

Agence Française
de Développement

ENERGY TRANSITION IN ISLAND TERRITORIES

The specificities of the energy sector in island en

Small-Island Developing States (SIDS) and French overseas Departments,



In the energy sector, island states and France's overseas territories have a number of common characteristics that are specific to isolated systems: absence of local fossil resources, high cost of fuel supplies, power generation capacity mainly based on fossil-based power plants, small power grids and absence of interconnections.

These constraints lead to a high energy price, which hampers the economic development of **Small-Island Developing States (SIDS) and France's overseas Departments, Regions and Local Authorities (DROM-COM)**, which represent more than 50 million inhabitants. Yet there is a possible alternative: the development of renewable energies and optimization of energy uses.

Growth of renewable energies: An opportunity for island territories



Anticyclonic photovoltaic greenhouses
on the island of Reunion © Pierre Marchal

Technological developments and the decrease in the costs of equipment allow indeed today several renewable energies to be more competitive than power generation based on fossil fuels: photovoltaic solar energy, wind power and biomass are already economically more interesting than diesel or fuel oil for power generation. Other developing technologies, such as marine energies, are also promising.

Furthermore, the development of smart grids has considerably increased the maximum injection rate of electricity from intermittent sources, which previously limited the development of the sector in island areas. Finally, improving the energy efficiency of the equipment used reduces energy consumption for an equivalent use.

Environments

Regions and overseas Local Authorities (DROM-COM) where AFD is active



AFD's strategy in the island territories

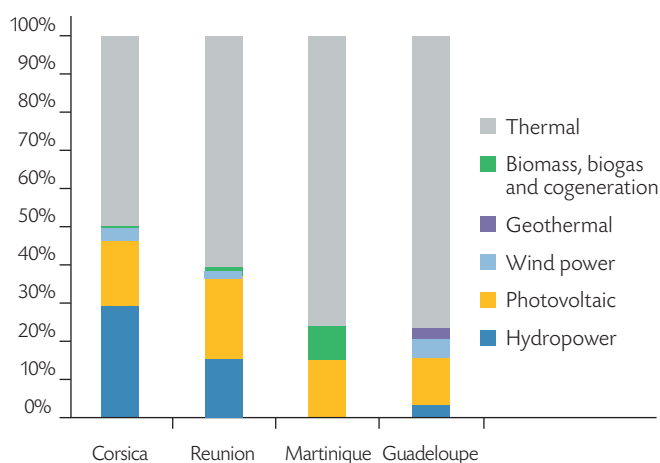
AFD supports the energy transitions of island territories on the basis of three pillars:

- Renewable energy development support;
- Power grids strengthening;
- Energy efficiency promotion.

Between 2011 and 2015, AFD committed for the energy transition EUR 335m in the island States and EUR 125m in France's overseas territories.

AFD also seeks to allow the island States to benefit from the experience acquired in the overseas territories where, due to a favorable regulatory framework, the power generation capacity based on renewable energies already exceeds 20% of the total installed capacity on four islands. This rapid increase in the share of intermittent energies in the energy mix has made the DROM-COM a leader in smart grids.

Composition of the power generation stock of Corsica, Reunion, Martinique and Guadeloupe (Source: EDF)



Emergence of innovative renewable energy projects:

Photovoltaic greenhouses

AFD has allocated a EUR 2m loan to AKUO Energy Group to finance its Agrinerie III project, which aims to create anticyclonic photovoltaic greenhouses in Reunion. The distinctive feature of this project lies in the technical synergy between agriculture and power generation, as these greenhouses will combine an agricultural production of passion fruit over a total area of 2.6 hectares and an installed photovoltaic capacity of 1.9 MWc.



Anticyclonic photovoltaic greenhouses on the island of Reunion © Pierre Marchal



Albioma Galion de Trinité power plant, Martinique © AFD, Fort de France agency

Biomass and cogeneration in Martinique

AFD has allocated a EUR 40m loan to the company Albioma Galion to support the transition of Martinique's energy mix towards renewable energies. This financing is earmarked to build a cogeneration plant entirely fuelled by biomass. The facility will supply Martinique's power grid with clean and stable energy, while allowing the Galion sugar refinery to recover its solid sugar cane waste and capture the steam produced by the power plant for its industrial needs.

Air conditioning thanks to seawater in Polynesia

The project aims to meet all the air conditioning needs of the French Polynesia hospital center. This will halve the electricity consumption of the hospital, which is the largest electricity consumer in Tahiti (5% of the island's consumption). This principle of "air conditioning using iced oceanic water" (Seawater Air Conditioning – SWAC) involves drawing cold water at a depth of 900 meters, where the water is at 5°C, to cool a secondary ice water circuit which meets the air conditioning needs of buildings. **The EUR 25m investment will save 13 GWh of electricity a year, i.e. some 3 million liters of fuel oil.**



Aerial view of Papeete, French Polynesia © AFD, Dominique Richard

Energy efficiency: Credit line to Mauritian banks

In Mauritius, AFD has allocated a EUR 60m credit line to the Mauritius Commercial Bank (MCB) and State Bank of Mauritius (SBM). This credit line is combined with a technical assistance program to support the private sector in the selection and implementation of investments in the renewable energy and energy efficiency sectors and in the optimization of the use of natural resources. In terms of financing energy efficiency equipment, this credit line is coordinated with the National Energy Efficiency Action Plan (NEEAP) devised by the Ministry of Energy, the private sector (represented by the Joint Economic Council) and AFD.

This plan aims to develop the use of energy audits in the industrial and hotel sectors in a context where it is estimated that there is a 15% energy saving potential for the energy consumption of companies, i.e. a generation capacity of 40 to 50 MW.



Construction of a building (energy efficiency), Mauritius © Fabien Dubessay

Power grids: Adapting Cape Verde's electricity system to maximize the renewable energy penetration rate

The power grid on Sal Island in Cape Verde is characterized by a high proportion of energy produced from intermittent renewable energy sources: an 8 MW wind farm and 2 MW photovoltaic power plant, which produce over 35% of the island's electricity, where demand stands at some 10 MW. This causes difficulties in adjusting thermal generation in real time and for grid management. AFD has allocated a EUR 26m loan to the Republic of Cape Verde to secure and optimize power generation on the island, thanks to the upgrading of the thermal power plant and a joint management of thermal and wind resources.

Agence Française de Développement (AFD), a public financial institution that implements the policy defined by the French Government, works to combat poverty and promote sustainable development. AFD operates on four continents via a network of 71 offices and finances and supports projects that improve living conditions for populations, boost economic growth and protect the planet. In 2014, AFD earmarked EUR 8.1bn to finance projects in developing countries and for overseas France.



Martinique © Thierry de Geyer, AFD



PROPARCO, AFD's subsidiary dedicated to private investment, promotes private investment in emerging and developing countries in order to boost growth, promote sustainable development and reach the Millennium Development Goals. Its financing is tailored to the specific needs of investors in the productive sector, financial systems, infrastructure and private equity investment.
www.proparco.fr



The French Facility for Global Environment / Fonds Français pour l'Environnement Mondial (FFEM) is a bilateral public fund initiated by the French Government in 1994. The FFEM secretariat and its financial management are entrusted to Agence Française de Développement (AFD). FFEM co-finances projects that encourage the protection of the global environment in developing countries. Its co-financing is exclusively via grants and is used for the implementation of pilot projects that combine environmental protection and economic development in the recipient countries. FFEM is an influential strategic instrument for the French policy on Official Development Assistance regarding global environmental protection. Its activities focus on the topics of biodiversity, international waters, the climate change, land degradation and desertification, persistent organic pollutants and the stratospheric ozone layer. By the end of 2014, FFEM had co-financed 275 projects with EUR 317m. Two-thirds were earmarked for sub-Saharan Africa and the Mediterranean.

www.ffem.fr - ffem@afd.fr



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