

Bounded Rationality in Energy Policy: Analyzing the Ban on Retail Sales of Subsidized 3-Kilogram LPG in Indonesia

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ABSTRACT

This study examines the phenomenon of bounded rationality in Indonesia's energy policy through the analysis of the government's ban on retail sales of subsidized 3-kilogram Liquefied Petroleum Gas (LPG). The research is motivated by persistent inefficiencies in LPG subsidy distribution, where benefits have been disproportionately captured by non-target groups, leading to fiscal strain and social inequality. The purpose of this study is to understand how limited information, cognitive constraints, and time pressures shape the formulation and outcomes of subsidy reform policies. Employing a qualitative descriptive approach, the study draws upon secondary data from academic publications, government reports, and credible media sources to interpret the policy's design, implementation, and consequences. The findings reveal that while the policy aimed to improve subsidy accuracy and prevent misuse, it paradoxically reduced accessibility for low-income households and microenterprises, resulting in increased transaction costs, black market growth, and social discontent. Through the lens of bounded rationality, these outcomes reflect decision-making processes constrained by incomplete data, fragmented institutional coordination, and rushed implementation. The study concludes that enhancing policy effectiveness requires integrating digital monitoring systems, participatory oversight, and continuous data updating to mitigate cognitive and informational limitations. The analysis contributes to both theory and practice by demonstrating how bounded rationality affects public policy in developing contexts, emphasizing the need for adaptive, inclusive, and evidence-based governance to achieve equitable energy distribution in Indonesia.

Keyword: Bounded Rationality, Energy Policy, LPG Subsidy, Public Governance

INTRODUCTION

Energy has been recognized as one of the most fundamental components of human life because it underpins all aspects of social and economic activities. In Indonesia, Liquefied Petroleum Gas (LPG) has been widely adopted as an alternative energy source due to its cleaner emissions compared to conventional fuels (Ramadhan et al., 2017). The 3-kilogram LPG cylinder, often called the "melon cylinder," has been subsidized by the government to support low-income households and microenterprises in fulfilling their basic energy needs. However, the intended social benefits of this subsidy have been

undermined by misallocation and misuse by affluent groups, resulting in the persistent inefficiency of the subsidy program (Guitarra Pratama, 2021). The unequal distribution of LPG subsidies has therefore become a pressing policy issue that calls for an in-depth examination of its structural and administrative dimensions.

The extent of mistargeting in LPG subsidy distribution has been highlighted in several empirical studies, revealing that a large portion of the subsidized gas is actually consumed by households outside the target group. A 2019 study by Bappenas indicated that approximately 40% of subsidized 3-kilogram LPG consumers belong to the upper-middle-income category, suggesting that the subsidy has failed to achieve its redistributive objective (Rahmadian et al., 2025). Moreover, data from the Ministry of Energy and Mineral Resources show that spending on LPG subsidies reached Rp117.85 trillion in 2023, exceeding allocations for other energy subsidies (Kementrian ESDM RI, 2023). These findings have underscored the regressive nature of the policy, as only 5.9% of the subsidy benefits have been captured by the poorest decile of the population (A'yun et al., 2024). Consequently, the issue of subsidy leakage has raised concerns regarding fiscal sustainability and social justice in public spending.

In response to this persistent inefficiency, the Indonesian government introduced a policy prohibiting the retail sale of subsidized 3-kilogram LPG cylinders. This regulation was designed to restrict access to subsidized fuel exclusively to verified beneficiaries and to prevent manipulation by non-eligible consumers. The ban was expected to enhance accuracy in subsidy targeting and eliminate distributional distortions at the retail level. Nonetheless, the implementation of this policy has been met with considerable resistance and practical difficulties. Low-income communities residing in remote areas have reported limited access to official distribution points, resulting in longer travel distances, increased transportation costs, and reduced affordability (MPR RI, 2025). Thus, the policy, though intended to improve efficiency, has paradoxically generated new forms of economic and social burden among the very groups it sought to protect.

The mismatch between policy intentions and social realities illustrates a broader phenomenon of bounded rationality in public decision-making. Policymakers often operate under informational, cognitive, and temporal constraints, leading them to choose “satisficing” rather than optimal solutions (Dunn, 2018). In the case of the retail sales ban, decisions appear to have been influenced by fiscal pressures and political imperatives rather than comprehensive data-based assessments. Consequently, while the policy’s design was rational in theory, its implementation exposed significant weaknesses in communication, monitoring, and stakeholder readiness (Rahman, 2023). This divergence between policy logic and practice necessitates a critical inquiry into how bounded rationality shapes the formulation and execution of energy subsidy reforms in Indonesia.

The urgency of this research stems from the growing socioeconomic implications of energy subsidy mismanagement. The inefficiency of the LPG subsidy system not only strains the state budget but also exacerbates inequality by diverting resources away from vulnerable communities. If left unaddressed, these structural weaknesses may undermine public trust and hinder the government’s broader agenda for equitable energy transition. Moreover, the persistence of black markets and speculative behavior in LPG distribution further complicates the achievement of subsidy reform objectives (Oktavianty & Norhalisah, 2025).

Therefore, a comprehensive understanding of how bounded rationality influences policy outcomes is essential for developing more adaptive and inclusive approaches to

energy governance. From a policy studies perspective, the bounded rationality framework offers an analytical lens for examining the limitations inherent in public decision-making processes. The theory, originally proposed by Herbert A. Simon, suggests that decision-makers rarely possess complete information or unlimited cognitive capacity, compelling them to adopt heuristics and approximations in solving complex problems (Nainggolan et al., 2024).

Applying this framework to Indonesia's energy subsidy reform enables a deeper understanding of why certain policy choices—though well-intentioned—often yield unintended consequences. By identifying where and how bounded rationality manifests in policy formulation, this study seeks to contribute to theoretical and practical advancements in public policy analysis. The application of bounded rationality theory in this research is particularly relevant in the context of Indonesia's bureaucratic and institutional structure. Public decision-making is often influenced by fragmented data systems, overlapping authorities, and the absence of integrated feedback mechanisms. These conditions have been shown to limit the government's ability to accurately identify eligible beneficiaries and to design responsive implementation strategies (Lestari et al., 2022).

Consequently, the 3-kilogram LPG policy can be understood as a reflection of systemic decision-making constraints rather than purely administrative inefficiency. This interpretation expands the policy debate beyond the technical aspects of subsidy delivery to include the cognitive and informational foundations of governance. In examining this issue, the study adopts a qualitative descriptive approach supported by an extensive review of secondary data from credible sources, including official government reports, academic journals, and recognized media publications. This methodological choice allows for a contextualized exploration of how institutional behavior, policy design, and social outcomes are interlinked under bounded rationality conditions (Gobel et al., 2023). The use of literature-based analysis also facilitates the identification of recurring patterns and anomalies across different subsidy reform initiatives. Through this approach, the research emphasizes interpretation and synthesis rather than mere statistical generalization, offering a theoretically grounded narrative of policy processes.

In addition to its theoretical contribution, this study also holds practical significance in informing future policy design. By articulating the cognitive and structural constraints faced by policymakers, it provides insights into how decision-making processes can be improved through data integration, participatory monitoring, and adaptive learning mechanisms. The emphasis on participatory governance aligns with emerging trends in public administration that advocate for greater transparency and citizen engagement in subsidy reform. Hence, the study not only critiques existing policies but also offers pathways for more evidence-based and socially responsive governance (Manik et al., 2025).

Furthermore, the research highlights the need for digital transformation in energy subsidy management. The implementation of a real-time, integrated monitoring system could help reduce data discrepancies, improve transparency, and enhance accountability in subsidy targeting. Such a transformation would also align with Indonesia's broader vision of digital governance and fiscal sustainability (Kementrian ESDM RI, 2023). Therefore, the exploration of bounded rationality in this study is not merely theoretical but also serves as a foundation for actionable policy innovation in the energy sector. The

combination of theoretical and empirical analysis positions this study as a relevant contribution to both academic and policy-oriented discourses.

Finally, this article situates itself within the evolving literature on bounded rationality and public policy implementation. While previous studies have examined subsidy mismanagement and energy governance from efficiency and equity perspectives, few have explicitly linked these issues to cognitive and informational limitations in policymaking (Risal & Situmorang, 2024). By focusing on the Indonesian context, this research extends the applicability of bounded rationality theory to a developing-country setting characterized by institutional fragmentation and limited policy coherence. Ultimately, it is expected that this study will contribute to the refinement of theoretical models and the design of more inclusive energy policies that balance fiscal responsibility with social equity.

METHODOLOGY

This study was conducted using a qualitative descriptive approach, which was chosen to provide a comprehensive understanding of the policy phenomenon surrounding the prohibition of retail sales of subsidized 3-kilogram LPG in Indonesia. The qualitative approach was applied because it allows for the exploration of social processes, policy interactions, and institutional behavior that cannot be captured through quantitative methods (Safaruddin et al., 2023). The emphasis was placed on analyzing how cognitive, informational, and temporal constraints shaped the decision-making process of policymakers. The descriptive design enabled data interpretation through textual, contextual, and conceptual analysis. In this way, the policy issue was not examined merely as an administrative event but as a manifestation of bounded rationality in public decision-making under complex social and institutional conditions (Dunn, 2018).

The data used in this research were obtained from secondary sources including academic journals, government publications, official statistical reports, and credible online media. These data were selected purposively based on three inclusion criteria: (1) published between 2018 and 2025; (2) substantively discussing energy policy, subsidy management, or bounded rationality in public administration; and (3) originating from authoritative or peer-reviewed institutions. The data collection process was carried out systematically by reviewing relevant documents and categorizing them thematically to ensure analytical depth and validity. Each source was evaluated based on its methodological rigor and relevance to the research focus, allowing the synthesis of various perspectives into a coherent analytical narrative.

The collected data were analyzed through a qualitative content analysis technique, which involved identifying, interpreting, and comparing recurring concepts and policy patterns across the selected literature. The analysis was conducted by organizing the findings according to the three dimensions of bounded rationality informational, cognitive, and temporal limitations—as conceptualized by Herbert A. Simon. The results were then interpreted in light of the Indonesian policy context to illustrate how bounded rationality influenced the formulation, implementation, and outcomes of the LPG subsidy reform. This interpretive process enabled the emergence of theoretical insights that connected empirical evidence with the conceptual framework of public policy analysis. Through this methodology, the study was expected to yield both analytical depth and practical implications for future energy governance in Indonesia (Nainggolan et al., 2024).

RESULTS AND DISCUSSION

1. Challenges in the Distribution and Supervision of Subsidized LPG

The distribution and supervision of 3-kilogram LPG subsidies is an important instrument in the implementation of subsidized energy policies in Indonesia. This policy serves as a government effort to maintain economic stability for low-income communities and ensure that vulnerable groups continue to have access to affordable energy sources. Since its inception, 3-kilogram LPG better known as melon gas has been intended to help poor households, micro-businesses, fishermen, and small farmers as part of a social protection strategy in the energy sector.

However, the reality shows that the distribution and monitoring system for 3 kg LPG subsidies is not yet running optimally. Formally, the government has regulated the LPG distribution chain through official channels involving Pertamina as the main supplier, then distributed through agents, depots, to end consumers, as stipulated in Presidential Regulation No. 104 of 2007 and Minister of Energy and Mineral Resources Regulation No. 26 of 2009 (Risal & Situmorang, 2024).

However, the implementation of these policies in the field is often not in line with the expected normative design. One of the crucial issues that has arisen is the inaccuracy of the subsidy recipients. Many 3 kg LPG consumers are actually from the affluent class and medium-sized businesses, which are not included in the beneficiary group (Manik et al., 2025). This phenomenon is caused by a weak subsidy recipient data verification system, a lack of supervision, and low public awareness of the law. As a result, energy subsidies that are supposed to be targeted at the poor have become inefficient and deviated from their intended purpose.

In addition to the issue of targets, distribution and supporting infrastructure also face serious obstacles. In a number of areas, especially remote and island regions, limited access to transportation and logistics supplies has resulted in uneven distribution of LPG. This imbalance often causes seasonal shortages, especially ahead of major religious holidays such as Eid al-Fitr and Christmas, when demand increases sharply. This situation has led to the price of 3 kg LPG rising well above the maximum retail price (HET), adding to the economic burden on low-income communities who depend on subsidized energy for their daily needs (Muharam et al., 2025).

Another problem that exacerbates the situation is the practice of market manipulation and speculation by individuals within the distribution network. This phenomenon is often referred to as the “distortion in the market mechanism” whereby parties hold back stocks or distribute subsidized LPG to large industries in order to reap huge profits. These actions create artificial scarcity in the market, which is very detrimental to the poor. Although various regulations have been issued to regulate and crack down on violations, law enforcement at the local level remains weak. The lack of monitoring resources, inter-agency coordination, and sanctions that do not have a deterrent effect has caused hoarding, adulteration, and price manipulation to continue without any significant resolution (Oktavianty & Norhalisah, 2025).

In addition to oversight issues, the accuracy of subsidy recipient data is also a fundamental obstacle. Databases such as the Integrated Social Welfare Data (DTKS) used to determine beneficiaries are often not updated regularly. This situation creates new inequalities, where poor communities that should be prioritized are overlooked, while middle-income groups continue to enjoy subsidies. This data inaccuracy has a direct impact on unfair and uneven access to energy, forcing vulnerable groups to purchase LPG

at much higher market prices. Overall, these various problems illustrate that the distribution and monitoring of 3 kg LPG subsidies still face multidimensional challenges. These challenges include inaccuracy in targeting recipients, weaknesses in distribution and infrastructure, gas mafia practices, weak supervision, and invalid data on subsidy recipients. The combination of these factors results in low effectiveness of subsidized energy policies and hinders the realization of social justice in energy distribution (Lestari et al., 2022).

To address these issues, the government needs to reform its digital technology-based monitoring system to enable real-time monitoring of LPG distribution and integration with the national socioeconomic database. This step must be accompanied by periodic updates of subsidy recipient data, improved coordination between the central and regional governments, and community involvement in participatory monitoring mechanisms. Through more adaptive, transparent, and data-driven policies, it is hoped that the distribution of 3 kg LPG subsidies can be more targeted, efficient, and equitable for the poor who need it most.

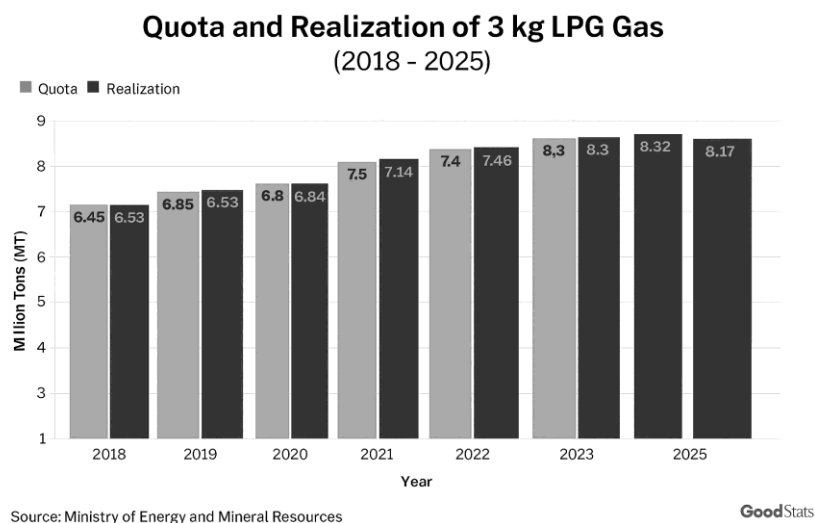


Figure 1. Quota and Realization of 3 kg LPG Gas
Source: Ministry of Energi and Mineral Resource, 2025

In general, the data displayed in the graph shows a trend that the use of subsidized 3 kilogram cylinders of LPG consistently exceeds the quota limit set by the government. This trend is especially visible in the time period between 2018 and 2023, where the level of public consumption of 3 kg LPG shows a quite significant increase. As an illustration, in 2023 the actual use of 3 kg LPG will reach around 8.22 million metric tons (MT), while the official quota allocated by the government is only 8 million MT. This condition indicates an imbalance between community needs and the capacity of the subsidies provided. However, based on projections for 2024 and 2025, there appears to be a slight decline in the level of actual consumption which is actually below the quota limit. This decline can be interpreted as the result of various control policies implemented by the government, including efforts to improve the distribution system and strengthen the mechanism for distributing 3 kg LPG so that it is more efficient and targeted, so that subsidies are truly enjoyed by community groups who understand it.

2. Policy Prohibiting the Sale of Subsidized LPG on Accessibility for Low-Income Communities

Although well-intentioned, the implementation of this policy has caused a number of new problems. One of the main impacts is reduced access to subsidized LPG for low-income communities, especially those who live far from official distribution points. Before the policy was implemented, retailers played an important role in bringing gas supplies closer to communities in various regions. After the ban was implemented, people had to buy directly from depots that were quite far away, incurring additional costs such as transportation, travel time, and energy. This situation actually increased the real costs incurred by the community, thereby reducing the effectiveness of subsidies in alleviating the economic burden. In addition to reducing accessibility, this policy also had an indirect economic impact in the form of a black market.

When the official distribution channels could not reach all levels of society, some residents chose to buy from unauthorized sellers at higher prices. This phenomenon shows that the distribution monitoring system was not yet functioning optimally. In some areas such as Dompu and West Java, violations of the Maximum Retail Price (HET) were still common even before the ban was implemented. Although the government's goal of curbing fraudulent practices is understandable, in reality it is the poor who suffer the most because they lose access to energy sources that were previously affordable.

From a microeconomic perspective, this policy puts pressure on small and medium-sized enterprises (SMEs) that rely on 3 kg LPG as their main fuel for production. The difficulty of obtaining subsidized LPG has led to increased operating costs and decreased business profits. In the long term, this can reduce the competitiveness of MSMEs and slow down local economic growth. From a social perspective, this policy has also caused unrest because it is considered to not fully take into account the geographical, social, and economic conditions of communities in various regions of Indonesia, which are very diverse.

Furthermore, the policy of prohibiting the sale of 3 kg LPG at the retail level can be understood through the perspective of Bounded Rationality as proposed by Herbert A. Simon (Rahman, 2023). In the decision-making process, the government faces limitations in information, time, and resources, which means that the results of the policy are not entirely optimal, but only "satisficing." An excessive focus on budget efficiency and subsidy control has resulted in the social dimension not being taken into account comprehensively. Therefore, in order for this policy to truly achieve its objectives, the government needs to improve the digital data-based distribution system, expand its reach to remote areas, and involve the community in monitoring subsidies. With these measures, it is hoped that the subsidized energy policy can be implemented more fairly and provide tangible benefits to low-income communities.

Comparison of the Highest Retail Price (HET) for 5.5 kg and 12 kg LPG gas in various regions of Indonesia as of February 3 2025, based on data from GoodStats. In general, the graph shows that there are differences in LPG prices between regions, which are caused by geographical factors, distribution costs and the availability of energy infrastructure. The Maluku and Papua regions have the highest prices, namely IDR 117,000 for 5.5 kg LPG and IDR 249,000 for 12 kg LPG. This can be attributed to the high logistics and transportation costs to the eastern region of Indonesia.

Meanwhile, the lowest prices are in Java, Bali and West Nusa Tenggara, namely IDR 90,000 for 5.5 kg LPG and IDR 192,000 for 12 kg LPG. This difference shows that areas

with easier distribution access and denser populations tend to have lower LPG prices. Apart from that, the notes on the graph explain that the price of 3 kg LPG is still at IDR 18,000, in accordance with the government subsidy policy. Thus, this data indicates that the government is trying to maintain the stability of subsidized LPG prices while adjusting non-subsidized prices based on logistical and economic conditions in each region.

3. Implications Subsidized the Retail Level on Small Traders and Distribution

The government policy prohibiting the distribution of 3-kilogram LPG to retailers has had a significant impact on the economic activities of small businesses and the effectiveness of the energy subsidy distribution system in Indonesia. For small traders, 3-kg LPG is a key component that supports the continuity of their daily economic activities. For example, culinary businesses such as fried food vendors, who previously could purchase subsidized LPG at local shops near their homes, are now required to purchase directly from official distribution points.

In some areas, the distance to distribution points, which can be two to three kilometers away, forces vendors to incur additional transportation costs. In addition, limited supply has caused long queues, as reported in Pesisir Selatan Regency, which has experienced shortages and long queues at the consumer level (Kompasnagari.kim.id, 2025) These conditions have significantly hampered the productivity of micro businesses and increased operational costs, which ultimately has led to higher product prices for the community.

From a subsidy management perspective, this policy is actually intended to ensure that the distribution of 3 kg LPG is more targeted, so that it is not enjoyed by groups who are not entitled to it. However, the reality on the ground shows a contradiction between the policy's objectives and its implementation. In some areas, a black market has emerged as people who have difficulty obtaining LPG at official outlets choose to buy from unauthorized sellers at higher prices. This phenomenon creates a policy paradox, as it actually increases the economic burden on poor communities who should be protected by the subsidy program.

Overall, this policy has a dual impact. On the one hand, it can tighten subsidy distribution to make it more efficient and reduce misuse. However, on the other hand, the policy also has a negative impact on energy accessibility for small traders and low-income communities. Without adequate supporting strategies, such as increasing the number of official distribution points, improving the distribution monitoring system, and providing special distribution channels for MSMEs, this policy has the potential to worsen energy access inequality and create new problems in the form of local shortages and uneven distribution of subsidized LPG.

4. Policy Analysis Using Bounded Rationality Theory

The theory of bounded rationality, proposed by Herbert A. Simon, is a theory that states that policies are sometimes made with limitations, where these policies will ultimately only produce a "sufficiently satisfactory" solution to a problem, without creating a truly optimal solution. Bounded rationality is useful in analyzing public policy, organizational management, and risk management (Nainggolan et al., 2024) This theory is then juxtaposed with a case study of the policy prohibiting the sale of subsidized LPG by retailers, as it is considered to be in line with this theory because the policy was deemed to have been implemented hastily without careful consideration of how the public would

respond once it was implemented (Brimob & Xyz, 2021). The limitations referred to in the Theory of Bounded Rationality include several things when viewed from the perspective of the government as the policy-making actor:

- a. **Limited Information;** The limitation of information has been identified as a fundamental obstacle in the formulation and implementation of the subsidized LPG policy in Indonesia. The available databases, including those managed by Pertamina and the Integrated Social Welfare Data (DTKS), have not been able to provide a comprehensive and accurate representation of who truly qualifies as a subsidy recipient. Many poor households residing in remote areas remain unregistered due to outdated or incomplete population data, while affluent individuals and business owners still appear as beneficiaries within the system (Rahmadian et al., 2025). This informational gap has created distortions in subsidy targeting, allowing resources meant for vulnerable groups to be diverted to non-eligible consumers.
- b. **Cognitive Limitations;** Cognitive limitations in the policy of prohibiting the distribution of subsidized LPG by retailers are evident in the government's inability to process all the social, economic, and behavioral complexities of the community related to the subsidized LPG distribution chain. The theory of bounded rationality explains that policymakers are not always able to consider all variables rationally because human and institutional thinking capacities are limited. The government has not been able to fully understand the distribution patterns and market behavior of 3 kg LPG due to the complexity of the supply chain and differences in conditions between regions. In addition, the government has not been able to accurately predict market reactions and social impacts, such as shortages at the retailer level and potential price increases. The case of 3 kg LPG subsidy scarcity has even caused fatalities, specifically in Pamulang Barat Village, South Tangerang (Yaputra, 2025).
- c. **Time Constraints;** The policy prohibiting the distribution of 3 kg LPG to small shops was made under time pressure and public demand for the government to immediately improve energy subsidy management. The 3 kg LPG subsidy budget continues to increase, while its effectiveness is considered to be declining because it is not on target. The inaccuracy of fuel oil and 3 kg gas cylinder distribution targets has resulted in suboptimal allowance allocation, thereby exacerbating economic inequality. According to the Ministry of Finance website, in 2024, spending on 3 kg LPG subsidies amounted to Rp80.21 trillion, still the largest component, accounting for 45.2% of actual energy subsidy spending.

The policy to ban the sale of subsidized LPG at the retail level was later revoked by President Prabowo because it was considered to be technically and socially unprepared, mainly due to the lack of structured planning and thorough socialization, which had a direct impact on low-income groups. This policy made it difficult to access LPG and harmed small traders, so it was considered ineffective and not in line with the government's commitment to protect the lower class. Based on the results of an analysis of the dynamics of the policy prohibiting the distribution of 3 kg LPG by small shops, it was found that the government's decision-making process was more influenced by fiscal pressure and public pressure than by empirical data-based studies.

Field findings show that most low-income communities still rely heavily on small shops as the main channel for the distribution of 3 kg LPG, especially in non-urban areas. Each limitation identified corresponds to a specific stage of policy-making: informational constraints affected the design phase (mis-targeted beneficiaries), cognitive constraints

influenced the assessment of social impacts (overlooking regional diversity), and temporal constraints shaped the rushed implementation process. This mapping underscores how the three dimensions of bounded rationality directly manifested across policy stages and actors.

The chart illustrates the trend of Indonesia's total energy subsidies from 2020 to 2024, presented in trillion rupiah, along with the corresponding annual growth rates. The golden bars represent the total subsidy allocation each year, while the blue line shows the year-to-year percentage change. It can be observed that Indonesia's energy subsidy spending increased substantially from 108.8 trillion rupiah in 2020 to 171.9 trillion rupiah in 2022, reflecting high growth rates of 29.0% and 22.4% respectively. However, in 2023, a slight contraction occurred with total subsidies dropping to 164.3 trillion rupiah, marking a -4.4% decline due to policy adjustments and fiscal control efforts.

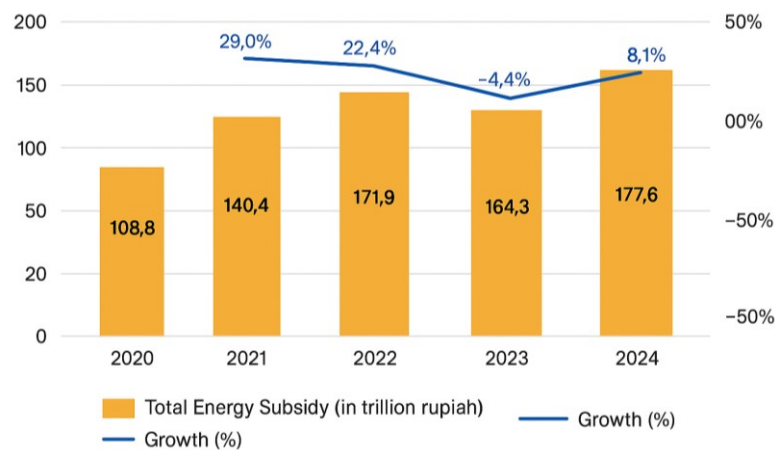


Figure 2. Total Energy Subsidy Usage
Source: Ministry of Finance, 2025

In 2024, the data show a moderate recovery with subsidy spending rising again to 177.6 trillion rupiah, equivalent to 8.1% growth compared to the previous year. This rebound indicates renewed government support for maintaining energy affordability, particularly amid fluctuating global fuel prices and domestic economic recovery efforts. Overall, the figure demonstrates that while the total subsidy level has generally increased over the five-year period, the growth rate has become more moderate, suggesting a gradual stabilization of fiscal management and a strategic balancing between energy affordability and budget sustainability.

CONCLUSION

The findings of this study indicate that the distribution and supervision of subsidized 3-kilogram LPG in Indonesia still encounter multidimensional challenges, encompassing inaccuracies in beneficiary targeting, weak monitoring systems, and unequal access across regions. Despite the government's efforts to ensure affordability for low-income groups, inefficiencies persist due to limited data accuracy, inadequate infrastructure, and weak law enforcement at the local level. These factors collectively undermine the intended social welfare objectives of the subsidy policy, leading to a situation where benefits are often captured by non-eligible groups, while vulnerable

communities continue to face difficulties in obtaining affordable energy sources. The imbalance between policy design and implementation highlights the urgent need for a data-driven reform supported by stronger coordination among stakeholders and transparent governance mechanisms.

Furthermore, the policy prohibiting the retail sale of subsidized LPG though aimed at curbing misuse has inadvertently reduced accessibility for low-income households and small-scale traders. The implementation of this policy, characterized by insufficient preparation and inadequate public communication, resulted in unintended socio-economic consequences such as increased transaction costs, longer distribution chains, and the emergence of black markets. Through the lens of bounded rationality, it becomes evident that the government's decision-making was constrained by limited information, cognitive limitations, and time pressures, which led to "satisficing" rather than optimal outcomes. Therefore, addressing these cognitive and informational constraints through digitalization, socialization, and participatory monitoring is crucial to ensure that future subsidy programs align more effectively with the realities of diverse local contexts.

Sustainability and fairness of Indonesia's LPG subsidy policy depend on the government's ability to integrate technology, social participation, and fiscal prudence. Strengthening the digital monitoring system, updating the Integrated Social Welfare Data (DTKS), and involving community-based oversight mechanisms can enhance both accuracy and accountability in subsidy distribution. Moreover, policy formulation should adopt a holistic approach that balances economic efficiency with social equity, ensuring that reforms do not marginalize the very groups they are meant to protect. By adopting adaptive governance practices rooted in evidence-based policymaking, Indonesia can transform its energy subsidy policy into an effective instrument for social justice, economic empowerment, and sustainable development.

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