

STUDY

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War in the Middle East

*Now Is the Time to Accelerate
Renewable Energy in Thailand
— Toward a Just Energy Transition*

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Executive Summary

The ongoing war in the Middle East, triggered by the US-Israeli attack on Iran in late February 2026, has exposed a critical vulnerability at the heart of Thailand's energy system: its deep structural dependence on imported fossil fuels. The effective closure of the Strait of Hormuz—through which approximately one-fifth of the world's oil and LNG passes—has caused crude oil prices to surge past \$100 per barrel, with some analysts warning of prices reaching \$115–125 per barrel under an extended-conflict scenario.¹ For Thailand, one of Asia's most exposed net energy importers, the consequences have been immediate and severe.

Thailand imports up to 90% of its crude oil, with roughly half normally transiting the Strait of Hormuz. Natural gas fuels approximately 58–68% of the country's electricity generation, and more than 35% of that gas is imported LNG.² Bank of America Global Research has identified Thailand as having the largest negative energy trade balance in Asia relative to GDP, estimated at around 6% of GDP in 2025.³ Nomura has similarly flagged Thailand as a clear “loser” from oil price shocks, estimating that each 10% rise in oil prices could worsen Thailand's current account balance by approximately 0.5 percentage points of GDP.⁴

This exposed vulnerability is not new. During the Russia–Ukraine energy crisis in 2022, surging global LNG prices forced Thailand to spend significantly

more on LNG imports, accumulating approximately US\$4.7 billion in deferred debt at EGAT for electricity subsidies, of which US\$1.2 billion still remained on its books at the onset of the current war.⁵ Household electricity tariffs exceeded 4 baht per kWh for the first time in 14 years.⁶ Impact from the current crisis is felt even before people's electricity bill is effected: during the first two weeks of March 2026, the government's artificial freezing of petrol price for 15 days led to shortages at petrol stations across the country amidst accusations of hoarding, while the Oil Fuel Fund which is used to subsidize petrol prices was rapidly depleted.⁷

This policy paper argues that this crisis is an opportunity for Thailand to accelerate renewable energy expansion under just energy principles, not least because renewable energy is the most effective hedge against energy shocks.⁸ The economic case alone is compelling: BloombergNEF data shows that new utility-scale solar in Thailand costs \$33–75/MWh, compared to \$79–86/MWh for new gas-fired plants.⁹ Lithium-ion battery storage costs have fallen 93% since 2010. Globally, energy transition investment reached a record \$2.3 trillion in 2025, with Asia-Pacific accounting for 47% of the total.¹⁰ The paper identifies key structural, financial, and institutional barriers to Thailand's renewable energy expansion, and proposes actionable, inclusive policy recommendations grounded in a just energy transition framework.

1 Institute for Energy Economics and Financial Analysis (IEEFA), “Iran Tensions Underscore the Urgency of Asia's Renewables Pivot for Macroeconomic Stability,” March 2026.

2 JustPow data on Thailand's electricity generation by fuel source, based in information from EPPO, 2024.

3 Bank of America Global Research, research note on Asian energy trade balances and Iran war exposure, March 2026, as reported by The Nation Thailand.

4 Nomura, research note on Asian vulnerability to oil price shocks, March 2026, as reported by The Nation Thailand.

5 Thansettakij, “40 billion Baht EGAT debt, 13 billion Baht PTT debt pressured May-Aug 2026 electricity bill,” 21 March 2026.

6 Sutthipath Kanittakul, “Iran war exposes Thai energy fragility,” Bangkok Post / Climate Finance Network Thailand, March 2026.

7 Bangkok Post, “Local fuel prices capped for 15 days,” 4 March 2026.

8 Rapeepat Ingkasit, “Renewables are the hedge against energy chaos,” Climate Finance Network Thailand, 2026.

9 BloombergNEF, “Thailand: Turning Point for a Net-Zero Power Grid,” May 2025.

10 BloombergNEF, “Energy Transition Investment Trends 2026,” January 2026. Global investment reached a record \$2.3 trillion in 2025.

1. The Middle East Conflict and Thailand's Energy Vulnerability

The US-Israeli joint attack on Iran in late February 2026 has escalated into a broader regional conflict with devastating consequences for global energy markets. The fighting has effectively halted oil exports through the Strait of Hormuz, the narrow waterway that carries approximately one-fifth of the world's oil and liquefied natural gas (LNG). Iran's retaliatory strikes—including on Qatar's flagship Ras Laffan LNG facility, the world's largest LNG processing plant—have compounded supply disruptions. According to QatarEnergy reports, the strike on Ras Laffan damaged approximately 17% of production capacity and may take years to recover from.¹¹

Crude oil and LNG prices surged by 51% and 77%, respectively, between 27 February and 9 March 2026, according to the Institute for Energy Economics and Financial Analysis (IEEFA).¹² Oil prices briefly rose to nearly \$120 per barrel following Israel's strike on Iran's South Pars gas fields.¹³ The International Energy Agency (IEA) Executive Director Fatih Birol has characterized this as the greatest energy security threat in modern history.

For Thailand, the impact has been immediate and profound. The country is a net energy importer that depends on fossil fuels for approximately 85% of its total energy mix. Natural gas accounted for 58.19% of power production in 2024, with more than 35% of gas supply coming from imported LNG.¹⁴ Thailand's crude oil import dependence is even starker: up to 90% is imported, with roughly half normally transiting the Strait of Hormuz.¹⁵

The National Economic and Social Development Council (NESDC) has modelled two conflict scenarios. Under the first—a one-month regional war with short-term Hormuz disruption—oil prices would reach \$95–105 per barrel and GDP growth would fall to 1.6%, down from the earlier forecast of 2.0%. Under the second—a prolonged conflict with Hormuz closure—oil prices would reach \$115–125 per barrel and GDP growth would drop to 1.3%.¹⁶ Tourism arrivals have already fallen approximately 9% year-on-year in early March 2026, with hotel occupancy in major tourist destinations dropping to as low as 10%.¹⁷

¹¹ Foreign Policy Research Institute, citing QatarEnergy reports on the Ras Laffan strike, March 2026.

¹² Institute for Energy Economics and Financial Analysis (IEEFA), "Iran Tensions Underscore the Urgency of Asia's Renewables Pivot for Macroeconomic Stability," March 2026.

¹³ Foreign Policy Research Institute, "Experts React: Effects of the Iran War on Energy Markets," March 2026.

¹⁴ Sutthipath Kanittakul, "Iran war exposes Thai energy fragility," Bangkok Post / Climate Finance Network Thailand, March 2026.

¹⁵ World Socialist Web Site, "Iran war threatens contraction of Thai economy," March 2026.

¹⁶ National Economic and Social Development Council (NESDC), impact scenarios analysis, as reported by RealWatch Lab / The Nation Thailand, March 2026.

¹⁷ Council on Foreign Relations, "The Iran War is Causing Energy Chaos in Asia," March 2026.

Domestically, the crisis has triggered fuel rationing. The government has suspended petroleum exports except to Laos and Myanmar, boosted domestic gas production, begun drawing on strategic reserves, and initially froze retail diesel prices through the Oil Fuel Fund. However, these measures are inherently temporary; the Oil Fuel Fund faces depletion within months at current subsidy levels, forcing the government to allow petrol prices to rise in the second half of March 2026.¹⁸

This policy brief examines the structural roots of Thailand's energy vulnerability, identifies the barriers to accelerating renewable energy deployment, and proposes actionable policy recommendations for a genuine just energy transition – toward greener, more secure, and more inclusive energy for all.

¹⁸ Associated Press / ABC News, "Energy fallout from Iran war signals a global wake-up call for renewable energy," March 2026.

2. Impact on Thailand's Energy Security and Economic Stability

2.1 Structural Exposure to Fossil Fuel Markets

Thailand's energy vulnerability is not the product of a single crisis but of decades of policy choices that have locked the country into deep fossil fuel dependence. While the current Middle East conflict is the proximate cause of the energy disruption, the underlying structure of Thailand's energy system ensures that any significant geopolitical event in a major oil- or gas-producing region will have outsized domestic consequences.¹⁹

Between 2020 and 2026, Thailand has experienced a succession of supply shocks: the pandemic-era demand collapse and recovery, the Russia–Ukraine energy crisis, Houthi attacks on Red Sea shipping, and now the effective closure of the Strait of Hormuz. This is not a run of bad luck; it is the predictable consequence of an energy system built on geographically concentrated, geopolitically contested fossil fuels.

Bank of America Global Research has identified Thailand as having Asia's deepest negative energy trade balance relative to GDP. In 2025, Thailand's net energy imports were estimated at approximately 6% of GDP—ahead of South Korea (approximately 4%) and significantly above China. Approximately 58% of Thailand's oil imports are

sourced from the Middle East, representing roughly US\$17 billion out of total oil imports of approximately US\$29 billion.²⁰ Nomura has estimated that each 10% rise in oil prices could worsen Thailand's current account balance by around 0.5 percentage points of GDP.²¹

2.2 The LNG Dependency Trap

The most critical dimension of Thailand's energy vulnerability lies in its electricity sector. Natural gas fuels roughly 58–68% of Thai electricity generation, making the power sector acutely sensitive to gas price movements. LNG dependency has surged from just 2% of gas supply in 2011 to 29% by 2024 and continues to grow as domestic gas fields in the Gulf of Thailand deplete.²²

The consequences of this dependency were starkly demonstrated during the 2022 energy crisis. When global LNG prices surged following Russia's invasion of Ukraine, Thailand's electricity costs spiraled. EGAT accumulated approximately US\$4.7 billion (155 billion baht) in debt from subsidizing electricity prices. Household electricity tariffs exceeded 4 baht per kWh for the first time in 14 years, peaking at 4.72 baht per kWh in September 2022.²³ Although commodity prices subsequently eased, end-user tariffs have remained elevated to

¹⁹ Rapeepat Ingkasit, "Renewables are the hedge against energy chaos," Climate Finance Network Thailand, 2026.

²⁰ Bank of America Global Research, research note on Asian energy trade balances and Iran war exposure, March 2026, as reported by The Nation Thailand.

²¹ Nomura, research note on Asian vulnerability to oil price shocks, March 2026, as reported by The Nation Thailand.

²² Rapeepat Ingkasit, "Renewables are the hedge against energy chaos," Climate Finance Network Thailand, 2026.

²³ Sutthipath Kanittakul, "Iran war exposes Thai energy fragility," Bangkok Post / Climate Finance Network Thailand, March 2026.

help EGAT recoup deferred revenues, demonstrating the long tail of fossil fuel price shocks on Thai consumers.²⁴

The current crisis threatens to be significantly worse. With the Strait of Hormuz effectively closed, LNG tankers—which are highly combustible and unlikely to transit contested waters even with military escorts—cannot deliver Qatari gas to market.²⁵ Iran’s strike on the Ras Laffan facility has further reduced available supply.²⁶ The Energy Regulatory Commission has indicated that electricity tariffs could increase to up to 4.59 baht per kWh, and this figure may prove optimistic if the conflict persists.

2.3 Macroeconomic Transmission Channels

The energy shock transmits through multiple channels into the broader economy. Direct effects include higher fuel and electricity costs for households and businesses. Indirect effects include inflation in transport, food, and manufacturing costs; deterioration of the trade balance and current account; downward pressure on the baht; tighter monetary conditions; and reduced business and consumer confidence.

The tourism sector—a cornerstone of Thailand’s economy—has been hit simultaneously through higher aviation fuel costs and traveler risk aversion. With tourist arrivals down approximately 9% year-on-year in March 2026, the revenue impact compounds the direct energy cost burden.²⁷

Energy-intensive industries, including petrochemicals, cement, and manufacturing—sectors that form the backbone of Thailand’s export economy—face compressed margins and reduced competitiveness. Factories across Asia’s export-dependent economies are reported to be shuttering or operating part-time due to fuel constraints.²⁸ These impacts fall disproportionately on low-income households and informal workers, who spend a larger share of their income on energy and food and have the least capacity to absorb price shocks.²⁹

Thailand’s agricultural sector faces a particularly acute knock-on effect through its dependence on imported nitrogen-based fertilizers, which are manufactured primarily from natural gas. As global gas prices surge, the cost of urea and ammonium-based fertilizers rises in tandem, squeezing margins for millions of Thai smallholder farmers who are already operating on thin returns. This creates a cascading effect: higher input costs either compress farm incomes or get passed through to food prices, disproportionately burdening low-income consumers at both ends of the supply chain. For a country where agriculture employs roughly 30% of the workforce and underpins rural livelihoods across every region, the fertilizer price channel represents a hidden but significant dimension of energy insecurity.³⁰

²⁴ Institute for Energy Economics and Financial Analysis (IEEFA), “Iran Tensions Underscore the Urgency of Asia’s Renewables Pivot for Macroeconomic Stability,” March 2026.

²⁵ Foreign Policy Research Institute, “Experts React: Effects of the Iran War on Energy Markets,” March 2026.

²⁶ Foreign Policy Research Institute, citing QatarEnergy reports on the Ras Laffan strike, March 2026.

²⁷ Council on Foreign Relations, “The Iran War is Causing Energy Chaos in Asia,” March 2026.

²⁸ Council on Foreign Relations, “The Iran War is Causing Energy Chaos in Asia,” March 2026.

²⁹ Foreign Policy Research Institute, “Experts React: Effects of the Iran War on Energy Markets,” March 2026.

³⁰ Institute for Energy Economics and Financial Analysis (IEEFA), “Iran Tensions Underscore the Urgency of Asia’s Renewables Pivot for Macroeconomic Stability,” March 2026.

3. Barriers to Scaling Up Renewable Energy in Thailand

3.1 Policy and Regulatory Barriers

Outdated planning framework: Thailand's Power Development Plan (PDP) has not been formally updated since 2020. The draft PDP 2024, which aimed for 51% renewable energy in the power mix by 2037 (up from 22% in the preceding plan), has not been officially released after more than two years of deliberations.³¹ This planning vacuum has left the country navigating a complex energy transition era using a framework that is outdated and remains heavily dependent on imported LNG, even after Thailand submitted a more ambitious Nationally Determined Contribution (NDC) plan to COP30 (NDC3.0), accelerating its net zero target by 15 years to 2050 to align with most countries.³²

Outdated centralized power structure: Thailand's electricity system remains highly centralized, dominated by EGAT and its subsidiaries in an "Enhanced Single Buyer" system. State-owned enterprises that are tasked with promoting energy conservation are simultaneously incentivized to maximize electricity sales and profits. EGAT's long-term power purchase agreements (PPAs) with commercial power producers effectively price out smaller renewable energy producers, leaving limited room for distributed generation or community-based renewable projects to participate in the grid.³³

Overcapacity exacerbates "take or pay" contracts: Thailand's power demand projections have historically overestimated consumption, leading to overcapacity and unnecessary costs borne by electricity consumers through availability payments which follow "take or pay" contractual guarantees in the PPAs. Draft PDP 2024 projected peak demand of 56,133 MW by 2037, yet many energy experts including Thailand Development Research Institute (TDRI) have questioned whether this projection simply repeats the pattern of overestimation observed over the preceding 28 years.³⁴ Surplus capacity reduces the perceived urgency of new renewable energy deployment and creates vested interests in maintaining the status quo.

Fossil fuel subsidies: Thailand subsidizes petroleum and natural gas through the Oil Fuel Fund and various tax exemptions. These subsidies are largely universal, benefiting wealthy and low-income consumers alike while saddling the state with large contingent liabilities.³⁵ The subsidies distort market signals and reduce the relative competitiveness of renewable alternatives. The Oil Fuel Fund, designed to cushion retail fuel prices, is being rapidly depleted under the current crisis and may be exhausted within months.

³¹ Thailand's draft revised Power Development Plan (PDP) 2024. See also Ember, "Thailand's Cost-Optimal Pathway to a Sustainable Economy," September 2025.

³² Bangkok Post, "Fresh hope for clean energy targets," August 2025; Bangkok Post, "New net-zero target sparks policy rethink," December 2025.

³³ Stockholm Environment Institute (SEI), "Thailand's energy transition might be inevitable, but equality and justice are not."

³⁴ Bangkok Post, "Fresh hope for clean energy targets," August 2025; Bangkok Post, "New net-zero target sparks policy rethink," December 2025.

³⁵ Rapeepat Ingkakit, "Renewables are the hedge against energy chaos," Climate Finance Network Thailand, 2026.

3.2 Financial and Market Barriers

Investment uncertainty: The absence of an approved PDP creates regulatory uncertainty that deters private investment in renewable energy. Foreign investors—including multinational manufacturers that demand clean energy for their operations—are unlikely to expand capacity in Thailand if the renewable energy supply outlook remains unclear.³⁶ Thailand faces a financial gap of at least US\$2.9 billion in the energy sector for achieving its climate targets.³⁷

Outdated grid infrastructure: Thailand’s transmission and distribution grid requires significant modernization to accommodate high shares of variable renewable energy. Grid interconnection remains a bottleneck, with insufficient investment in smart grid technologies, grid-enhancing solutions, and energy storage infrastructure. BloombergNEF has identified grid constraints such as the ones in Thailand as a global bottleneck, noting that over 2,500 GW of renewable and storage projects are stalled in connection queues worldwide.³⁸

Stranded asset risk from continued fossil investment: a 2024 report by Climate Finance Network Thailand (CFNT) on Thailand’s fossil lock-in warns that the country is investing heavily in midstream oil and gas infrastructure that could become stranded assets as the global energy transition accelerates.³⁹ Pursuing “cleaner” fossil pathways such as CCS and hydrogen co-firing could expose the country to substantial financial risks—estimated at US\$455 billion for CCS and US\$113 billion for hydrogen co-firing—while remaining highly uncertain in terms of effectiveness.⁴⁰

3.3 Institutional and Social Barriers

Outdated energy security paradigm: The paradigm of “energy security” used by policy makers and fossil incumbents remains anchored in a 1970s-era focus on the physical availability of petroleum supplies. The concept has since evolved internationally to encompass affordability, infrastructure reliability, and resilience against geopolitical disruption—dimensions where renewable energy excels. This narrow framing means that renewables are primarily evaluated through a climate mitigation lens rather than recognized as a critical tool for national economic security.⁴¹

Workforce transition challenges: Thailand’s internal combustion engine (ICE) supply chain is a cornerstone of the economy. A rapid transition without adequate reskilling programmes could result in significant economic disruption. Similarly, the phase out of coal at Mae Moh in Lampang Province – where EGAT owns the largest coal-fired power plants and coal mines in Thailand – directly affects thousands of workers and surrounding communities. Green jobs training and economic diversification programmes remain in early stages.⁴²

Weak stakeholder participation: Energy policy decisions in Thailand are made through a top-down process with limited meaningful participation from affected communities, civil society, or trade unions. Assessments of the just energy transition process at Mae Moh have identified gaps in stakeholder representation, particularly among local communities, economic actors, and marginalized groups.⁴³ Effective decentralization of renewable energy planning and decision-making remains elusive.⁴⁴

36 Bangkok Post, “Fresh hope for clean energy targets,” August 2025; Bangkok Post, “New net-zero target sparks policy rethink,” December 2025.

37 Climate Finance Network Thailand (CFNT), “Financing NDC 3.0: Challenges and Opportunities toward Net Zero 2050.”

38 BloombergNEF, “Progress Despite Fragmentation: The Energy Transition to 2030,” January 2026.

39 Climate Finance Network Thailand (CFNT), “Thailand’s Fossil Lock-In: Stranded Risk of Midstream Oil and Gas Infrastructure.”

40 Climate Finance Network Thailand (CFNT), “Financing NDC 3.0: Challenges and Opportunities toward Net Zero 2050.”

41 Rapeepat Ingkasit, “Renewables are the hedge against energy chaos,” Climate Finance Network Thailand, 2026.

42 GIZ/IKI JET, “Assessment and Status Report on Just Energy Transition in Thailand,” 2024.

43 GIZ/IKI JET, “Assessment and Status Report on Just Energy Transition in Thailand,” 2024.

44 Stockholm Environment Institute (SEI), “Thailand’s energy transition might be inevitable, but equality and justice are not.”

4. The Case for Renewables as an Energy Security Hedge

4.1 Cost Competitiveness

The economic case for renewable energy in Thailand has strengthened dramatically. According to BloombergNEF's 2025 analysis, the levelized cost of electricity (LCOE) for new utility-scale solar in Thailand ranges from \$33–75/MWh (equivalent to approximately 0.91–2.06 Thai baht per kWh), significantly lower than \$79–86/MWh for new combined-cycle gas turbines (CCGT) and \$74–96/MWh for new coal-fired plants.⁴⁵

Beyond the lower price point, renewables offer a fundamental structural advantage: price certainty. Unlike gas plants, where more than 60% of lifetime costs are tied to fluctuating fuel prices, solar and wind systems have zero fuel costs once operational. Power Purchase Agreements (PPAs) for renewable energy projects can lock in electricity prices for 20–25 years, providing fiscal predictability that fossil fuels cannot match.⁴⁶

BloombergNEF's 2026 Levelized Cost of Electricity report found that the cost of four-hour battery storage projects fell 27% year-on-year to \$78/MWh in 2025—a record low. Battery pack costs have fallen 93% since 2010, reaching approximately \$70/kWh for stationary storage. Combined solar-plus-storage systems are now being deployed globally at an average cost of \$57/MWh, making them increasingly competitive with fossil fuel baseload generation.⁴⁷

4.2 Eliminating Import Dependency

What distinguishes renewable energy from other risk-mitigation strategies—such as diversifying LNG supply sources or expanding strategic reserves—is that it eliminates import dependency entirely for the electricity it generates. Every kilowatt-hour produced by domestic solar, wind, or biomass represents a reduction in foreign exchange expenditure, a reduction in exposure to geopolitical risk, and a contribution to national energy sovereignty.⁴⁸

Studies confirm that a high share of renewable energy in the generation mix tends to lower wholesale electricity spot prices due to the zero marginal cost of wind and solar generation. This is the core of the hedging mechanism: as the share of renewables grows, the national electricity system becomes progressively less exposed to the global fossil fuel price volatility that has repeatedly destabilized the Thai economy.

⁴⁵ BloombergNEF, "Thailand: Turning Point for a Net-Zero Power Grid," May 2025.

⁴⁶ Rapeepat Ingkakit, "Renewables are the hedge against energy chaos," Climate Finance Network Thailand, 2026.

⁴⁷ BloombergNEF, "Levelized Cost of Electricity 2026," February 2026. Battery storage benchmark fell 27% year-on-year to \$78/MWh.

⁴⁸ Rapeepat Ingkakit, "Renewables are the hedge against energy chaos," Climate Finance Network Thailand, 2026.

4.3 Global Momentum

The global energy transition is accelerating despite geopolitical headwinds. BloombergNEF's 2026 Energy Transition Investment Trends report found that global investment in the energy transition reached a record \$2.3 trillion in 2025, up 8% from the prior year. Asia-Pacific remained the largest region for investment, accounting for 47% of the global total. Clean energy supply investment outpaced fossil fuel supply for a second consecutive year, with the gap widening to \$102 billion in 2025.⁴⁹

Global solar and wind installations exceeded 800 GW in 2025—an all-time record and a tripling in annual deployments since 2021. BloombergNEF projects 4.5 TW of new wind and solar installations globally over the next five years, a 67% increase on the preceding five-year period. As BloombergNEF has noted, the economics of renewable power are simply too compelling to ignore, helping to insulate the sector from geopolitical volatility.⁵⁰

4.4 International Comparisons

Countries across diverse economic contexts have demonstrated that structural renewable energy transitions are achievable. Denmark, which was entirely dependent on imported oil when the 1973 oil crisis struck, invested systematically in wind energy over the following five decades. By 2024, wind alone supplied 59% of Danish electricity. Chile, a middle-income economy with limited domestic fossil fuel resources, has scaled wind and solar to approximately 30% of total electricity generation. Spain has doubled its wind and solar capacity in recent years, cushioning the impact of global energy price shocks.⁵¹

Thailand currently ranks 60th in the World Energy Trilemma Index—trailing on all three dimensions of energy security, energy equity, and environmental sustainability.⁵² The comparison underscores both the urgency and the feasibility of a more ambitious transition.

⁴⁹ BloombergNEF, "Energy Transition Investment Trends 2026," January 2026. Global investment reached a record \$2.3 trillion in 2025.

⁵⁰ BloombergNEF, "Progress Despite Fragmentation: The Energy Transition to 2030," January 2026.

⁵¹ Rapeepat Ingkasit, "Renewables are the hedge against energy chaos," Climate Finance Network Thailand, 2026.

⁵² World Energy Council, World Energy Trilemma Index. Thailand ranks 60th overall.

5. A Just Energy Transition for Thailand

5.1 Distributional Impacts of the Current System

The existing fossil fuel-dependent energy system already imposes disproportionate costs on vulnerable populations. Low-income households spend a larger share of their income on energy and food, making them more exposed to price shocks. Farmers will face more hardships from the spikes in nitrogen fertilizers. In short, the current crisis has hit hardest in precisely those communities with the least capacity to absorb cost increases. Universal fuel subsidies—while providing temporary relief—are fiscally unsustainable and regressive in their distribution, with wealthier consumers (who tend to own more vehicles and drive more) capturing a disproportionate share of the benefit.

The health costs of the fossil fuel system are also borne unequally. Air pollution associated with fossil fuel combustion is estimated to cause between 25,000 and 32,000 premature deaths in Thailand annually. Communities living near major fossil fuel infrastructure—such as those surrounding the Mae Moh coal mine and power plant in Lampang—have suffered decades of respiratory illness, environmental contamination, and displacement. A 2009 Chiang Mai Administrative Court ruling, upheld by the Supreme Court in 2015, found that EGAT was required to relocate communities within 5 km of the Mae Moh facility due to pollution and health

hazards. By the time of the Supreme Court’s ruling, more than 30 plaintiffs had died from pollution-related illnesses.⁵³

5.2 Coal Phase-Out and Community Transition

Thailand’s coal sector, centered on the Mae Moh mine and power plant in Lampang Province, represents a critical test case for just transition principles. EGAT has committed to closing the entire Mae Moh facility by 2050, and the Mae Moh Green Model—developed with support from GIZ and the IKI JET programmes—represents an important early effort at community-centric transition planning. Initiatives include green jobs training, sustainable agricultural projects (such as the Mae Moh vertical farming enterprise), biomass co-firing with agricultural waste, and electric vehicle conversion training through vocational colleges.⁵⁴

However, the government’s 2025 decision to extend the operating life of several Mae Moh coal units—delaying decommissioning of units 8 and 11 from 2025 to 2031 and refurbishing units 12 and 13 to operate until 2048—has undermined trust and raised questions about the credibility of transition commitments.⁵⁵ Thailand’s own NDC3.0 has identified early coal phase out as the most cost-effective mitigation option: six times cheaper

⁵³ Mongabay, “Anguish for residents as Thailand’s most polluting coal plant gets new lease of life,” October 2025.

⁵⁴ GIZ/IKI JET, “Assessment and Status Report on Just Energy Transition in Thailand,” 2024.

⁵⁵ Mongabay, “Anguish for residents as Thailand’s most polluting coal plant gets new lease of life,” October 2025.

than offshore CCS and twenty times cheaper than hydrogen co-firing. The primary barrier lies in existing PPAs with commercial power producers, but as experiences in countries such as Spain have demonstrated, such contracts can be renegotiated in the public interest.⁵⁶

5.3 Automotive Sector Workforce Transition

Thailand's automotive industry—a cornerstone of the national economy and a major employer—faces significant transition pressures. The “30@30” target aims for 30% of domestic vehicle production to be zero-emission vehicles (ZEVs) by 2030. However, a comprehensive transition plan for consumers and the workforce is still lacking. The ICE supply chain employs hundreds of thousands of workers across manufacturing, components, and services. A sudden shift without adequate reskilling programmes, transition support, and economic diversification could result in significant social and economic disruption, particularly in manufacturing centers.⁵⁷

5.4 Principles for a Just Transition

A just energy transition for Thailand must be grounded in several core principles:

- **No one left behind:** Transition policies must explicitly address impacts on low-income households, fossil fuel-dependent workers, and affected communities through targeted support, reskilling programmes, and social protection measures.
- **Meaningful participation:** Affected communities, workers, civil society, and local government must be meaningfully involved in transition planning and implementation—not merely consulted after decisions are made.
- **Fiscal fairness:** The costs of the transition must be distributed equitably, and the fiscal savings from reduced fossil fuel subsidies must be re-directed toward renewable energy investment and social support for affected groups.
- **Gender and social inclusion:** Transition planning must account for gender and socially differentiated impacts, including collection and analysis of employment data disaggregated by gender, energy type, and social indicators of inequality.⁵⁸

⁵⁶ Climate Finance Network Thailand (CFNT), “Financing NDC 3.0: Challenges and Opportunities toward Net Zero 2050.”

⁵⁷ Rapeepat Ingkasit, “Renewables are the hedge against energy chaos,” Climate Finance Network Thailand, 2026.

⁵⁸ Stockholm Environment Institute (SEI), “Thailand's energy transition might be inevitable, but equality and justice are not.”

6. Policy Recommendations

Drawing on the analysis above, this paper offers the following recommendations for Thai policy-makers, organized around three pillars: accelerating renewable energy deployment, strengthening energy security through structural reform, and ensuring a just and inclusive transition.

Pillar 1: Accelerate Renewable Energy Deployment

- **Finalize and strengthen the Power Development Plan:** The government should urgently finalize the PDP 2024 with a renewable energy target that is consistent with Thailand’s net-zero commitments. Based on BloombergNEF’s analysis, the renewable share should reach at least 77% by 2050.⁵⁹ The PDP should include binding interim targets, clear procurement timelines, and transparent review mechanisms. Electricity demand projections should be independently validated to avoid the chronic overestimation that has historically resulted in overcapacity and unnecessary costs for consumers.
- **Unlock distributed and community renewable energy:** Decentralize renewable energy planning by expanding feed-in tariffs, direct PPA frameworks, and implementing net metering or net billing system for rooftop solar and community-scale projects. Reduce regulatory barriers for small-scale producers to connect to the grid and sell surplus electricity. Establish clear pathways for energy cooperatives and community-owned renewable projects, with dedicated financing windows and technical assistance.
- **Scale up energy storage and grid modernization:** Invest more in battery energy storage systems (BESS), pumped hydro storage, and smart grid infrastructure to manage the intermittency of solar and wind. Thailand should leverage the dramatic decline in lithium-ion battery costs—now at record lows globally—by establishing storage deployment targets alongside renewable energy targets.⁶⁰ Grid investment should be prioritized to reduce interconnection bottlenecks and enable higher renewable penetration.
- **Attract clean energy investment:** Provide regulatory certainty and streamlined permitting to attract private and international investment in renewable energy and supporting infrastructure. Thailand faces a financing gap of at least US\$2.9 billion in the energy sector; mobilizing this capital requires clear policy signals, transparent procurement processes, and de-risking instruments such as government-backed green guarantees and blended finance mechanisms.⁶¹

59 BloombergNEF, “Thailand: Turning Point for a Net-Zero Power Grid,” May 2025. Estimates Thailand must increase renewable share to 77% by 2050 under a net-zero scenario.

60 BloombergNEF, “Levelized Cost of Electricity 2026,” February 2026. Battery storage benchmark fell 27% year-on-year to \$78/MWh.

61 Climate Finance Network Thailand (CFNT), “Financing NDC 3.0: Challenges and Opportunities toward Net Zero 2050.”

Pillar 2: Strengthen Energy Security Through Structural Reform

- **Reform fossil fuel subsidies:** Phase out universal fossil fuel subsidies and redirect fiscal resources toward a Renewable Energy Transition Fund and targeted social protection for vulnerable households. Subsidy reform should be gradual and sequenced, with transparent communication and compensation mechanisms for low-income consumers. A portion of the fiscal savings should be earmarked for grid modernization, energy storage, and renewable energy research and development.
- **Renegotiate fossil fuel power purchase agreements:** Review and renegotiate existing PPAs for fossil fuel power plants that lock the country into unnecessary gas and coal capacity. International experience, such as Spain, shows that PPAs can be adjusted in the public interest to facilitate energy transitions. Early coal phase-out should be prioritized as the most abatement cost-effective climate mitigation option.⁶²
- **Modernize the energy security paradigm:** Formally adopt a comprehensive energy security framework that encompasses affordability, reliability, sustainability, and resilience—moving beyond the narrow focus on physical fuel availability. Recognize renewable energy as a critical component of national energy security, not merely a climate policy tool.
- **Diversify and strengthen strategic reserves:** While accelerating the transition to renewables, maintain and diversify strategic petroleum and LNG reserves as a short-to-medium-term buffer against supply disruptions. Develop new and enhance existing regional energy cooperation frameworks within ASEAN to enhance collective energy security, including the ASEAN power grid project.

Pillar 3: Ensure a Just and Inclusive Transition

- **Develop a comprehensive coal transition roadmap:** Building on the Mae Moh Green Model, develop a comprehensive, time-bound roadmap for coal phase-out with legally binding commitments to worker support, community economic diversification, environmental remediation, and health compensation. Ensure that affected communities are meaningfully represented in transition governance structures.⁶³
- **Invest in workforce reskilling:** Establish dedicated reskilling and upskilling programmes for workers in fossil fuel-dependent industries, with particular attention to the automotive sector's transition from ICE to electric vehicles. Programmes should be developed in partnership with vocational colleges, industry, and trade unions, with dedicated financing and clear employment pathways.
- **Protect vulnerable households:** Design targeted energy assistance programmes for low-income households, including subsidized rooftop solar and energy efficiency improvements. Replace universal fuel subsidies with means-tested support that directs fiscal resources to those most in need. Ensure that electricity tariff reform does not disproportionately burden low-income consumers.
- **Strengthen participatory governance:** Reform energy policy decision-making processes to ensure meaningful participation of affected communities, civil society organizations, trade unions, and local government. Conduct national-level assessments of green employment potential that consider needs and capacities across gender and social groups. Establish transparent monitoring and accountability mechanisms for transition commitments.⁶⁴

⁶² Climate Finance Network Thailand (CFNT), "Financing NDC 3.0: Challenges and Opportunities toward Net Zero 2050."

⁶³ GIZ/IKI JET, "Assessment and Status Report on Just Energy Transition in Thailand," 2024.

⁶⁴ Stockholm Environment Institute (SEI), "Thailand's energy transition might be inevitable, but equality and justice are not."

7. Conclusion

The war in the Middle East has once again exposed the profound structural vulnerability at the heart of Thailand's energy system. For the second time in four years, Thai consumers and businesses find themselves at the mercy of global fossil fuel markets, bearing costs that are the predictable consequence of deep import dependence on geopolitically contested commodities.

The solution is clear. Thailand must accelerate the deployment of domestic renewable energy, reform fossil fuel subsidies, modernize its power sector governance, and invest in the grid and storage infrastructure needed to support a high-renewables future. This is no longer only a climate aspiration; it is the most effective hedge against a future of recurring energy crises, and a prerequisite for the country's long-term economic stability and competitiveness.

The tools are available. Solar and wind are now cheaper than new fossil fuel generation in

Thailand. Battery storage costs have collapsed. Global clean energy investment is at record highs. Countries across diverse economic contexts—from Denmark to Chile to Spain—have demonstrated that ambitious renewable transitions are both achievable and economically beneficial.

Critically, the transition must be just. The costs of inaction fall disproportionately on the poorest and most vulnerable—the same households and communities that bear the brunt of high energy prices, air pollution, and climate impacts. A just energy transition requires targeted support for affected workers and communities, equitable distribution of costs and benefits, and meaningful participation in decision-making.

The signals for change have never been louder, and the tools have never been more available. The only missing element is political will. It is high time for the government to act.

List of Acronyms, Abbreviations, and Units

Abbreviation	Full name	Abbreviation	Full name
AEDP	Alternative Energy Development Plan	MNRE	Ministry of Natural Resources and Environment
BTR	Biennial Transparency Report	MtCO ₂ eq	Million Tons of carbon dioxide equivalent
CCS	Carbon capture and storage	NAP	National Adaptation Plan
COP	Conference of the Parties	NDC	Nationally Determined Contribution
CFNT	Climate Finance Network Thailand	NEPC	National Energy Policy Council
DEDE	Department of Alternative Energy Development and Efficiency	NESDC	National Economic and Social Development Council
EGAT	Electricity Generating Authority of Thailand	ONEP	Office of Natural Resources and Environmental Policy and Planning
EPPO	Energy Policy and Panning Office	PDP	Power Development Plan
ETS	Emission Trading Scheme	PPA	Power Purchase Agreement
EU	European Union	SMRs	Small Modular Reactors
GDP	Gross Domestic Product	UNFCCC	United Nations Framework Convention on Climate Change
GHG	Greenhouse Gas		
IPPU	Industrial Processes and Product Use		
LNG	Liquefied natural gas		
LT-LEDs	Long-Term Low greenhouse gas Emission Development Strategy		
LULUCF	Land Use, Land-Use Change and Forestry		

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About the Author

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A financier by training, Sarinee Achavanuntakul is Bangkok-based sustainability researcher and social critic. After spending close to one decade in commercial and investment banking, she co-founded Sal Forest Co. Ltd. to focus on sustainable business research (<http://www.salforest.com/>) in 2013, co-founded Fair Finance Thailand coalition (www.fairfinancethailand.org) in 2017, and founded Climate Finance Network Thailand (www.climatefinancethai.com) (CFNT) in 2024. Since 2013, she has executed over 35 research projects on a range of topical sustainability issues in Thailand ranging from business and human rights, food supply chain mapping, sustainable banking, and just energy transition. She has also conducted human rights risk assessment for several large Thai conglomerates, as well as designed and delivered workshops on sustainability issues and human rights due diligence for over 1,500 participants from the government, business, and civil society sectors as of August 2025.

Sarinee also co-founded a number of other organizations including Thai Netizen Network (TNN, www.thainetizen.org) to advocate Internet freedom and online privacy, ThaiPublica (<https://www.thaipublica.org>), an online investigative news organization, and Salt Publishing (www.salt.co.th), a local publishing house. She holds an MBA in finance from Leonard Stern School of Business, New York University, and a BA in economics from Harvard University.

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