

# Sunny side up: Timor-Leste's potential for a rooftop solar transition



Despite having a tropical climate and abundant solar-power potential, Timor-Leste relies heavily on diesel to deliver power to its population of 1.3 million people. In 2023, MDF and the Australia-Pacific Climate Partnership (APCP) assessed the market for rooftop solar solutions in Timor-Leste, to understand the barriers, potential and opportunities.

Although commercial and industrial tariffs in Timor-Leste are 118 per cent higher than those in neighbouring Indonesia, they still fall well below the actual generation costs. Consequently, the Government of Timor-Leste, like most other middle-income countries, subsidises the cost of electricity. The government allocates six per cent of the state budget to diesel every year, despite an emerging fiscal cliff threatening the economy.

While the government has achieved near-universal electricity coverage for the country, the power distribution network is vulnerable to supply interruptions, leading to poor power reliability. Frequent power outages have led to the widespread use of backup diesel generators in commercial premises and office compounds. Power quality is further compromised by frequency variations and voltage drops, posing a risk of damage to commercial

and industrial equipment, including motors and pumps.

The government has an ambitious 50 per cent renewable energy target set for 2030. This presents an opportunity to transition to renewables as part of their climate change mitigation strategy, as diesel combustion releases carbon dioxide and other pollutants into the air, exacerbating global warming and air quality issues and threatening public health.

## Understanding Timor-Leste's solar market

Recognising an opportunity to support Timor-Leste's shift towards a sustainable economy, MDF conducted a study with the backing of the Australia Pacific Climate Partnership (APCP) in 2023, to gauge demand for photovoltaic

(PV, or solar) rooftops. The study was the first of its kind in Timor-Leste and aims to provide MDF with evidence to promote decarbonisation, in line with Timor-Leste's commitment to the Paris Agreement. Given the dearth of

information on demand for rooftop solar, the study was also an attempt to provide the private sector with information and incentives to enter the market.

## The business case

The study reviewed policies, potential financial returns and the willingness of Timorese businesses to embrace rooftop solar solutions. The findings paint a positive picture:



Timor-Leste holds a strategic advantage over its neighbours in transitioning to solar rooftops, with potential electricity cost reductions and a recovery period of 2.5 years, lower than regional averages.



Timor-Leste's rooftop PV market is just emerging. Barriers include a lack of access to capital, low awareness of solar solutions, low technical capacity to set up solar solutions and low levels of building ownership.



Frequent power outages have a significant financial impact on businesses, as they result in equipment damage and a costly reliance on diesel generators. This underscores the potential for implementing rooftop PV systems and batteries as backup power solutions.



Timor-Leste's small manufacturing industry faces market competitiveness constraints due to high electricity costs. Financial considerations are expected to be the primary factor, but foreign-owned facilities may consider installing rooftop PV systems to meet environmental, social and governance (ESG) goals.

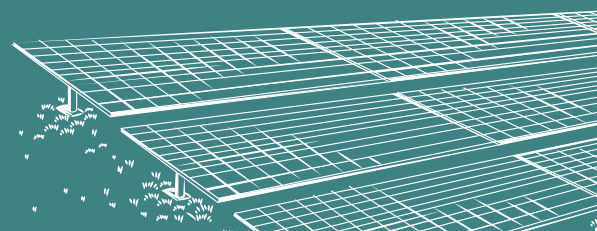


For an industrial building with a monthly electricity bill of USD5,000 (AUD7,700), a capital investment of USD58,000 (AUD89,500) is required for solar rooftop installation, with a payment period of 2.5 years. This will save the business approximately USD23,300 (AUD35,900) annually.



For a commercial building with a USD200 (AUD300) monthly electricity bill, a USD4,000 (AUD6,100) capital investment with a payment period of 2.5 years is required. This will save the business approximately USD1,600 (AUD2,400) a year.

Timor-Leste stands to gain immensely from the adoption of solar energy as a secondary power source. As identified in the study, the significant reduction in electricity costs provides a compelling incentive for businesses.



## Building capacity

Timor-Leste's rooftop PV market is nascent; few businesses have invested in PV rooftops and household use remains low. The supply aspect has also not caught up with the global boom—few firms offer rooftop PV solar in Timor-Leste. The findings of the MDF-APCP study will be invaluable in supporting businesses to understand the potential in the market. The study recommends supporting PV installation companies through training programs and partnerships with international contractors to enhance their skills and knowledge in designing, installing and maintaining grid-connected PV systems. Additionally, it suggests developing programs to de-risk capital

for loans that enable private sector rooftop PV installations and promoting high visibility rooftop PV projects in Dili to increase organisational awareness of solar power.

Building on the findings, MDF partnered with Sundaya, an Indonesia-based company working with a local business partner, IMEX Tropical, in energy systems. The partnership will focus on expediting the adoption of solar energy by Timorese businesses. Two Timorese engineers/technicians will receive hands-on training from Sundaya in Indonesia, on site surveys and installations. The intervention also aims to increase marketing

around rooftop solar systems, to drive consumer awareness and demand.

Beyond mitigating the environmental impact of traditional energy sources, the switch to solar fosters energy independence, reducing reliance on imported fossil fuels. MDF's work with the private sector in fast-tracking decarbonisation emphasises the business incentives tied to renewable energy adoption. MDF actively seeks new partnerships in this space to further expand the market and meet the growing demand for solar solutions in Timor-Leste.