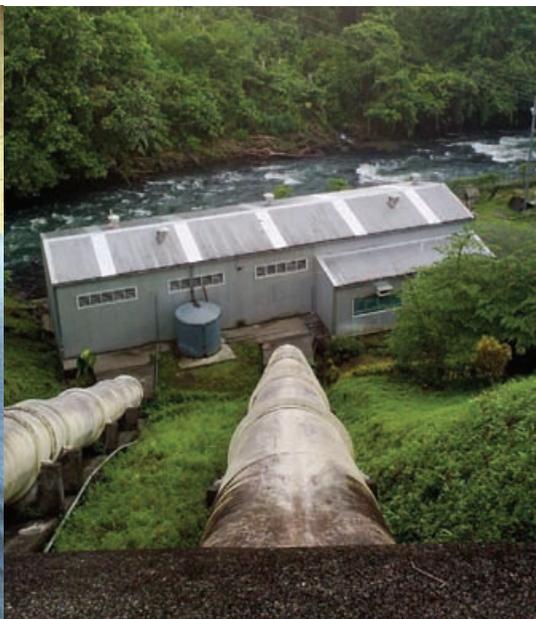


ADB

# Pacific **Energy** Update 2011



Asian Development Bank

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**For more information, contact:**

Robert Guild  
Director  
rguild@adb.org

Anthony Maxwell  
Energy Specialist  
amaxwell@adb.org

Robert Kesterton  
Energy Specialist  
rkesterton@adb.org

Transport, Energy, and Natural Resources Division, Pacific Department

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Note: In this publication, “\$” refers to US dollars.

# Pacific Energy

## Update 2011

Pacific developing member countries (DMCs) are extremely vulnerable to the cost of imported fossil fuels. With the exception of Fiji, Papua New Guinea (PNG), and Samoa, Pacific DMCs have electricity generation systems that rely almost entirely on fossil fuel. In all countries, the cost of fuel imports is high and volatile and paying for these resources places a major strain on national economies and trade balances, as well as threatening their environmental development and sustainability. A number of countries are also characterized by extremely low electricity access rates. In PNG, about 10% of the population is estimated to have access to electricity in the home while access rates in Solomon Islands and Vanuatu are also low. The strategic focus of the Asian Development Bank (ADB) is guided by the need to improve the efficiency with which Pacific DMCs generate and use electricity, improve access rates, and support conversion to renewable energy. ADB activities are driven by the following considerations:

- **Rehabilitating existing infrastructure**—Power sector equipment in Pacific DMCs is often old and inefficient and major improvements in supply-side efficiency can be achieved at least cost. Examples include replacement of inefficient generator sets, resizing of transformers, and retrofitting of overhead line conductors. Under the Power Sector Expansion Project, ADB has been providing support to the Electric Power Corporation of Samoa to implement these types of activities.
- **Improving access rates**—ADB is supporting Pacific DMCs in expanding electricity grids into unserved areas and helping communities use this new source of energy for activities such as education, income generation, and health care provision. Initiatives in PNG and Solomon Islands will provide access to several thousand households.
- **Supporting renewable energy**—Reliance on imported fossil fuels can be reduced by generating power from renewable sources. This is particularly true in the Pacific where the cost of imported fuel means that in many cases, renewable energy technologies is already cost competitive. ADB is supporting Pacific DMCs to pilot and upscale technologies such as small-scale hydropower in Papua New Guinea, grid-connected solar power in Tonga and Vanuatu, indigenous biofuels in the Marshall Islands and Solomon Islands, and wind power in the Federated States of Micronesia.
- **Supporting energy efficiency**—Improving the efficiency with which energy is used by customers offers significant potential for fuel savings. Through its program of “Promoting Energy Efficiency in the Pacific,” ADB is providing support to the Cook Islands, Papua New Guinea, Samoa, Tonga, and Vanuatu to incentivize energy-efficient behavior through Minimum Energy Performance Standards for appliances, programs of public awareness raising, and implementation of efficient lighting and building programs.
- **Developing the private sector**—Government capital is limited and technical capacity constrained and ADB recognizes the importance of fostering private sector involvement in the power sector. Support may be provided directly through commercial loans or guarantees to private companies, or indirectly by building the capacity of state-owned utilities as power off-takers, and improving the regulatory environment for independent power producers. ADB is improving access to international carbon finance through support for the Clean Development Mechanism, and by advising the Government of Timor-Leste on a public-private partnership for power generation.

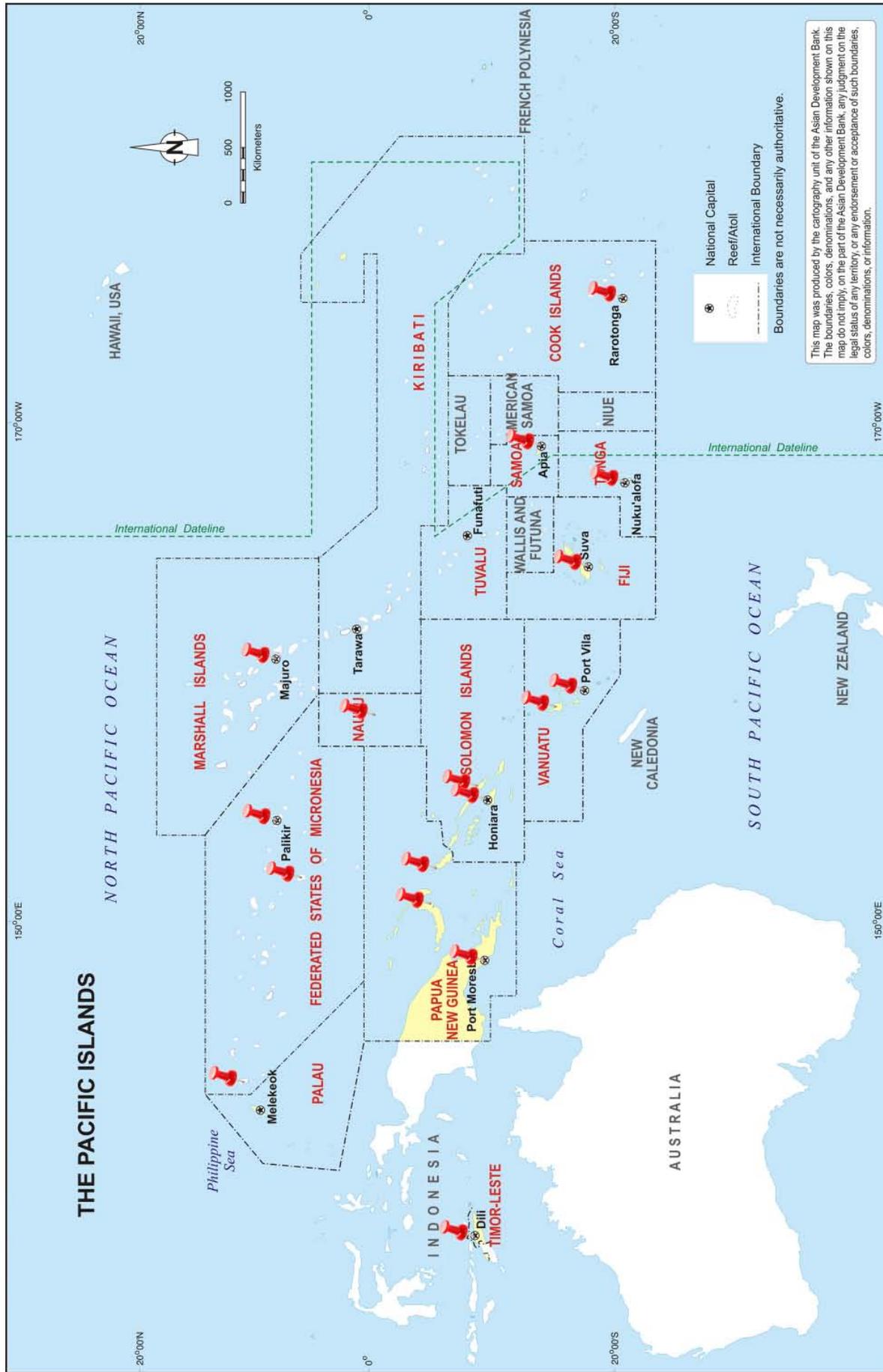
## Active ADB Pacific Energy Sector Projects (June 2011)

Country	Project	Funding Source	Status	Amount
<b>Cook Islands</b>	Promoting Energy Efficiency in the Pacific (Phases 1 and 2)	ACEF, GEF, PRIF, TASF	Approved 2008/2011	\$10.15 million R-CDTA grant (5 countries)
<b>Fiji</b>	Suva Nausori Water Supply and Sewerage Project (1)	OCR	Approved 2003	\$1.0 million loan (estimate)
<b>Marshall Islands</b>	Improved Energy Supply to Poor Households	JFPR	Approved 2010	\$1.76 million grant
	Public Sector Program (2)	ADF	Approved 2010	\$9.5 million loan
<b>Micronesia, Federated States of</b>	Omnibus Infrastructure Development Project	ADF and OCR	Approved 2004	\$10 million loan for power component
	Yap Renewable Energy Development Project	ADF	Proposed 2012	\$9.5 million proposed loan and grant (3)
	Pohnpei Power Sector Development Project	ADF	Proposed 2012	\$7.0 million proposed loan and grant (3)
<b>Nauru</b>	Regulatory Reform for Improving Water and Electricity Supply in Nauru	TASF	Proposed 2011	\$0.2 million PATA
<b>Papua New Guinea</b>	Town Electrification Investment Program	ADF, OCR	Approved 2010	\$150 million multi-tranche investment program. Tranche 1: \$57.3 million loan \$5 million grant
	Improved Energy Access to Rural Communities	JFPR, NZL	Proposed 2011	
	Promoting Energy Efficiency in the Pacific (Phases 1 and 2)	ACEF, GEF, PRIF, TASF	Approved 2008/2011	\$10.15 million R-CDTA grant (5 countries)
	Port Moresby Power Grid Development Project	OCR	Proposed 2012	\$101.2 million proposed loan and grant (3)
<b>Samoa</b>	Power Sector Expansion Project	ADB, ADF, AUS, JICA	Approved 2008	\$100 million loan and grant
	Implementing the Samoa National Energy Policy	AUS, FIN	Approved 2008	\$1.85 million ADTA
	Preparing the Afulilo Environmental Project	JSF	Approved 2008	\$1.2 million PPTA
<b>Solomon Islands</b>	Promoting Energy Efficiency in the Pacific (Phases 1 and 2)	ACEF, GEF, PRIF, TASF	Approved 2008/2011	\$10.15 million R-CDTA grant (5 countries)
	Promoting Access to Renewable Energy in the Pacific	CEF (4)	Approved 2009	\$3 million R-CDTA (3 countries)
<b>Tonga</b>	Private Sector Development Initiative (state-owned enterprise reform)	TASF, AUS	Approved 2006	\$8.7 million RETA
	Promoting Energy Efficiency in the Pacific (Phases 1 and 2)	ACEF, GEF, PRIF, TASF	Approved 2008/2011	\$10.15 million R-CDTA grant (5 countries)
	Outer Island Renewable Energy Project	ADF	Proposed 2012	\$5.5 million proposed grant (3)
<b>Timor-Leste</b>	Private Sector Development Initiative (O&M and fuel contract for new power plant)	TASF, AUS	Approved 2006	\$8.7 million RETA
<b>Vanuatu</b>	Promoting Access to Renewable Energy in the Pacific	CEF (4)	Approved 2009	\$3 million R-CDTA (5 countries)
	Promoting Energy Efficiency in the Pacific (Phases 1 and 2)	ACEF, GEF, PRIF, TASF	Approved 2008/2011	\$10.15 million R-CDTA grant (5 countries)
<b>Regional</b>	Performance Benchmarking of Power Utilities	AUS	Approved 2009	\$0.3 million RETA
	Capacity Building for CDM and Establishment of DNAs (5)	ACEF	Approved 2010	\$0.5 million R-CDTA

ACEF=Asia Clean Energy Fund, ADB = Asian Development Bank, ADF=Asian Development Fund, ADTA=Advisory Technical Assistance, AUS=Government of Australia, CCF, Climate Change Fund, CDTA=Capacity Development Technical Assistance, CEF=Clean Energy Fund, CIDA=Canadian International Development Fund, DMC=Developing Member Country, DNA=Designated National Authority, FIN=Government of Finland, GEF=Global Environment Facility, JFPR=Japan Fund for Poverty Reduction, JICA=Japan International Cooperation Agency, JSF=Japan Special Fund, MFF=Multi-Tranche Financing Facility, NZL=Government of New Zealand, OCR=Ordinary Capital Resources, O&M = operations and management, PPTA=Project Preparatory Technical Assistance, PRIF=Pacific Regional Infrastructure Facility, R-CDTA=Regional Capacity Development Technical Assistance, RETA=Regional Technical Assistance, SOE = state-owned enterprise, TASF=Technical Assistance Special Fund.

### Notes:

1. Project includes methane capture and flaring component.
2. The majority of the support was for Marshalls Energy Company (MEC) debt restructuring.
3. Amount is indicative and includes cost of Project Preparatory Technical Assistance. Additional cofinancing sources still to be confirmed.
4. Clean Energy Fund is financed by the Governments of Australia, Norway, Spain, and Sweden.
5. Support is being provided under the regional technical assistance to Strengthen the Capacity of Pacific DMCs to Respond to Climate Change.



Shows the location of ADB Energy Projects in the Pacific

# Cook Islands



ADB's program of assistance is supporting the Government of Cook Islands to reach its target of meeting 50% of electricity demand derived from renewable energy by 2015

—Tangi Tereapii, Head of Renewable Energy Development, Government of the Cook Islands

## Promoting Energy Efficiency in the Pacific (Phase 1)

Under Phase 1 of this \$1.4 million regional program, the Government of Cook Islands received support for reducing its reliance on imported diesel through demand-side energy-efficiency activities. The program identified energy-efficiency measures that could reduce total electricity consumption by 13% and peak demand by 0.9 megawatt (MW).

The program also supported the introduction of low-energy light bulbs into all residential homes and educated the public on the advantages of using these over standard incandescent light bulbs. The project was implemented in partnership with the power utility Te Aponga Uira and a total of 18,000 compact fluorescent light (CFL) bulbs were distributed to households throughout the islands. The project has set a benchmark for long lifetime, voltage-tolerant CFLs and established a system for recycling used bulbs. In Rarotonga, the project will reduce diesel consumption by 174,000 liters and emissions of carbon dioxide by 450 tons per year. The average household will save over \$80 per year on electricity bills.

## Promoting Energy Efficiency in the Pacific (Phase 2)

This regional technical assistance program will support the government in implementing the energy-efficiency measures that were identified under Phase 1. \$8.75 million in grant finance will be used to implement this second program in the Cook Islands, as well as PNG, Samoa, Tonga, and Vanuatu. Participating governments and power utilities will contribute a further \$3.65 million. Activities to be undertaken include:

- Establishment of a comprehensive database of energy use by sector and appliance
- Mainstreaming of energy-efficiency practices such as Minimum Energy Performance Standards and labelling schemes into government processes, procedures and policies;
- Implementing energy-efficiency measures in lighting and public building sectors; and
- Raising awareness on the importance of energy conservation.

## Country Website

[www.adb.org/CookIslands](http://www.adb.org/CookIslands)



Country	Project	Funding Source	Status	Amount
Cook Islands	Promoting Energy Efficiency in the Pacific (Phases 1 and 2)	ACEF, GEF, PRIF, TASF	Approved 2008/2011	\$10.15 million R-CDTA grant (5 countries)

# Marshall Islands



## Improved Energy Supply to Poor Households

The \$1.76 million grant project will improve livelihoods by improving the delivery of electricity services to poor households. The project will include the following:

- *Prepayment meters.* The project will install about 350 prepayment meters for residential customers of the Marshalls Energy Company (MEC) grid, including the main island of Majuro and the outer islands of Wotje and Jaluit. Access to electricity will be improved for poor customers by targeting prepayment meters installation to customers who have been disconnected during the economic crisis and fuel price spike and are unable to afford reconnection. The prepayment meters will give poorer customers greater flexibility in managing power usage.
- *Distribution grid rehabilitation and extension.* This component will extend power supply to low-income households not physically connected to the power grid. These households currently are forced to rely on relatively expensive kerosene or biomass for energy needs. These poorer households are concentrated in a small number of suburbs and this component will include rehabilitation of the distribution system to these areas to improve power supply and allow for the connection of additional currently unserved customers.
- *Coconut oil diesel replacement.* The project will include a trialing period for blending coconut oil (CNO) as a fuel in the main Majuro diesel-fired power stations to generate additional income for the poor. The component has direct poverty alleviation benefits as it creates an additional market for CNO and increases demand for copra, which is the main cash-generating income for the outer atolls. The component will (i) upgrade MEC generators to operate on CNO and diesel blend, (ii) establish supply contracts, (iii) establish quality control and monitoring program, and (iv) undertake analysis of various biofuel alternatives.

Increasing demand for coconut oil for power generation will put money in the pockets of outer islanders, where most of the copra is produced

—Robert Guild, Director, Transport, Energy, and Natural Resources Division, Pacific Department



## Public Sector Program

The \$9.5 million concessional loan supports the Republic of Marshall Islands Comprehensive Recovery Plan for MEC through support for restructuring of the entity's debt.

## Country Website

[www.adb.org/MarshallIslands](http://www.adb.org/MarshallIslands)

Country	Project	Funding Source	Status	Amount
Marshall Islands	Improved Energy Supply to Poor Households	JFPR	Approved 2010	\$1.76 million grant
	Public Sector Program	ADF	Approved 2010	\$9.5 million loan

## Federated States of Micronesia



### Omnibus Infrastructure Project

The project is currently supporting the construction of power sector infrastructure in Chuuk State, including new diesel power plant and distribution infrastructure. Capacity building is also being supported within the power utility and the project is cofinanced with the Government of the United States.

### Yap Renewable Energy Development Project

The project will support reduction in dependency on imported diesel through expansion of renewable power generation and improving the supply-side efficiencies of power delivery. The project is proposed for ADB Board consideration in 2012 and will support (i) grid-connected wind power generation (about 1.5 megawatts) on Yap Proper, (ii) grid-connected solar power (about 0.3 megawatts) on Yap Proper, and (iii) upgrades to the diesel power plant. This is anticipated to allow Yap State to generate 2.8 gigawatt-hour per annum of wind power and 450 megawatt-hour per annum of solar power by January 2017, which would result in approximately 20% of the island's power generation being supplied from renewable energy sources.



Nanpil Hydropower Plant, Pohnpei, Federated States of Micronesia

### Pohnpei Power Sector Development Project

The project will support the development of the power system of Pohnpei State to reduce dependency on imported diesel and improve the quality of power supply. The project proposes to (i) provide technical support for the rehabilitation of the existing hydropower, (ii) provide technical support for the construction of a new hydropower, (iii) improve the efficiency of diesel generation, (iv) improve supply-side efficiencies through distribution upgrades, and (v) support tariff reform. Through improved energy efficiency and conversion to renewable energy, it is estimated that Pohnpei will reduce diesel consumption for power generation by over 20%.

### Country Website

[www.adb.org/Micronesia](http://www.adb.org/Micronesia)

Country	Project	Funding Source	Status	Amount
Federated States of Micronesia	Omnibus Infrastructure Development Project	ADF and OCR	Approved 2004	\$10 million loan for power component
	Yap Renewable Energy Development Project	ADF	Proposed 2012	\$9.5 million proposed loan and grant
	Pohnpei Power Sector Development Project	ADF	Proposed 2012	\$7.0 million proposed loan and grant

# Papua New Guinea



## Town Electrification Investment Project

The project is a \$150 million multi-tranche financing facility (MFF) designed to support the PNG Power Ltd development plans for improved power delivery. Tranche 1 was approved in 2010 (\$57.3 million OCR/ADF Loan), and includes:

- Divune Hydropower Plant (approximately 3 megawatts (MW) run-of-river), Northern Province.
- Ramazon Hydropower Plant (approximately 3 MW run-of-river), Autonomous Region of Bougainville.
- Kimbe-Bialla Interconnection, consisting of a 150 kilometers, 66 kilovolt transmission line connecting Bialla to Kimbe, West New Britain, accessing 1 MW spare generation from Lake Hargy Hydropower Plant, and connecting biomass power (methane recovery) from palm oil plantations along the alignment.

## Port Moresby Grid Development Project

The proposed project will support the plans of the PNG Power Ltd to upgrade the transmission and distribution grid in the national capital, Port Moresby, thereby improving the reliability and quality of power supply to the main urban center in Papua New Guinea (PNG), improving the energy efficiency of power delivery, and enabling delivery of essential power to rapidly expanding areas of Port Moresby. A \$1.2 million grant preparatory technical assistance (PPTA) is being undertaken in 2011 to prepare the project.

## Improved Energy Access for Rural Communities Project

The project will provide a \$5 million grant to assist PNG Power Ltd to connect households, schools, and medical clinics in rural

communities to electricity. It is estimated that 4,500 households, 20 schools, and 20 clinics will be connected. The project will also assist PNG Power Ltd to upscale trials of community-based civil works contracts for powerline construction.

## Promoting Energy Efficiency in the Pacific (Phases 1 and 2)

Under Phase 1 of this \$1.4 million regional technical assistance program, the Government of PNG received support for its demand-side energy-efficiency activities. The program identified energy-efficiency measures that could reduce total electricity consumption by 4% and peak demand by 5.6 MW. The program also supported PNG Power Ltd in implementing a pilot Power Factor Correction initiative in Port Moresby to improve network stability and power quality and which reduced energy demand by 180 megawatt-hours. Phase 2 will support the Government of PNG in implementing the energy-efficiency measures that were identified under Phase 1. An \$8.75 million grant will be used to implement this second program in PNG, as well as in the Cook Islands, Samoa, Tonga, and Vanuatu. Components include (i) establishment of baseline energy use databases, (ii) mainstreaming of energy-efficiency practices such as Minimum Energy Performance Standards and labelling schemes in government policy and regulation, (iii) implementation of energy-efficient lighting and building schemes, and (iv) information dissemination and awareness raising.

## Country Website

[www.adb.org/PapuaNewGuinea](http://www.adb.org/PapuaNewGuinea)

Country	Project	Funding Source	Status	Amount
Papua New Guinea	Town Electrification Investment Program	ADF, OCR	Approved 2010	\$150 million multi-tranche investment program. Tranche 1: \$57.3 million loan
	Improved Energy Access to Rural Communities	JFPR, NZL	Proposed 2011	\$5 million grant
	Promoting Energy Efficiency in the Pacific (Phases 1 and 2)	ACEF, GEF, PRIF, TASF	Approved 2008/2011	\$10.15 million R-CDTA grant (5 countries)
	Port Moresby Power Grid Development Project	OCR	Proposed 2012	\$101.2 million proposed loan and grant

# Samoa



## Power Sector Expansion Project

The Power Sector Expansion Project (PSEP) is a \$100 million investment to support the Electric Power Corporation develop the power sector infrastructure in Samoa. The project is a sector loan including 29 subprojects ranging from transmission and distribution upgrades, diesel power plant construction and rehabilitation, assessment and development of hydropower resources, to installation of prepayment meters and demand-side management. The project is cofinanced by the Australian Agency for International Development (AusAID) and the Japan International Cooperation Agency (JICA) and will be implemented until 2016. The project includes a trial loan buy down and grant conversion mechanism in which approximately \$12 million of loan will be converted to grant if implementation targets are met.

## Implementing the Samoa National Energy Policy

The project is a \$1.85 million technical assistance grant to assist with the following:

- Develop the Clean Energy Fund, including initial project pipeline, provision of seed capital and operational framework for the Fund.
- Support carbon trading by assisting to establish the Clean Development Mechanism (CDM) Designated National Authority (DNA).
- Assist in establishing the Power Sector Regulator by (i) revising the Electricity Act and Regulations, (ii) preparing operating manuals, and (iii) assisting in establishing the regulators' office.
- Support resident financial advisors to Electric Power Corporation to complement the reform agenda.

## Afulilo Environmental Enhancement Project

The project is providing a \$1.2 million grant to assist the Electric Power Corporation to assess the environmental and social impacts from Afulilo Hydropower Plant (the only storage hydropower in Samoa) and to identify options for generation capacity augmentation.

## Promoting Energy Efficiency in the Pacific (Phases 1 and 2)

Under Phase 1 of this \$1.4 million regional technical assistance program, the Government of Samoa received support for its demand-side energy-efficiency activities. The program identified energy-efficiency measures that could reduce total electricity consumption by 9% and peak demand by 1.6 megawatts. The program also supported the Electric Power Corporation in implementing a pilot Power Factor Correction initiative in Apia to improve network stability and power quality and which reduced energy demand by 35 megawatt-hours. Phase 2 will support the Government of Samoa in implementing the energy-efficiency measures that were identified under Phase 1. An \$8.75 million grant will be used to implement this second program in Samoa, as well as the Cook Islands, Papua New Guinea, Tonga, and Vanuatu. Components include (i) establishment of baseline energy use databases, (ii) mainstreaming of energy efficiency practices such as Minimum Energy Performance Standards and labelling schemes in government policy and regulation, (iii) implementation of energy-efficient lighting and building schemes, and (iv) information dissemination and awareness raising.

## Country Website

[www.adb.org/Samoa](http://www.adb.org/Samoa)

Country	Project	Funding Source	Status	Amount
Samoa	Power Sector Expansion Project	ADB, ADF, AUS, JICA	Approved 2008	\$100 million loan and grant
	Implementing the Samoa National Energy Policy	AUS, FIN	Approved 2008	\$1.85 million ADTA
	Preparing the Afulilo Environmental Project	JSF	Approved 2008	\$1.2 million PPTA
	Promoting Energy Efficiency in the Pacific (Phases 1 and 2)	ACEF, GEF, PRIF, TASF	Approved 2008/2011	\$10.15 million R-CDTA grant (5 countries)

# Solomon Islands



## Promoting Access to Renewable Energy in the Pacific

Less than 20% of all households in Solomon Islands have access to electricity. Power generation is restricted largely to urban centers and relies almost exclusively on the import of costly diesel fuel. As a result, electricity tariffs are among the most expensive in the region. Under this regional technical assistance, the Asian Development Bank (ADB) is supporting the Government of Solomon Islands in addressing these issues by increasing access to sources of renewable energy.

ADB is supporting the Solomon Islands Electricity Authority (SIEA) in trialling the use of coconut oil (CNO) for power generation. A new generator is being installed at the SIEA outstation at Auki on the island of Malaita. The generator will be supplied with a blend of locally sourced CNO and imported diesel fuel. CNO concentrations will be limited to 20% during an initial testing period, but potential exists to displace up to 90% of diesel usage in future. The power grid will be extended to provide access to electricity for up to 250 new households.

Options for scaling up indigenous renewable energy sources are also being studied. The feasibility of using CNO for power generation at SIEA outstations has been assessed and the potential for this resource to displace 2 million liters of diesel imports at five outer island locations has been identified. Small-scale hydropower resources in the outer islands have also been screened and feasibility studies for five schemes are being prepared. These have the potential to supply clean power to over 6,000 households in outer island growth centers. ADB is currently in discussion with the government to identify funding sources to support their implementation.

## Country Website

[www.adb.org/SolomonIslands](http://www.adb.org/SolomonIslands)



Distribution Extension Western Fishing Village, Auki

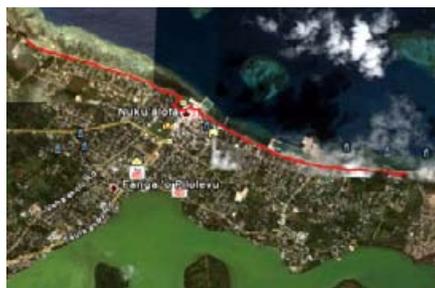
Country	Project	Funding Source	Status	Amount
Solomon Islands	Promoting Access to Renewable Energy in the Pacific	CEF	Approved 2009	\$3 million R-CDTA (3 countries)

# Tonga



Energy is a fundamental building block for the Kingdom of Tonga in its social and economic development and in enhancing the livelihood and well-being of all Tongans

—Hon. Dr. Fred Vaka'uta Sevele, Former Prime Minister of Tonga, April 2010



Section of Vuna Road where LED street lights were installed

## Outer Island Renewable Energy Project

The proposed \$5 million grant-financed project will support the Government of Tonga in constructing and operating up to 750 kilowatts of grid-connected solar power plants on the outer islands of 'Eua, Ha'apai, and Vava'u. The project will support the implementation of the Tonga Energy Roadmap by reducing diesel imports by 250,000 liters per year and supplying sufficient renewable energy to meet the needs of 1,000 households. A \$0.5 million grant to prepare the project is being implemented in 2011.

## Promoting Energy Efficiency in the Pacific (Phase 1)

Under Phase 1 of this \$1.4 million regional technical assistance program, the Government of Tonga received support for its demand-side energy-efficiency activities. The program identified energy-efficiency measures that could reduce total electricity consumption by 12% and peak demand by 1.3 megawatts. The program supported Tonga Power Limited (TPL) in purchasing and installing 109 light-emitting diode (LED) street lights along Vuna Road in the capital Nuku'alofa. These street lights will reduce energy consumption by 35% and save \$12,000 per year in fuel costs compared with existing light fittings.

## Promoting Energy Efficiency in the Pacific (Phase 2)

This regional technical assistance program will support the Government of Tonga in implementing the energy-efficiency measures that were identified under Phase 1. An \$8.75 million grant will be used to implement this second program in Tonga, as well as in the Cook Islands, Papua New Guinea, Samoa, and Vanuatu. Activities to be undertaken include:

- Establishment of a comprehensive database of energy use by sector and appliance.
- Mainstreaming of energy-efficiency practices such as Minimum Energy Performance Standards and labelling schemes into government processes, procedures, and policies.
- Implementing energy-efficiency measures in lighting and public building sectors.
- Raising awareness on the importance of energy conservation.

## Country Website

[www.adb.org/Tonga](http://www.adb.org/Tonga)

Country	Project	Funding Source	Status	Amount
Tonga	Private Sector Development Initiative (state-owned enterprise reform)	TASF, AUS	Approved 2006	\$8.7 million RETA
	Promoting Energy Efficiency in the Pacific (Phases 1 and 2)	ACEF, GEF, PRIF, TASF	Approved 2008/2011	\$10.15 million R-CDTA grant (5 countries)
	Outer Island Renewable Energy Project	ADF	Proposed 2012	\$5.5 million proposed grant



## Promoting Access to Renewable Energy in the Pacific

The Asian Development Bank (ADB) is supporting the Government of Vanuatu in addressing issues relating to low rates of electricity access and high reliance on imported diesel. Under this regional technical assistance, ADB is supporting the construction of a pilot grid-connected solar photovoltaic (PV) project on the island of Santo. Separate solar PV arrays totalling 40 kilowatts in capacity will be installed on public buildings in Luganville, including College de Santo, Luganville District Hospital, and Sanma Provincial Government Building. The project will build capacity in the construction and operation of intermittent renewable energy technologies, demonstrate technical issues relating to their integration with small power grids, and develop a possible financing models for follow-on projects.

Options for scaling up indigenous hydropower resources are also being studied. Schemes on the islands of Malekula and Santo have been screened and feasibility studies for projects on the Brenwe and Wambu rivers are being prepared. These two schemes have the capacity to generate at least 5 megawatts of renewable power and ADB is currently in discussion with the government to identify funding sources to support their implementation.

## Promoting Energy Efficiency in the Pacific (Phase 1)

Under Phase 1 of this \$1.4 million regional technical assistance program, the Government of Vanuatu received support for its demand-side energy-efficiency activities. The program identified energy-efficiency measures that could reduce total electricity consumption by 10% and peak demand by 1.3 megawatts. The program supported the establishment of a training program in energy efficiency and energy auditing at the Vanuatu Institute of Technology and carried out energy audits for major energy consumers in the hotel sector. Energy conservation measures were piloted, including solar water heaters, key switches, lighting and cooling optimization, and improvements in water management systems.

## Promoting Energy Efficiency in the Pacific (Phase 2)

This regional technical assistance program will support the Government of Vanuatu in implementing the energy- efficiency measures that were identified under Phase 1. An \$8.75 million, in grant finance will be used to implement this second program in Vanuatu, as well as in the Cook Islands, Papua New Guinea, Samoa, and Vanuatu. Activities to be undertaken include:

- Establishing a comprehensive database of energy use by sector and appliance.
- Mainstreaming energy-efficiency practices such as Minimum Energy Performance Standards and labelling schemes into government processes, procedures, and policies.
- Implementing energy-efficiency measures in lighting and public building sectors.
- Raising awareness on the importance of energy conservation.

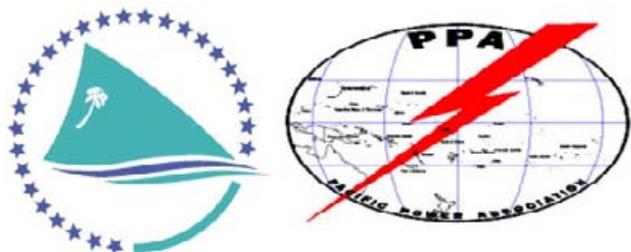
## Country Website

[www.adb.org/Vanuatu](http://www.adb.org/Vanuatu)

Country	Project	Funding Source	Status	Amount
Vanuatu	Promoting Access to Renewable Energy in the Pacific	CEF	Approved 2009	\$3 million R-CDTA (5 countries)
	Promoting Energy Efficiency in the Pacific (Phases 1 and 2)	ACEF, GEF, PRIF, TASF	Approved 2008/2011	\$10.15 million R-CDTA grant (5 countries)

# Regional Initiatives

## Benchmarking the Performance of Power Utilities



Working through the Pacific Infrastructure Advisory Center (PIAC) on behalf of the Pacific Region Infrastructure Facility (PRIF) and in collaboration with the Pacific Power Association (PPA) and the Secretariat of the Pacific Community (SPC), the Asian Development Bank (ADB) is providing technical assistance to support performance benchmarking for utilities in the power sector of Pacific island countries. The initiative aims to improve the performance and service delivery of power utilities by comparing performance, learning from one another, and enhancing the availability of information on the delivery of power services in the region.

The PPAs responsible for the overall management and coordination of the benchmarking exercise. The benchmarking team have developed a framework and questionnaire of performance indicators in close coordination with power utilities, regional organizations, and development partners. Benchmarking data will be collected and analyzed and survey results delivered at a regional workshop. Poorer-performing utilities will be supported through the development of performance improvement plans and recommendations based on the study's findings.

The SPC will act as a central data repository for performance data and will link this initiative with its own and other related regional energy sector initiatives under the regional energy policy, entitled Framework for Action on Energy Security in the Pacific.

## Improving Access to Carbon Finance

A barrier to the development of renewable energy projects in the Pacific region has been their inability to attract carbon financing. At present, only two projects have been successfully registered for carbon credits under the flexible Clean Development Mechanism (CDM) of the Kyoto Protocol. At the Conference of Parties 16 in Mexico in December 2010, the registration rules for projects in countries with fewer than 10 registered CDM projects were relaxed and ADB has launched several initiatives to assist countries in the Pacific region access the international carbon markets.

Under the regional technical assistance program "Strengthening the Capacity of Pacific Developing Member Countries to Respond to Climate Change," and through bilateral programs, ADB is supporting the establishment of Designated National Authorities (DNA) for CDM in Samoa, Solomon Islands, Timor-Leste, Tonga, and Vanuatu. Assistance includes training and capacity building for the DNA and its stakeholders and development of a clear and transparent legal and institutional framework for CDM in each country. Support is also being given to identify a CDM pipeline and promote its benefits through the development of Nationally Appropriate Mitigation Actions as well as project-level support through drafting of relevant CDM documentation.

Through the ADB Carbon Market Initiative, ADB is providing further project-level support. The following activities in Papua New Guinea (PMG) exemplify this assistance:

- ADB's Technical Support Facility is preparing Project Design Documents (PDD) for Ramazon and Divune Hydropower Projects under the CDM.
- ADB's Future Carbon Fund has signed a Certified Emission Reduction Purchase Agreement (CERPA) with PNG Power Ltd for the post-2012 carbon credits, which includes an up-front payment for 50% of the projected carbon credits.
- ADB is working with PNG Power Ltd to prepare a program of activities for renewable energy projects in PNG. The programmatic approach will allow streamlined approvals of subsequent power sector CDM projects in PNG.
- PNG Power Ltd and other stakeholders are being provided with CDM awareness training under PPTA 7113-PNG.

Country	Project	Funding Source	Status	Amount
Regional	Performance Benchmarking of Power Utilities	AUS	Approved 2009	\$0.3 million RETA
	Capacity Building for CDM and Establishment of DNAs	ACEF	Approved 2010	\$0.5 million R-CDTA

## **Pacific Energy Update 2011**

The Asian Development Bank (ADB) is working to assist the development of the energy sectors in our 14 Pacific developing member countries through technical assistance and concessional loan/grant financing. ADB is providing support for the rehabilitation and expansion of power sector infrastructure, improvement in electricity access rates, expansion of renewable energy generation, and improving efficiency of energy use. ADB is currently implementing energy sector projects in 11 Pacific countries (the Cook Islands, Fiji, Marshall Islands, the Federated States of Micronesia, Nauru, Papua New Guinea, Samoa, Solomon Islands, Tonga, Timor-Leste, and Vanuatu). This document provides an update of the existing 2011 portfolio of Pacific energy sector projects and a summary of requested assistance for 2012.

## **About the Asian Development Bank**

ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to two-thirds of the world's poor: 1.8 billion people who live on less than \$2 a day, with 903 million struggling on less than \$1.25 a day. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration.

Based in Manila, ADB is owned by 67 members, including 48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

Asian Development Bank  
6 ADB Avenue, Mandaluyong City  
1550 Metro Manila, Philippines  
[www.adb.org](http://www.adb.org)  
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