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Research Article

Domestic Factors on China's Green Belt and Road Initiatives: Comparing Indonesia and Thailand

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Abstract

China's implementation of the Green Belt and Road Initiative (BRI) reflects a shift in its foreign policy to support global energy transition and sustainable development. However, there is a notable gap between the initiative's objectives and its outcomes in host countries. While the Green BRI aims to showcase China's commitment to green investments, its energy investments in Indonesia remain heavily focused on fossil fuels, particularly coal. In contrast, China's renewable energy investments are prominent in Thailand. This study examines the implementation of the Green BRI in Indonesia and Thailand, analyzing how the energy mixes and investment portfolios. This study involving literature review and analysis of secondary data sources analyzed through the lens of Global China. This study argues that the divergence in Green BRI implementation across Southeast Asia reflects not merely China's flexibility, but the differentiated capacities of host countries to absorb, steer, or resist foreign investment agendas. Ultimately, Green BRI is highly adaptive, and its outcomes are co-produced through complex interactions between China's intentions and the domestic landscapes of partner countries. This study contributes by highlighting the critical role of domestic political and economic contexts in shaping China's green investments.

Keywords: China, Energy Politics, Cooperation, Green Belt and Road

INTRODUCTION

The Belt and Road Initiative (BRI) is a trillion-dollar plan launched in 2013 by the Chinese government that has economic and environmental repercussions for the world. The BRI, as described by the Chinese government, is a mutually beneficial partnership that regulates the nation's excess capacity and provides infrastructure to hosting nations while serving as a channel for Chinese investment, whose goal is to create a platform for regional cooperation between China and the nations along the route using the bilateral and multilateral structures that are currently in place as well as those that may be developed in the future (Wang & Lin, 2022). Later in 2017, Chinese President, Xi Jinping, called for an international coalition for green development that he dubbed the "Green Belt and Road Initiative" which President Xi defined as a "green, low-carbon, circular, and sustainable" way of life and will make consistent efforts to tap its potential to promote low-carbon transition worldwide (Xi, 2022; Xiao & Yifei, 2023).

Infrastructure development is widely recognized as a significant pillar of global China, arousing international concerns about ecologically uneven trade-offs beyond the national scale, particularly in the Global South (Klinger, 2020). In recent years, Green BRI came into the spotlight in the context of China's strategic shift towards enhancing its global competitiveness in green industries including renewable energy. Finally, there has also been some mention of the extent to which the trend towards Green BRI has shown that even China is aware of international expectations that its more expansive international engagements will need to be environmentally sensitive, involve low-carbon development, and promote greater international collaboration around green technologies to support the realization of sustainable development in developing states (Liu & Bennet, 2023b).

The Green BRI was established to motivate investments supporting sustainability, including the transition to renewable energy, which is a target addressed in prioritizing globalization to minimize the negative impact of climate change. The Green BRI energy sector project building, thus, is predicated on two basic strategic points (Carey & Ladislaw, 2019); (1) The need to provide affordable and adequate energy supplies to sustain growth; and (2) That the world must reduce emissions as part of addressing climate change. Southeast Asia, with its abundance of natural resources, has drawn Chinese investment. The role of the Chinese investment in Southeast Asian energy sector has been prominent since the 2000s, when investment activity through China's "going-out" strategy started to emerge (Shi & Yao, 2019).

On the other hand, in Southeast Asia, especially Indonesia, there is a gap between rhetoric and energy investment in practice (Global Energy Monitor, 2021). The amarinths above suggests a basic issue with how the Green BRI is being instituted is that China power investment remains markedly crude energy. During the period 2006 to 2022 Chinese investment in Indonesia was USD 35 billion, of which a quarter of the total investment was focused on the energy sector. Nevertheless, 86 percent of this value goes to the fossil energy sector and just 14 percent to renewable energy (Kemenko Marves, 2023). Indonesia was identified as the largest host for investment from China in the coal-fired power plant sector in 2021 with a total generating capacity of 9,724 GW and total investment value 15,671 million USD (Global Energy Monitor, 2021).

On the contrary, the energy cooperation between China and Thailand has been maintained with a large number of renewable energy investment projects emerging rapidly (Yang et.al, 2023). Initially, the Chinese companies are also focused on investment of engineering contracts, technical cooperation, and production capacity of renewable energy at Thailand, especially under the BRI mechanism (Wang & Zou, 2024). In recent years, Thailand has been given a rising priority as China transitioned toward Green BRI policies. Hung analyze China's motivations behind its efforts to help Thailand address the waste-to-energy challenge and build an environmentally and socially sustainable economy, consistent with the Green BRI's focus on sustainable overseas finance and development (Hung, 2024). This variation

suggests that domestic factors in host countries may significantly influence how the Green BRI unfolds in practice.

Indonesia and Thailand was chosen to be the subject of the observation because both countries has so much potential regarding renewable energy. Nevertheless, the countries has different behavior on how much energy were invested from China to the countries. Indonesia has a variety of renewable energy potential, one of them that we encounter while knowing is the solar energy that has a potential of around 207 GW (Halimatussadiah et.al, 2020). Moreover, Indonesia is also the owner of the largest geothermal energy reserves, estimated 23.7 GW (Energy Tracker Asia, 2024). Moreover, hydro power had been the largest source of renewable energy in Indonesia. Hydropower contributed over 50% of total renewable energy production. The potential capacity of hydropower is estimated to be up to 75 GW (East Ventures, 2023). With this several variations in renewable energy sources, it has made Indonesia have a good potential in developing renewable energy in Southeast Asia.

However, Thailand has also high potential in solar energy development. The country was also endowed with high levels of solar radiation, with an average of 1,875 kWh/m2 (per year), particularly in the central and northeastern parts of the country (Ministry of Energy Thailand, 2023). By 2023, solar power already supplied about 9% of the total installed capacity in Thailand. The Thai government is targeting 33% by 2025. Thailand is also exploring floating solar power in which solar panels float on hydroelectric dams. With an installation capacity of 2.7 GW, the project is seen as a critical move in diversifying the domestic renewable generation mix (Rated Power, 2022).

In the development of Green BRI, renewable energy consumption plays an essential role and has a critical linkage between economic, environmental, and social factors. Regarding environmental impact, the use of renewable energy has huge potential to minimize carbon emissions and reduce the ecological footprint, which highlights the importance of applying renewable energy in the process of achieving green development in the Green Belt and Road Initiative (Hussain, Li, & Ilyas, 2023). This has prompted growing academic interest in the factors that shape China's renewable energy investments abroad, particularly in developing countries participating in the BRI.

Existing literature can broadly be categorized into two approaches. First, is the push and pull factors, which explains Chinese overseas energy investments based on supply (push) and demand (pull) dynamics between China and host countries. Push factors include China's domestic overcapacity, its desire to export industrial surplus, and the strategic ambition to expand geopolitical influence through infrastructure investment (Kong & Gallagher, 2021a). Pull factors, on the other hand, emphasize the agency of host countries, namely, their demand for infrastructure; energy access needs; and preference for project types (Li et.al, 2022). For instance, the presence of rich power resources or specify policy preferences in a host country can increase the likelihood of receiving Chinese energy investments.

The second approach highlights structural and institutional determinants within host countries. Studies such as Zhao et.al (2022) identify multiple domestic

variables that influence the nature of Chinese energy investments, including governance capacity, trade transparency, the structure of national energy consumption, and environmental regulation. These studies argue that the political and institutional environment of recipient countries play a decisive role in shaping the sustainability orientation of Chinese investments. While these studies have contributed to a better understanding of the determinants of China's renewable energy investments, several gaps remain.

First, most research has focused on China's motivations or macro-level global investments trends, with relatively little attention to comparative case studies that assess how domestic conditions in different countries lead to varying outcomes in Green BRI implementation. Second, there is limited exploration of recipient country agencies in shaping the direction of Chinese investments in the energy sector, especially in Southeast Asia, a region with growing energy needs, diverse governance profiles, and strategic importance in the BRI. Thus, this article will address these gaps by providing a comparative analysis of Indonesia and Thailand. It builds on the insight that while China may offer a "green" investment agenda through Green BRI, the actual direction and content of these investments are also shaped by domestic policy environments, regulatory frameworks, and governance dynamics in host countries. By examining the divergent outcomes of Chinese energy investment in these two countries, this article contributes to the literature by re-centering the role of domestic political economy in shaping the practical realization of China's green ambitions abroad.

METHOD

This research employs a qualitative approach by applying case studies to observe the difference in the implementation Green BRI between Indonesia and Thailand. Qualitative research methods are research strategies that rely primarily on the use of words as opposed to numbers in the collection and analysis of data (Bryman, 2012). On the other hand, case study research is research that goes deep into exploring a phenomenon with respect to a unit or case over one period or over multiple time periods in an in-depth approach by looking closely at the particulars embedded in each case and its context (Neuman, 2014).

Bryman (2012) writes that this method can be done by accessing both private and public documents. To get rid of these deficiencies, the data of this research is collected from journal articles, books, and official websites. All sources were selected based on relevance, credibility, and publication date with a preference for material published after the 2017 Green BRI announcement to ensure data reflects the "green" policy shift. For the analysis stage, this research employs a tracing process as the primary technique. Tracing is a qualitative data analysis method that allows researchers to systematically follow the sequence and interactions of key variables over time (Lamont, 2015). This technique is particularly useful in case study research where the objective is to uncover how particular outcomes are produced by the interaction of various contextual factors within each case.

This research adopts a case study as it enables an in-depth investigation of the complex dynamics involved in the implementation of the Green BRI across different national contexts. Given that China's Green BRI investments are deeply embedded in the political, economic, and regulatory environments of recipients' countries, the case study approach allows for a contextualized analysis of how domestic factors interact with China's green development agenda. By examining specific country cases, this method facilitates a nuanced understanding of variation in implementation and provides analytical leverage in explaining why similar initiatives produce different outcomes across cases.

ANALYTICAL FRAMEWORK

This article employs the analytical framework of Ching Kwan Lee's Global China (2022) in a comparative manner. Over the past few decades, China's overseas footprint has been expanding, motivated by its "going-out" strategy and more recently by the BRI. Coming to terms with the presence of the Global China concept in our midst has prompted scholars to not only examine inter-state competition between an emerging power and a status-quo power, but also to understand the complexities and dynamics around China's quest for opportunities in sectors and geographies outside of its borders (Iftikhar & Zhan, 2022). One such concern is regarding the impact of the country`s investments in overseas infrastructure projects, especially transport and energy infrastructure as part of its efforts to enhance regional and global connectivity (Liu & Bennet, 2023a).

While Chinese overseas investment is often portrayed as monolithic, Lee (2017) has shown that its sources are highly heterogeneous. In addition, Lee describes how central and provincial capital in China is not governed by the same logic that the funds of the world are, which work largely according to a profit-maximizing logic (Lee, 2017). Global China is neither an "imperialist hegemon" as feared by Western countries nor a mutually beneficial development partnership as touted by Beijing, according to Lee (2022). In order to respond to the inquiries in this study, Lee (2022) offers an explanation based on the Global China approach and elucidates on the way the interrelationship between China and its external actors has laid out a multifaceted and diverse investment landscape (Lee, 2022; 314).

It relies on both state-backed efforts and private companies from China to engage in its global activities. The extent of diversity of actors involved also results in investment outcomes dependent on the nature and context of each party involved. Global China's strategy is also built by using a power mechanism such as economic statecraft which influence negotiation processes and investment as well (Lee, 2022; 319-321). Success in the Chinese investment model often entails knowing how to do business with local actors and understanding the host country's economic and political intricacies. For instance, the strategies of Chinese companies are often tailored to local governance and host country reactions (Lee, 2022; 320).

Furthermore, the interplayed relationship between domestically and internationally can also be found here; the growth of foreign investments is not only affected by the context of the host country, but also that of China (Lee, 2022; 314).

These elements illustrate that the presence of Global China is not a monolith but rather an engagement sculpted by heterogeneous interactions that render varying investment results in different locales and diverse sectors. Thus, Global China interactions are shaped by local circumstances, historical ties, and diverse strokes of interest among different actors. Grasping these dynamics is vital to understanding the divergent outcomes of Chinese investments in BRI partner countries.

RESULT AND ANALYSIS

China's Energy Sector Transformation

China has had thousands of years of fossil energy dependence, particularly coal, and has been a source of concern in recent decades over the domestic energy landscape transformation. China's longstanding reliance on coal for its economy has continued to be a challenge even as the country has now emerged as one of the world-top investors in renewable energy (Carlson et.al, 2021). Though the share of coal has declined in China's energy mix, China still accounts for half of the total world coal consumption (Wang et. al, 2020). As of 2018, 50% of the energy consumption in China comes from coal, mainly to provide the energy needed to fuel industrial sectors such as coal-based power plants and coal-based mining activities (China Power, 2023).

China's emissions to be stable; however, the third consecutive year of emissions growth since 2016 with a 4% increase in emissions is mostly attributable to fossil fuel use (Climate Action Tracker, 2024). Significantly, coal burn has been a key influence on the trajectory of Chinese emissions, accounting for more than three-quarters of emissions in 2017 (Carlson et.al, 2021). This emphasizes the importance of transitioning to a cleaner energy alternative. With the goal of reducing emissions and combating climate change, the Chinese government is moving to further diversify its energy sources and break its addiction to coal. The Chinese government have already been taking measures to tackle climate change since 2014, with targets set by Beijing as part of the US-China Joint Announcement on Climate Change, which incorporated into the Paris Agreement (Rubio & Jauregui, 2022). In the year of 2030, China will limit carbon emissions and reach net zero emissions (NZE) for the first time.

Over the 13th Five-Year Plan Period (2016-2020), China pledged that at least 15% of its 2020 energy supply would come from non-fossil sources with growing hydro, nuclear, solar, and wind power generation. It was in these years that the notion itself of ecological civilization was endorsed as a complement, as an accomplishment of the "Chinese Dream", of the national rejuvenation and the Chinese modernization in two phases or periods, those of 2020-2035 and 2035-2050 (Rubio & Jauregui, 2022; 146). China spent announced more extensive goals than one of its goals is carbon neutrality by 2060 (a goal set by President Xi at the United Nations (UN) in 2020); when it'd reach its goal, wind and solar capacity will exceed 1,200 GW (Climate Action Tracker, 2024).

The capitalization of renewable energy had been averaged out to grow at 9.1% from 2018 to 2019, but coal had remained the main contributor at 64% of China's energy supply (IRENA & Climate Policy Initiative, 2020), followed closely by — in

order of their contribution — oil (19%), natural gas (7%), renewable energy (8%) and nuclear power (2%). Finally, although it has vowed to reduce emissions, China has been approving new coal-fired power projects and making a massive investment, both at home and abroad (Carlson et. al, 2021; 5). Although between 2010 and 2019, China has made notable strides in improving its green energy efficiency, yet the overall performance remained relatively low. This outcome reflects the Chinese government's stronger focus on economic growth, as regional economic development and green energy efficiency are closely linked (Wu, 2023). These priorities have often led to a policy favoring fossil-based energy over more robust promotion of renewable energy.

This is due to the fact that the domestic coal sector in China is predominantly dominated by State-Owned Enterprises (SOEs) which exert substantial influence on government decisions. Thus, this trend of allowing environmental mitigation to be factored in for coal sector in China has been under-utilized that is underpinned by the fact that the incentives implemented by the Chinese government are still consistent with an economic creation of value that has stimulated the pro-growth path of SOEs (Zhang, 2022). It is also known that reducing the amount of coal consumed is constrained by the current regulatory framework of the China power sector—there is not powerful means to restrain the quantity of coal consumption (Zhang, 2022; 273). The dominant role of SOEs in the coal sector of China and the fact that the overall strategy of China in reducing coal consumption heavily depends on SOEs is an obstacle in the way of implementing the desired policies.

China has been a significant financier of energy-related infrastructure around the world, particularly for the extraction of fossil fuels. China has been heavily reliant on coal as a source of fuel and contributed to investment overseas due to the country attention to the economy due to its important energy and consistent payback (Li, Gallagher, & Mauzerall, 2020). These investments in fossil and renewable energy have been targeted towards countries participating in the Belt and Road Initiative (BRI), which formalized by the Chinese government in 2013 as a strategy to stimulate economic and infrastructure development in 70 countries through increased connectivity and trade (Hughes et.al, 2020).

Since the middle of the 2000's, China has emerged as a key leader of significant infrastructure projects, swiftly rising to prominence in the global energy market with its concentration on fossil fuel projects (Wang, Liu, & Sun, 2024), led by Chinese financial enterprise against the background of China Export-Import Bank (CHEXIM) and China Development Bank (CDB). This does not mean that the banks have agreed to sponsor renewable energy projects which is, however, due to banks' experience of the domestic circa-blockage-noise to renewable energy expansion in China (Kong & Gallagher, 2020). Most countries involved in the BRI are developing nations with underfunded infrastructure, limiting their connectivity and economic growth both domestically and internationally. Improved connectivity can transform a country by strengthening economic ties and driving infrastructure investment among BRI partner countries. However, infrastructure development often consumes significant energy and impacts the environment. Notably, BRI countries accounted

for over 50 percent of the global carbon footprint and 92 percent of its growth between 1995 and 2015 (An et.al, 2023).

This has then attracted international concerns and criticisms of Chinese foreign financing in the BRI context. Furthermore, the Chinese government then initiated the Green BRI policy as the answer to the West towards the environmental impact of China's overseas investment, which deemed to tarnish the reputation of the country (Harlan, 2020), in response to this type of criticism. The change of its foreign policy through the Green BRI is an urgent necessity and economic opportunity for the Chinese government. Overall, Green BRI was a product of the internalization of global sustainability norms by China, and it was also an attempt for the country to gain global legitimacy (Liu & Bennet, 2023a).

When observing the evolution of the BRI, it noted that there is an evolution from a purely economic and geopolitical project to another that includes more attention to the environmental aspects - shown through the Green BRI policy. In fact, the paradigm shift above reflects China's reaction to the world transformed landscape in the pursuit of sustainability and further enhancement of environmental management and protection. At the same time, the country has begun to design a range of procedural and operational governance tools, accompanied by a strong emphasis on the value of inclusive dialogue with the host countries (Sun & Yu, 2023), parallel to the adoption of the norms of environmental management. It is a good example of how China is trying to adapt the international standards with the local conditions, either through the application of existing standards or new standards development based on the demands of the host country.

Moreover, the Green BRI is also a soft power strategy of China to improve its image after being blamed by other countries for the potential adverse environmental effects of its foreign investments. These two aspects are supportive of green development, when looking at the signals China has communicated through regulatory policies and financial institutions to make BRI projects "eco-friendly". Such as with the promulgation of policy papers and signing of Green Investment Principle (GIP) of Belt and Road Initiative (Nedopil, 2022). Moreover, the formation of the Asian Infrastructure Investments Bank (AIIB) since 2015 reflected China's determination for green development with the slogan "lean, clean, green" (Nedopil, 2022; 91). But this signal itself is weak, because it has not yet been followed up by legally binding regulations and commitments on environmental sustainability. Due to no actions were taken, it can even be seen through the fact that energy projects are mostly invested by BRI are renewable energy, which is a decreased since 2019 which is stated by (Nedopil, 2022; 95), and indeed this matter does contradict the purpose of Green BRI policy existed in 2017. Moreover, AIIB also invests a greater share of its money in fossil fuels than renewable energy (AIIB, 2021).

China has spoken about coming sustainability elements in its overseas investments for some time; however, they have remained mostly hypothetical. However, is it important to note that on its own China will not be able to realize Green BRI objective without the support of the governance of its partners states (Zhai, 2021). This indicates that the establishment of sound cooperation between the

investors and host countries is essential for ensuring the technological development and environmental sustainability of renewable energy projects in BRI partner countries (Gu & Zhou, 2022). It is necessary that host countries must enhance their understanding of the environmental protection significance, reasonably plan green projects scientifically, and become a solid guarantee of the economic and social prosperity of their own countries.

At the global level, the implementation of the Green BRI policy is contextualized by China using three main methods: First, China uses the Green BRI policy to achieve global legitimacy by adopting new standards of international development, while exporting a model of environmental governance that recontextualizes the models used by partner countries; Second, China encourages certain targets to be supervised by the various actors, which include financial institutions, construction companies as well as the renewable energy industry along with other partner country actors; Third, complex negotiations take place between the various interests among BRI partner countries, the interests of China and the interests of the host country (Liu & Bennet, 2023a). Such policy mix exemplifies this struggle for China to cement local, domestic, and global interest–symptomatic of its larger challenges navigating environmental sustainability in a way that preserves its geopolitical position in international relations.

BRI's Investments in Indonesia's Energy Sector

In response to the strategic call to "going-out" and seek new avenues for profit growth, Chinese enterprises have actively pursued the implementation of the BRI. Key players such as Shenhua, Huadian, Orient Electric, China Electric Construction, China Datang, and China Energy Construction have become integral to China's energy investment abroad, particularly in Indonesia (Kang et.al, 2021). As a result, Indonesia has emerged as the largest recipient of Chinese FDI in coal-powered energy projects. These companies are at forefront of shaping China's energy footprint in Indonesia, highlighting the significant role of state-backed enterprises in advancing BRI agenda. China's BRI investments in Indonesia also have been aligned with many strategic programs of the government, including infrastructure programs, downstream industries, and power plants. The increasing Chinese investment in the energy sector, especially coal in Indonesia, has been growing rapidly under the framework of BRI (Tritto, 2021).

Indonesia is one of the largest coal producers in the world and predominantly uses Pembangkit Listrik Tenaga Uap (PLTU) batu bara or coal-fired power plants (CFPPs) to conduct its national electricity demand. By 2023, approximately 63.83% of Indonesia's total national electricity will be produced from coal-fired power plants, where coal has an important role in Indonesia's electricity sector and is then determined by the Government to be the cheapest energy source for power generation compared to other fossil fuels and renewable energy (Statista, 2024). China has been engaged in building multiple of coal-fired power plants in Indonesia since 2013 through contract for engineering, procurement, and construction (Negara,

2024). These efforts are made to meet electricity needs to support national economic development.

Figure 1. Overview of China's Energy Investment within The BRI Framework (2013-2024) in Indonesia

Source: Boston University and World Resources Institute (2024)

As illustrated by the chart above, it proves that fossil energy attracted China investment energy in Indonesia due to the establishment of BRI in 2013 until 2024. According to the Global Energy Monitor (2021), in 2021 shows that Indonesia is the largest recipient of investment from China in the coal fired power plants sector in the order of 9,724 GW of generating capacity and total investment 15,671 million USD (Global Energy Monitor, 2021). Although the trend of investment in renewable energy has been increasing in recent years, Chinese investment in Indonesia's energy sector still shows a strong preference to continue to use a fossil energy sector, especially utilizing coal as fuel.

For instance, China Power Investment and Anhui Conch Cement have been establishing hydroelectric power plant projects in North Kalimantan in Indonesia (Shi & Yao, 2019). The following are China's investment projects in the Indonesia hydro power generation industry, which have been under construction & planning; (1) Chinese Export - Import bank funded 55 GW Jatigede hydroelectric power plant Unit 1; (2) Chinese Export - Import bank funded 55 GW Jatigede hydroelectric power plant Unit 2; (3) Data Dian hydroelectric power plant 200 GW from State Power Investment; and (4) Lumbis Ogong hydroelectric power plant from Hanergy Holding Group 600 GW (Boston University Global Development Center, 2024). Nevertheless, investment made by China in Indonesia for renewable energy is still only 14 percent in comparison to fossil energy sector.

Despite its commitments to support renewable energy, the Chinese investment trend in energy in Indonesia is still leaning towards fossil-based energy (especially used coal as fuel), which is not in line with the transformation of Green BRI. China's substantial investment in the fossil energy sector in Indonesia cannot be separated from metal processing industry for the renewable energy transition, the smelting process using coal (Global Energy Monitor, 2024). Indonesia planned coal projects

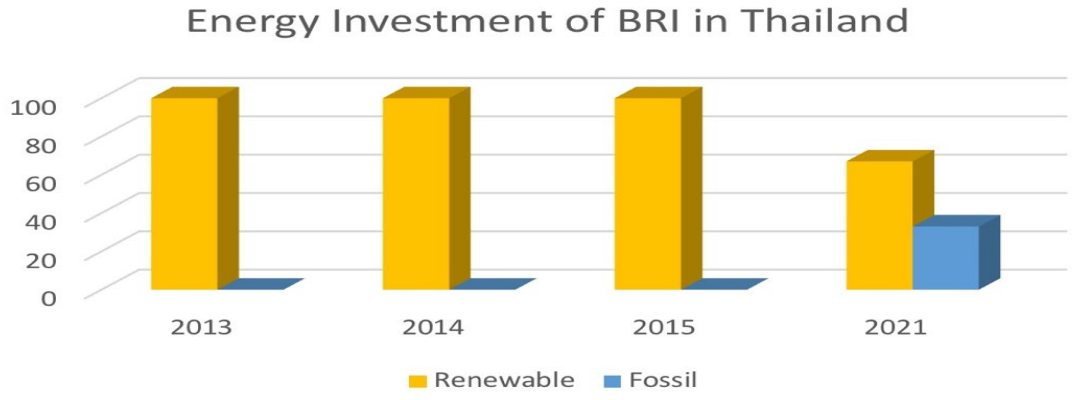
over the next decade above will still be unaffected, meaning will not be scrapped, despite President Xi's pledge in September 2021 to end funding overseas coal (Gu, 2024). These are 18 coal-fired power plants (approximately 19.2 GW) that have already obtained financing and permits to proceed mainly captive coal projects tied to Indonesian sizable BRI industrial parks that are strategic national projects (Sandalow, 2022). A substantial part of nickel smelters and industrial parks constructed in Indonesia with large scale captive coal-fired power plants have come from Chinese companies (Tritto, 2023).

BRI's Investments in Thailand's Energy Sector

In the year of 2013, BRI has been one of the core vehicles through which both China expands its economic power inside Southeast Asia, and Thailand is no exception to this. Thailand is one of the economic centers in the region, thus Thailand will have energy requirement in paralleling with the growth of the country. In this regard, the Chinese investment in the energy sector in Thailand under the umbrella of BRI shows a strategic significance for both countries, as it not only strengthens the bilateral cooperation but also meets the energy infrastructure requirement of Thailand (Feng et.al, 2020). According to Daye (2024), China ranked first in Thailand's foreign direct investment (FDI) participation in 2023; the investment value from China in Thailand was 2.84 billion USD or about 97.4 billion THB, which contributed to 24% of the total investment in Thailand.

When it comes to Chinese investment in the energy sector in Southeast Asia, energy cooperation under the BRI mechanism is has not been sustainable. Energy projects are not in line with ASEAN's green policies and China's achievement as a global leader as a renewable energy investor has not benefited its neighbor countries (Asia Society Policy Institute, 2024). However, energy cooperation between China and Thailand is sustainable, with renewable energy projects is growing rapidly. Under the BRI framework, Chinese companies are increasingly investing in Thailand's renewable energy sector through engineering contracts, technical cooperation, and production capacity (Wang & Zou, 2024; 12).

Figure 2. Overview of China's Energy Investment within The BRI Framework in Thailand (2013-2024)



Source: Boston University & World Resources Institute (2024)

At least since the inception of BRI, Chinese energy investment in Thailand has concentrated on renewables with an emphasis on solar energy development (Boston University Global Development Center, 2024). Under the BRI mechanism, Trina Solar invested USD 20 million in building a solar photovoltaic (PV) module factory in the Thai-Chinese Rayong Industrial Park with an annual production capacity of up to 700 MW of PV cells and 500 MW of PV modules. For the development of the solar power industry, China and Thailand are cooperating on technology and industry. At the technical level, they used having hydroelectric power plants at Sirindhorn reservoir in Thailand' Ubon Ratchathani Province that would be combined with PV solar panels that were manufactured in China (Wang & Zou, 2024; 16). The results show that the project contributes to phasing out thermal power generation while also maintaining its target of raising the new energy share to 35 percent by 2037 (Yu & Hui, 2022).

In addition, the construction in Thailand business of Industrial and Commercial Bank of China in hydropower development in Thailand under the Engineering, Procurement, and Construction (EPC) mechanism for hydroelectric power plant ownership Sinohydro average annual with the average of 91.26 million kWh. It could have an important part to play in the promotion of sustainable green power in Thailand (Yu & Hui, 2022). A visible sign in the past several years of the materialization of China's reorientation to Green BRI policies has been the boon to Thailand. The Green BRI, as one of BRI streams that its prioritizations emphasize addressing issues of environmentally and financially sustainable overseas development, it has been increasingly featured in Thailand, given its challenges in addressing urban waste management problems and the need to work on sustainable and green economy (Hung, 2024).

Waste-to-energy management collaboration is one focus in the thrust of Sino-Thai collaboration, with Chinese companies already engaged in waste-to-energy efforts in ways you may have or may not have seen. The 12 MW waste-to-energy plant project at TPPIP Songkhla, Thailand to which China Electric signed an EPC contract is worth 208 million USD (Wang & Zou, 2024; 21). But when analyzing the data of investment showing in Figure 2, China investment in Thailand seemed relatively less changed as of 2021 as investment in fossil energy subsectors began to enter, that is, the natural gas power plants (Boston University Global Development Center, 2024). This reflected a change of China energy investment based in Thailand, during the early BRI period (2013–2015), all energy investment in Thailand was allocated to the renewable energy sector, it then extended into fossil energy in 2021. Reflecting the intricate ecosystem of Green BRI development, Thailand's domestic requirements and China's strategic objectives are the two foundational drivers affecting investment allocation modes.

Difference between Green BRI Implementation in Indonesia and Thailand

This atomization strategy is reflected in the role of domestic political economy considerations and their interactions with global China's strategy in explaining the form of Green BRI implemented through energy investments across different

partner countries with varying investment characteristics. Since the differences in this pattern of investment between China and BRI partner countries have correlation with these factors.

Furthermore, the corporate obligations related to the implementation of Green BRI investment in China's energy sector in Indonesia, however energy sectors dominated with the fossil energy investment, especially the coal sector (see Figure 1). That shows Indonesia's reliance on coal as its primary energy source, a reliance that is in turn bolstered by massive infrastructure projects financed by China. On the contrary, investment in the Indonesian renewable energy sector is still relatively new and is not yet prioritize. This is because the coal-driven supply mix of energy used in Indonesia corresponds to how Chinese investors qualitatively linked to the energy supply system of Indonesia (Liu, Hale & Urpelainen, 2022). Indonesia's coal sector is dominated by a few oligarchs, with increasingly coal mining and export activities. Chinese companies are one of the largest importers of Indonesian coal with good business connections between the two countries' major miners (Mori, 2020).

Moreover, the coal industry in Indonesia has strong political power, as this industry is directly associated with the Indonesian political elite, including some prominent names on the national political stage (Arinaldo & Adiatma, 2019). The stake usually creates political influence on the course of Indonesian government policy which tends to remain pro-coal sector. Various governments, beginning from the government of President Susilo Bambang Yudhoyono to the government of President Joko Widodo (Jokowi) has always prioritized coal to be the main source of energy in Indonesia. The reflective products of the policy include the Domestic Market Obligation (DMO), which requires coal producers to allocate a portion of their production to domestic needs, and the National Energy Strategy or Kebijakan Energi Nasional (KEN), which strengthens the position of coal as not only an export commodity, but as a vital domestic energy (Wijaya, 2021; 12-14).

However, in Indonesia, renewable energy policies are being thwarted. For example, Indonesia's solar feed-in tariffs were capped at 85 percent of local energy generation costs in certain regions. This cap was artificially low due to distortions that suppressed the costs of fossil fuel-based energy generation (Do & Burke, 2024). Under Presidential Regulation 112/2022, IPPs are now required to negotiate tariffs with State Electricity Company or Perusahaan Listrik Negara (PLN), ensuring that the agreed tariffs remain below a predetermined ceiling. This ceiling varies based on the type and location of renewable energy plants, reflecting efforts to regulate and balance renewable energy pricing within the national energy framework (Government of Indonesia, 2023). Given that local costs for renewable are still very high, the ceiling is now insufficient to encourage some uptake of solar and wind power, and the negotiations create uncertainty. Meanwhile, coal electricity costs a lot less than renewable energy due to these massive subsidies. PLN prefers to build coal-fired power plants rather than new renewable energy owing to its lower cost. PLN's long-term plan (RUPTL 2018, RITEN 193), predicted coal would dominate Indonesia's electricity supply mix by other 60-65% in 2028 (Arinaldo & Adiatma, 2019; 7).

All of these have resulted in the dominance of coal in Indonesia which in turn has a significant role in the international competition between Chinese and non-Chinese renewable energy developers. As outlined above, the entrenched power of the coal industry means that the Indonesian government has no incentive to push through policies that promote the growth of renewable energy in Indonesia (Liu, Hale, & Urpelainen, 2022; 1128). As an impact, many Chinese companies like China Huadian and China Datang are reluctant to invest in the renewable energy sector to Indonesia, since they are waiting for the potential of evolving fashion of regulation that can "secure" the development of potentially more renewable energy in Indonesia (Liu, Hale, & Urpelainen, 2022; 1130).

However, when applying the concept of Green BRI in Thailand, the portrait of energy investment here since the beginning of BRI has largely focused on renewable energy (see Figure 2). Thailand has steadily increased its use of renewable energy as a result of the Alternative Energy Development Plan (AEDP), which aims to promote renewable energy production and consumption in all sectors, resulting in greenhouse gas emission (GHG) reduction while also reducing fossil fuels energy imports from other countries (Muangjai et.al, 2022). Thailand has introduced a long-term Low GHG Emission Strategy, incorporating updated data on the implementation of necessary laws and support mechanism. This strategy aims to achieve carbon neutrality by 2050 and NZE by 2065. A key component of this approach is the use of marginal abatement cost (MAC), an economic tool that helps policymakers prioritize GHG reduction measures. MAC also informs the development of mechanisms such as carbon trading, carbon taxes, or subsidies to meet national GHG targets outlined in the National Determined Contributions (NDC) (Limsakul et.al, 2024). This tool is critical for ensuring accurate medium and long-term planning of national GHG mitigation strategies.

Thailand's energy policy emphasizes reducing its reliance on fossil fuels particularly on natural gas to strengthen its energy security. As the costs of variable renewable energy decrease, traditional power generation in Thailand is increasingly being replaced by alternative energy sources. Consequently, the country's energy policy must adapt to support this transition effectively. Oil has the dominant share of 41.4% of sector capacity followed by natural gas at 25%, renewables at 18.3% and coal at 13% (International Energy Agency, 2024b). The Royal Thai Government policy of Thailand 4.0 emphasizes the integration of innovation and advanced technology to promote collaboration and resource efficiency. A key focus is on increasing the share of renewable energy in national consumption by encouraging sustainable practices in industrial development. This includes creating smart industrial estates that leverage innovation and smart technologies to improve management efficiency, minimize reliance on non-renewable energy resources, and reduce GHG, aligning with government's commitment to environmental sustainability (Raksakulkarn et.al, 2023). In order to realize this ambition, the Thai government has introduced a feed-in tariff (FiT) policy to promote investment and development of renewable energy in the country, mainly that of solar power.

The FiT policy has become a critical mechanism for advancing renewable energy development in Thailand. By guaranteeing fixed payments for energy produced, FiT policy ensures financial stability for energy producers, thereby attracting significant private sector investment (Niyomtham et.al, 2022). This creates an appealing investment environment for such companies, including Chinese companies, seeking to invest in renewable energy. Moreover, the policy integrates carbon credit trading through the Thailand Voluntary Emissions Reduction (T-VER) project, providing further financial incentives by monetizing GHG reductions. These measures not only enhance the economic feasibility of renewable energy projects but also contribute to environmental sustainability and energy security by diversifying energy sources and reducing reliance on fossil fuels (Niyomtham et.al, 2022; 6225). This policy marks the firm direction taken by the Thailand government for an energy source diversification pathway towards cleaner energy transition.

As a result, investment in renewable energy, especially of the solar energy type, with strong presence in the Thailand now as consequence of strong economic and fiscal policies. Before the outbreak of COVID-19 pandemic in 2020, Thailand led the Southeast Asia region in solar PV installations (Ye, Chaiyapa, & Li, 2024). Proof can be seen in the Chinese overseas financing of energy investments in Thailand between 2013 and 2021, comprised of predominantly solar power plants (World Resources Institute, 2022). Chinese energy investments frequently align with Thailand's aim of increasing renewable energy capacity and strengthening the national energy infrastructure. The above parts from Green BRI implementation in Thailand mirror the China's works to support Thailand's journeys to green energy transition. On the one hand, Thailand, a country in a need of seeking foreign financing, has negotiated with China to create a partnership within the framework of a Green BRI to promote Thailand's efforts in energy transition (Hung 2024; 7–9). On the other hand, through engaging in green financing in Thailand energy sector, it is part of China's strategic move to relieve the international fear toward environmental risk from its conventional investment.

As what the explanation above, the implementation of Green BRI between Indonesia and Thailand is not only because of China's foreign policy, but the domestic economy and political configuration in each country have the most influence on the issue. In Indonesia itself, the domination of the coal oligarchy has become the main structural obstacle to promoting the energy transition agenda. The fossil fuel project by the elite actors that have power dynamics still shows that Chinese investment maintains the status quo and does not promote transformation. On the contrary, Thailand has the structure of energy policy that is more targeted to renewable energy with the presence of policy documents such as AEDP, a consistent feed-in-tariff scheme, and carbon market instruments including T-VER. This open up a bigger opportunity for renewable energy investment, without exception from China.

This condition is strengthened by the intense differences in policy. Indonesia, despite its ambitious possession in energy transition, still holds on the distorted energy market, such as large funds for fossil energy and the DMO provision of coal

that decreases the appeal of investing in the renewable energy sector. On the other hand, the Thailand government provides a more stable and accurate incentive, including the assurance of electricity bills from renewable energy as long as the structure of the work climate gives the long assurance for the renewable energy investor. In this context, China's investors tend to see Thailand's climate investment as having more security and assurance than Indonesia, especially in the clean energy sector.

Lastly, these discrepancies demonstrate how interactions between China's strategy and the host-country internal structure have a significant impact on the Green BRI implementation. The Thai government has taken the initiative to incorporate Chinese projects, like Thailand 4.0 and low-carbon development (Hung, 2024; 6), into the country's energy transition agenda. The government of Indonesia, on the other hand, has taken a more flexible and permissive stance, which has led to the interests of domestic oligarchies and short-term profits dictating the majority of investment directions. This supports the claim that the Green BRI is a flexible foreign policy that is adapted to local circumstances and heavily reliant on the institutional capacity, legal system, and political and economic priorities of the host-country rather than being uniform and homogeneous approach.

CONCLUSION

Which based on this study found that the different Green BRI implementations between Indonesia and Thailand have shown that the political-economic factors, regulations and government preferences related to domestic investment in both Indonesia and Thailand have shaped the patterns of China's investment to support the energy transition in each country. Although China has promoted Green BRI as a green development pathway, the investment amount in the renewable energy sector among BRI partner countries was imbalanced. From this, the implementation of Green BRI in Indonesia and Thailand have reflected the intricacy of the relationship between China interests and the domestic dynamics of each of the host country.

Against this backdrop, it is imperative to note that the realization of Green BRI is contingent on the way the domestic development agendas of partner countries, the Chinese investment nexus, and the governance of host countries, interact. To ensure that the energy projects carried out within the Green BRI framework are indeed facilitated support for the energy transition of the partner countries, much more stringent international supervision mechanisms and environmental assessments standards will be needed, particularly as China continues to assert itself as a global leader in sustainability.

Rather than adding new causal variables such as "push" and "pull" factors between China and its partner countries, this study emphasizes the interactional dynamics between Chinese actors and host-country conditions to explain the divergent investment outputs. In contrast to much of the existing literature that tends to frame the Green BRI as a top-down policy shaped primarily by Chinese state interests, this article demonstrates that the domestic context of host countries plays

an equally decisive role in shaping project direction, outcomes, and even the degree to which the "green" agenda is realized. This suggests that the global ambitions of a rising power like China are never implemented in a vacuum but are constantly shaped, and at times constrained by the political economic dynamics of partner countries.

The differences in Green BRI implementation between Indonesia and Thailand show that the investment of Chinese investment does not necessarily have to be implemented uniformly but is strongly affected by the domestic conditions in the host country as well as the economic-political dynamics. Then in Indonesia, the coal investment climate, and the coal sector in Indonesia is dominated by oligarchy, still makes investment from China only focuses on the fossil energy sector, especially coal, while in Thailand, policies are very pro-renewable and provide greater space for China to enter into green investment.

This indicate that it is certainly not the case that global ambitions of a China are simply a product of the intentions of China; rather, the ambitions of a state with global designs will also be shaped, and be in turn shaping, to the maximum extent possible, by the host country using elements of a Chinese agenda while at the same time applying such agendas to align with its domestic interests. This confirms that global China ambitions are not only influenced by China's intentions, but also by the ability of host countries to navigate and utilize China's agenda in accordance with their respective domestic interests. These findings provide relevant policy insights for Indonesia to strengthen its position in navigating cooperation under the Green BRI. A more pro-active, transparent, and sustainable investment governance framework is essential to ensure long-term national interests are safeguarded.

By offering a comparative, grounded analysis of how the Green BRI plays out differently in Indonesia and Thailand, this study contributes a nuanced understanding of how China's global climate and infrastructure ambitions are filtered through domestic constraints and opportunities in Southeast Asia, an angle that has been underexplored in prior literature. Future research could further expand this inquiry by exploring other countries' cases to examine whether similar dynamics are at play. Expanding case studies to other countries beyond Indonesia and Thailand would enrich the understanding of how variations in local contexts shape the form and direction of Green BRI implementation. A broader comparative approach could help assess the extent to which China's foreign investment strategies are flexible and adaptable across different BRI partner countries.

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