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Allocation of Regulatory Change Risk in Renewable Energy Investment Through PT PLN (Persero) Power Purchase Agreements

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ABSTRACT

Renewable energy investment in Indonesia requires a reliable legal framework because long-term electricity projects depend substantially on regulatory certainty and contractual stability. The implementation of PT PLN (Persero)'s 2025–2034 Electricity Supply Business Plan (RUPTL) creates significant investment opportunities; however, regulatory changes may affect project costs, contractual obligations, and economic feasibility. The regulation of power purchase agreements (PPAs) under Minister of Energy and Mineral Resources Regulation Number 5 of 2025 provides mechanisms for risk allocation; however, change-in-law risk is not expressly categorized as a distinct risk. This study aimed to examine the legal construction of regulatory change risk allocation in renewable energy investment through PLN PPAs and to formulate an approach that balances investment certainty with the state's regulatory authority. This study employed doctrinal legal research using statutory, conceptual, and comparative approaches. The primary legal materials included regulations governing investment, electricity, and renewable energy, particularly Minister of Energy and Mineral Resources Regulation Number 5 of 2025, supported by relevant legal literature and comparative investment law cases. The findings indicated that the existing regulatory framework provided fragmented mechanisms for addressing regulatory changes. Accordingly, this study proposed a Regulatory Change Risk Allocation Model comprising qualification, foreseeability, causation, materiality, mitigation, net economic effect, appropriate relief, and regulatory oversight. A predictable framework for regulatory adaptation is necessary to manage regulatory change risk without unduly restricting regulatory development or disproportionately allocating such risk to PLN. The proposed model provides a structured framework for promoting contractual balance and greater legal certainty in renewable energy investment.

INTRODUCTION

PT PLN (Persero)'s 2025–2034 Electricity Supply Business Plan (RUPTL) plans an additional 69,512 MW of power generation and energy storage capacity, comprising 42,569 MW of new and renewable energy (NRE), 10,256 MW of energy storage systems, and 16,687 MW of fossil-fuel-based generation. Implementation of the RUPTL creates electricity infrastructure investment opportunities of approximately IDR 2,967.4 trillion, encompassing

investments in power generation, transmission, and other infrastructure components. The magnitude of these investment requirements demonstrates that the energy transition depends not only on infrastructure development but also on a legal framework capable of supporting project bankability and predictable risk allocation (Undang-Undang Nomor 25 Tahun 2007 Tentang Penanaman Modal Beserta Perubahannya, 2007).

This policy direction is consistent with Presidential Regulation Number 112 of 2022 concerning the Acceleration of Renewable Energy Development for Electricity Supply. The regulation was enacted, among other purposes, to accelerate the development of renewable energy power plants and increase investment, while regulating mechanisms for the procurement and purchase of electricity by PLN, electricity purchase prices, and government support. Accordingly, investment is not merely an additional component of energy transition policy but an important prerequisite for its implementation (Undang-Undang Nomor 30 Tahun 2009 Tentang Ketenagalistrikan Beserta Perubahannya, 2009).

From an investment law perspective, the need to attract capital cannot be separated from the quality and predictability of the regulatory framework. Pramana and Yetty Komalasari Dewi demonstrated that the development of green investment in Indonesia is closely associated with policy consistency and a regulatory framework that supports sustainable investment. In electricity projects, this issue becomes more specific because the returns on independent power producer (IPP) investments depend substantially on long-term contractual relationships with PLN as the offtaker. Regulatory certainty and contractual certainty therefore interact in determining the investment environment for renewable energy projects (Peraturan Presiden Nomor 112 Tahun 2022 Tentang Percepatan Pengembangan Energi Terbarukan Untuk Penyediaan Tenaga Listrik, 2022).

An important regulatory development occurred with the issuance of Minister of Energy and Mineral Resources Regulation (MEMR Regulation) Number 5 of 2025 concerning Guidelines for Power Purchase Agreements from Power Plants Utilizing Renewable Energy Sources. The regulation entered into force on March 4, 2025, and revoked MEMR Regulation Number 10 of 2017, as amended, including by MEMR Regulation Number 10 of 2018. The considerations underlying MEMR Regulation Number 5 of 2025 identify legal certainty as one of the foundations for establishing guidelines governing renewable energy power purchase agreements (PPAs). Accordingly, the standardization of contractual relationships between PLN and power plant developers concerns not merely contract administration but also the legal and commercial certainty of renewable energy projects (Peraturan Menteri Energi Dan Sumber Daya Mineral Nomor 49 Tahun 2017 Tentang Perubahan Atas Permen ESDM Nomor 10 Tahun 2017, 2017).

Article 4 of MEMR Regulation Number 5 of 2025 indicates that a PPA governs not only the sale and purchase of electricity but also various legal, technical, and commercial matters, including the parties' rights and obligations, risk allocation, project performance guarantees, the commercial operation date (COD), electricity transactions, power plant performance, PPA termination, assignment of rights, prices and price adjustments, dispute resolution, force majeure, the use of domestic products, environmental attributes or carbon economic value, refinancing, and the language of the PPA. Within this framework, a PPA can function as an instrument for allocating investment risks rather than merely as a contract for the sale and

purchase of electricity (Peraturan Menteri Energi Dan Sumber Daya Mineral Nomor 10 Tahun 2018 Tentang Perubahan Kedua Atas Permen ESDM Nomor 10 Tahun 2017, 2018).

(Sornarajah, 2004) demonstrated that changes in the political and economic policies of a host state constitute a potential source of risk for foreign investment, while also affirming that the state's authority to modify its economic policies forms part of state sovereignty, subject to applicable international obligations (Peraturan Menteri Energi Dan Sumber Daya Mineral Nomor 5 Tahun 2025 Tentang Pedoman Perjanjian Jual Beli Tenaga Listrik Dari Pembangkit Tenaga Listrik Yang Memanfaatkan Sumber Energi Terbarukan, 2025).

The relationship between investor protection and the state's authority to regulate constitutes a central issue in contemporary investment law, particularly in balancing legal protection and certainty for investors with the state's regulatory autonomy, or right to regulate, in the public interest. Yetty Komalasari Dewi, in a study of regulatory changes during the pandemic, demonstrated the relevance of adverse regulatory changes, the police powers doctrine, legitimate expectations, and the host state's authority to regulate in the public interest. Although the context differs, the underlying legal issue is relevant to the energy transition because a lawful regulation adopted in pursuit of public interests may nevertheless produce significant economic consequences for an investment (Mineral, 2025).

MEMR Regulation Number 5 of 2025 allocates several risks between PLN and power plant developers (PPL); however, Article 9 does not expressly identify change-in-law risk as a distinct risk category. This does not necessarily mean that the consequences of changes in law are entirely unaddressed. Provisions concerning price adjustments and the ability of the parties to agree on additional contractual provisions indicate that certain consequences of regulatory changes may be addressed through the PPA. Therefore, the central research problem concerns not an absolute absence of protection but whether the existing regulatory framework provides sufficiently clear and predictable treatment of material changes in law (Mineral, 2025).

Previous studies on green investment in Indonesia have primarily examined policy developments, regulatory consistency, and the need to establish an investment climate conducive to sustainable development. Pramana and Yetty Komalasari Dewi demonstrated that the development of green investment cannot be separated from policy consistency and the quality of the regulatory framework (Dewi, 2023). Their study provides an important foundation at the level of green investment policy; however, it did not specifically examine the legal construction of change-in-law risk allocation in renewable energy PPAs following the entry into force of MEMR Regulation Number 5 of 2025 (Pramana & Dewi, 2023).

At a more specific level, recent literature on the energy transition and investment law has begun to demonstrate how the structure of PPAs, project bankability, regulatory change, and investment protection standards may interact. (Hug, 2026) study of Just Energy Transition Partnerships (JETPs) in Indonesia and Vietnam, for example, demonstrated the relevance of PPAs and change-in-law provisions to financing the energy transition and their relationship with substantive investment law standards. However, that study focused on JETPs, the retirement of coal-fired power plants, and their interaction with international investment law rather than on the normative design of change-in-law risk allocation in Indonesian renewable energy PPAs following the entry into force of MEMR Regulation Number 5 of 2025 (Dewi, 2023).

Based on this positioning, the research gap identified in this study does not rest on a claim that change-in-law risk or PPAs have never been examined. Rather, the study addresses the more specific question of how the evolution of change-in-law risk regulation within Indonesia's electricity PPA framework affects legal certainty for renewable energy investment following the entry into force of MEMR Regulation Number 5 of 2025, particularly in reconciling contractual risk allocation with the state's regulatory autonomy. The novelty of this study lies in the concepts of predictable regulatory adaptation and the Regulatory Change Risk Allocation Model, which assesses regulatory changes through qualification, foreseeability, causation, materiality, mitigation, net economic effect, appropriate relief, regulatory oversight, and dispute resolution. This framework is not presented as positive law currently in force but as a prescriptive legal formulation intended to reconcile investment certainty with the state's continuing right to regulate in the public interest.

This study proceeded from the proposition that protecting renewable energy investment does not require a regulatory freeze. Instead, it requires predictable regulatory adaptation: the law may change, but the process for determining the consequences of a change in law for an investment project should be sufficiently clear, proportionate, and predictable. On this basis, the study addressed two research questions: first, how change-in-law risk allocation is constructed in renewable energy investment through PLN's PPAs following the entry into force of MEMR Regulation Number 5 of 2025; and second, what legal construction of change-in-law risk allocation can provide investment certainty without unduly restricting the state's regulatory autonomy in the electricity sector.

METHOD

This study employed doctrinal legal research, focusing on legal norms, legal principles, and the relationships among relevant legal provisions. The primary legal materials included Law Number 25 of 2007 concerning Investment, as amended; Law Number 30 of 2009 concerning Electricity, as amended; Presidential Regulation Number 112 of 2022; MEMR Regulation Number 5 of 2025; and MEMR Regulation Number 10 of 2017 and its amendments. These legal materials were examined to trace the development of the regulatory framework governing change-in-law risk. PT PLN (Persero)'s 2025–2034 Electricity Supply Business Plan (RUPTL) was used to contextualize the policy framework and the scale of renewable energy investment requirements.

Secondary legal materials included literature on investment law, green investment, project finance, stabilization clauses, economic equilibrium, regulatory risk, and the state's right to regulate, as well as relevant investment arbitration decisions. The Parkerings and Saluka decisions were examined as comparative legal materials concerning legitimate expectations, regulatory stability, investor protection, and regulatory autonomy, while Vivendi was used to distinguish contractual obligations from treaty obligations. These arbitral decisions were treated as comparative legal materials rather than binding precedents under Indonesian law. The legal materials were analyzed through systematic and conceptual interpretation by identifying risk allocation within the PPA regulatory framework, tracing the development of change-in-law regulation, distinguishing contractual protection from protection under international investment law, and formulating a prescriptive framework integrating positive

law, contractual risk allocation, and international investment law to reconcile investment certainty with the state's regulatory autonomy.

RESULTS AND DISCUSSION

The PPA as an Investment Risk Allocation Instrument

The Character of NRE Investment and the Function of the PPA

Renewable energy power plant investment has a long-term, capital-intensive character and is highly dependent on regulation. This character is consistent with direct investment in the Indonesian investment-law literature, namely investment through productive business activities or projects with the investor's involvement in management or supervision.

From an investment-law perspective, the PPA does not change the position of the PPL into merely a party to an electricity sale-and-purchase relationship. The PPA is a contractual instrument that affects the feasibility and sustainability of an investment because it determines revenue streams and the allocation of a number of project risks. That contractual framework remains within the broader investment-law environment, which includes investment provisions, electricity regulation, renewable energy policy, and, where its requirements are met, protection under international investment law. Accordingly, the analysis of the PPA in this research is not directed solely at contract law, but at how the allocation of regulatory risk through contract interacts with investment certainty and the state's authority to regulate.

For the purposes of this research, the term PPL is used to refer to a business entity that is a contractual party in a PPA with PLN. The term IPP is used in the context of the model of power generation by parties other than PLN, while the term investor is used in a broader sense to refer to a party that invests capital in a project. The three therefore do not always refer to identical legal subjects.

The PPA has two functions. First, a transactional function as the basis for the sale and purchase of electricity between the PPL and PLN. Second, a risk-allocation function, because the contract determines who bears the consequences when certain events occur. The second function derives its normative basis from Article 4 of MEMR Regulation No. 5 of 2025, which explicitly includes risk allocation, project guarantees, price adjustment, force majeure, termination, dispute resolution, environmental attributes or carbon economic value, and refinancing as PPA subject matter.

Nevertheless, the protection arising from the PPA must be distinguished from protection under an investment treaty. The PPL's right to obtain payment or price adjustment because of a PPA clause is contractual protection. If the PPL is owned by a foreign investor, that status does not automatically turn every breach of contract into a breach of international investment law. Distinguishing the sources of obligation is important so that the term investor protection is not used excessively.

The Risk Allocation Logic in MEMR Regulation No. 5 of 2025

Article 9 shows that the regulation's drafters did not burden one party with all risks. Certain risks relating to electricity demand or load, transmission-distribution readiness and capability, and exchange-rate volatility are allocated to PLN; whereas risks relating to land acquisition, permitting, environment and spatial planning, construction schedule, currency convertibility, power plant performance, and the availability and cost of certain fuels are allocated to the PPL. Viewed from the perspective of contractual risk allocation, this structure

can be read as an effort to place risk on the party relatively better able to control, manage, or mitigate it.

Article 9 does not place change in law as a separate category. However, Article 4 provides room for additional provisions agreed on a business-to-business basis. As a result, regulatory risk sits at the meeting point between regulatory standardization and freedom of contract. This flexibility is useful because the characteristics of solar (PLTS), hydropower (PLTA), geothermal (PLTP), wind (PLTB), and other technologies are not identical. However, because MEMR Regulation No. 5 of 2025 has not established a general test for changes in law, while some of the economic consequences are handled through the price adjustment mechanism and others may be further regulated in the PPA, the quality of regulation and the predictability of regulatory change risk may still differ from one PPA to another.

The Evolution of Change in Law and Its Economic Consequences

The Shift in Approach, 2017–2018–2025

The analysis of MEMR Regulation No. 5 of 2025 needs to be placed within the history of PPA regulation. MEMR Regulation No. 10 of 2017 initially included changes in laws and regulations and changes in government policy within the category of force majeure. Under that initial construction, if a change in regulations gave rise to new investment or additional costs, the business entity was entitled to a price adjustment; conversely, if a regulatory change reduced costs, PLN was entitled to a price adjustment. Substantively, this mechanism shows a two-way economic rebalancing logic.

The first amendment, through MEMR Regulation No. 49 of 2017, removed changes in government policy (government force majeure) from the force majeure category, but at that stage changes in laws and regulations were still retained as one of the force majeure events. Subsequently, MEMR Regulation No. 10 of 2018 removed changes in laws and regulations from the force majeure category, together with the price adjustment construction that had previously been explicitly linked to such changes. The 2017 regulation and its amendments were then revoked by MEMR Regulation No. 5 of 2025 for renewable energy power plant PPAs.

This evolution should not be read simplistically as a reduction of investor protection. Conceptually, change in law is indeed different from force majeure. Force majeure ordinarily relates to external events that prevent or disrupt the performance of obligations. Change in law is an exercise of regulatory authority that may be entirely lawful but changes the legal or economic conditions of the project. Therefore, the need for adjustment also differs.

Price Adjustment and the Fragmentation of Regulatory Change Mechanisms

The absence of a general change-in-law category does not mean that MEMR Regulation No. 5 of 2025 ignores all consequences of regulatory change. The PPA regulation still governs price and the requirements for price adjustment, while analysis of the new rules shows room for adjustment for changes in certain obligations such as taxation, environment, non-tax state revenue (PNBP), and other conditions agreed in the PPA. Substantively, several types of regulatory change can thus be translated into contractual economic consequences.

Economic Equilibrium and Stabilization Clauses

The investment contract literature recognizes stabilization clauses as a device for managing change-in-law risk. The IFC study of stabilization clauses distinguishes various forms of clauses, including approaches that freeze the legal framework and approaches that

accept the application of new law but provide a mechanism to address its economic consequences. For long-term NRE projects, this distinction is very important (Shemberg, 2009).

An absolute freezing clause is less consistent with the construction developed in this research for NRE PPAs because it could restrict room for regulatory adaptation to developments in environment, safety, technology, affordability, and energy policy. (Sornarajah, 2004) explains that classic stabilisation clauses are aimed at freezing the effect of changes in law on the contract but give rise to problems of legislative sovereignty; mechanisms that open renegotiation to establish a new contractual balance are more adaptive than an absolute prohibition on change (Sornarajah, 2004).

Investor Protection and Regulatory Autonomy

Legal Certainty Is Not a Regulatory Freeze

UNCTAD, in the Investment Policy Framework for Sustainable Development, stresses the need for a balance between creating a stable and predictable investment climate and the right to regulate for sustainable development purposes. In the climate context, UNCTAD also notes that the design of modern investment agreements increasingly pays attention to the state's space for environmental policy and climate action. This direction supports the understanding that investor protection and regulatory autonomy are not a binary choice (United Nations Conference on Trade and Development, 2022; United Nations Conference on Trade and Development, 2015.

This research therefore uses the concept of predictable regulatory adaptation. Legal certainty does not mean that the regulation in force when the investment begins must remain the same throughout the term of the PPA. Certainty means that when a change in law occurs, there is a predictable process to identify the change, assess its causal relationship and materiality, determine mitigation obligations, and choose proportionate relief (adjustment). Thus, what is protected is predictability of treatment, not immutability of law.

This construction starts from the understanding that regulatory risk is part of the investment environment, while the state's authority to change policy must still be maintained. Therefore, the function of contractual mechanisms is not to prevent changes in law, but to provide a predictable method for assessing the consequences of such changes on the project.

Legitimate Expectations and the Limits of Expectations of Stability

Investment decisions reinforce the importance of limiting expectations of stability. In Parkerings-Compagniet AS v. Lithuania, the tribunal in paragraph 332 affirmed that an investor generally cannot expect the legal framework to remain unchanged, unless there is a sufficiently specific guarantee or stabilization commitment; the investor must also conduct due diligence on possible changes in the legal environment. This principle is relevant for electricity investment, which from the outset is a regulated sector (*Parkerings-Compagniet AS v. Republic of Lithuania*, 2007).

Saluka Investments B.V. v. Czech Republic provides a more explicit formulation of balance. The tribunal stated in paragraph 305 that no investor can reasonably expect circumstances at the time of investment to remain totally unchanged. Paragraph 306 then affirmed the need to weigh the investor's legitimate and reasonable expectations against the state's legitimate regulatory interests; paragraph 307 added that state action must remain

justifiable by public policy and must not be manifestly inconsistent, non-transparent, uneven-handed, or discriminatory (*Saluka Investments B.V. v. Czech Republic*, 2006).

The Three Layers of Investor Protection

At the national law level, the principle of legal certainty in investment provides a normative basis that investment policy must be built within a predictable framework. That principle does not mean that investors are entitled to demand that regulations never change; in this research, legal certainty is instead read together with the state's need to maintain regulatory autonomy, so that what is needed is clarity regarding the treatment of the effects of regulatory change.

To avoid mixing legal frameworks, this research divides NRE investor protection into three layers. The first layer is domestic regulatory protection sourced from the Investment Law, the Electricity Law, Presidential Regulation 112/2022, MEMR Regulation 5/2025, and related regulations. This layer forms the basic legal environment for investment.

The second layer is contractual protection through the PPA. The right to payment, the deemed dispatch mechanism, COD, price adjustment, force majeure, termination, and dispute resolution are examples of protection whose source lies in the contract and sectoral regulation. The third layer is international investment protection, which is relevant only if there is a foreign investor and an applicable international instrument, a protected investment, consent, and other jurisdictional requirements.

Contract Claims and Treaty Claims

The distinction between contract claims and treaty claims derives important support from Compañía de Aguas del Aconquija S.A. and Vivendi Universal S.A. v. Argentine Republic. In the Decision on Annulment, paragraph 96, the ad hoc committee affirmed that whether there has been a breach of the BIT and whether there has been a breach of contract are two different questions, each determined by the law applicable to it. In paragraph 101, the committee also distinguished claims whose fundamental basis is the treaty from claims that essentially originate in the contract (*Compañía de Aguas del Aconquija S.A. and Vivendi Universal S.A. v. Argentine Republic*, 2002).

The Position of Pln as Offtaker and State-Owned Enterprise

PLN's position requires separate analysis because this company is a state-owned enterprise (SOE) as well as the principal party in the PPA. However, SOE status does not mean that all PLN's actions are identical to acts of the state under international law. The Articles on Responsibility of States for Internationally Wrongful Acts distinguish acts of state organs, acts of entities empowered to exercise governmental authority, and acts of parties acting on the instruction, direction, or control of the state (International Law Commission, 2001).

Therefore, the question of attribution does not stop at who PLN's shareholder is. The analysis must look at the act in dispute and the capacity in which PLN was acting. A dispute over an invoice or the calculation of contractual obligations differs from an act of a regulator issuing a new norm. State ownership does not automatically resolve the attribution analysis.

From here, three groups can be distinguished: PPL-originated risk, PLN-originated contractual risk, and State-originated regulatory risk. This classification helps avoid two errors: regarding all regulatory changes as PLN's fault, or conversely regarding all regulatory risk as investor risk merely because PLN is not the regulator.

Regulatory Change Risk Allocation Model

Basis of the Construction

The model is named the Regulatory Change Risk Allocation Model and is built through eight stages: qualification, foreseeability, causation, materiality, mitigation, net economic effect, appropriate relief, and regulatory oversight and dispute resolution. These stages are not a claim that MEMR Regulation 5/2025 currently regulates all these elements. Rather, they are a prescriptive formulation of the research based on the gap between long-term investment needs and the fragmentation of existing regulatory-change mechanisms.

This model is not derived from a single doctrine or a single legal source, but is a prescriptive synthesis of three layers of analysis. First, the positive-law layer is used to determine the space that Indonesian positive law gives to risk allocation, PPA adjustment, and regulatory authority. Second, the contractual-risk layer is used to test the causal relationship, materiality, mitigation obligations, economic impact, and form of relief in response to regulatory change. Third, the international-investment-law layer provides a perspective on foreseeability, legitimate expectations, and the limits of investor protection in relation to the state's regulatory autonomy. These three layers are then operationalized through the eight stages of the Regulatory Change Risk Allocation Model.

Qualification Test

The first stage determines whether an event is truly a relevant regulatory change. The PPA ideally sets a definition that covers the enactment, amendment, repeal, or official change in interpretation of regulations that legally alters project obligations, with a clear cut-off date. A cut-off date is needed so that risks that were actually known, or ought to have been known, at the time of investment are not later transferred to another party. The definition must also distinguish general changes in law from changes arising from the PPL's own non-compliance.

Foreseeability Test

Once an event satisfies the qualification test, it must be tested whether the change had already taken effect, been officially announced, or could reasonably have been anticipated by the PPL at the cut-off date. A change that was already known or reasonably foreseeable when the baseline was set in principle should not be passed on as a regulatory change claim because it should already have been factored into the investment decision, pricing, or mitigation strategy. Conversely, a change that was not reasonably foreseeable may proceed to the causation test. Foreseeability does not assess whether the new regulation is valid; rather, it determines whether the risk of such change was already among the risks reasonably borne by the PPL when the contract was formed.

Causation Test

The existence of a new regulation is not enough. The PPL must demonstrate a causal relationship between the change in law and the claimed impact. If a new environmental standard requires additional facilities, it must be shown how that norm gives rise to additional CAPEX, OPEX, delay, or other change in obligations. The causation test prevents costs that in fact originate from inefficiency, design, or commercial decisions from being packaged as a regulatory claim.

Materiality Test

Not every impact deserves relief. Companies ordinarily face changing compliance costs. Therefore, the PPA needs to set an objective materiality threshold, for example based on the

impact on investment cost, operating cost, revenue, COD, or other relevant financial parameters. This research does not specify a particular percentage figure because the threshold must take into account the technology, capacity, financing structure, and risk profile of the project. The principle is to separate ordinary regulatory burden from material regulatory impact.

Mitigation Duty

A PPL requesting an adjustment must undertake reasonable mitigation. If there are several equally lawful ways to comply with a new regulation, the investor should not choose the most expensive option and then charge all the costs to PLN. The mitigation duty balances investor protection with commercial discipline and prevents moral hazard. Evidence of mitigation efforts can also form part of an expert determination process if a technical dispute arises.

Net Economic Effect and Economic Equilibrium Test

After qualification, foreseeability, causation, materiality, and mitigation are satisfied, the next stage is to calculate the net economic effect of the regulatory change. The calculation includes not only additional CAPEX, OPEX, delay, or lost revenue that is proven to be causally related, but also benefits, savings, incentives, or cost reductions arising from the same regulatory change. This net result is then used to assess the extent to which the contract's economic equilibrium has been disturbed compared with the baseline at the cut-off date. Thus, net economic effect is a method for measuring impact, whereas economic equilibrium is the corrective objective of the relief mechanism and cannot be construed as a profit guarantee.

Appropriate Relief

Relief must follow the nature of the impact. Recurring additional costs may be better handled through tariff adjustment; delay due to new obligations may require a COD extension; certain impacts can be handled through an extension of the PPA term or adjustment of contractual obligations; and some cases may require a combination. This approach is more proportionate than the formula "every regulatory change equals a tariff increase." Relief can also be two-way if a change in law actually materially reduces project costs, so that the principle of economic equilibrium does not work only for the investor's benefit.

Regulatory Oversight and Dispute Resolution

The agreement between PLN and the PPL must not be placed above the authority of the regulator. If a price adjustment or a particular form of relief requires government approval under the applicable regulations, that requirement must still be met. Contractual economic equilibrium operates within the regulatory framework, not replacing it. Disputes over the classification of a change in law, causation, or the magnitude of impact may first be settled through amicable consultation (musyawarah). Article 30 of MEMR Regulation No. 5 of 2025 has opened the possibility of involving an expert agreed by PLN and the PPL in that process. Building on that foundation, this research prescriptively develops the function of the expert to handle technical issues and the calculation of regulatory-change claims in a more structured way, without displacing the authority of the dispute resolution forum specified in the PPA.

Operationalization of the Model: Decision Tree

So that the model does not remain merely a conceptual construction, the testing of regulatory change must be carried out sequentially. First, it is determined whether, after the cut-off date, there has been a change in law that produces legal consequences for the project.

Second, foreseeability is tested: a change that had already taken effect, been officially announced, or reasonably ought to have been taken into account before the cut-off date in principle remains the PPL's risk. Third, the PPL proves causation between the change in law and the claimed impact. Fourth, the impact must exceed the agreed materiality threshold. Fifth, the PPL must demonstrate reasonable mitigation. Sixth, the net economic effect is calculated, taking into account additional costs as well as benefits or incentives arising from the regulatory change. Seventh, proportionate appropriate relief is selected. Eighth, the relief is implemented with regulatory approval where required, and disputes are resolved through the tiered mechanism in the PPA. If any of the substantive requirements is not met, the change continues to be treated as ordinary regulatory or business risk and does not automatically give rise to a right to compensation.

Division of Roles among the Government, PLN, and the PPL

A hybrid regulatory-contractual model requires a clear division of functions. The Government, through a regulatory framework or implementing guidelines, sets minimum principles concerning the definition of regulatory change, cut-off date, foreseeability, causation, materiality, mitigation, net economic effect, forms of relief, and the need for regulator approval. PLN operationalizes those principles in a standard change-in-law clause in the PPA template. The PPL and PLN then determine on a project-specific basis the materiality threshold, calculation method, notification period, evidentiary data, and form of relief, taking into account the technology and financing structure. This division uses the space already available because Article 4 paragraph (4) of MEMR Regulation No. 5 of 2025 permits additional provisions on a business-to-business basis, while Article 28 opens price adjustment for changes in cost and technical elements and other conditions agreed in the PPA. Thus, the solution need not be to freeze regulation or to shift all regulatory risk to PLN.

Proposed Minimum Change-in-Law Clause

As an operational form, a minimum clause can be formulated as follows: “Change in Law means the enactment, amendment, repeal, or official change in interpretation of laws and regulations after the Cut-Off Date that directly and materially affects the costs, revenues, COD schedule, or obligations of the PPL under the PPA, provided that such change was not already known or reasonably foreseeable by the PPL at the Cut-Off Date and its impact is not caused by the PPL's non-compliance.” A PPL applying for relief must notify PLN within the specified period, prove causation and materiality, and demonstrate mitigation measures. Relief is determined based on the net economic effect and may take the form of price adjustment, COD extension, extension of the PPA term, adjustment of obligations, or a combination, while remaining subject to the Minister's approval where required. This clause is a prescriptive formulation of the research, not a quotation of an official PLN clause.

Application Simulation

By way of illustration, a solar (PLTS) project signs a PPA with a cut-off date of 1 December 2026. In 2029 a new environmental standard is issued that directly requires additional facilities worth IDR 100 billion. The same regulation provides fiscal incentives worth IDR 20 billion, while IDR 10 billion of the PPL's expenditure is proven to derive from a more expensive technology choice that was not necessary to meet the new standard. Once qualification and foreseeability are satisfied, causation is proven and the impact passes the

materiality threshold. Because the model uses net economic effect and mitigation, the impact that merits processing is not IDR 100 billion but IDR 70 billion. That figure is not automatically paid by PLN; the parties must still determine the most proportionate relief, for example price adjustment, extension of the PPA term, or a combination, and obtain regulator approval where required. This simulation shows that predictable regulatory adaptation manages the impact of a material regulatory shock proportionately for the parties without turning the PPA into a profit guarantee.

Transition Mechanism for Existing PPAs

The model needs to distinguish between new and existing PPAs. Article 48 of MEMR Regulation No. 5 of 2025 preserves previously signed PPAs until the contract expires, while their extension follows the new regulation. Therefore, the model is not applied retroactively. For existing PPAs, adoption of the model can only be considered through contractual amendment based on the agreement of the parties to the extent permitted by the PPA and not contrary to laws and regulations and the required regulator approval. Article 50 of MEMR Regulation No. 5 of 2025 does recognize additional agreements for the matters it specifically regulates, but that provision cannot be read as a general basis for inserting a change-in-law clause into all existing PPAs. Such a systematic reading preserves the function of Article 48 as a transitional provision that maintains the validity of old contracts. The model is therefore applied to new PPAs, may be adopted when old PPAs are renegotiated, and is aligned at the time of extension.

Anticipating PLN's Resistance and the Two-Way Principle

From PLN's perspective as offtaker, risk allocation must safeguard the certainty of electricity purchase costs, the accountability of decisions, and the sustainability of supply while maintaining project feasibility. The two-way principle does not mean that PLN bears every cost increase resulting from government policy. Automatic pass-through should in fact be avoided because it could open opportunistic claims and weaken the PPL's mitigation obligation. Therefore, there is no relief without qualification, foreseeability, causation, materiality, and mitigation; calculation uses net economic effect; relief need not take the form of a tariff increase; and regulator approval continues to apply where required. Conversely, material regulatory benefits or cost reductions are also taken into account. Economic equilibrium thus serves to maintain the agreed risk allocation, not to shift regulatory risk to PLN or to guarantee the PPL's profit.

To be accountable, the model should use a standard clause and internal governance, not ad hoc discretion. Claims must be supported by auditable evidence, notification deadlines, and a calculation method. MEMR Regulation No. 5 of 2025 has provided a basis for the involvement of experts in settling disputes through consultation. This research develops that mechanism further by proposing expert determination specifically limited to technical or financial disputes over regulatory-change claims. An independent expert is appointed by agreement of PLN and the PPL; if the parties fail to agree within the specified time limit, the appointment follows the institutional mechanism agreed in the PPA. The expert's determination is final and binding only on the technical or calculation issues expressly referred to the expert, while legal interpretation continues to follow the PPA's dispute resolution forum. Expert costs are in principle borne jointly, unless otherwise agreed or determined. This design makes expert determination a dispute filter, not a forum that overlaps with arbitration or the courts.

Critical Analysis And Policy Implications

The room for improvement lies in processing regulatory change consistently. Some impacts can be handled through price adjustment or additional clauses, but there is not yet a single minimum framework linking a regulatory event with causation, materiality, mitigation, and appropriate relief.

On the investor side, predictable regulatory adaptation improves clarity regarding the treatment of changes in law. This research does not conclude empirically that the Regulatory Change Risk Allocation Model will certainly reduce the cost of capital; the defensible claim is an improvement in procedural clarity and risk allocation.

The applicability of the model must be sensitive to the time the contract was made. Article 48 requires a non-retroactive approach to existing PPAs; adaptation is carried out through agreement or at the time of extension. Acceptance by the parties also depends on the model's ability to limit claims through auditability, materiality thresholds, and expert determination. Thus, predictable regulatory adaptation functions as a tool for contractual balance and control of regulatory claims, not as an instrument that favors either PLN or the PPL.

CONCLUSION

First, MEMR Regulation Number 5 of 2025 establishes a more structured framework for PPA risk allocation; however, Article 9 does not expressly identify change-in-law risk as a distinct risk category. The consequences of regulatory changes may nevertheless interact with provisions concerning price adjustments and additional terms agreed upon in the PPA. Therefore, the existing legal framework is more appropriately characterized as involving fragmented mechanisms for addressing regulatory change rather than a complete absence of protection.

The regulatory development since MEMR Regulation Number 10 of 2017 indicates that change in law was previously categorized as force majeure and linked to price adjustment mechanisms. Conceptually, distinguishing change in law from force majeure is appropriate because force majeure generally concerns events that prevent or substantially impede contractual performance, whereas change-in-law risk concerns regulatory developments that may alter a project’s legal or economic position even when contractual performance remains possible (Pata et al., 2023).

Second, an appropriate legal construction should not take the form of a regulatory freeze. Parkerings and Saluka demonstrate that investors generally cannot expect the applicable legal framework to remain unchanged and that legitimate expectations must be balanced against legitimate regulatory interests. Investment certainty is therefore more appropriately understood in terms of predictable regulatory adaptation.

(Gohdes, 2025) Accordingly, this study proposes the Regulatory Change Risk Allocation Model, comprising qualification, foreseeability, causation, materiality, mitigation, net economic effect, appropriate relief, regulatory oversight, and dispute resolution. The model is situated within a hybrid regulatory-contractual architecture and operationalized through a decision tree, an allocation of responsibilities among the Government, PLN, and power plant developers (PPL), a proposed minimum change-in-law clause, an application simulation, and a transition mechanism for existing PPAs. For existing contracts, the model is not intended to

apply retroactively but may be incorporated through amendments based on mutual agreement between the parties or upon contract extension in accordance with Article 48 of MEMR Regulation Number 5 of 2025. The objective is not to guarantee investor returns but to ensure that material regulatory risks can be identified, assessed, and addressed proportionately without restricting the state's authority to regulate in the public interest or disproportionately allocating such risks to PLN.

The contribution of this study therefore lies not in establishing an investor right to an unchanged regulatory framework but in formulating a structured and proportionate analytical method for linking regulatory changes to their contractual consequences while preserving the state's regulatory autonomy.

Investment protection and certainty should be distinguished across three legal layers: domestic regulatory protection, contractual protection, and international investment law protection. At the contractual level, PLN acts as a party to the PPA and as the offtaker within the applicable legal framework rather than as the state regulatory authority. Vivendi affirms the distinction between a breach of contract and a breach of treaty; moreover, PLN's status as a state-owned enterprise (SOE) does not, by itself, mean that all of its conduct is attributable to the state for the purposes of international responsibility.

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AUTHOR CONTRIBUTIONS

The author contributed fully to formulating the main ideas, collecting library research data, analyzing and interpreting the primary texts of the figure, and preparing the manuscript. All authors have approved the final version of the manuscript

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