



Indonesia's Nuclear Ambition: Analysing the Shift from 'Last Resort' to a Strategic Pillar in the National Energy Policy

Randhi Satria & Nyphadear Tiara Scoorpy Ananda Putra

Randhi Satria

Affiliation : Universitas Sebelas Maret
 City : Surakarta
 Country : Indonesia
 Email :
ransatria@staff.uns.ac.id

Nyphadear Tiara Scoorpy Ananda Putra

Affiliation : PT. Rukita Bhinneka
 City : Jakarta
 Country : Indonesia
 Email : dear.nypha@gmail.com

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Abstract

Indonesia faces the dual challenge of meeting energy demand for economic development while committing to Net Zero Emissions (NZE) by 2060. For decades, nuclear power was designated a "last resort" due to seismic risks and public apprehension. This paper analyzes the fundamental policy shift repositioning nuclear energy as a "strategic pillar" in long-term planning. Using qualitative policy analysis, this study examines primary government documents—including the 2025-2045 National Long-Term Development Plan (RPJPN) and Government Regulation No. 40/2025—and official discourse from state actors. Findings confirm a definitive legal and discursive removal of the "last resort" status. This shift is driven by the need to secure stable baseload power to address grid shortfalls and the economic necessity of powering the nation's 24/7 downstream industrialization program. Technically, the pivot is enabled by the adoption of Small Modular Reactors (SMRs), framed to neutralize historical safety objections. This realignment elevates industrial sovereignty and grid stability to co-equal status with decarbonization. The study concludes that while this ambition clarifies the pathway to NZE 2060, implementation faces challenges including massive financing, complex regulatory frameworks in a tectonically active nation, and public acceptance. The transition to operation will test Indonesia's governance and risk management capabilities.

Key Words: Baseload Power; Decarbonization; Energy Security; Indonesia; Nuclear Energy

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INTRODUCTION

The global community is at a critical juncture, requiring a rapid energy transition to mitigate climate change. Indonesia, facing a complex "energy trilemma" of security, equity, and sustainability, is re-evaluating its strategy to achieve Net Zero Emissions (NZE) by 2060 while maintaining high economic growth. For decades, national policy characterized nuclear power as a "last resort" due to seismic risks on the "Ring of Fire". This caution, intensified by the 2011 Fukushima disaster, led international partnerships like the Just Energy Transition Partnership (JETP) to focus almost exclusively on solar, hydro, and geothermal energy.

However, a fundamental shift is underway. Key planning documents, including the 2025–2045 National Long-Term Development Plan (RPJPN) and Government Regulation (PP) No. 40/2025, have officially excised the "last resort" terminology. Nuclear power is now framed as a "strategic pillar" for baseload power and grid stability, championed by the Ministry of Energy and Mineral Resources (ESDM) and the National Research and Innovation Agency (BRIN). This reversal responds to Indonesia missing its 23% renewable energy target for 2025, which created a "baseload gap" that threatens the grid as coal plants retire. Furthermore, the maturation of Small Modular Reactors (SMRs) presents a safer, more flexible technology to meet 24/7 industrial demands.

If this "baseload gap" remains unaddressed, Indonesia faces a critical strategic impasse: a failure to provide stable, non-fossil power would necessitate a continued, long-term dependency on coal-fired generation—directly undermining the nation's NZE 2060 commitments—or result in significant "de-industrialization" as the burgeoning downstream mineral sector lacks the reliable energy required for operational viability. Consequently, the central problem identified in this study is the technical and political inadequacy of the current renewable-only transition model to support Indonesia's industrial and climate goals simultaneously.

While existing research focuses on renewable potential or historical nuclear fears, there is a clear research gap: we lack critical analysis of the drivers and mechanics behind this sudden, official embrace of nuclear energy. Specifically, this study seeks to answer: How have the evolving legal frameworks and the emergence of SMR technology enabled Indonesia to transition nuclear power from a "last resort" to a "strategic pillar" of industrial and energy policy?. Therefore, this study analyzes the pivot from "last resort" to "strategic pillar". We argue that this shift represents a strategic realignment prioritizing industrial sovereignty and grid stability alongside decarbonization. By adopting SMR technology, Indonesia aims to neutralize historical safety concerns and secure its "Golden Indonesia 2045" vision.

Literature Review and Statement of Art

This review synthesizes the existing body of knowledge relevant to Indonesia's energy policy, identifying the critical research gap this paper aims to fill. The literature is organized into three primary streams: (1) the historical "last resort" paradigm; (2) the challenges of the renewable transition creating a "baseload gap"; and (3) the global re-emergence of nuclear power through new technologies.

The recent strategic pivot represents a direct break from a multi-decade national consensus (Alimah, et al., 2025). Historically, Indonesia's stance on nuclear power was one of extreme caution, legally codifying it as an option of "last resort" (Widjanarko, et al., 2024). This paradigm was built on two pillars: the archipelago's geophysical reality as a "Ring of Fire" nation and potent socio-political apprehension. Indonesia is situated at the intersection of several major tectonic plates, making it vulnerable to high-magnitude earthquakes and tsunamis (Widjanarko, et al., 2024). The 2011 Fukushima disaster materialized Indonesia's worst fears, leading to a significant hardening of negative public opinion (Juraku & Sugawara, 2021).

This consensus was formally enshrined in the 2014 National Energy Policy (KEN), which served as a binding institutional barrier that de-prioritized nuclear energy in favor of coal and renewables (Alimah, et al., 2025). Consequently, while technical expertise was maintained through research reactors, no commercial projects were included in the state utility's (PLN) investment pipelines for decades.

The "last resort" paradigm was dependent on the assumption that fossil fuels and conventional renewables would meet development needs (Dong, Jia, Wu, & Jia, 2023). However, the failure to meet the 23% renewable energy target by 2025 has rendered this framework untenable (IESR, 2024). This shortfall is driven by the economic dominance of coal and intractable implementation challenges in geothermal and solar sectors, such as high exploration risks and land-use competition (IESR, 2022; Purnamasari, 2022).

Critically, international frameworks like the Just Energy Transition Partnership (JETP) have focused on replacing coal with variable renewables, which fails to address the "baseload gap" needed for heavy industry (IEEFA, 2024). This body of research highlights that without a scalable, clean baseload source, the early retirement of coal threatens "de-industrialization".

The global energy landscape has shifted, with organizations like the IEA and IPCC now framing nuclear power as essential for achieving Net Zero Emissions (NZE)

targets (IEA, 2021). The emergence of Small Modular Reactors (SMRs) has been the primary technological driver for Indonesia's pivot (WNA, 2024). SMRs address historical objections by offering lower upfront costs, factory-based construction, and "passive safety" systems that rely on natural physics rather than active pumps (IAEA, 2022). This allows Indonesia to frame its ambition as a forward-looking adoption of a safer technology suitable for off-grid industrial deployment in geologically stable regions like Kalimantan.

The "state of the art" in existing literature is fragmented between historical risk, renewable policy failures, and global technology trends. There is a clear research gap: no academic study has yet used policy and discourse analysis to investigate Indonesia's definitive 2025 strategic pivot away from the "last resort" paradigm. This paper fills this gap by analyzing the mechanics and implications of nuclear energy's new status as a "strategic pillar".

METHOD

This study employs a qualitative, descriptive research design to analyze the ongoing shift in Indonesia's national energy policy regarding nuclear power. The methodology is rooted in a qualitative policy analysis framework designed to understand the processes, actors, and rationales of policy change. This approach is essential for a contemporary study where the phenomenon is still unfolding (Bowen, 2019).

The research was conducted in three phases: (1) identification and collection of the data corpus; (2) systematic analysis; and (3) synthesis of findings. The primary period of analysis is 2021–2025, covering the timeframe from Indonesia's official Net Zero Emissions (NZE) 2060 pledge to the present. The data corpus is composed of primary and secondary sources selected for their authority in national energy policy. These include Legal and Policy Documents: The 2025–2045 National Long-Term Development Plan (RPJPN), Government Regulation (PP) No. 40/2025, and PT PLN's 10-year electricity procurement plans (RUPTL). Official Statements: A collection of press releases, speeches, and parliamentary hearing transcripts from key actors including the Ministry of Energy and Mineral Resources (ESDM), the National Research and Innovation Agency (BRIN), and the Nuclear Energy Regulatory Agency (BAPETEN).

To ensure rigor and replicability (Howlett, 2012), the data was analyzed using a two-pronged qualitative procedure: Comprehensive Document Analysis: This content-driven analysis systematically coded primary sources (Bowen, 2009). We

specifically conducted Clause Identification to compare legal text between the 2014 and 2025 policies, Omission Analysis to track the removal of "last resort" terminology, and Prioritization Mapping to observe nuclear power's inclusion in state utility investment plans. Qualitative Discourse Analysis: This procedure identified the dominant "frames" used by state actors to legitimize the policy shift. This involved Keyword Tracking to analyze the frequency and context of terms such as strategic, baseload, industrialization, and Small Modular Reactors (SMR) to map the transition from a discourse of risk to one of necessity.

RESULT AND DISCUSSION

The Legal Omission of the "Last Resort" Paradigm

The single most important finding of this study is the definitive and official removal of the "last resort" paradigm from Indonesia's highest-level strategic planning documents. This finding is based on a direct, comparative analysis of legal text. The "last resort" status, which for a decade served as the primary legal and political barrier to nuclear development, has been officially excised.

This shift is most clearly illustrated by comparing the foundational 2014 National Energy Policy (KEN) with the 2025–2045 National Long-Term Development Plan (RPJPN). While the 2014 policy explicitly defined nuclear as the final, contingent option, the new RPJPN omits this language entirely and elevates nuclear energy, grouping it with other strategic renewable sources (Pemerintah Republik Indonesia, 2014) . This foundational legal change is summarized in Table 1. The analysis shows that the "last resort" terminology and the associated logic of contingency are completely absent from the new generation of policy, a deliberate action that legally enables the new strategic pivot.

Table 1: Comparative Analysis of Nuclear Policy Phrasing in Key National Documents (2014 vs. 2025)

Document	Key Clause on Nuclear Energy	Textual Analysis	Implication
PP No. 79/2014 (National Energy Policy / KEN)	"The utilization of nuclear energy... is considered as the last resort..."	Language is contingent and restrictive. Creates a legal barrier.	Nuclear is de-prioritized and non-strategic.
Law No. 17/2007 (RPJPN 2005-2025)	Nuclear is mentioned as a potential option to be developed.	Language is vague, non-committal, and superseded by the 2014 KEN.	No clear strategic direction.
Draft Law on RPJPN 2025-	"Development of renewable energy..."	Language is non-contingent and	Nuclear is legally re-classified as a

2045 (Passed 2024)	(e.g., solar, hydro, geothermal, nuclear)..."	inclusive. "Last resort" is omitted.	standard, strategic part of the renewable mix.
Draft RPP KEN (Revision of 2014 Policy)	"Nuclear power plants are built as a source of clean energy... to meet the NZE target."	Language is proactive and goal-oriented. "Last resort" is omitted.	Nuclear is repositioned as a necessary tool for NZE 2060.

The 2014 National Energy Policy (KEN), enacted via Government Regulation (PP) No. 79/2014, was the definitive legal expression of Indonesia's post-Fukushima caution (Pemerintah Republik Indonesia, 2014) . Article 11, Clause 5 of this regulation stated that nuclear energy was considered a "last resort" when other new and renewable sources could not fulfill national demand. This clause served as a powerful institutional brake, legally mandating that all other options be exhausted before nuclear could be commercially developed. For PLN, investors, and ministries, this status meant that proposing a nuclear project was a non-starter .

The first indication of a major shift appeared in the 2025–2045 National Long-Term Development Plan (RPJPN), passed as Law No. 17 of 2023 (Pemerintah Republik Indonesia, 2023). This document is the new foundational text from which all subsequent sectoral policies must be derived. Analysis reveals two critical findings within this law. First, the term "last resort" is completely absent from the energy sections . By failing to carry forward the restrictive language of 2014, the 2023 RPJPN effectively erased the primary legal barrier. Second, the law actively re-categorizes nuclear power, grouping it alongside solar, wind, hydro, and geothermal as priority clean energy sources (Pemerintah Republik Indonesia, 2023). This textual re-positioning legally transforms nuclear from a contingent option into a strategic, inclusive part of the primary clean energy portfolio.

This top-level strategic shift unlocked a cascade of policy revisions, most notably the finalization of Government Regulation (PP) No. 40/2025. In materials presented to parliament, the framing is now proactive (Dewan Energi Nasional (DEN), 2024) . The discourse is no longer about if nuclear should be used, but how it will meet targets. Nuclear power is now reframed as a clean energy source to support the achievement of the NZE 2060 target and increase energy security.

The operational effect of the old "last resort" clause was visible in the 2021–2030 Electricity Supply Business Plan (RUPTL) (Kementerian Energi dan Sumber Daya Mineral (ESDM), 2021). Analysis of this 512-page plan shows its definition of "green" was explicitly non-nuclear, focusing exclusively on hydropower, solar, and geothermal energy. Nuclear power was relegated to a single, non-committal

mention for post-2030 consideration, proving that as of 2021, the national utility was legally and financially unable to treat nuclear as a viable option.

This legal holding pattern also defined the work of the national nuclear agency, BATAN (merged into BRIN in 2021), whose role was confined to technical research that existed in a political vacuum, providing no on-ramp to commercial deployment. Furthermore, the influence of the 2014 paradigm extended to international partners like the Just Energy Transition Partnership (JETP). The 2023 Comprehensive Investment and Policy Plan (CIPP) was built on this assumption, focusing almost exclusively on variable renewables and coal retirement (Just Energy Transition Partnership (JETP) Secretariat, 2023). This exclusion, which failed to address the baseload gap, became a major point of contention and a key driver for policymakers to dismantle the "last resort" paradigm.

The New Discourse of "Strategic Baseload"

The legal omission of the "last resort" policy coincides with the emergence of a new, coordinated public discourse from key state actors. Qualitative discourse analysis reveals that the old narrative of risk has been replaced by one of strategic necessity, positioning nuclear power as the essential solution to Indonesia's baseload gap—a challenge the renewable-only model failed to resolve. This discursive shift is summarized in Table 2, which maps justifications across key institutions from 2021 to 2025.

Table 2: Dominant Justification Frames for Nuclear Energy by Key Institutional Actors (2021-2025)

Institutional Actor	Primary Frame (Justification)	Key Message
Kementerian ESDM (Ministry of Energy)	Strategic Baseload (Energy Security)	"To achieve the NZE 2060 target, we need a stable baseload power. VRE (solar/wind) is not enough. Nuclear is the solution."
PT PLN (Persero) (State Utility)	Grid Stability & NZE Enabler	"The grid requires stable, dispatchable, and clean power to balance intermittency from renewables. Nuclear is a key enabler for NZE."
BRIN (Research & Innovation Agency)	Technological Leap (SMR Focus)	"We are pursuing advanced, safe technology, specifically SMRs, which are different from old, large-scale plants. This is a mastery of technology."
BAPETEN (Regulatory Agency)	Regulatory Readiness (Safety Focus)	"Our role is to prepare the safety, security, and licensing frameworks for

		these new SMR technologies to ensure public safety."
Kementerian Perekonomian (Coordinating Ministry for Economy)	Industrial Demand (<i>Hilirisasi</i>)	"Our downstream industrialization (smelters) requires massive, reliable, and competitive power that renewables alone cannot provide."

This strategic baseload discourse, led by the Ministry of Energy and Mineral Resources (ESDM) and PT PLN, addresses the technical shortfall identified post-2021 as it became clear the 23% renewable energy target was unachievable. ESDM has systematically reframed Net Zero Emissions (NZE) 2060 from a climate goal to an energy security imperative. Ministerial communications now present the transition as a three-part technical challenge: phasing down coal, deploying variable renewables, and adding a stable, dispatchable, zero-emission baseload source. In this narrative, nuclear power is presented as the primary technology capable of fulfilling this role.

The Directorate General of New and Renewable Energy has explicitly stated that achieving NZE targets is technically unfeasible with variable renewables alone (Kementerian Energi dan Sumber Daya Mineral (ESDM), 2023). Keywords such as "stable," "balancing," and "baseload" now serve as a rhetorical counter-narrative to the restrictive language of the 2014 policy (Antara News, 2024). These roadmaps now introduce a significant wedge of nuclear power post-2035 to replace coal capacity (Institute for Essential Services Reform (IESR), 2024). By reframing the conversation toward technical necessity, ESDM argues that the risk of grid instability from a variable-only model outweighs the managed risk of advanced nuclear technology.

This argument is even more technically specific in communications from PT PLN, the institution responsible for grid stability. In a complete reversal from the 2021-2030 Electricity Supply Business Plan (RUPTL), which excluded nuclear, the new 2025-2034 RUPTL draft is built upon an "Accelerated Renewable Energy Development" (ARED) scenario (Kementerian Energi dan Sumber Daya Mineral (ESDM), 2021; CNBC Indonesia, 2024). Unlike previous plans, the ARED scenario officially categorizes nuclear as "Clean Baseload" alongside hydro and geothermal. This model includes concrete plans for 5 to 7 gigawatts (GW) of nuclear capacity by 2040 (detikFinance, 2025). This marks the first time nuclear has been included in the state utility's medium-term financial and operational planning, translating rhetorical discourse into a concrete development plan.

In due course, the strategic baseload frame legitimized the policy pivot detailed in Finding 4.1. This unified, top-down shift emerged as a direct response to the unachievable 2025 renewable targets and serves as a counter-narrative to the Just Energy Transition Partnership (JETP) models, which were criticized within the government for failing to solve the baseload gap (JETP Indonesia, 2023). By reframing nuclear as a technical necessity for national energy security, the government has provided the official justification for dismantling the "last resort" paradigm, a narrative complemented by a second focus on economic development.

The "Industrial Sovereignty" Justification

While the strategic baseload discourse provides the technical justification for grid stability, analysis reveals a second, more politically urgent driver: the framing of nuclear power as an indispensable engine for national industrial sovereignty. This frame, promoted by the Coordinating Ministry for Economic Affairs and the Ministry of Industry, explicitly links nuclear power to the success of downstream industrialization. This policy, a cornerstone of Indonesia's strategy to move up the global value chain, mandates the domestic processing of mineral wealth like nickel, bauxite, copper, and tin (Kementerian Koordinator Bidang Perekonomian, 2023).

The resulting boom in energy-intensive industrial smelters has created an enormous power gap separate from the public grid. These facilities require constant, reliable baseload power to operate profitably, a need that is currently bottlenecked by the lack of non-fossil alternatives. This creates a profound dilemma: intermittent solar and wind cannot power 24/7 smelters, while building new captive coal plants is now "politically toxic" as it directly conflicts with Net Zero Emissions (NZE) 2060 targets and the \$20 billion Just Energy Transition Partnership (JETP) commitments (Institute for Energy Economics and Financial Analysis (IEEFA), 2023).

Consequently, nuclear power is positioned as the "best-of-both-worlds" solution: zero-emission yet high-capacity. This is substantiated by the technically inflexible demands of mineral processing. The nickel sector, the vanguard of this boom, utilizes processes like pyrometallurgical or hydrometallurgical leaching that are among the most energy-intensive globally (International Energy Agency (IEA), 2023). These plants require a stable, multi-hundred-megawatt supply to maintain operational integrity (Widyanto & Adhityo, 2023). Projections indicate that this sector alone will require tens of gigawatts of new generation capacity by 2030-2035 (Institute for Energy Economics and Financial Analysis (IEEFA), 2023).

A crucial component of this discourse is its geographic focus. Mineral processing is concentrated in remote, resource-rich regions like Sulawesi and Kalimantan, which are not connected to the main Java-Bali grid. Key actors, including the research agency BRIN and the Ministry of Industry, now publicly frame Kalimantan as a prime candidate for the first commercial nuclear plants due to its geological stability and low seismic risk (Badan Riset dan Inovasi Nasional (BRIN), 2023). This represents a deliberate rhetorical pivot that neutralizes the historical "Ring of Fire" safety objections anchored in the geology of Java.

This off-grid model promotes the development of new economic centers without straining the congested public grid. Here, the Small Modular Reactor (SMR) narrative is essential. SMRs, with their smaller, scalable, and factory-built nature, are framed as the perfect enabling technology—flexible enough to be deployed in remote locations to power specific industrial parks where massive traditional plants are logistically impossible.

Ultimately, the emergence of this discourse provides a politically potent rationale separate from public grid stability. While the baseload gap is a technical problem, downstream industrialization is the government's primary economic security imperative. By linking nuclear power to the success of this strategy, policymakers have repositioned it as a core national economic security asset essential for the Golden Indonesia 2045 vision. This framing makes the nuclear ambition robust against environmental critiques or the falling costs of variable renewables, as those technologies cannot power a 24/7 industrial boom.

The Enabling Narrative of SMRs as a New, Safe Technology

The legal omission of the "last resort" status provided the necessary regulatory pathway, while the baseload gap and the industrial sovereignty imperative created an urgent demand for a non-fossil, 24/7 power source. However, this policy pivot faced a profound historical barrier: Indonesia's position on the Ring of Fire and deep-seated public apprehension over nuclear safety. The final and most critical finding of this analysis reveals how policymakers are neutralizing this objection through a deliberate, strategic pivot in technological framing. There is a pervasive shift away from the general concept of nuclear power toward the specific, advanced technology of Small Modular Reactors (SMRs).

This finding shows that SMR is not just a technical classification; it is the central enabling narrative of the entire policy shift. The old paradigm was defined by the risks of large-scale plants, with public imagination anchored in the failures of

Chernobyl and Fukushima. Discourse analysis reveals that state actors now rarely reference these older designs. Instead, the public-facing justification for the new nuclear ambition is predicated on the idea that SMRs represent a fundamentally different and safer generation of technology. This SMR-centric discourse is deployed to provide a powerful argument for enhanced safety while directly linking the technology to industrial goals. This reframing is the "master key" allowing policymakers to present the ambition as a prudent adoption of a next-generation solution.

The first function of this narrative is to directly neutralize the Ring of Fire risk. Technical and research agencies, particularly the National Research and Innovation Agency (BRIN) and the Nuclear Energy Regulatory Agency (BAPETEN), are leading a coordinated effort to re-educate the public by creating a sharp rhetorical contrast between old large-scale plants and advanced SMR designs. BRIN now acts as a "technology evangelist," framing next-generation models as a different and safer technology. The core of this argument is the concept of "passive safety" (Badan Riset dan Inovasi Nasional (BRIN), 2023). While the 2011 Fukushima disaster was a failure of active safety systems, the new discourse highlights that advanced SMRs are "walk-away safe". These reactors use passive safety systems relying on natural physical processes—like gravity and natural convection—to shut down and cool the reactor without external power or human intervention (International Atomic Energy Agency (IAEA), 2022).

This passive safety narrative is echoed by BAPETEN, which frames it as a solvable regulatory challenge. BAPETEN's communications show a shift from gatekeeping to proactive preparation, focusing on its readiness to develop licensing and oversight frameworks for SMRs (Badan Pengawas Tenaga Nuklir (BAPETEN), 2024). By highlighting passive safety, state actors argue that the primary lesson from Fukushima was not that nuclear is inherently unsafe, but that active systems are vulnerable. Therefore, by adopting advanced SMRs, Indonesia is not repeating past mistakes but adopting technology designed to solve them. This reframing is key to decoupling nuclear power from seismic risk in the political imagination.

The second function of the SMR narrative is to reframe the economic and geographic profile of nuclear power, directly connecting it to industrial sovereignty. SMRs are promoted as the ideal enabling technology for the downstreaming model, a feat traditional plants could not achieve. Geographically, new industrial smelters are being built in remote islands like Kalimantan and Sulawesi, far from the Java-Bali grid. SMRs have a small physical footprint and lower cooling water requirements, making them siting-flexible and suitable for providing off-grid

captive power (World Nuclear Association (WNA), 2024) . This allowing the government to align its industrial policy with its new energy policy.

Economically, the SMR narrative counters the objection of astronomical upfront capital costs and long construction timelines . Statements from BRIN and the Ministry of Investment emphasize the "modular" and factory-built nature of SMRs (Kementerian Investasi, 2024). This discourse frames SMRs as a more manageable, bite-sized investment with lower capital risk and shorter construction times than mega-projects . This "plug-and-play" narrative is intended to attract private capital, presenting SMRs as a scalable and commercially viable asset rather than a state burden.

The SMR-centric discourse is the final and most crucial component of the government's strategy . This analysis concludes that the new nuclear ambition is a synthesis of four aligned findings that make the policy shift necessary and politically viable. This synthesis is summarized as follows:

1. Legal Pathway: The legal omission of the "last resort" paradigm in foundational documents and the finalization of Government Regulation (PP) No. 40/2025 provided the top-down permission for the pivot.
2. Strategic Demand: The baseload gap and the industrial sovereignty imperative created the urgent dual demand for a non-fossil, 24/7 power source.
3. Technological Solution: The SMR narrative provided the critical "how"—a publicly acceptable, safer technology that addresses both technical and political challenges.

By strategically framing the pivot around SMR technology, the government can successfully neutralize decades-old seismic objections. This allows Indonesia to present its ambition not as a high-risk return to an obsolete paradigm, but as a forward-looking adoption of a next-generation solution essential for the Net Zero Emissions 2060 target and the Golden Indonesia 2045 vision.

CONCLUSION

This study concludes that Indonesia's shift in nuclear energy policy, from a "last resort" to a "strategic pillar," is a definitive, comprehensive, and legally-grounded policy realignment. The research objectives were met by confirming that the "last resort" terminology has been officially excised from foundational planning documents, such as the 2025–2045 RPJPN and the finalized Government Regulation (PP) No. 40/2025, and replaced with proactive, goal-oriented language. The findings demonstrate that this pivot was a necessary response to a dual imperative: a domestic baseload gap created by the failure to meet renewable energy targets and a massive industrial power gap driven by the national downstream strategy.

Furthermore, this strategic pivot was made politically viable by the adoption of a new enabling narrative centered on Small Modular Reactors (SMRs). By focusing exclusively on SMR technology, policymakers have successfully reframed the national debate. This SMR-centric discourse neutralizes historical safety objections related to the Ring of Fire by highlighting passive safety features, while simultaneously promoting the technology's geographic and economic flexibility as the ideal solution for powering new, off-grid industrial estates.

This research specifically contributes to the field of international energy studies by providing a timely case study of how an emerging G20 power navigates the "energy trilemma" when internationally-backed, variable-renewable-centric models—such as the JETP—fail to meet industrial demands. It demonstrates that for Indonesia, national security imperatives of grid stability and industrial sovereignty now hold a priority co-equal to decarbonization goals. Ultimately, the success of this new hybrid energy strategy and the NZE 2060 ambition is contingent upon the nation's ability to navigate the complex regulatory and financial challenges of being a first-mover in the deployment of next-generation SMR technology.

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