



GIZ Energy Programme Indonesia/ASEAN

Strategic Theme: Island Energy Solutions

Purpose & Relevance

With more than 17,000 islands, Indonesia is a large archipelago that needs unique solutions to increase access to modern energy. With more than 600 mini grids, various solutions adapted to local circumstances need to be developed to create resilience in mitigating climate change, while developing the local economy. Fast tracking solutions that rely on fossil-based energy such as diesel-based generation are proven to be more expensive to operate and potentially contributing to environmental problems. At the same time, there are gaps that need solutions to meet dissimilar needs e.g., adding product values, expanding services, and other needs. Adding Indonesia's abundant natural resources to the equation, innovations that are based on renewable energy (RE) play an important role in ensuring low carbon development in Indonesia. Through past RE mini-grid roll-outs in Indonesia, there is significant experience in planning and running RE-based mini grids, which provides the opportunity for cross-national learning and knowledge exchange with other countries that face similar decentral energy challenges like Indonesia's many small and remote islands.

Government Targets

The National Long-Term Development Plan (RPJPN) 2025-2045 aims to balance economic growth with social equity and environmental sustainability, and targets 70% RE by 2045, in line with achieving the Vision of Indonesia Emas 2045. Previously, the government achieved its target to increase energy access to ensure a 100% electrification ratio by 2023.

Furthermore, it aims for a share of 44% on-grid RE by 2030 as part of the Just Energy Transition Partnership (JETP). For rural regions, the GoI has set a 2024 target to transform 10,000 disadvantaged villages to become developing villages, and 5,000 developing villages to become self-sufficient villages, also in terms of energy self-sufficiency.

Beyond the local scope, south-south (triangular) cooperation is one of key strategies to boost trade and investments. For that purpose, Indonesia has established Indonesia AID which is an institution to manage funds for international development cooperation (300 billion IDR in 2023). Under the steering of National Coordination Team which consists of Ministry of Foreign Affairs, Ministry of Development Planning Bappenas, Ministry of State Secretariat, and Ministry of Finance, Indonesia AID aims to build capacities and support concrete project implementation in the field of decentralised energy experience and knowledge exchange, herewith looking to draw upon Indonesia's rich experience building more than 1,000 RE mini grids.

Our Strategic Partners

GIZ collaborates at national level with the **Ministry of Energy and Mineral Resources (MEMR)** as the key policy maker in the energy sector. Further potential collaboration exists with the state-owned utility **PLN** due to their role in rural electrification. At sub-national level, GIZ works with provincial governments in different pilot regions, the private sector for sustainable RE innovations, and community groups that will benefit from the pilot implementation. Supporting trilateral exchanges, GIZ cooperation further extends to international communities, particularly countries where Indonesia's experiences can be adopted to speed up their energy access program. For this purpose, GIZ also collaborates with the **Ministry of Foreign Affairs (MoFA)**, **Ministry of State Secretariat**, **Ministry of National Development Planning/Bappenas**, the **Ministry of Finance (Mof)**, and **Indonesia AID**.



Achievements

Demonstration of pilot projects:

- The **PV-Agri project on Kaledupa and Sema Islands** integrates solar panels into half-utilised fields, signalling a shift towards sustainable farming practices. This initiative aims to enhance agricultural efficiency, productivity, and eco-friendliness for the local community. This initiative has further enhanced the self-sufficiency of food sources in the region
- A **Solar Ice Maker at Sulamu village in Timor Island** was inaugurated, maximising solar potential to produce ice blocks to preserve the fish caught by local fishers. An innovative climate-neutral technology, it significantly reduces post-harvest losses for small-scale fishers and makes redundant costly diesel-powered generators.
- Collaboration with private sector has realised the **2nd solar-powered ice maker in Kawa Island, Maluku Province**, providing the beneficiaries with ice to preserve tuna for export - improving the export quality of caught tuna fish to almost 100%.

On behalf of:

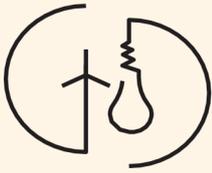


Implemented by:



In cooperation with:





Our Approach

- Provision of policy advice on the implementation and integration of small scale (beyond off-grid) RE solutions for EBTKE/MEMR
- Aligned with policy advice, technical studies are undertaken, collecting facts and figures from the field
- Technology Innovation and Private Sector Collaboration to fill knowledge gaps and provide sustainable, innovative solutions
- Organisation of inclusive stakeholder dialogues to ensure full participation of affected groups
- Knowledge management for decentralised energy solutions in support of MEMR
- South-south Triangular cooperation to share the knowledge and experiences from Indonesia to other regions which will strengthen the position of Indonesia as key global development partner.

Our Mission

GIZ supports the Government of Indonesia (GoI) in shaping strategies for the implementation of the energy transition in remote/island regions, and to increase exchange through triangular approaches. The beneficiaries are local communities and the entire transformed rural regions.



Outlook – What's Coming Next

- Through South-South Triangular Cooperation with Madagascar, a 200 kW micro-hydro pilot project is planned, financed by Indonesia AID.
- Through cooperation with Kenya, there is planning for Indonesia AID to provide capacity development grants to Kenya technicians and engineers to further develop their skills and expertise in managing geothermal resources and efficiently operating geothermal power plants.
- Business-to-business cooperation between micro-hydropower developers and manufacturers from Indonesia with Nepal and Madagascar will continue, demonstrating the long-running success of German support in developing micro-hydro development capacity in Indonesia.
- To increase the number of international cooperations in renewable energy, two new cooperations in the field of small RE are planned with countries potentially in the Pacific Island region and Africa.



Our Projects

The GIZ Energy Programme Indonesia/ASEAN receives funding from the German Government, both the Federal Ministry for Economic Cooperation and Development (BMZ), and the International Climate Initiative (IKI), funded by the German Federal Government.

The following projects within the Programme support the theme of "Island Energy Solutions":

- **Renewable Energy Mini-Grids in South-South Triangular Cooperation in Indonesia (ENTRI):** Catoer Wibowo, Project Lead (catoer.wibowo@giz.de); 4M EUR; 2023-2027, BMZ
- **Solar Cold Chains for a Green Economy in Indonesia (SOCOOL):** Frank Stegmüller, Project Lead (frank.stegmueller@giz.de); 5M EUR; 2023-2026, BMZ

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GIZ Strategic Themes:



Industry Decarbonisation



Island Energy Solutions



Power System Transformation



Just Energy Transition



Sustainable Energy Finance