### From Rooftop to Resilience: Why Solar Energy Must Begin at Home



"Thailand's energy future won't be shaped by top-down orders alone. It will be built by everyday people—homeowners, families, shopkeepers one rooftop at a time."

### Chasing the Sun: Lessons from the Global Front-Runners

Australia's Prime Minister Anthony Albanese recently offered a quiet challenge to the world:

"One in every three households have solar... but only one in every 40 homes has a battery. Batteries change the equation—and they change it permanently."

His remark is more than a reflection of progress it reframes the conversation. Solar adoption today isn't just about panels. It's about how deeply we embed renewable energy into daily life—how homes, not just grids, become the heart of climate resilience.

#### Australia: A Rooftop Revolution in Motion

Australia has quietly become a global solar leader. Over 30% of homes now generate clean energy, collectively producing more than 11 gigawatts (GW). This transformation is no accident. It's the product of sustained, people-centered policies:

• The Small-scale Renewable Energy Scheme cuts upfront costs through tradable certificates

- A wide range of state-level rebates and loans provide targeted local support
- And starting July 2025, the Australian Labor Party's battery rebate will cover 30% of installation costs, aiming to deploy 1 million home batteries by 2030

This shift matters. Batteries turn solar from a daytime-only solution into true energy independence. They don't just power homes—they empower citizens.

## The Netherlands: Smart Incentives, Strong Adoption

Across the globe, the Netherlands is surging ahead. As of March 2025, 34.2% of households are equipped with solar rooftops, thanks to a mix of smart national and local policies:

- The ISDE grant reduces upfront costs based on system size
- The SEEH subsidy supports broader home energy upgrades
- A generous VAT refund returns 21% of solar installation costs—often saving households thousands of euros

Local governments enhance this momentum with green loans and regional top-ups. For now, net

metering lets households offset their usage, but by 2027, compensation will shift to utility-defined rates—making batteries and self-consumption even more essential.

#### Thailand: Plenty of Sun, Still in the Shade

And then there is Thailand—abundant in sunlight, but still far from a solar breakthrough.

As of 2024, less than 1% of Thai households have adopted rooftop solar, according to estimates by energy analysts.

Despite its solar potential, Thailand ranks behind Vietnam in installed rooftop capacity—a country with lower GDP per capita but faster reform.

This, in a country with rising household electricity costs, especially in Bangkok and surrounding provinces where average bills now top 1,300 baht per month. Nationally, bills have climbed from 676 baht in 2014 to 905 baht in 2024—a 34% increase over a decade.

The problem isn't sunlight. It's structure. Despite the promise of saving up to 70% on monthly electricity bills, solar adoption remains low due to pricing gaps, storage costs, and unclear returns.

# Thailand's Solar Systems: The Battery Bottleneck

Most Thai households face three options:

- On-Grid: No batteries, connected to the public grid—most affordable
- Off-Grid: Fully independent, but batterydependent and expensive
- Hybrid: Combines grid electricity with solar and battery storage—offers flexibility but is more costly upfront.

The barrier? Batteries.

A typical rooftop solar system costs around 200,000 baht. Adding a battery pushes the price to 300,000 baht—a 50% increase. Without storage, excess energy must be sold back to the grid under net billing, which pays just 2.20 baht per unit, far below the average retail rate of 4.18 baht. This imbalance undercuts the financial case for adoption.

#### A Smarter Policy Path: From Net Billing to Net Metering

While many have urged a shift to net metering, which allows households to offset their electricity use with solar generation at full retail rates, the policy remains out of reach.

Still, there are promising signs. Thailand's Power Development Plan 2024 (PDP 2024) sets a target for 16% of total electricity to come from solar by 2037. And crucial support tools are beginning to take shape:

- Low-interest green loans from financial institutions
- Upfront fee waivers on solar installations
- Pilot programs enabling households and SMEs to sell power back to the grid

Most notably, in some regions, the solar payback period is now just 3–4 years. That's no longer just environmentally sound—it's economically smart.

#### The Real Transition Starts at Home

But even the best policies won't work without public will. Because the transition won't come from megawatts alone— it must come from a shift in mindsets.

Energy transformation isn't just a government directive. It's personal. Grassroots. Domestic.

Solar panels on rooftops aren't just equipment.

Thailand's energy future won't be shaped by topdown orders alone. It will be built by everyday people—homeowners, families, shopkeepers one rooftop at a time.

The world is racing toward decarbonization. And Thailand is already bathed in sunlight.

All we have to do now is catch it.

Pornpawee Thammavichai Pornpawee.Thammavichai@bangkokbank.com

> Strategic Outlook and Transformation Management Office of the President