

# Policy Brief:

## Accelerating Clean Technology Transitions in Indonesia: Insights from Regional Capacity-Building Workshop on Integrative Anticipatory Policy Design (IAPD)

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## Executive Summary

Indonesia's clean energy transition has reached a critical juncture. Despite strong ambitions and abundant renewable resources, progress in solar and electric vehicle (EV) deployment remains slower than what many experts argue are required to meet the Paris Accord's 1.5–2°C climate targets. Accelerating these transitions requires moving beyond a traditional focus on technological or financial constraints to also address deeper structural challenges—namely institutional lock-ins, policy inconsistency, and fragmented governance—which continue to reinforce high-carbon pathways.

This policy brief draws on insights from a multi-stakeholder regional capacity-building workshop held in Jakarta on 15–16 April 2026, which brought together policymakers, experts, researchers, and private sector practitioners and applied Cashore's Integrative Anticipatory Policy Design (IAPD) framework (Cashore 2026b: Part III; Cashore, He, and Ye 2025; Cashore 2026a) that draws on, and expands, a quarter century of collaborative work on how to design long term policies to be resilient to short term pressures to knock them off course (Levin et al. 2012; Cashore and Howlett 2007; Sewerin, Béland, and Cashore 2020; Rosenbloom, Meadowcroft, and Cashore 2019; Cashore et al. 2016). The framework emphasizes designing policies for durability—creating early lock-in, building reinforcing returns, and expanding supportive coalitions over time. A central insight is that small, well-targeted policy design choices can drive broader system change.

As conventional models for adjudicating and developing policy decisions often fail to anticipate their potential long-term erosion, the application of IAPD integrates an understanding of the structural effects of path dependencies, with insights for how agents might foster new ones. It does so by calling for great attention by policy official to anticipate, and navigate, changes in the power of rules, markets and norms in shaping behaviours through multiple steps. This, in turn, allows them to better uncover and minimizing undermining effects, while leaning into reinforcing effects than when well deployed, can, and do, produce entrenchment and expansion over time.

Based on participant discussions, solar deployment is constrained by coal lock-in, PLN's dominant role, and misaligned policy design, with past instruments often producing undermining effects for successful energy transition. In the EV sector, adoption is slowed by policy uncertainty, administrative barriers, and incomplete market ecosystems, with the sector still below the critical 10% threshold required for self-sustaining growth.

Across both sectors, administrative and institutional barriers are more binding than technical ones. Streamlining processes such as permitting, procurement, and vehicle registration can unlock rapid gains. High-impact micro-level levers include adaptive local content rules, direct renewable procurement, and decentralized solar deployment, as well as EV registration reform, battery standardization, financing mechanisms, and secondary market development.

Ultimately, Indonesia's challenge is not a lack of policies per se, but rather limited attention to how to design them to be resilient to change. In other words, much attention and often agreement has been made about what ought a policy ought to be, but much less attention on how to design to “lock-in” the policy. The workshop discussed how translating these insights into concrete, well-sequenced policy pathways will be essential to achieving clean energy transitions that are scalable, self-reinforcing, and resilient over time.

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# I. Background

Indonesia stands at a critical juncture in its clean energy transition. Despite abundant renewable resources and ambitious national targets—including large-scale solar deployment and electric vehicle (EV) adoption—progress has been insufficient to align with 1.5–2°C climate targets. This gap reflects not only technical or financial constraints, but more fundamentally **institutional lock-ins, policy misalignment, and fragmented governance structures** that continue to reinforce high-carbon development pathways.

Across sectors, sustainability governance has struggled with a recurring pattern: ambitious policies are frequently introduced but fail to deliver sustained outcomes. This reflects a deeper challenge of designing policies that can **withstand political turnover, align stakeholder incentives, and generate self-reinforcing dynamics over time**.

To address this, the regional capacity-building workshop held in Jakarta (15–16 April 2026) convened policymakers, researchers, and practitioners to co-develop actionable strategies for Indonesia’s solar and EV transitions. The workshop applied Cashore’s **Integrative Anticipatory Policy Design (IAPD)** framework, which shifts attention from policy adoption to **policy durability**.

The IAPD draws on Cashore’s earlier collaborative work on super wicked problems (Levin et al. 2012) that identified four diagnostic questions (Auld et al. 2021) that policy makers must deliberate over when deliberating over the content of policy mixes:

- Designing policies that create **immediate lock-in (stickiness)**
- Ensuring policies become **entrenched through economic and political returns**
- Expanding **supportive coalitions over time**
- Aligning policy pathways with long-term decarbonization goals

The original insight was that policies for decarbonizing energy systems must “fight fire with fire” by understanding and confronting high carbon lock-in, rather than prescribing fixed solutions, the framework supports **co-generation of policy pathways**, identifying how small design choices can trigger **large-scale systemic change**.

## II. Key Issues

### 2.1. Solar Energy

Solar deployment in Indonesia remains constrained not by lack of ambition, but by the interaction between new policies and entrenched institutional structures:

1. **Coal Lock-in and Institutional Constraints**  
Long-term coal PPAs and subsidy structures create systemic resistance to solar integration.
2. **Utility Dominance and Incentive Misalignment**  
As the single off-taker, PLN’s operational model is not aligned with rapid solar expansion.
3. **Policy Design Mismatch**  
Imported instruments (e.g., feed-in tariff, net metering) were insufficiently adapted, producing self-undermining effects, including tariff suppression and policy reversals.
4. **Institutional Fragmentation**  
Overlapping authority across agencies weakens coordination and policy continuity.

Participants emphasized the need for **sequenced and integrated policy pathways**, including:

- Reforming coal-related constraints (e.g., PPAs, DMO mechanisms)
- Aligning PLN incentives with renewable deployment
- Scaling large-scale solar through structured procurement models

- Reforming rooftop solar policies (quota, compensation, permitting)
- Investing in grid infrastructure and interconnection
- Linking solar deployment with domestic manufacturing and job creation

## 2.2. Electric Vehicles

The EV transition faces a different but equally systemic set of challenges, centered on **policy inconsistency, administrative friction, and incomplete market ecosystems**.

### 1. Insufficient Policy Stickiness

The expiration of incentives in 2026 led to a nearly 80% collapse in two-wheeler sales, proving that current incentive mechanisms lack deep socio-economic roots.

### 2. Administrative Complexity as a Core Constraint

While technical conversion is rapid, administrative processes (e.g., vehicle registration) remain slow and fragmented, significantly hindering adoption. Multiple ministries and agencies operate without a unified coordination mechanism, reducing policy effectiveness.

### 3. Supply-Demand Mismatch

Despite Indonesia's competitive advantage in nickel, there is a disconnect between mid-stream manufacturing and the affordability requirements of downstream consumers.

### 4. Critical Market Threshold Not Yet Achieved

The EV ecosystem remains below the 10% adoption threshold, which is necessary for sustained private sector participation and ecosystem viability.

Participants highlighted the need to move beyond broad policy goals toward **targeted system-building interventions**, including:

- Restoring and stabilizing EV incentives to rebuild market confidence
- Shifting toward supply-side regulation (e.g., sales mandates, local production requirements)
- Simplifying administrative processes (e.g., digital registration systems)
- Developing charging infrastructure and battery swap standardization
- Building financing ecosystems and secondary markets
- Leveraging government procurement to seed market development

## III. Actionable Micro-Level Insights and Issues for Further Exploration

### 3.1. Solar Energy

Building on the workshop discussions, participants identified a set of high-impact, micro-level policy levers that can unlock broader system transformation in Indonesia's solar sector. These interventions focus on reducing institutional friction, aligning incentives, and creating early "wins" that can build durable support over time.

The insights are presented as priority areas to which the IAPD framework can be applied, enabling a more systematic assessment of how each lever may operate across different stages of the transition. They are not intended as prescriptive recommendations; rather, they are meant to inform a deliberative process—helping stakeholders identify what actions to take and how to integrate these ideas into a coherent, stepwise policy pathway.

#### 1. Strengthening the Regulatory and Institutional Architecture (Rules)

- **Extend and standardize rooftop solar implementation timelines**

Current short installation and commissioning windows (e.g., 6 months) create unnecessary barriers for developers and consumers. Extending timelines to 6–12 months can immediately improve uptake and reduce project failure rates.

- **Introduce adaptive Local Content Requirement (TKDN) mechanisms**  
Replace rigid, year-by-year TKDN targets with flexible, capacity-based benchmarks that adjust to domestic manufacturing readiness and deployment rates. This prevents current unintended effects where LCR slows solar deployment and undermines job creation.
  - **Institutionalize policy continuity mechanisms**  
Strengthen the role of permanent technical bodies or inter-agency committees to ensure solar policy implementation survives political turnover, reducing “reset” risks across administrations.
  - **Standardize and de-risk solar procurement frameworks**  
Introduce standardized PPAs, risk guarantees, and PPP models to reduce transaction costs and accelerate large-scale solar deployment.
  - **Shorten and streamline procurement processes**  
Simplify land acquisition, environmental approvals, tariff negotiations, and equity arrangements within PLN-led projects to reduce delays and investor uncertainty.
2. **Activating Market Incentives and Investment Signals (Markets)**
- **Create demand signals for domestic manufacturing**  
Align deployment targets with industrial policy to ensure stable demand for domestic solar manufacturing, reducing investor risk of underutilized capacity.
  - **Introduce targeted fiscal incentives for high-efficiency technologies**  
Differentiated, rather than “one-size-fits-all,” tax rebates or incentives for advanced PV and inverter technologies can accelerate technology upgrading while maintaining competitiveness.
  - **Develop leasing and low-interest financing models for distributed solar**  
Particularly in rural areas, leasing mechanisms can lower upfront costs and expand access.
3. **Shaping Narratives and Building Enduring Support Coalitions (Norms)**
- **Reframe solar as an economic and energy security tool**  
Position solar not only as a climate solution, but as a domestic energy shield against fuel imports, a job creation engine, and a driver of regional development, thereby reshaping public perceptions and building broader support.
  - **Leverage “green demand” from industry and consumers**  
Creating the possibility and narrative that expanding rooftop quotas can attract industrial consumers seeking green electricity, potentially increasing PLN revenues rather than reducing them, contrary to prevailing concerns.
  - **Build coalitions through visible short-term wins**  
Focus on applications that deliver immediate benefits (e.g., diesel replacement, cost savings), creating a “snowball effect” of expanding support.
  - **Strengthen public–private cooperation for long-term system viability**  
Formalize partnerships for training, operations, and maintenance to ensure sustained system performance and avoid project abandonment.
4. **Leveraging Integrated Delivery and System-Level Solutions (Multi-Causal)**
- **Enable direct renewable procurement (e.g., DPPA frameworks)**  
Reform transmission and market rules to allow large consumers to directly procure renewable electricity. This unlocks private demand and reduces over-reliance on centralized procurement structures.
  - **Integrate solar deployment with productive uses of electricity**  
Link solar systems with cold storage, fisheries, and local industries, transforming electricity from a consumption good into an economic enabler.
  - **Establish decentralized maintenance and service ecosystems**

Create regional spare parts hubs and trained technician networks to prevent system abandonment, especially in remote areas where lack of maintenance has undermined past projects.

- **Scale decentralized solar models in rural and island contexts**

Deploy solar + storage solutions for diesel replacement and rural electrification, where solar already has a cost advantage. This generates immediate economic and social benefits while building local support that focuses on Indonesia's 100% electrification rate target.

A consistent lesson across discussions is that small, targeted policy adjustments—rather than large-scale reforms—often provide the most tractable and politically feasible entry points for change. When carefully designed, these micro-level levers can trigger reinforcing feedback loops, align stakeholder incentives, and gradually transform the broader energy system.

## 3.2. Electric Vehicles

Based on the workshop findings, the following micro-levers offer disproportionately high impact:

### 1. Regulatory Reforms for Vehicle Registration (Rules)

- **Eliminating the chassis number barrier**

Current legal frameworks prohibit the removal or re-stamping of vehicle chassis numbers, making the legal registration of converted (ICE-to-EV) motorcycles very difficult. Establishing a National Digital Vehicle Registry can allow the legal identity of converted vehicles to be transferred digitally, instantly unlocking a massive market for retrofitting.

- **Standardization of battery sockets**

Implement a mandatory national standard for battery swap sockets. This regulatory change would eliminate brand silos and significantly reduce operational costs for logistics providers.

### 2. Financial Market Interventions (Markets)

- **Improving EV affordability through longer instalment schemes**

The higher upfront cost of EVs remains a major constraint on consumer adoption. One practical intervention is to extend EV instalment schemes, for example up to eight years, so that monthly payments become more comparable to those for internal combustion engine vehicles (ICE).

- **Unlocking credit through quotas**

The lack of a robust secondary (used) market makes banks hesitant to provide EV loans, as they face uncertainty over resale value and asset recovery. Financial Services Authority (OJK) should enforce EV lending quotas, paired with government-backed residual value guarantees to unlock consumer demand.

- **Driving the secondary market via public procurement**

Strictly implement Presidential Instruction (Inpres) No. 7/2022. By operationalising EV use for central and regional government agencies, including both operational vehicles and individual official vehicles, the government can create stable early demand for EVs. Large-scale government procurement serves not just as a demonstration but as a mechanism to release a steady supply of high-quality used EVs into the market within 2-3 years, completing the lifecycle value chain.

### 3. Narrative Innovation and Localization (Norms)

- **Rural transition models**

Reframing EVs as “energy access” tools rather than luxury goods, launching pilot programs in remote island territories first.

- **The power of social norms**

Use visible identifiers (such as green license plates) and campus-based free charging stations (model in Universitas Airlangga) to transform the EV into a symbol of social identity rather than just a mode of transport.

## IV. Conclusion

The argument that Indonesia's clean energy transition is constrained by a lack of policy ambition is either inaccurate, or incomplete. Rather, the main challenge facing those promoting decarbonization of energy and transportation is to design policies for the long term. The IAPD offers a way forward by expanding Cashore's original work on super wicked problems that emphasized how policies might sustain themselves over time to identifying the active strategies that policy officials, the private sector, and other non-governmental organizations can undertake to advance multiple step policy trajectories. This, in turn, requires a fundamental rethink of prevailing "theory of change" approaches by better identifying the change role of markets, rules and norms in either reinforcing or undermining traveling from step to step.

The workshop demonstrates that applying integrative anticipatory policy design can:

- Identify hidden institutional bottlenecks
- Reveal high-impact policy levers
- Support the co-generation of durable, politically viable pathways

Moving forward, the priority is to translate these insights into concrete policy design roadmaps, ensuring that Indonesia's solar and EV transitions evolve from fragmented initiatives into self-reinforcing, scalable, and durable systems.

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