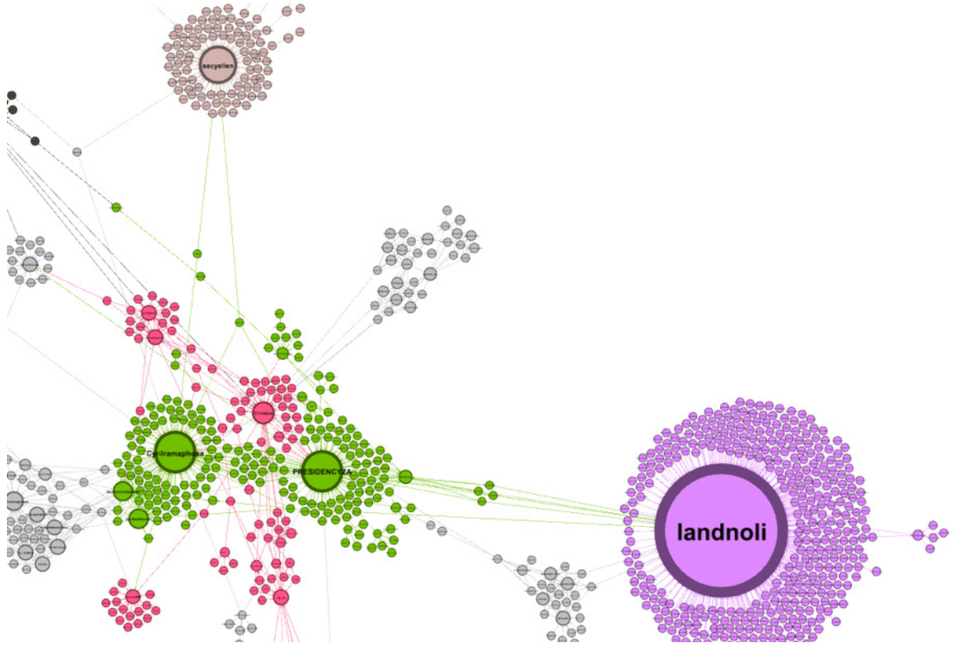
The network analysis of top tweets overall indicates three dominant conversation clusters. First, the “PLN” cluster is dominated by accounts affiliated with PT PLN. The content from these accounts consists of retweets from the official PT PLN account. We categorise the second cluster as the “International” cluster, comprising accounts of international figures and institutions such as U.S. Treasury Secretary Janet Yellen (“@SecYellen”), South African President (“@PresidencyZA”), and COP26 account (“@Cop26”). The third cluster is categorised as the “National Civil Society Organisations” cluster, including accounts of organisations and alternative media.

These three clusters build conversations related to the energy transition from different perspectives according to their capacities and agendas. The “PLN” cluster communicates the efforts and collaborations of PT. PLN with international institutions in energy transition and the early retirement of power plants. Meanwhile, the “International” cluster contextualises the energy transition issue in the framework of diplomatic and economic cooperation and international events such as the G20 Summit, COP26, JETP implementation in South Africa, and international highlights regarding the JETP launch. In the “National Civil Society Organisations” cluster, dominating tweets emphasise a critical view of the energy transition and the JETP scheme in Indonesia.

Figure 5. Overall Mention and Retweet Network and Clusters

Source: Purnama Alamsyah, ARC UI, and Yayasan Indonesia Cerah.

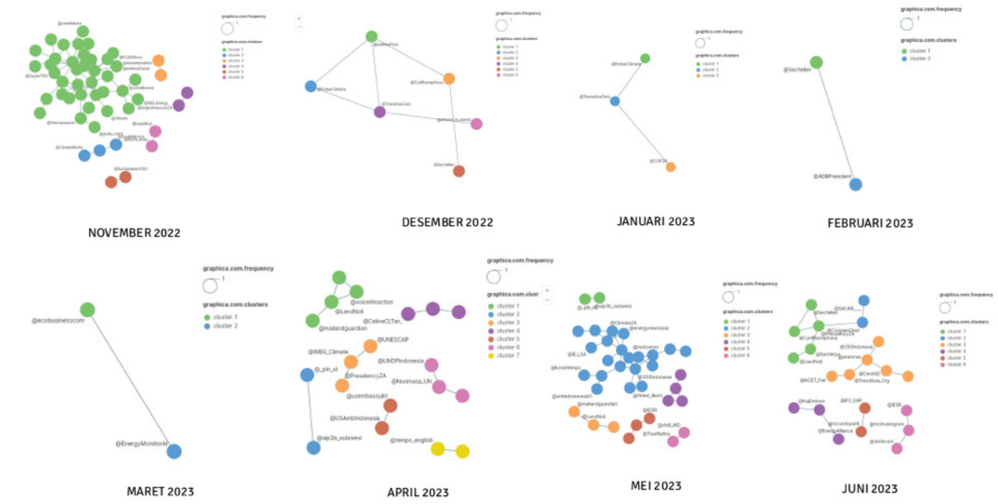
Figure 6. Overview of the International Cluster



Source: Purnama Alamsyah, ARC UI, and Yayasan Indonesia Cerah.

From the top 40 tweets each month during our study period, these tweet networks consistently formed in specific months. The “International” cluster was interlinked during months with events relevant to the international context, such as November 2022 when the G20 Summit was held. The “PLN” cluster also maintained its network from April to May 2023. The “National Civil Society Organisations” cluster depicts a more dynamic movement. This cluster connected with the “International” cluster in May 2023. However, in the following month, there were two clusters not connected despite being in the same category of “National Civil Society Organisations.”

Figure 7. Top Tweet Networks per Month



Source: Purnama Alamsyah, ARC UI, and Yayasan Indonesia Cerah.

The study of the timeline of formative events and the results of digital analysis of the top 40 accounts, hashtags, and tweet timelines show patterns. Social media discussions in Indonesia are shaped by a combination of international agreement events, amplified by government institutions appointed to implement them (in this case, ESDM and PLN). Local-level policies can emerge as national events if local leaders participate in international events. Thus, the discourse on just energy transition is formed discursively rather than polarised due to the push from international cooperation (supported by funds and loans for the Indonesian government) to oversee the issue of just energy transition in Indonesia. This push provides an opportunity for local leaders/elites to participate in national-level social media discussions, which also shapes the discourse on the energy transition. In the next section, we explore the views of young people as the majority participating in social media.

Perceptions of Young People on the Issue of Energy Transition

We explore the perceptions of young people on the issue of energy transition, considering at least three aspects. Firstly, young people are those who will experience the long-term impacts of the energy policies currently being shaped, and who will be decision-makers soon (O’Brien et al., 2018). Secondly, understanding the perceptions of young people regarding energy issues can aid in designing communication strategies and engagement necessary to push the energy transition towards a more equitable direction (Gladwin & Ellis, 2023). Thirdly, as the majority of social media participants, young people can shape the discourse on energy transition (Safrina and Yurnaidi, 2023).

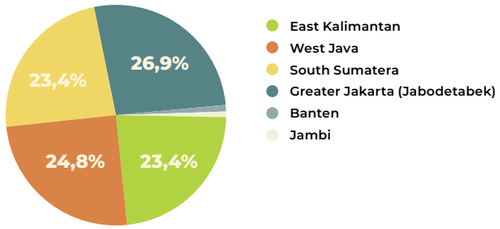
In recent years, young people have shown an increased concern and activism on environmental issues (Laville & Watts, 2019), playing a growing role in social movements related to climate change and social justice issues (O’Brien et al., 2018). Through social media, online campaigns, and participation in formal politics (such as initiated by the Green Party Indonesia), they demonstrate that understanding, facilitating, and amplifying the needs and aspirations of young people are crucial for shaping fair and sustainable policies.

However, youth activism, particularly in the environmental sector, is still sectoral and hindered by access to existing engagement spaces (Kusumaningrum et al., 2023). On the other hand, this activism often focuses on reformist policies and popular environmental movements that emphasise personal responsibility without sufficient commitment to civil action (Kusumaningrum et al., 2023). Such movements often emphasise lifestyle changes imposed on individuals and become a form of what is often referred to as “bourgeois activism” (Mudhoffir, 2021).

As a consequence, some young people feel unrepresented. As a complex issue occupying national and sub-national positions, tensions like these can hinder the transition when the narrative clashes with economic and political uncertainty based on intersectional situations of class, geography, and an economy structured around extractive industries and dirty energy.

To gain a deeper understanding, we purposively selected respondents in four locations, namely Jabodetabek as an urban area (Rustiadi et al., 2015), South Sumatra and East Kalimantan as extractive industry zones (Traction Energy Asia, 2020), and Cirebon in West Java as an industrial area and the location of a coal-fired power plant (PLTU) to be retired through the Energy Transition Mechanism (ETM) scheme, a government scheme owned by the Ministry of Finance and ADB, implemented through the retirement of PLTU Cirebon-1 (ADB, 2023).

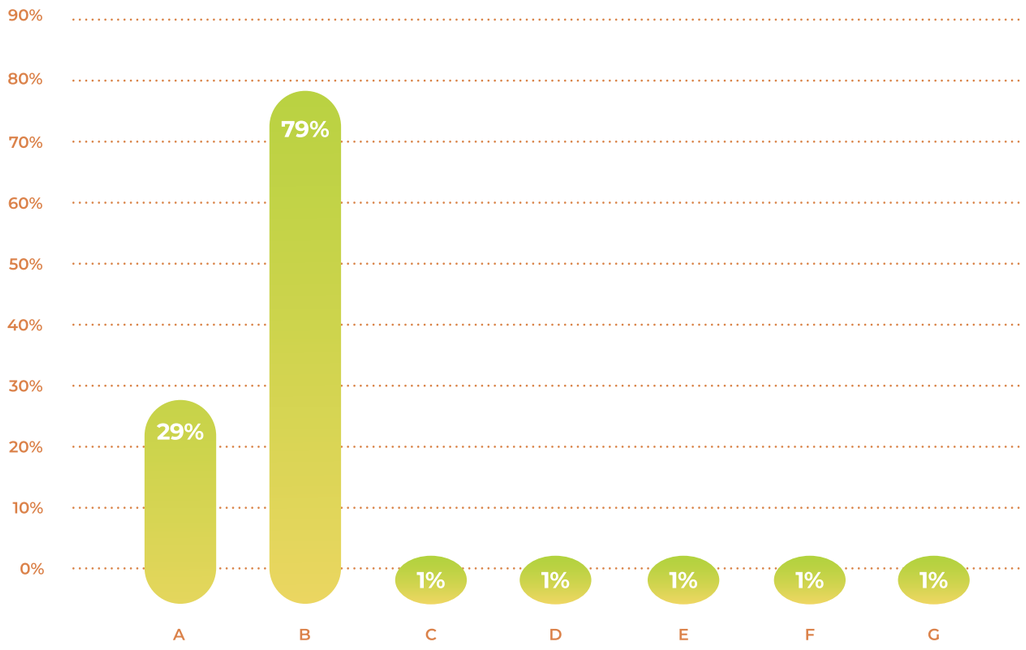
Figure 8. Composition of Respondents Based on Provinces



The 145 respondents in this survey consisted of 71 females and 74 males. They were aged between 17-35 years and had a minimum education level of high school.

Ninety-eight of them were members of student organisations and/or environmental communities. The survey aimed to explore the variations in the aspirations of young people and not to depict the general symptoms of young people in Indonesia. The survey was conducted online, so only those fortunate enough to access devices and the internet participated.

Figure 9. Definition of Energy Transition According to Young People.



A

Transition of energy sources from dirty and unsustainable to clean and sustainable

B

Transition of energy sourced from coal to electricity

C D E F G[2]

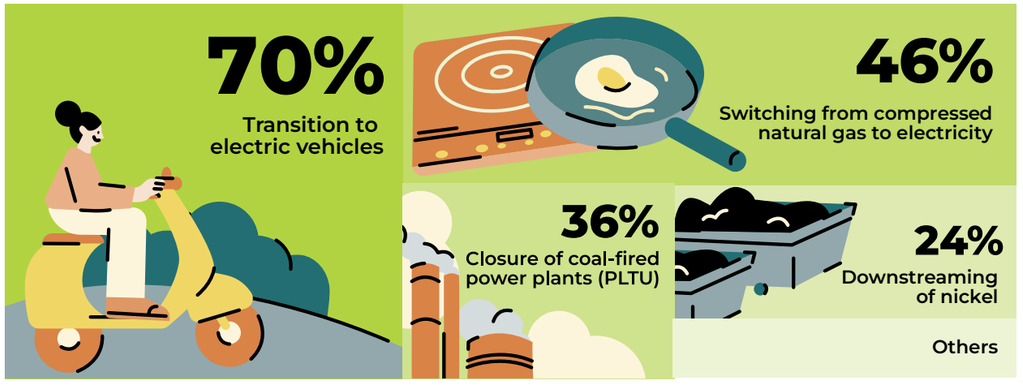
Source: ARC UI.

[2] C: The process of transforming the use of fossil-based and environmentally unfriendly energy sources into the use of clean and environmentally friendly energy such as solar panels, water, geothermal, and wind.
D: Transition from coal energy to more environmentally friendly energy.
E: Transition of dirty energy becoming even dirtier; here, "dirty" not only refers to the environment but also the impact on the surrounding community itself.
F: Shifting the use of energy sources from dirty, environmentally unfriendly, and unsustainable towards more environmentally friendly, clean, and sustainable sources.
G: The energy transition, as I understand it, involves using clean and sustainable energy that is friendly to humans and the inhabitants of our Earth. It should be done without causing harm or pollution. Energy transition should move towards sovereignty and justice, where the concepts of sovereignty and justice are implemented evenly, and no one is harmed. Sovereignty is for the well-being of all communities. Indonesia, in fact, has a lot of energy potential without involving dirty energy. My understanding is that energy can be found around us, such as the organic waste that accumulates, which can produce methane gas that, when processed, can generate biogas or electricity using appropriate technology. Methane gas is also found in the manure of cows and other animals, which can be harnessed and utilised. This is an energy source that we currently pollute the environment with

We probed their knowledge of energy transition, asking about the definition of energy transition (multiple answers). The two highest responses were the shift from coal to electricity (79%) and the transition from dirty and unsustainable energy sources to clean and sustainable ones (29%). We observed that "electricity" became a keyword in the definition of energy transition according to young people. This finding aligns with our observations on social media, where PLN, the state-owned electricity provider, emerged as the most dominant user and hashtag.

These findings also align with the respondents' knowledge of the government-initiated energy transition agenda (multiple answers). The most common response was the shift to electric vehicles (70%), followed by the transition from gas stoves to electric stoves (46%), the closure of coal-fired power plants (36%), and the downstreaming of nickel (24%). The development of the electric vehicle ecosystem is currently a highly emphasised policy by the government and PLN, as reflected in Presidential Regulation (PERPRES) Number 55 of 2019 on Accelerating Programs of Battery Electric Vehicles (BEV) for Road Transportation, highlighted as a solution to air pollution by relevant officials through mass media (CNN Indonesia, 2023) and PLN press releases.

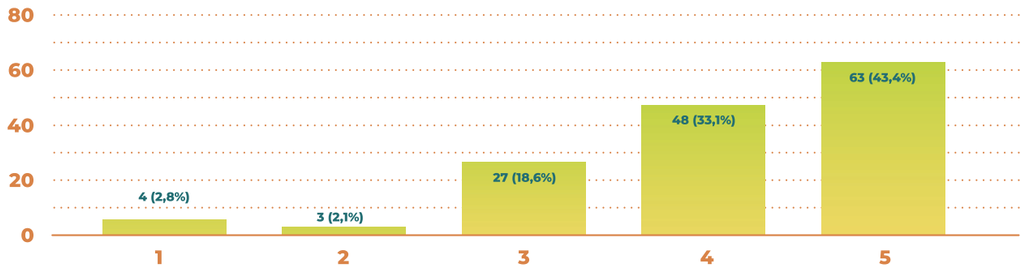
Figure 10: Government's Energy Transition Agenda According to Young People.



Source: ARC UI.

We proceeded by asking respondents about the importance of the energy transition agenda. Overall, the majority of respondents (76.5%) considered the energy transition agenda important and agreed that it was the right step (73.1%). However, it is essential to highlight that 23.5% of respondents were unsure/neutral or considered the energy transition agenda unimportant. Additionally, 24.9% of respondents were unsure and disagreed with the statement that "energy transition is the right step."

Figure 11: Young People's Perception of the Importance of the Energy Transition Agenda



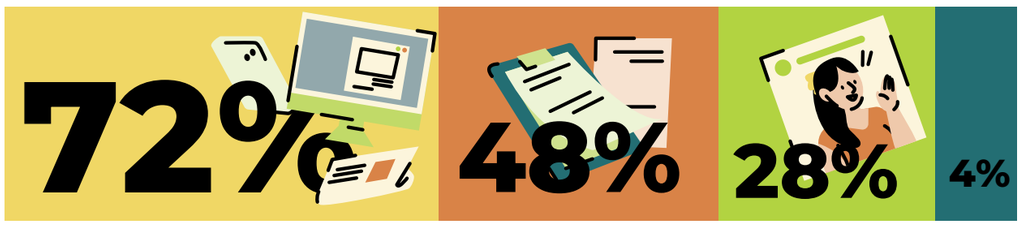
Source: ARC UI.

Although most respondents showed knowledge and positive responses to the issue of energy transition, a quarter of respondents expressing otherwise is a significant percentage that indicates the lack of engagement of young people in this issue, consistent with the findings of Kusumaningrum et al. (2023).

We also explored the reasons respondents mentioned for their level of interest in the energy transition agenda. Respondents provided open-ended answers, so a respondent's answer could contain more than one key theme. We identified recurring key themes, including concerns about air pollution (24 responses), environmental sustainability (22 responses), anticipation of the scarcity of unsustainable energy (17 responses), and preventing climate crises and disasters (16 responses). However, we also found a total of 18 respondents who did not provide reasons or were interpreted as having a lack of understanding about the issue of energy transition.

We also investigated the sources of information on energy transition (multiple answers). The most common response was mass media, both online and print (72%), research reports, academic webinars and the like (48%), and influencers on social media (28%). Given these findings, we argue that young people refer to more institutionalised and credible sources of information (Hovland & Weiss, 1951). Other sources of information included television (2%), environmental activist organisations (1%), and daily observations (1%).

Figure 12. Sources of Information Regarding the Energy Transition



Source: ARC UI.

In other aspects, we found many uncertain responses, such as concerns about the impact of energy transition on energy supply stability (42.1%), concerns that energy transition will increase energy costs for consumers (36.6%), concerns that energy transition will disrupt the country's economy (37.2%), concerns that energy transition will close jobs in their area (37.2%), and concerns that renewable energy is still unstable and may disrupt electricity supply (39.3%).

In this section on the perceptions of young people, we want to highlight two significant findings.

Firstly, the concerns voiced by young respondents above suggest that they do not fully support the energy transition agenda. Young people have not taken a clear political stance because they have not identified the sources of their anxieties about the future quality of air and the environment they will face.

A more material issue is the public concern about the increase in electricity tariffs (CNN Indonesia, 2021) and the hindrance of economic activities and national development (Anam, 2022). This could be the basis for avoiding efforts to switch from dirty energy to clean energy (Ordonez et al., 2022). We argue that young people, with a deeper understanding of what a just energy transition entails and what the main obstacles are, can play a more central role (through campus networks) in promoting a fair and sustainable energy transition agenda.

Secondly, the recurring keywords are air pollution and electric vehicles. This shows that young people are very close to issues that directly impact them. Recently, the public in the Jabodetabek area has been exposed to high-intensity air pollution suspected to originate from industrial activities, including power plants (Tempo.co, 2023). With this consideration, the issue of electric vehicles emerges. The government (CNN Indonesia, 2023) and PLN (2023) advocate for the use of electric vehicles as a "solution" to air pollution in the Jabodetabek area. We found that young people in this survey, although present, have not actively expressed the knowledge that batteries for electric vehicles are not entirely sourced from renewable energy and are not exhaustible (Yunus, 2023). The exposure of young people to the narrative of transitioning to electric vehicles as a solution to reduce air pollution underscores the importance of CSO in increasingly targeting young people in disseminating and playing a vital role in shaping a fair and sustainable energy transition narrative. In this regard, CSOs can collaborate with academics and young people on campuses to obtain information not only from mass media (online and print) but also from academic products, such as research reports, webinars, and the like.

Alternative Narrative Development through Action Research Practices

In this study, we conducted a series of workshops with the field research team from the Indonesia CERAH Foundation in three key regions—East Kalimantan and South Sumatra, both of which are extractive industry zones (Traction Energy Asia, 2020), and Cirebon, home to a soon-to-be-retired PLTU (ADB, 2023). The aim of these workshops was twofold: (1) to

understand the knowledge and practices of stakeholders, and (2) to build networks with fellow stakeholders related to energy transition (Asia Research Centre, University of Indonesia & Indonesia Cerah Foundation, 2023). To achieve these goals, we invited discussion participants representing CSO, local communities, local government entities such as environmental agencies, secretariats, unity and political affairs agencies (kesbangpol), journalists, mining companies, and academics. We chose workshops as a form of action research method, enabling researchers to play a role as part of the community being studied, reflecting our involvement in these issues in our daily lives (McNiff & Whitehead, 2006).

In each workshop held in the aforementioned regions, we collected valuable data and feedback to deepen our analysis and help formulate strategies, especially in improving communication strategies. Throughout the workshops, our research team collaborated closely with various stakeholders to develop effective strategies and recommendations. In this collaborative action research study, we and the team from Indonesia Cerah Foundation sought to build a shared understanding of the challenges and opportunities at hand. In this report, we discuss the discussions held in East Kalimantan, Cirebon, West Java, and South Sumatra.

In East Kalimantan, we found that rather than discussing energy transition, the discussions focused more on energy inequality and the dilemma between the negative impacts of mining activities on local communities and the income earned by those working in the mines. This is significant given that East Kalimantan had the highest Gross Regional Domestic Product (GRDP) in the mining and quarrying sector in 2017-2019 (Katadata, 2021). Meanwhile, in West Java, discussions on the concept of energy transition could be more extensive.

> **"The perception issue is still distant; discussing energy transition feels distant because many still enjoy the benefits of mining. For example, in Sungai Payang Village surrounded by mines, many residents work there with an average salary of 4-6 million rupiahs..."**
>
> (A, journalist in East Kalimantan, 13 June 2023)

Nevertheless, we gathered recurring keywords interpreted as ideal energy transition by discussion participants in East Kalimantan and Cirebon. These keywords included justice[3], community involvement[4], affordability[5], and environmental friendliness[6].

Additionally, we explored what were considered challenges to energy transition at the regional level. **First,** concerning authority,

[3] *"... It must also be just and must include elements of human rights within it..."* (E, representative of a civil society organisation in East Kalimantan)
[4] *"In my opinion, the discourse of the Energy Transition policy should involve the entire community, especially those most vulnerable,"* R, representative of an NGO in Cirebon.
[5] *"... so, in my opinion, energy should be accessible and for the benefit of society,"* (N, representative of the Energy and Mineral Resources Agency in Cirebon)
[6] *"... strongly supports a transition that is more environmentally friendly, cheaper, and easier..."* (H, journalist in East Kalimantan)
[7] Press release on the website of the Energy and Mineral Resources Agency of North Kalimantan Province, obtained from https://desdm.kaltaraprov.go.id/berita/pemerintah-pusat-delegasikan-izin-usaha-pertambangan-ke-daerah.html

we found that the authority to grant coal mining permits is centralised by the central government[7]. Consequently, although district governments discover natural and social disasters resulting from mining activities, they struggle to take action. However, at times, "individuals" from local governments, as well as the military and police, seem to have authority when defending mining companies against local communities.

> **"...When talking about actors, the most important actor is the authorities, namely the military and police. The current government claims they have no authority to do anything in any case. However, when they are used by the mining company, local government officials actually help the company. They facilitate the exploitation of the community. They facilitate the acquisition of land from the community at a cheap price..."**
>
> (S, civil society organisation representative in East Kalimantan, 13 June 2023)

Second, a lack of community involvement in the agendas or policies implemented in their areas. Local communities are often portrayed as not understanding and requiring socialisation or even education. However, according to a CSO representative in Cirebon, local communities understand their environment, leading them to reject mining efforts, including geothermal or thermal energy.

> **"...For example, like the rejection of Chevron, rejection of Geothermal. It assumes that the community rejects it because they don't understand. No. The community rejects it because they understand... So, I think what is needed is not socialisation, not education, but involving them in this project. Not only from the implementation but from the planning, if possible."**
>
> (Civil society organisation representative in Cirebon)

Meanwhile, amidst the issue of the lack of involvement of local communities in the planning of the energy system and the absence of access to electricity from the state-owned electricity company (BUMN PLN) in their village, the community of Muara Enggelam in East Kalimantan initiated the use of solar power, managed communally by a local community-owned enterprise (S, civil society organisation representative in East Kalimantan; Mongabay, 2023).

Third, concerning funding. Discussion participants, particularly representatives of CSO and journalists, emphasised caution regarding energy transition financing. They demanded transparency in funding to avoid the risk of debt

schemes masked as investments burdening the current state finances and to be borne by future generations.

> "Maybe it has been explained earlier, especially from the journalist representative, that it is indeed necessary to have transparency, especially what I emphasise is investment, how the proportion or portion between private, foreign investment, or reinvestment should be clear, in the Energy Transition, don't let this investment become a trap for the country, not reducing the burden but adding a burden that ultimately damages the essence of intergenerational justice."
>
> (D, civil society organisation representative in Cirebon)

Fourth, there is concern among civil society about the potential for corruption and the trade of issues in the energy transition agenda, especially with large funding involved and nearing the presidential election, associated with a period when political actors need funds and are restructuring their political formations. Therefore, there is a demand for a transparent and fair process:

> "We need to look more substantially at the energy transition. [...] the majority of Indonesian society still doesn't understand what energy transition is? [...] Don't let this become an issue to attract the masses when the election comes.
>
> The Just Energy Transition is prone to corruption potential. Now, we're approaching the presidential election, this Big Sell, a large corruption case, and there is JETP. This Energy Transition also involves other CSOs. We mutually supervise the funds that are trillions of dollars, someone will certainly write it; there is concern about the potential for corruption that becomes a worry."
>
> (E, civil society representative in Cirebon)

In conclusion, the narrative of energy transition policy is still contested. This narrative contestation is ongoing, given that there is no agreed-upon narrative among stakeholders at the regional level regarding the concept, planning, goals, and financing scheme of energy transition. Similar to the youth section, we advocate for pushing a narrative of energy transition that is fair to both society and nature. The local governments and department officials we interviewed also acknowledge their situation and position as part of the community and dependent on nature.

Through this action research method, we see that the debates surrounding the transition lie in different sectors and have not yet formed a cohesive narrative. However, by facilitating meetings through action research, we have helped establish cross-sector interactions and demonstrated to participants how concerns, analyses, and perspectives that initially seemed separate (city congestion, pollution, downstream effects, working conditions, corruption, etc.) among actors from various institutions across sectors (private, central government, local government, affected communities, CSO) are interconnected issues and that the fate of each will be affected.

Development schemes fail to achieve their goals not only due to collusion between state interests and capitalists or simplification but also because the state itself consists

of actors with different agendas (Dewan, 2021). Without consolidation among actors that can oversee a just energy transition, the transition is also susceptible to reverting clean energy back into a system that reproduces the accumulation interests that initially drove the adoption of dirty energy (Malm, 2016).

In our action research, one of our goals is to map and create alliances. Our research shows that some government officials have a critical view of dirty energy extraction, especially coal. Many of them, like the general public, are concerned about the presence of coal mines, especially illegal ones:

> "However, as we know, recently, the community is also concerned about the existence of coal mines. Especially illegal coal mines. If I may represent the community, honestly, we are grateful that this coal will no longer be used so that our environment is not damaged. In every meeting with the community, we often chat about the existence of a PLTU using coal and then our environment is massively exploited, and now there are even illegal mines. Many roads are damaged."
>
> (S, representative from Kesbangpol in East Kalimantan, 14 June 2023).

Through this action research, we hope to drive the necessary fieldwork and negotiations to realise a just energy transition, both at the local and national levels.

Overview of Stakeholder Mapping

According to Grande and Hutter (in Zilles & Marg, 2022), polarisation refers to groups of individuals with interconnected preferences and activities, explicitly limiting themselves from other groups and thereby constructing a 'strong opposing camp.' However, in the Indonesian context, considering the narratives of the central government and PLN (State Electricity Company) and analysing clustered group discussions, we argue that actor groups do not explicitly confine themselves from other groups. We assert that differences of opinion among actor groups are pragmatic. Therefore, we categorise two actor groups based on the power they hold and the impact they feel in the energy transition. Hence, we categorise them as central and regional groups.

Table 3: Stakeholder Groups

Stakeholders at the Central Level	Stakeholders at the Regional Level
Ministry of Energy and Mineral Resources	Security Apparatus
Ministry of Environment and Forestry	Local Government
Ministry of State-Owned Enterprises	Private Sector
Ministry of Finance	Community
Ministry of National Development Planning / National Development Planning Agency	Civil Society Organisations
Ministry of Industry	Media

Source: Ciera Group and PT Hatfield Indonesia (2023) and the processed findings based on focused discussions from June to September 2023.

Stakeholders at the Central Level

1. Ministry of Energy and Mineral Resources (ESDM)

Responsible for policy development and implementation, supervision, and research and development in the field of renewable energy and energy conservation. Ensures the application of norms, standards, procedures, and criteria in line with sustainable development principles and the goal of transitioning to a more sustainable energy system.

2. Ministry of Environment and Forestry (KLHK)

Nationally responsible within the framework of the United Nations Framework Convention on Climate Change (UNFCCC) and for achieving NDC[8] targets. Collaborates with the ESDM to develop new and renewable energy in forest areas and provides public services and permits in the environmental and forestry sectors, including safeguards.

3. Ministry of State Owned Enterprises

Supervises the State Electricity Company (PLN), the main entity responsible for electricity provision in Indonesia. By overseeing and coordinating with PLN and other state-owned enterprises in the energy, oil, and gas sectors, the Ministry ensures that the energy transition aligns with government policy directives.

4. Ministry of Finance

Provides fiscal incentives, oversees PT Sarana Multi Infrastruktur (PT SMI), and participates in the National Energy Council (DEN) for the formulation of national energy policies.

5. National Development Planning Ministry / National Development Planning Agency

Coordinates national development policies to support an equitable and inclusive transition to a green economy, ensuring social protection, enhancing the competitiveness of Micro, Small, and Medium Enterprises, and supporting the achievement of Sustainable Development Goals (SDGs).

6. Ministry of Industry

Promotes green industry in collaboration with the National Standardisation Agency and Industrial Policy. Additionally, this ministry must ensure that industry standards and regulations support the development of Renewable Energy (RE) and sustainability in industrial businesses according to established policies and regulations.

Stakeholders at the Regional Level

1. Security Apparatus

Influential and highly involved in security, with a tendency to favour private entities, in energy infrastructure areas directly impacting communities.

2. Local Government

In practice, regional governments (pemda) only implement regulations from the central government. Energy-related agencies currently exist at the provincial level (not at the regional level), reducing the power of regional governments at the city/district level. Regional governments focus on economic impacts and revenue-sharing from the energy sector.

[8] Nationally Determined Contributions (NDC) outlining targets for the reduction of greenhouse gas (GHG) emissions until the year 2030.

3. Private Sector

Entities with interests in investment and business sustainability, particularly in coal mining and expanding into nickel mining as the narrative shifts towards renewable energy.

4. Community

In this context, the community comprises those living in provinces economically reliant on the extractive sector. They experience positive impacts in terms of job availability but also face negative impacts such as limited involvement in energy policies and health risks due to mining activities.

5. Civil Society Organisations

CSOs have diverse perspectives and priorities. Some organisations tend to support the energy transition, while others may be against it.

6. Media

Has the opportunity to open public discourse and safeguard public interests in a fair energy transition. However, media workers may face repression by security forces and/or individuals mobilised by private entities and/or the government.

Identification of these stakeholder types can be used by CSOs to recognise the positions of specific entities on justice-oriented energy policy issues. This allows civil society actors to independently compile a list of institutions and actors following the six stakeholder types we presented based on the literature review.

Through social media exploration, discussions about a justice-oriented energy transition in Indonesian social media are influenced by international events and inter-country policies promoted by government institutions such as the ESDM and PLN. Local policies may gain national attention when local leaders participate in international forums. With international financial support, including funds and loans, discussions about energy transition in Indonesia are constructive on social media, without polarisation. However, based on our focus group discussions (FGD), we see that the central government's framework and priorities differ from those of local governments and local communities as well as civil society in perceiving the transition. This can be observed through four aspects:

1. Consensus on views about the energy transition
2. Stakeholder mapping by CSOs in East Kalimantan
3. Transition agenda priorities from Civil Society and local governments in East Kalimantan, West Java, and South Sumatra
4. Edelman Polarisation barometer and its consequences for the Energy Transition in Indonesia

Firstly, we will discuss how consensus views among various stakeholders at the local level regarding the energy transition vary.

These diagrams were obtained through the analysis of FGD results conducted by the Yayasan Indonesia Cerah team in three different provinces. They illustrate variations in perceptions of the energy transition. Two provinces, East Kalimantan and South Sumatra, depend on income from the extractive economic sector, including coal. Meanwhile, Cirebon is the location of the first PLTU to be decommissioned through the ETM scheme.

Some questions and answers considered in these two diagrams include perspectives on the energy transition's essential values (Diagram 1), understanding of the transition, transition strategies, identified problems, and the impacts of the transition, as well as the identification of stakeholders related to the transition (Diagram 2).

Diagram 1: Clustered Perspectives on the Most Important Values of the Transition based on FGD Results:

Diagram 2: Clustered Perspectives on the Transition based on Overall FGD Results:

Further exploration into what makes these positions different reveals that concrete experiences related to the transition play a crucial role. The differing positions and clustering in Diagram 2 indicate this, where the ESDM occupies the bottom-left position, and three CSOs directly impacted by geothermal energy infrastructure are at the top. A media outlet that often shares its direct encounters with communities affected by climate crises and landscape changes also holds a distinct position. Most Regional Apparatus Organisations (OPD) and communities from one village in East Kalimantan see energy issues as partially related to land conflicts and changing livelihoods.

Although FGD participants came from different sectors (OPD, Civil Society, Academia, Private Sector, Media, and the Community) and regions (South Sumatra, West Java, and East Kalimantan), there are similarities in their perspectives. Among OPD, for example, there is a common concern about the implementation of the transition and how it will affect well-being and the environment.

Similarly, various CSOs participating in the FGDs focus on the economic and environmental impacts of the transition, aligned with the respective CSO focus. However, the dominant concern among the community is the economic impact of the transition. Nevertheless, categorizing the concerns of civil society and local communities as polarisation is not entirely accurate. In various studies, the community's economy is more appropriately imagined as a landscape and economic unity, namely livelihood (Toumbourou, Dressler, and Werner, 2022). In this context, society's expectations revolve around economic and environmental unity. The tendency to worry about price increases is a response to the uncertainty of the local economy depending on extractivism.

Some informants in East Kalimantan, for instance, mentioned that the local community's economic dependence on mining is relatively low because not many people work directly in sectors related to mining. However, in the BPS statistics of East Kalimantan, the largest PDRB income comes from net exports, mostly derived from natural resources such as coal, oil, and natural gas (BPS, 2023).

Therefore, at the regional government level, there is concern about the potential loss of net exports, which has been the largest source of PDRB in East Kalimantan, constituting more than 50% of PDRB in six regencies.

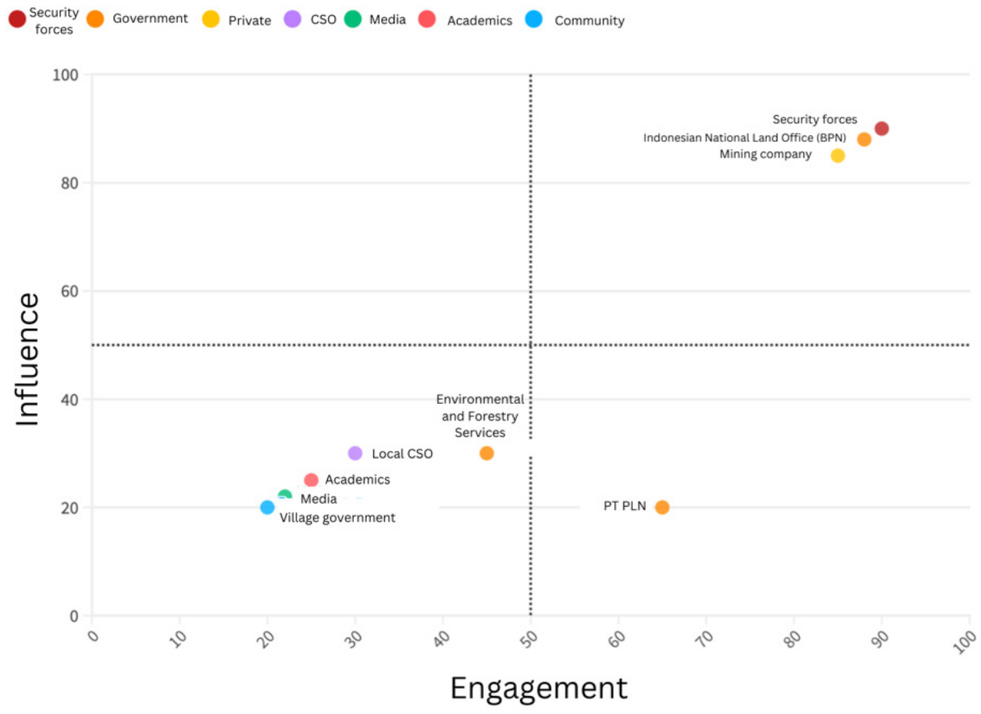
Looking at the impact of mining companies at the village - regional government – CSO level, differences arise from different economic formations. On one hand, there is the regional government's dependence on taxes and revenue-sharing funds (DBH) from the dirty industry. On the other hand, there are local communities with inadequate access to basic health services and electricity. Meanwhile, livelihoods and landscapes in East Kalimantan are eroded, pushing people to turn to income related to the mining industry. In South Sumatra, for example, a participant in an FGD emphasised this:

> **"Muara Enim and Lahat were once agricultural sectors. After coal entered, they transitioned indirectly, forced because their land was disturbed by mining and coal-bearing parties. Whether they like it or not, to profit they have to work in coal mining too."**
> (Jurnalis di Sumatera Selatan, 23 Agustus 2023)

This also reaffirms the positions of mining-producing areas as extraction zones, and dry occupation zones (Li & Semedi, 2021). Extractive regions become dry because their value and economic turnover are centralised in capital centres or, in this case, other industrial centres that exploit externalities from mining impacts.

Within the framework of extractive industries and the accompanying inequality in access and infrastructure, CSOs, and residents imagine the "energy transition." This can be further observed through the actor mapping we conducted with civil society (residents, CSOs, Media, and Academia) in East Kalimantan.

Diagram 3. Actor Mapping in East Kalimantan



Source: ARC UI and Yayasan Indonesia Cerah

This diagram represents the results of extracting opinions and experiences from civil society groups in East Kalimantan, accompanied by discussions about who the stakeholders are related to the energy transition and how their influence and involvement relate to this issue.

Table 4: Influence and Involvement

No.	Actor	Influence	Involvement	Description
1	Security Apparatus	Strong	High	The Security Apparatus has high influence and involvement as they are responsible for securing energy infrastructure areas directly affecting the community.
2	National Land Agency (BPN)	Strong	High	The BPN plays a role in resolving land confiscation cases conducted by mining companies against the local community.
3	Mining Companies	Strong	High	This mining company holds significant influence and high involvement due to its mining area, economic influence, and political sway that extends throughout Kutai Kartanegara.
4	PLN (Indonesia's state-owned electricity company)	Low	Moderate	PLN, as a buyer, doesn't heavily intervene in mining companies. PLN's involvement is limited to securing the coal supply.
5	Local Civil Society Organisations (CSOs)	Low	Moderate	CSOs cannot influence policies but often accompany communities facing issues related to coal mining.
6	Media	Low	Moderate	The media frequently reports on the transition and security force violence, yet doesn't receive a firm response from local or central governments.
7	Academics	Low	Low	Academics are considered to lack authority because, despite frequently writing and discussing mining issues, they lack decision-making power.
8	Village Government	Low	Low	The village government is perceived by the community as powerless when dealing with security forces, the village government, and the company. The village government often fails in negotiations and is seen as lacking the strength to negotiate issues already decided by external authorities with more power.
9	Environmental Agency (DLHK)	Low	Low	Despite extensive environmental damage caused by coal mining in East Kalimantan, the East Kalimantan Environmental Agency (DLHK Kaltim) seemingly lacks the authority or policies to provide solutions to these problems.

Civil society in East Kalimantan views the energy issue as a conflict at the extraction point. Therefore, entities that become significant players in East Kalimantan's energy infrastructure are those directly involved with investors and have the power to shape practices on the ground. This is inseparable from local and national energy politics and economics where capital owners dominate (Ordonez et al., 2022).

Our analysis indicates that the dominant narrative shaped on social media is constructed by CSOs, private actors, and the government, all of which can be seen as actors with the highest interests in influencing energy policies.

From our field findings, in the community's perception, influence or power is formed through intertwining capital and the ability to mobilise power on the ground. The differences in positions and conflicts are not based on ideological differences but on the interest in continuing business, in the form of incentive structures (Aspinall & Berenschot, 2019).

These findings are intriguing because, in the community's perception of

East Kalimantan, PLN does not play a significant role. This is because, in understanding energy, the community in East Kalimantan sees it in the form of coal and its accompanying infrastructure, which directly impacts their livelihoods. In several studies, changes in livelihoods are indeed perceived as the earliest changes experienced by the community as a result of the entry of companies that bring new working regimes and livelihood arrangements (Li & Semedi, 2021; Toumbourou, Dressler, and Werner, 2021).

Further analysis is needed to map the extent to which social networks and business networks influence energy policies at various policy-making levels in Indonesia. It is also important to note that these maps and tables do not depict the actual roles of actors but rather how civil society perceives the energy issue and how they understand related actors.

For this reason, we also conducted mapping related to strategic issues to further understand how civil society positions the energy transition at the local level (Tables 5 and 7) and how this is understood at the central level (Table 6).

Table 5: Mapping of Strategic Issues in East Kalimantan

Theme	Issue
Regulatory Issues	Monopoly of PLN
	Incomplete policies
	Lack of government focus
	Unsynchronised policies
	Dependency on coal
	Difficulty in enforcement
Social	Conflict of interests
	Politicisation of energy issues
	Counterfeit Environmental Impact Assessments (Amdal)
	Inadequate compensation
	Violence by Security Forces and Government
	Land conflicts
	Post-mining economic challenges
Infrastructure	Uneven distribution of infrastructure
	Damaged infrastructure
Environment	Post-mining rehabilitation
	Environmental impacts of energy projects

Source: ARC UI and Yayasan Indonesia Cerah

Issue Description

PLN Market Structure
PLN's monopoly on electricity in Indonesia is considered to impede competition, potentially limiting innovation and efficiency in the energy sector. The monopoly position may delay PLN's incentives to modernise and integrate more sustainable energy practices due to a lack of competitive pressure.

Incomplete Policies
Fragmented energy policies have failed to create a cohesive framework for transitioning to renewable resources, resulting in disjointed initiatives that may be unsustainable in the long term and hinder both national and sub-national commitments.

Government Lack of Focus
Despite the introduction of the General Plan for Regional Energy (RUED) and energy transition plans, stakeholders in East Kalimantan feel that implementation is not ready and is plagued by doubts. For example, operational budget burdens and inadequate staffing are not balanced with program implementation and the direct impact of the program.

Unsynchronised Policies
The government sets ambitious targets to accelerate the transition to new and renewable energy. However, current conditions show an increase in steam power plant electricity generation. Moreover, as reported by CNBC Indonesia (October 5, 2023), the demand for coal continues to rise. Meanwhile, according to FGD participants, some coal companies plan to boost production, indicating that demand for coal is still present.

Dependency on Coal
The largest local revenue in East Kalimantan still comes from motor vehicle taxes and the coal industry. Some stakeholders suggest that the government should **focus on equalizing electricity access before addressing the energy transition.**

Potential Conflict of Interest
Looking ahead, caution is needed to prevent energy transition issues from becoming a government monopoly. Regional-owned enterprises control electric cars in state-owned enterprises (controlled by only one person), or companies receiving funds from regional or national budgets. To mitigate this, the state should provide opportunities for the public to play a role in this energy transition. The government should open spaces for the public, whether through subsidies or policies regulating this matter.

Politicisation of Energy Issues
Politicising energy issues can steer energy development towards short-term gains, overlooking long-term consequences for the environment and society.

Environmental Impact Assessment Forgery
Forgery of Environmental Impact Assessments (Amdal) often occurs, where crucial documents describing the potential environmental impacts of a project are illegitimately created or manipulated to obtain approval from the relevant authorities. Amdal documents often do not match the realities on the ground.

Inadequate Compensation
Compensation provided to local communities or landowners does not reflect the true value of the land or the losses they suffer due to energy project development, whether renewable or conventional.

Violence by Authorities Favouring Investors
This is a concern for civil society groups and local communities, especially those facing intimidation and land seizures supported by a combination of involvement of social organisations and security forces.

> The involvement of social organisations and law enforcement backing these thugs can operate anywhere without permission, including forcibly seizing citizens' land. (Civil Society)

Land Conflicts

Land conflicts often arise when there is competition or conflicting claims over land use rights between energy companies, the government, and local communities, particularly in areas planned for energy or mining project development.

Uneven Infrastructure

Energy infrastructure and connectivity in East Kalimantan are still uneven, including in several settlements near mines that do not yet have access to PLN electricity.

Infrastructure Damaged Due to Mining Activities

Road infrastructure in East Kalimantan is often a concern for the local government and communities due to frequent damage caused by mining activities.

Difficult Enforcement

Weak law enforcement or a lack of government resources and capacity often make it difficult to take action against environmental law violations or violations by energy companies. The Environmental Agency and local governments are increasingly struggling as they no longer have authority over mining-related matters.

Post-Mining Rehabilitation

Responsibility for rehabilitating mining areas after closure is often not carried out properly, causing long-term environmental damage and burdening local communities with unhealthy soil and water conditions.

Post-Mining Economy

Local economies that were previously dependent on mining activities often decline after the mine is closed, without a solid plan for diversification or sustainable alternative economic development. This is exacerbated by the shift in economic formations, livelihoods, and tenures that push residents to rely on mining activities.

Environmental Impact of Energy Projects

Energy projects, whether renewable or conventional, can have significant environmental impacts that are often not considered, and economic and environmental mitigation plans are not well-planned.

For this reason, we also analysed the differences in perspectives between the central government and the stakeholders at the local level who participated in our FGD. For the representation of the strategic issues identified by the central government, we used the ESDM report with IRENA regarding transition constraints. We compared the two perspectives on this issue to identify potential problems that may have been overlooked by the government regarding energy transition.

Table 6: Strategic Issues Identified by the ESDM - IRENA[9]

Issue	Challenge	Solution
Energy system readiness	• COVID-19 pandemic • Inadequate funding • Regulatory challenges in transitioning to renewable energy • Adjust regulations and local manufacturing	• Create equal conditions for renewable energy resources • Reform the design of the electricity market in Indonesia • Seize long-term opportunities from energy transition with a clear green recovery program
Regulatory framework	Clear policies are needed to encourage renewable energy auctions and corporate energy purchases.	• Simplify procurement processes • Clear regulatory framework with effective renewable energy auctions and well-functioning Feed-in Tariff (FiT) mechanisms • Solutions to create a distributed renewable energy market • Leverage opportunities offered by new renewable energy markets
Technology and infrastructure readiness	Network capacity limitations and the importance of the timely publication of RUPTL emphasise the need for investor predictability and investment planning aligned with enhanced auction schemes and the placement of wind and solar capacities supporting the system.	• Enhance system flexibility for cost-effective integration of renewable energy
Financing	Financial institutions struggle with unfamiliarity and perceived high risks from renewable energy projects, limited financial instruments and suitable resources, and a lack of long-term capital from local sources, resulting in difficulties for project developers in securing funding.	• Mixed financing mechanisms, guarantee schemes, and green bonds are needed to reduce risks and attract private capital, especially for off-grid systems.

[9] IRENA (2022), Indonesia energy transition outlook, International Renewable Energy Agency, Abu Dhabi.

Table 7: Issues Obtained Through FGDs Based on Proposer Groups

Actor	Interests	Obstacles
Private Sector	· Investment · Business sustainability	· Economic impacts post-mining · Energy system readiness · Infrastructure readiness · Non-competitive energy prices · PLN monopoly
Media	· Opening public space · Protecting public interests	· State repression against media and civil society · Violence by companies · Interests in polluting industries
Local Government	· Revenue-sharing from the energy sector · Economic impacts on the region · Utilisation of alternative energy	· Unclear regulations · Loss of regional authority · Unequal infrastructure
Civil Society Organisations	· Environmental protection · Justice from a Just Transition · Impacts on the community	· Politicisation of energy policies · Debt traps and neoliberal practices · State violence · Economic impacts · Uneven infrastructure · Post-mining rehabilitation · Electricity surplus
Community	· Economic impacts of energy transition · Impacts on livelihoods	· Impacts on livelihoods · Lack of public engagement · State violence · State's negligence towards the impacts of energy infrastructure

Source: ARC UI and Yayasan Indonesia Cerah

The issues identified by the FGD findings focus on a broader socio-economic context, stakeholder interests, and the multi-sector nature of energy policy challenges in the Indonesian context.

The issues identified by the ESDM and IRENA, on the other hand, focus on systemic readiness for energy transition that sometimes does not directly touch on the concerns and aspirations at the local community and local government levels. For example, regarding regulatory issues, the central government emphasises strengthening regulations for electricity purchase mechanisms and discusses less about potential social conflicts and economic impacts on local economies. However, the economic structure and livelihoods centred on extractive economies, whether fossil-based or centralised in a few investors, tend to capture value from local circulation, which is prone to forming zones of occupation and weakening local economies (Li & Semedi, 2021).

The government needs to address how macro-level energy policies can affect the ecological, economic, and livelihood structures undergoing reconfiguration during the transition. This is also what we captured as concerns from the three study areas, both from media groups, OPD, private sectors, and civil society. Polarisation in the energy sector may not seem apparent if indicators of polarisation are reduced to technical aspects, as discussed by Edelman's study, which places polarisation in Indonesia in the low category. In the FGD we conducted, one informant mentioned the existence of sharp knowledge imbalances, forming their polarisation. These differences are not just unintended byproducts but phenomena often mobilised by elites and the interests of private actors and the government. On one side, some have access to reliable electricity and strong energy, often facilitated by proximity to energy-producing facilities. On the other side, communities are experiencing unreliable electricity services, metaphorically and left in the dark because their lights "flicker."

The unequal distribution causes a sense of injustice among residents, as narrated by a journalist from South Sumatra. The community's understanding of energy is limited to their direct experience with electricity and fuel, without a broader understanding of the ongoing energy transition. They perceive an unfair distribution of knowledge and benefits, observing a stark contrast between reliable energy supply in industrial areas and uncertain services in their homes:

> In the field, Sir, what about this energy transition? What kind of narrative is this, the people say? So, to understand energy in society, they only know electricity and fuel, Sir. And until today, they still don't feel it's fair. They walk nicely on the other side of the factory. Meanwhile, their lights flicker. Whoever is the Robin Hood making the electricity; they will accept it. Even nuclear power will be accepted. As long as the electricity is on. So, there is a knowledge injustice. That's according to us, thank you.
>
> (Journalist in South Sumatra, 23 August 2023)

Communities today show a striking pragmatism towards energy sources; there is a tendency to care less about the origin of electricity, reflecting knowledge and power imbalances at the community level. This phenomenon, as revealed by Jeong et al. (2021), is highly influenced by the community's perspective depending on their local context. Today, the energy context in East Kalimantan is an extraction point where extractive violence takes place.

In areas that are predominantly material sources of energy, mining and its effects dominate attention. In West Java, several civil society organisations emphasise opposition to geothermal and stress that what is needed is not socialisation but involvement that places the community as equal actors:

> Earlier, I heard that what is needed is socialisation, education, and so on. That implies that the community needs socialisation and doesn't understand. For example, like yesterday there was rejection against Chevron, against Geothermal. That implies that the community rejects it because they don't understand. No. The community rejects it because they understand.
> (West Java - Civil Society)

In South Sumatra, the long-term effects of changes in landscape and livelihoods seem most pronounced, including trends in utilizing biomass, inseparable from the plantation economy intertwined with other extractive economies (Toumbourou, Dressler, and Werner, 2022). Especially in Sumatra, extractive economies based on plantations have dominated since colonial times (Stoler, 1995), unlike East Kalimantan where the extractive economy started with mining such as coal (1840s in Pengaron, now South Kalimantan) and oil (1890s in Balikpapan and Tarakan). It was only in the 1960s-1970s that various commodity plantations and logging grew before being followed by palm oil in the 1980s (Sellato, 2001 & Toumbourou, Dressler, and Werner, 2022).

> We've been discussing for a month, why is heat moving from Kampung Narung to the swamp areas. The main problem turns out to be not fire but food, and drink, and why? Because many swamps change function, many forests change function, why for example biomass is disturbing. Biomass is [harvested] continually, I read yesterday that the target is so many million tons of wood, after which the forest will be depleted again.
> (Journalist in South Sumatra, 23 August 2023)

Meanwhile, local governments in West Java are also negotiating the amount of the DBH that has become a concern in the three study areas.

Polarisation manifested in other forms

The Edelman Trust study conducted in 2023 shows that Indonesia falls into the category of countries with minimal polarisation. According to our analysis, the low perception of polarisation indicates a strengthening consolidation between elites and oligarchs in recent years (Diprose, McRae, and Hadiz, 2019). Similar things can be seen in transition policies, where many major investors have ensured the continuity of their business through downstream processes (Putra, 2022) and also in the clean energy sector (Sianturi, 2022).

In this stakeholder mapping analysis, we see that various interests at the central and regional government levels do not result in polarisation. In line with our social media analysis, local governments in East Kalimantan, South Sumatra, and West Java complain about unclear regulations, especially regarding the role of regions and DBH. However, for the time being, local governments are also trying to find alternative funding and alternative energy development such as co-firing and waste management in East Kalimantan, DBH renegotiation and geothermal in West Java, and energy diversification plans in South Sumatra by the respective local governments.

To delve deeper into the issue of polarisation and other dynamics, we suggest that a more in-depth social network analysis is needed. We see that, although there is no clear polarisation in public discourse, there is still potential for conflicting interests and complex power dynamics that need to be better understood through further research, to see the intertwining of elites and the systematic and incentive structures that may lead to future conflicts as is currently happening in some national strategic projects.

03. Conclusion and Recommendations

This study aims to understand how the issue of energy transition is evolving in Indonesian society. To achieve this goal, firstly, we have delineated the extent to which polarisation on the energy transition issue occurs in Indonesian social media. Based on social media network analysis, we identified three clusters of accounts shaping the conversation on energy transition: those affiliated with PT PLN, accounts of public figures and international institutions, and accounts of local media and national and local civil society organisations linked to the just energy transition movement.

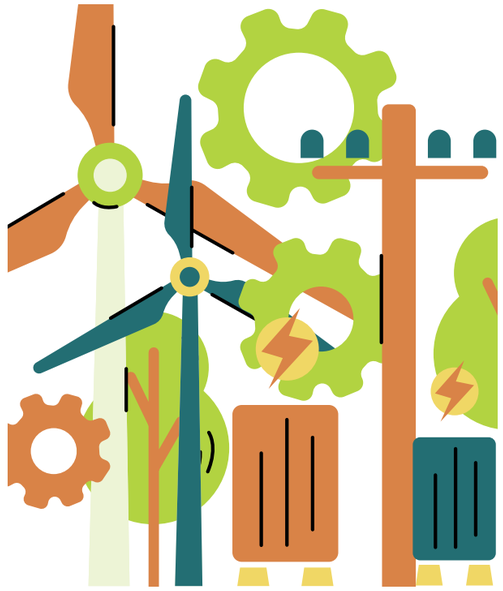
Furthermore, we found that there is no polarisation in the conversation about energy transition on social media in Indonesia. The discourse is more influenced by transnational phenomena and agreements than domestic developments. For us, this signifies the absence of national dynamics and the local actors' ability to sustain public attention towards the energy transition agenda.

In portraying the development of the energy transition issue in Indonesian society, we also surveyed young respondents. From this survey, we found that concerns about the future of clean energy have not been expressed politically or directed towards relevant policies. Most young respondents tend to follow social media trends to understand the energy transition agenda.

Additionally, concerns about the future of clean energy are centred on air pollution and electric vehicles. This implies that the imagination of the future among young people is limited to 1-5 years rather than several decades ahead. Despite their support for the shift from dirty energy to clean energy, surveyed young individuals expressed concerns about the energy transition negatively impacting economic activities and access to affordable energy.

Based on these findings, we propose two recommendations. First, young people need more exposure and a more central role in developing just energy. We argue that young people are key actors capable of driving the narrative of a just energy transition on social media.

Second, stakeholders, academics, and scientists can collaborate with civil society organisations and science journalism to enhance young people's knowledge of dirty and clean energy, as well as the material solutions needed. This cross-sector collaboration can leverage trending issues, such as increasing air pollution and PT PLN's advocacy for electric vehicle use as a solution in urban areas, to disseminate knowledge, such as the energy sources of batteries used to power electric vehicles.



Reference

ADB. (2023). Energy Transition Mechanism. https://www.adb.org/what-we-do/energy-transition-mechanism-etm

Anam, K. (2022). Peluang & Tantangan Ekonomi Transisi Energi Mengemuka di B20. In CNBC Indonesia. https://www.cnbcindonesia.com/news/20220623174447-4-349814/peluang-tantangan-ekonomi-transisi-energi-mengemuka-di-b20

Arlt, D., Rauchfleisch, A., & Schäfer, M. S. (2019). Between fragmentation and dialogue. Twitter communities and political debate about the Swiss “nuclear withdrawal initiative”. Environmental Communication, 13(4), 440-456.

Asia Research Centre Universitas Indonesia & Yayasan Indonesia Cerah. (2023, Juni). Kerangka Acuan Kegiatan Diskusi Kelompok Terfokus “Percepatan Transisi Energi di Kalimantan Timur: Peran Pemerintah, Masyarakat Sipil, dan Pelaku Usaha”.

Binder, M. (2023, June). Twitter’s API keeps breaking, even for developers paying $42,000”. In Mashable SE Asia. https://sea.mashable.com/tech/24640/twitters-api-keeps-breaking-even-for-developers-paying-42000

D. Boyd, S. Golder and G. Lotan. (2010), Tweet, Tweet, Retweet: Conversational Aspects of Retweeting on Twitter. 43rd Hawaii International Conference on System Sciences, Honolulu, HI, USA, 2010, pp. 1-10, doi: 10.1109/HICSS.2010.412.

Camil, R., Attamimi, N. H., & Esti, K. (2017). Dibalik fenomena buzzer: Memahami lanskap industri dan pengaruh buzzer di Indonesia. Centre for Innovation Policy and Governance, 1(1), 1-30.

Carmack, H. (Ed.) (2017). . (Vols. 1-4). SAGE Publications, Inc, https://doi.org/10.4135/9781483381411

CNBC Indonesia (2023, Oktober). Produksi Batu Bara RI 81,67%, Hampir Tembus Target. https://www.cnbcindonesia.com/news/20231005152649-4-478213/produksi-batu-bara-ri-8167-hampir-tembus-target

CNN Indonesia. (2021, November). Khawatir Ramai Harga Listrik Naik, Jokowi Cari Skema Transisi Energi. https://www.cnnindonesia.com/ekonomi/20211122144821-532-724444/khawatir-ramai-harga-listrik-naik-jokowi-cari-skema-transisi-energi

CNN Indonesia. (2023, September). Polusi Makin Parah, Luhut Ingin Percepat Proyek Kendaraan Listrik. In CNN Indonesia. https://www.cnnindonesia.com/ekonomi/20230901184725-92-993655/polusi-makin-parah-luhut-ingin-percepat-proyek-kendaraan-listrik Ciera Group dan PT Hatfield Indonesia. (2023, Juni). Laporan Final Pelingkupan SESA: Strategic Environmental and Social Assessment (SESA) Mekanisme Transisi Energi (MTE) di Indonesia. Disusun untuk Asian Development Bank.

Corlew, L. K., Keener, V., Finucane, M., Brewington, L., & Nunn-Crichton, R. (2015). Using social network analysis to assess communications and develop networking tools among climate change professionals across the Pacific Islands region. Psychosocial Intervention, 24(3), 133–146. https://doi.org/10.1016/j.psi.2015.07.004

Cunningham, R., Cvitanovic, C., Measham, T., Jacobs, B., Dowd, A.-M., & Harman, B. (2016). Engaging communities in climate adaptation: The potential of social networks. Climate Policy, 16(7), 894–908. https://doi.org/10.1080/14693062.2015.1052955

Falkenberg, M., Galeazzi, A., Torricelli, M., Di Marco, N., Larosa, F., Sas, M., Mekacher, A., Pearce, W., Zollo, F., Quattrociocchi, W., & Baronchelli, A. (2022). Growing polarization around climate change on social media. Nature Climate Change, 12(12), Article 12. https://doi.org/10.1038/s41558-022-01527-x

Gladwin, D., & Ellis, N. (2023). Energy literacy: towards a conceptual framework for energy transition. Environmental Education Research, 1-15.

Hadiz, V., & Robison, R. (2013). The Political Economy of Oligarchy and the Reorganization of Power in Indonesia. 96 (Indonesia, Special Issue: Wealth, Power, and Contemporary Indonesian), 35-57.

Hovland, C. I., & Weiss, W. (1951). The influence of source credibility on communication effectiveness. Public opinion quarterly, 15(4), 635-650.

IPCC. (2013). Summary for Policymakers. In: Climate Change 2013: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 1-34, doi: 10.59327/IPCC/AR6-9789291691647.001

Jeong, G. H., & Lowry, W. (2021). The polarisation of energy policy in the US Congress. Journal of Public Policy, 41(1), 17-41.

Jobin-Leeds, G. (2016). When we fight, we win: Twenty-first-century social movements and the activists that are transforming our world. New York: New Press

t. (2021). Kalimantan Timur Miliki PDRB sektor tambang tertinggi. https://databoks.katadata.co.id/datapublish/2021/03/19/kalimantan-timur-miliki-pdrb-sektor-tambang-tertinggi

Kubin, E., & von Sikorski, C. (2021). The role of (social) media in political polarization: A systematic review. Annals of the International Communication Association, 45(3), 188–206. https://doi.org/10.1080/23808985.2021.1976070

Kusuma, Nazalea. (2023). What is Just Energy Transition Partnerships?. Green Network. https://greennetwork.asia/news/what-is-just-energy-transition-partnerships/#:~:text=The%20IPG%20consists%20of%20Japan,as%20HSBC%20and%20Citi%20Bank

Kusumaningrum, S., Sari, W. L., Febrianto, R., Wandasari, W., Arifiani, S. D., & Pratama, G. (2023). Mengenal Keterlibatan Kaum Muda dalam Isu Iklim dan Lingkungan Hidup di Indonesia. Depok, Indonesia. PUSKAPA.

Laville, S. & Watts, J. (2019). Across the globe, millions join biggest climate protest ever. https://www.theguardian.com/environment/2019/sep/21/across-the-globe-millions-join-biggest-climate-protest-ever

Lavrakas, P. J. (Ed.). (2008). Encyclopedia of Survey Research Methods. SAGE. DOI: https://dx.doi.org/10.4135/9781412963947.n419

Ledford, H. (2023). Researchers scramble as Twitter plans to end free data access. https://www.nature.com/articles/d41586-023-00460-z

Li, R., Crowe, J., Leifer, D., Zou, L., & Schoof, J. (2019). Beyond big data: Social media challenges

and opportunities for understanding social perception of energy. Energy Research &

Social Science, 56

Lim, M. (2017). Freedom to hate: social media, algorithmic enclaves, and the rise of tribal nationalism in Indonesia. Critical Asian Studies, 49(3), 411-427.

Loureiro, M. L., & Alló, M. (2020). Sensing climate change and energy issues: Sentiment and

emotion analysis with social media in the UK and Spain. Energy Policy, 143

Malm, A. (2016). Fossil capital: The rise of steam power and the roots of global warming.

London & New York: Verso.

Mare, A., Mabweazara, H. M., & Moyo, D. (2019). “Fake news” and cyber-propaganda in Sub-Saharan Africa: Recentering the research agenda. African Journalism Studies, 40(4), 1-12.

Maurer, Jean-Luc (2021). Indonesia in ‘3D’: development, dictatorship and democracy. Encouraging knowledge and enhancing the study of Asia (88), 10-11

Mongabay. (2023). Muara Enggelam Desa Role Model PLTS Komunal di Kalimantan Timur. https://www.mongabay.co.id/2023/08/16/muara-enggelam-desa-role-model-plts-komunal-di-kalimantan-timur/

Mudhoffir, A. M. (2021). Aktivisme Borjuis: Mengapa Kelas Menengah Reformis Gagal Mempertahankan Demokrasi. Project Multatuli.

Neuman, W. (2014) Social Research Methods: Qualitative and Quantitative Approaches. Pearson, Essex, UK.

O’Brien, K., E. Selboe, and B. M. Hayward. (2018). Exploring youth activism on climate change: dutiful, disruptive, and dangerous dissent. Ecology and Society 23(3):42. https://doi.org/10.5751/ES-10287-230342

Ordonez, J. A., Jakob, M., Steckel, J. C., & Fünfgeld, A. (2022). Coal, power and coal-powered politics in Indonesia 1. In The Political Economy of Coal (pp. 281-299). Routledge.

Pearce, W., Niederer, S., Özkula, S. M. & Sánchez Querubín, N. (2019). The social media life of climate change: platforms, publics, and future imaginaries. WIREs Clim. Change 10, e569 .

Perdana, A.P. (2023, August). Struktur Pasar Kelistrikan Jadi Tantangan JETP. Kompas. https://www.kompas.id/baca/ekonomi/2023/08/03/struktur-pasar-kelistrikan-indonesia-jadi-tantangan-implementasi-jetp

PLN. (2023, August). PLN Dorong Penggunaan Kendaraan Listrik Guna Kurangi Polusi Udara. In Siaran Pers PLN. https://web.pln.co.id/media/siaran-pers/2023/08/pln-dorong-penggunaan-kendaraan-listrik-guna-kurangi-polusi-udara

Rakhmani, I., & Saraswati, M. S. (2021). Authoritarian populism in Indonesia: The role of the political campaign industry in engineering consent and coercion. Journal of Current Southeast Asian Affairs, 40(3), 436-460.

Rustiadi, E., Pribadi, D.O., Pravitasari, A.E., Indraprahasta, G.S., Iman, L.S. (2015). Jabodetabek Megacity: From City Development Toward Urban Complex Management System. In: Singh, R. (eds) Urban Development Challenges, Risks and Resilience in Asian Mega Cities. Advances in Geographical and Environmental Sciences. Springer, Tokyo. https://doi.org/10.1007/978-4-431-55043-3_22

Safrina, R., & Yurnaidi, Z. (2023, July). Social Media Analysis on ASEAN Energy Transition Trends. In IOP Conference Series: Earth and Environmental Science (Vol. 1199, No. 1, p. 012012). IOP Publishing.

Sellato, B. (2000). Forest, resources and people in Bulungan. Elements for a history of settlement, trade and social dynamics in Borneo. CIFOR

Stoler, A. L. (1995). Capitalism and confrontation in Sumatra's plantation belt, 1870-1979. University of Michigan Press.

Tempo.co. (2023, September). Satgas KLHK Awasi 32 Industri di Jabodetabek Diduga Sumber Polusi Udara. https://metro.tempo.co/read/1770572/satgas-klhk-awasi-32-industri-di-jabodetabek-diduga-sumber-polusi-udara

Toumbourou, T. D., Dressler, W. H., & Werner, T. T. (2022). Plantations enabling mines: Incremental industrial extraction, social differentiation and livelihood change in East Kalimantan, Indonesia. Land Use Policy, 119, 106157.

Traction Energy Asia (2020). Post-Election Political Analysis of Impacts on Land Use, Climate Action and Indigenous Rights in Indonesia: Extended Summary

We Are Social, Hootsuite, DataReportal. (2021). Breakdown of social media users by age and gender in Indonesia as of January 2021 [Graph]. In Statista. Retrieved September 11, 2023, from https://www.statista.com/statistics/997297/indonesia-breakdown-social-media-users-age-gender/

Whitehead, J., & McNiff, J. (2006). Action research: Living theory. Sage.

Wijaya, T. (2022). Conditioning a stable sustainability fix of 'ungreen' infrastructure in Indonesia: transitional alliances, compromise, and state's strategic selectivity. The Pacific Review 35:5. https://doi.org/10.1080/09512748.2021.1884123

Winters, J. A. (2013). Oligarchy and democracy in Indonesia. Indonesia, (96), 11-33.Yunus, S.R. (2023, June). Cadangan Nikel Kritis, Warga Sultra Minim Rasakan Manfaat Tambang. In Kompas.id. https://www.kompas.id/baca/nusantara/2023/06/08/cadangan-nikel-tersisa-55-tahun-daerah-justru-tak-rasakan-manfaat-signifikan

Yulianus, Jumarto. (2022). Kalimantan Poros Ekonomi Hijau. https://www.kompas.id/baca/nusantara/2022/08/19/transformasi-ekonomi-jadikan-kalimantan-poros-pertumbuhan-ekonomi-hijau

Yunus, S.R., Theodora, A. (2023). Kemiskinan Naik di Sentra Pengolahan Nikel, Efek Ganda Hilirisasi Belum Optimal. https://www.kompas.id/baca/ekonomi/2023/07/21/warga-masih-hidup-miskin-hilirisasi-sisakan-pekerjaan-rumah-besar

Zilles, J., & Marg, S. (2022). Protest and polarisation in the context of energy transition and climate policy in Germany: Mindsets and collective identities. German Politics, 1-22.