

FACT SHEET

JUST ENERGY TRANSITION IN EAST NUSA TENGGARA



One of Indonesia's energy transition strategies is dedieselization program. It aims to replace Diesel Power Plants (*Pembangkit Listrik Tenaga Diesel/PLTD*) with environmentally friendly technology across Indonesia (MEMR, 2023). East Nusa Tenggara Province is among the regions where the dedieselization program as been implemented.

What Should Be Considered for the Energy Transition in East Nusa Tenggara Province?

HUMAN RESOURCES

Existing Opportunities:

- Renewable energy curricula have been introduced in 6 vocational schools.
- A Job Training Center (*Balai Latihan Kerja/BLK*), established in 2020, provides training in renewable energy field.

- Competency certification programs are available in the electricity sector.
- Nusa Cendara University (UNDANA) and local polytechnics produce 600-800 graduates in electrical engineering and 4-5 graduates in renewable energy each year.

Challenges:

- Limited employment opportunities in the renewable energy sector.
- Shortage of qualified personnel to manage and maintain community-based power plants.
- Mismatch between the number of graduates and workforce demand in the renewable energy sector.
- Workforce certification is costly and difficult to access in East Nusa.

Areas for Improvement:

- Expand reskilling and upskilling programs for the existing workforce in the renewable energy sector.
- Optimize the role of Regionally Owned Enterprises (*Badan Usaha Milik Daerah/BUMD*), the private sector, civil society organizations, and education and training institutions in creating employment opportunities.
- Develop human resource capacity for the operation and maintenance of community-based, non-PLN power plants.

POLICY

Opportunities:

- The Electricity Supply Business Plan (RUPTL) 2021-2030.
 - Setting an ambitious target to phase out all diesel power plants by 2025.
- The dedieselization program in NTT: crucial element of energy transition
 - Gradually phase out diesel power plants.
- Replace diesel generation capacity with renewable energy.
- Explore alternative and innovative renewable energy technologies.
- Conduct feasibility and grid studies.
- Encourage private sector participation in technology development and renewable energy deployment.

Challenges:

- Intermittency of renewable energy sources (e.g., solar and wind): unstable power production and limited battery storage capacity.
- An archipelagic geography and dispersed settlements.
 - Complicates electricity transmission and distribution..
- Diverse renewable energy resources and systems.
 - Diverse energy systems and project scales (small and big) require multiple stakeholders with varied interests and overlapping authorities.
- Limited access to spare parts and maintenance services for renewable energy power plants.
- Land acquisition for renewable energy power plants development.
- The need for adequate technical readiness and post-construction support.
 - Including feasibility study, study on grid interconnection, electricity price.

FINANCE

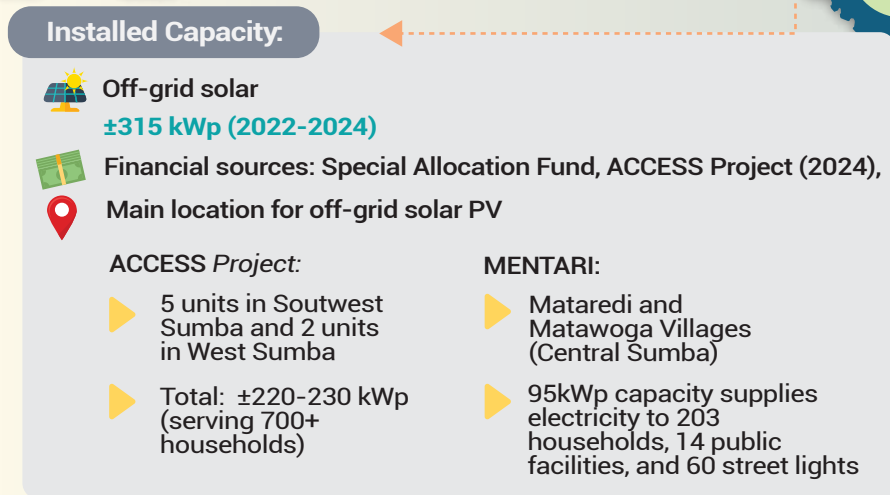
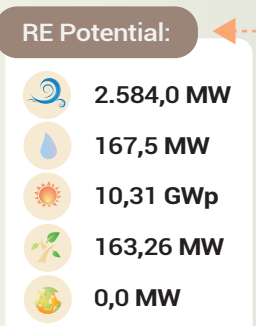
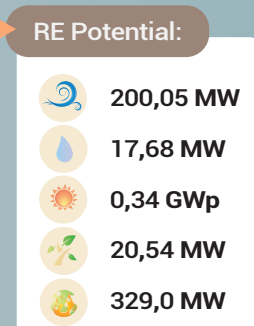
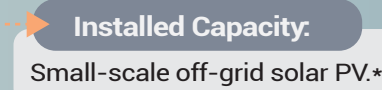
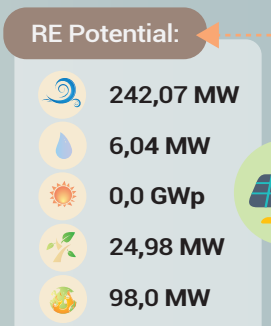
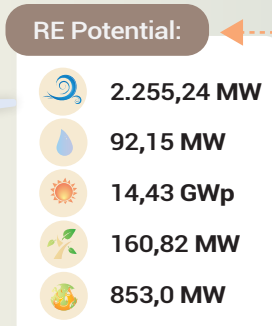
Challenges:

- Limited funding from the East Nusa Tenggara Provincial Government for renewable energy development.
- Financing models mostly focus on construction phase.
- Complex financing requirements from banks.

Recommended Actions:

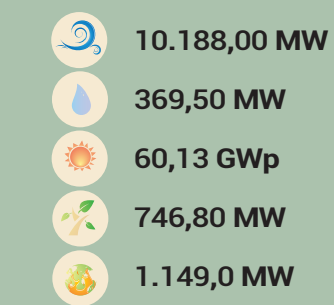
- Promote community economic empowerment to increase households' ability to pay electricity fees.
- Adopt a collaborative financing approach for renewable energy by optimizing the roles of village-owned enterprises (*Badan Usaha Milik Desa/BUMDes*), banks, subnational financial institutions, cooperatives, and the private sectors.
- Develop renewable energy projects through 3 key phases:
 - Pre-construction phase
 - 1) Project preparation
 - 2) Community engagement and community
 - 3) Feasibility study and project evaluation
 - 4) Permitting and licensing
 - Construction phase
 - 1) Infrastructure and material procurement
 - 2) Construction and comissioning/construction and operation
 - Post-construction phase
 - 1) Long-term sustainability and community participation
 - 2) Testing, maintenance, and evaluation

EAST NUSA TENGGARA

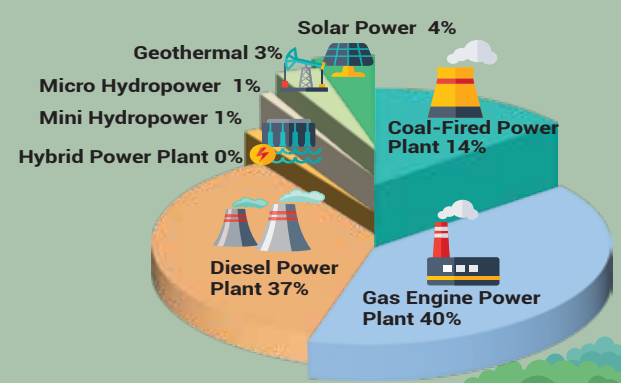


Information

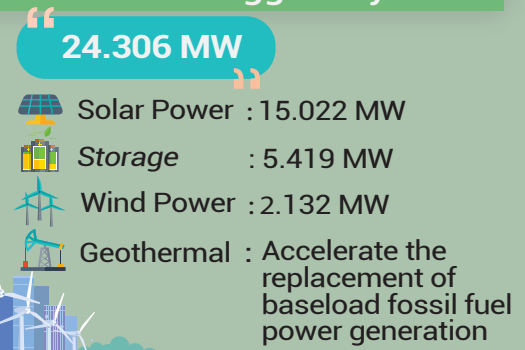
Total of RE Potential in East Nusa Tenggara



Distribution of Energy Sources for Power Generation

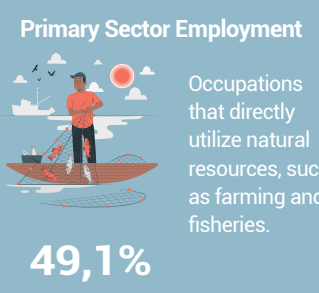


Planned Power Plant Capacity in East Nusa Tenggara by 2060

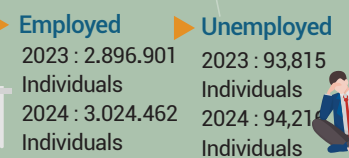
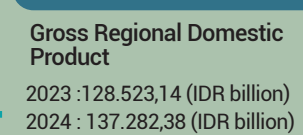


Sources:
Based on the Ministry of Home Affairs Decree No. 100.1.1-6117 of 2022.
*Not explicitly included in the project but has significant renewable energy potential (small-scale off-grid solar power).

Workforce

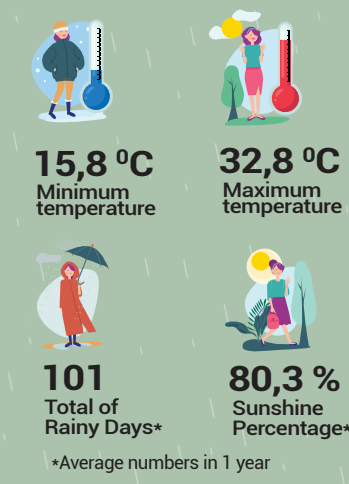


Economic Growth



Geographic & Climate Conditions

Climate condition in East Nusa Tenggara, 2023



Population



Population Growth Rate



Poverty Rate



Labor Force Participation Rate





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Indonesia Research Institute
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Wisma Amex (2nd Floor, Lot 202)

Jl. Melawai Raya No.7, RT.4/RW.5,
Melawai, Kec. Kby. Baru,
Kota Jakarta Selatan, Jakarta 12160



irid@irid.or.id

In collaboration with:

