

PACIFIC ISLANDS ENERGY POLICY (PIEP)

**November 2004**

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## VISION

### INTRODUCTION

1. REGIONAL ENERGY SECTOR COORDINATION
2. POLICY AND PLANNING
3. POWER SECTOR
4. TRANSPORTATION
5. RENEWABLE ENERGY
6. PETROLEUM
7. RURAL AREAS AND REMOTE ISLANDS
8. ENVIRONMENT
9. EFFICIENCY AND CONSERVATION
10. HUMAN AND INSTITUTIONAL CAPACITY

## THE PACIFIC REGION

### PACIFIC ISLAND COUNTRIES AND TERRITORIES DATA

This document represents a regional consensus, affirmed at the 2004 Regional Energy Meeting in Madang, Papua New Guinea and is based on an earlier version of the regional energy policy affirmed in the Cook Islands in 2002 and with due consideration to the Rarotonga Declaration.

The review of the Pacific Islands Energy Policy has been coordinated by the Council of Regional Organisations in the Pacific (CROP) - Energy Working Group in close consultation with the Energy Officials from Pacific island countries and territories (PICTs).

## VISION

Available, reliable, affordable, and environmentally sound energy for the sustainable development of all Pacific island communities.

## INTRODUCTION

Energy has a vital role in achieving sustainable development in the Pacific region. It is a fundamental input to most economic and social activities and a prerequisite for development in other sectors such as education, health, and communications. Sustainable development is a process of change in which the exploitation of resources, the directions of investment, the orientation of technological change, and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations. It is recognised that youth and women are important stakeholders in the energy sector and their participation is vital to achieve sustainable development. Responding to energy issues within the context of sustainable development involves many complex, cross-sectoral and interdependent factors requiring effective coordination.

Pacific island countries and territories face a unique and challenging situation with respect to energy for sustainable development:

- Demographics vary widely between countries, but often feature small, isolated population centres.
- Markets are very thin, difficult to serve, and without significant economies of scale.
- 70% of the regional population is without access to electricity, but access varies widely, from 10% to 100% at the national level.
- Pacific Island countries comprise a wide range of ecosystems, predominantly influenced by marine systems that make infrastructure development difficult and environmental impacts significant.
- Most Pacific island countries do not have indigenous petroleum resources but have a range of renewable energy resources that are generally under utilised.

Pacific island countries and territories have special concerns arising from their situation that have motivated the development of this policy:

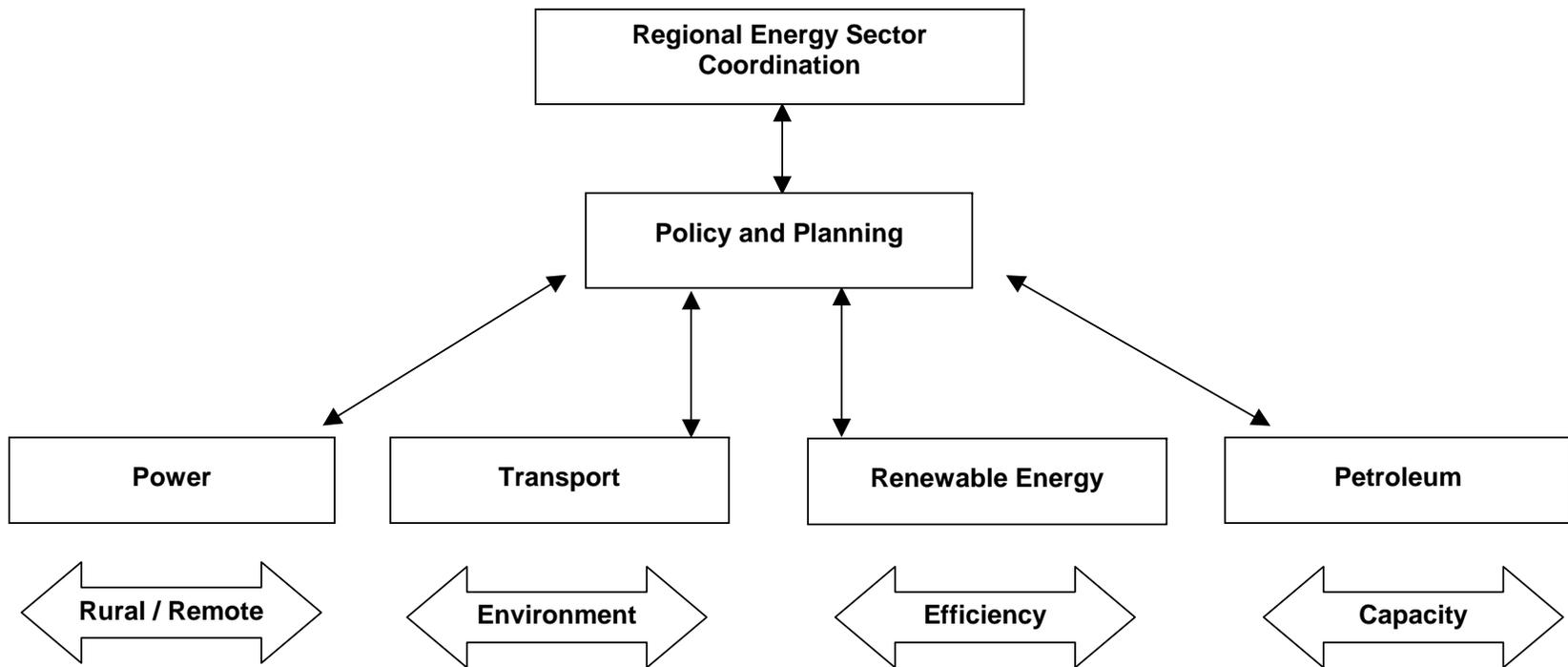
- Environmental vulnerability through climate change and sea level rise is very high, particularly for small islands and low-lying atolls.
- Environmental damage, habitat loss and pollution resulting from development and use of conventional energy sources have significant effects on fragile island ecosystems.
- Economic vulnerability due to the heavy reliance on imported fossil fuels.
- Energy supply security is vulnerable, given the limited storage for bulk petroleum fuels, which are sourced over a long supply chain at relatively high prices.

- The development of renewable energy resources has been limited by the availability of capital, suitable financing mechanisms, appropriate technology, effective institutional mechanisms, and the challenges of developing systems for small remote markets at reasonable cost.
- There is limited scope for market reforms considering the variation in size and density of markets; therefore, appropriate alternatives vary between countries.
- The region has limited human resources and institutional capacity to respond to these challenges.
- While youth and women are significant energy users, they are poorly represented in energy policy, planning, and development.

In response to these challenges and their concerns, the Pacific Islands Energy Policy has been developed as a means of co-ordinating the energy programmes in the regional organisations and with development partners in areas where international co-operation is required. It is also intended to offer guidelines for adaptation to the circumstances of Pacific island countries and territories in the development of their National Energy Policies and Strategic Action Plans.

For planning and policy development purposes, the energy sector is organised and analysed according to the following six themes, shown graphically in the figure below, which have become the standard classifications for integrated energy planning. Four cross-cutting issues, which apply equally to all other themes, are also identified at the bottom of the figure. These ten themes correspond to the sections of the Pacific Islands Energy Policy (PIEP).

## Thematic Sectors of the Pacific Islands Energy Policy



The PIEP is structured around these ten sections with the following goals in each area that are underpinned by a series of policies:

- Regional Energy Sector Co-ordination: A co-operative approach to energy sector co-ordination that maximises the impact of regional resources and capabilities.
- Policy and Planning: Open and consultative cross-sectoral policy development and integrated planning to achieve sustainable supply and use of energy.
- Power: Reliable, safe and affordable access to efficient power for all Pacific island communities.
- Transportation: Environmentally clean, energy efficient and cost effective transportation within the region.
- Renewable Energy: An increased share of renewable energy in the region's energy supply.
- Petroleum: Safe, reliable, and affordable supplies of petroleum products to all Pacific island countries.
- Rural Areas and Remote Islands: Available, reliable, affordable, and environmentally sound energy supplies for the social and economic development of rural areas and remote islands.
- Environment: Environmentally sustainable development of energy sources and use of energy within the region.
- Efficiency and Conservation: Optimised energy consumption in all sectors of the regional economy and society.
- Human and Institutional Capacity: Adequate human and institutional capacity to plan, manage, and develop the Pacific energy sector.

To achieve these goals, policies are further supported by detailed strategies that include a number of activities with individual implementation, indicator and a time frame statements. These are all incorporated into a separate document entitled Pacific Islands Energy Strategic Action Plan (PIESAP) that should be reviewed and changed on a one yearly cycle.

The PIEP is organised such that policies are stated for each goal, intended to set the rules by which specific strategies and actions will be designed and implemented to achieve the desired outcomes and outputs. They are long-term, but may be reviewed and changed every 5-7 years if necessary but are intended to stand and provide the continuity and consistency necessary to ensure the overall vision of the policy can be realised.

The Chair of the CROP Energy Working Group shall be responsible for coordinating any policy review should this be deemed necessary in the future.

## 1. REGIONAL ENERGY SECTOR COORDINATION

Regional co-operation in energy policy and planning can help to overcome the disadvantages faced by the region, particularly in relation to its small size, dispersed communities, fragmented markets, environmental vulnerability, and limited institutional and human capacity. A regional co-operative approach to co-ordination will allow countries to share expertise, take advantage of economies of scale, harmonise policies and regulations, and mobilise increased official development assistance from international sources. The goal for regional energy sector co-ordination is:

**A co-operative approach to energy sector co-ordination that maximises the impact of regional resources and capabilities**

### Policies

- 1.1 Co-ordinate regional energy sector activities of regional organisations, associations, the private sector, non-state actors, and development partners through the Council of Regional Organisations in the Pacific, Energy Working Group (CROP-EWG).
- 1.2 Mobilise development assistance and financing from international and multilateral development partners and the private sector, for the implementation of national and regional energy strategies.

## 2. POLICY AND PLANNING

The prominence accorded to energy issues in a global economy presents great challenges to policy and planning in Pacific island countries and territories, which must address integrated cross-sectoral partnership and issues, co-ordinated implementation, appropriate institutional arrangements, adequate financial mechanisms, and the roles of diverse public and private stakeholders. In addition, Pacific island countries and territories are faced with scarce energy resources and a heavy reliance on imported fossil fuels to meet their energy needs. Hence the need for a strategic and sustainable approach to development and implementation of policies, and the ability to plan to meet future energy sector requirements. The goal for policy and planning is:

### **Open and consultative cross-sectoral policy development and integrated planning to achieve sustainable supply and use of energy**

#### Policy

- 2.1 Ensure energy sector policy and planning addresses the availability and efficient use of affordable, and appropriate sources of energy, taking into account a balance of social, cultural, technological, institutional, environmental, economic, and global market issues.
- 2.2 Ensure increased availability of energy services to the 70% of the regional population that is without access to electricity.
- 2.3 Promote sustainable energy options for electricity generation, transportation, water supply, health care, education, telecommunication, tourism, food supply, and income generation.
- 2.4 Promote the development of appropriate regulatory guidelines to meet the needs of consumers resulting from sector reforms.
- 2.5 Assess and promote indigenous resource potential and technical capacity for all aspects of energy sector planning and development.
- 2.6 Promote policy mechanisms for efficient use of energy in all sectors of the economy.
- 2.7 Promote the involvement of all stakeholders, including non-government organisations, local communities especially youth and women in policy development and integrated planning.
- 2.8 Promote the development of national energy policies and strategic action plans that address the reduction of fossil fuel imports and greenhouse gas emissions and strive to meet regional renewable energy targets.

### 3. POWER SECTOR

Reliable and affordable electric power is essential for economic development and social progress. Key issues related to power supply include insufficient human resources, inefficient performance of some utilities, inefficient consumption of electric power, and inadequate regulatory and legislative frameworks to support private sector participation and investment. The goal for the power sector is:

**Reliable, safe and affordable access to efficient power for all Pacific island communities**

#### Policies

- 3.1 Improve the efficiency of power production, including renewable energy, transmission and distribution to optimise costs and fuel consumption.
- 3.2 Develop corporatisation and commercialisation mechanisms for power utilities to facilitate improvements in power production, transmission and distribution.
- 3.3 Expand where appropriate private sector participation, investment, ownership, and management arrangements for electricity generation, transmission and distribution.
- 3.4 Establish an enabling and competitive environment for the introduction of independent power providers where these may provide efficient, reliable, and affordable service to consumers.
- 3.5 Promote appropriate international best-practice regulations and standards for the safe and reliable supply, generation, transmission and distribution of power.
- 3.6 Support the introduction of new commercially proven technologies, including renewable energy technologies and generating systems that are environmentally, economically, financially and socially viable.

## 4. TRANSPORTATION

Transportation is an essential service that enables economic and social development. It accounts for about 50% of the region's use of petroleum products and polluting emissions, with national shares varying from 34% to 70%. The goal for transportation is:

### **Environmentally clean, energy efficient and cost effective transportation within the region**

#### Policies

- 4.1 Evaluate and encourage the application of emerging environmentally clean technologies and alternative fuels for transport, and promote markets and create policy and regulatory frameworks to make them more affordable and reliably available.
- 4.2 Promote emission control regulations and effective enforcement procedures.
- 4.3 Promote vehicle efficiency standards and encourage the import of more efficient vehicles.
- 4.4 Promote policy mechanisms that create a framework for greater use of appropriate and energy efficient modes of transportation including public transport.
- 4.5 Promote the use of non-fossil fuels in both new and existing vehicles.

## 5. RENEWABLE ENERGY

Despite past efforts to promote widespread use of renewable energy, progress in general has been rather slow. This is due to a number of policy, technical, financial, management, institutional and awareness barriers. Renewable energy sources in the form of hydropower, wind, solar, biofuel, geothermal and ocean thermal hold a lot of potential to be used to promote sustainable social and economic development, particularly in rural and remote areas, while reducing the dependence on fossil fuel for power generation, in transportation, and reducing greenhouse gas emissions and pollution. Key issues in renewable energy include: a lack of technical expertise and weak institutional structures to plan, manage and maintain renewable energy programmes; the absence of clear policies and plans to guide renewable energy development; a lack of successful demonstration projects; a lack of understanding of the renewable energy resources potential; a lack of confidence in the technology on the part of policy makers and the general public; a lack of local financial commitment and support to renewable energy; and continuing reliance on aid-funded projects. There also remains the need to ensure that there is a balance of partners and beneficiaries in the development of renewable energy. The goal for renewable energy is:

### **An increased share of renewable energy in the region's energy supply**

#### Policies

- 5.1 Promote the increased use of renewable energy technologies and strive to meet regional renewable energy targets.
- 5.2 Promote the effective management of both grid-connected and stand-alone renewable-based power systems.
- 5.3 Promote a level playing field approach for the application of renewable and conventional energy sources and technologies.
- 5.4 Promote partnerships between the private sector (including local communities and NSAs) and public sector, and mobilise external financing to develop renewable energy initiatives.

## 6. PETROLEUM

Petroleum fuels dominate the energy supply system in the Pacific, yet the region has very limited proven indigenous crude oil sources and these are predominantly exported. Competition in fuel supply is limited by monopoly terminal ownership. Fuel distribution arrangements within countries vary widely, with many governments choosing price regulation to ensure that fuel prices remain fair and equitable. The supply of fuel to remote locations and outer islands is not always reliable, is not always carried out in a safe manner and can result in very expensive fuel to a sector of the community least able to afford it. The environmental impacts of waste oil have the potential to significantly pollute the limited soil and ground water and near shore fisheries of Pacific Islands. The need for policy in this area arises from the need for energy security, the concentrated nature of the petroleum fuel supply industry, and the threat of climate change posed by the expanding use of petroleum fuels. The goal for petroleum is:

### **Safe, reliable, and affordable supplies of petroleum products to all Pacific island countries**

#### Policies

- 6.1 Improve the competitiveness of petroleum supply options through standardised regional supply templates, supply chain rationalisation, leveraged purchasing power and a regional approach to negotiations with suppliers.
- 6.2 Encourage suppliers to maintain the quality of petroleum products in line with relevant standards and to introduce cleaner and better quality petroleum products as they become available.
- 6.3 Reduce petroleum product imports through fuel substitution.
- 6.4 Co-operate regionally to collect and disseminate information on fuel demand, regional fuel prices, and related issues.
- 6.5 Promote the collection, transportation, and environmentally responsible re-use, disposal, or removal of waste oil and other petroleum by-products to minimise adverse impacts on soil, ground water, and near shore fisheries.
- 6.6 Promote equitable availability of petroleum products in rural and remote islands.
- 6.7 Encourage environmentally sound exploration for, and development of, indigenous sources of petroleum products.

## 7. RURAL AREAS AND REMOTE ISLANDS

The majority of people within the region without access to electricity live in rural areas and on remote islands. These people often rely on biomass as their primary energy source. Petroleum products are also often not reliably and safely available at affordable prices in rural and remote island communities, thus reducing their potential for use in electricity generation and transportation). The goal for rural areas and remote islands is:

### **Available, reliable, affordable, and environmentally sound energy supplies for the social and economic development of rural areas and remote islands**

#### Policies

- 7.1 Assess the availability, and promote the development, of indigenous energy resources and technical capacity as a substitute for imported fuels.
- 7.2 Promote opportunities for rural energy service companies and local manufacturers to supply equipment and human resources for project design, implementation, management and maintenance.
- 7.3 Develop sustainable energy options that are appropriate for remote areas (including biomass), through an integrated approach, for electricity generation, transportation, water supply, health care, education, telecommunication, tourism, food supply and income generation
- 7.4 Establish opportunities for better access to renewable energy technologies (such as stand alone solar systems, and hybrid systems) in rural areas through the removal of barriers and constraints to sustainable rural energy sector development.
- 7.5 Encourage the application of appropriate subsidies and incentives to enable disadvantaged rural areas and remote islands access to energy supplies and electricity.

## 8. ENVIRONMENT

Energy development and use can affect the earth, air, and water both regionally and globally. There are increasingly detrimental economic and environment impacts of energy use, particularly from fossil fuels. By incorporating environmental considerations into energy sector planning, the negative environmental impacts can be lessened. On the other hand adverse impacts can be reduced through fuel substitution, renewable energy, greater efficiency, and better management, among other approaches. Assessments should also consider social, gender, environmental and economic aspects. The goal for the environment is:

### **Environmentally sustainable development of energy sources and use of energy within the region**

#### Policies

- 8.1 Promote strategic environmental assessments and full life-cycle environmental impact assessment of proposed energy supply and infrastructure policies and projects, including assessment of impacts on bio-diversity, greenhouse gas emissions, and local air quality.
- 8.2 Incorporate mechanisms in conventional and renewable energy supply and infrastructure plans for effective management and ultimate disposal of wastes during their development, operation, and decommissioning.
- 8.3 Integrate environmental regulations into all related energy-related plans, including transportation, power supply, and building codes.
- 8.4 Continue to support international action on reduction of greenhouse gases.
- 8.5 Oppose the use of nuclear energy in the region in recognition that it is inappropriate and unacceptable.
- 8.6 Promote the conservation and maintenance of native forests as natural carbon dioxide sinks.

## 9. EFFICIENCY AND CONSERVATION

In general there is a wide sectoral variation in the consumption of energy throughout the Pacific where by weighted average the greatest proportion of energy is consumed in transport sector followed by the production, transmission and distribution of electricity, and then, to a lesser degree, government, commerce, industry and agriculture. It has been well demonstrated and recognised that making energy consuming systems more efficient will lead to reduction in: costs; fossil fuel imports and greenhouse gases. Hence the development and implementation of policy initiatives in energy efficiency and conservation provides a prime opportunity to save energy and improve the long-term sustainability of the energy sector. The goal for energy efficiency and conservation is:

### **Optimised energy consumption in all sectors of the regional economy and society**

#### Policies

- 9.1 Improve the efficiency of energy production, transmission, and distribution through supply side management.
- 9.2 Introduce demand side management programmes for enhancing energy efficiency and conservation so as to reduce the energy consumption in government facilities, residential and commercial buildings, industry, agriculture and forestry.
- 9.3 Introduce minimum energy performance standards for electrical equipment, adoption of building energy codes.
- 9.4 Promote appropriate packages of incentives (including taxes, duties and tariffs) to encourage efficient energy use.
- 9.5 Encourage co-operation in energy efficiency and conservation programmes between the private sector, consumers and governments, by increasing public awareness and improving access to information.
- 9.6 Promote the process to establish regional demand side energy targets.

## 10. HUMAN AND INSTITUTIONAL CAPACITY

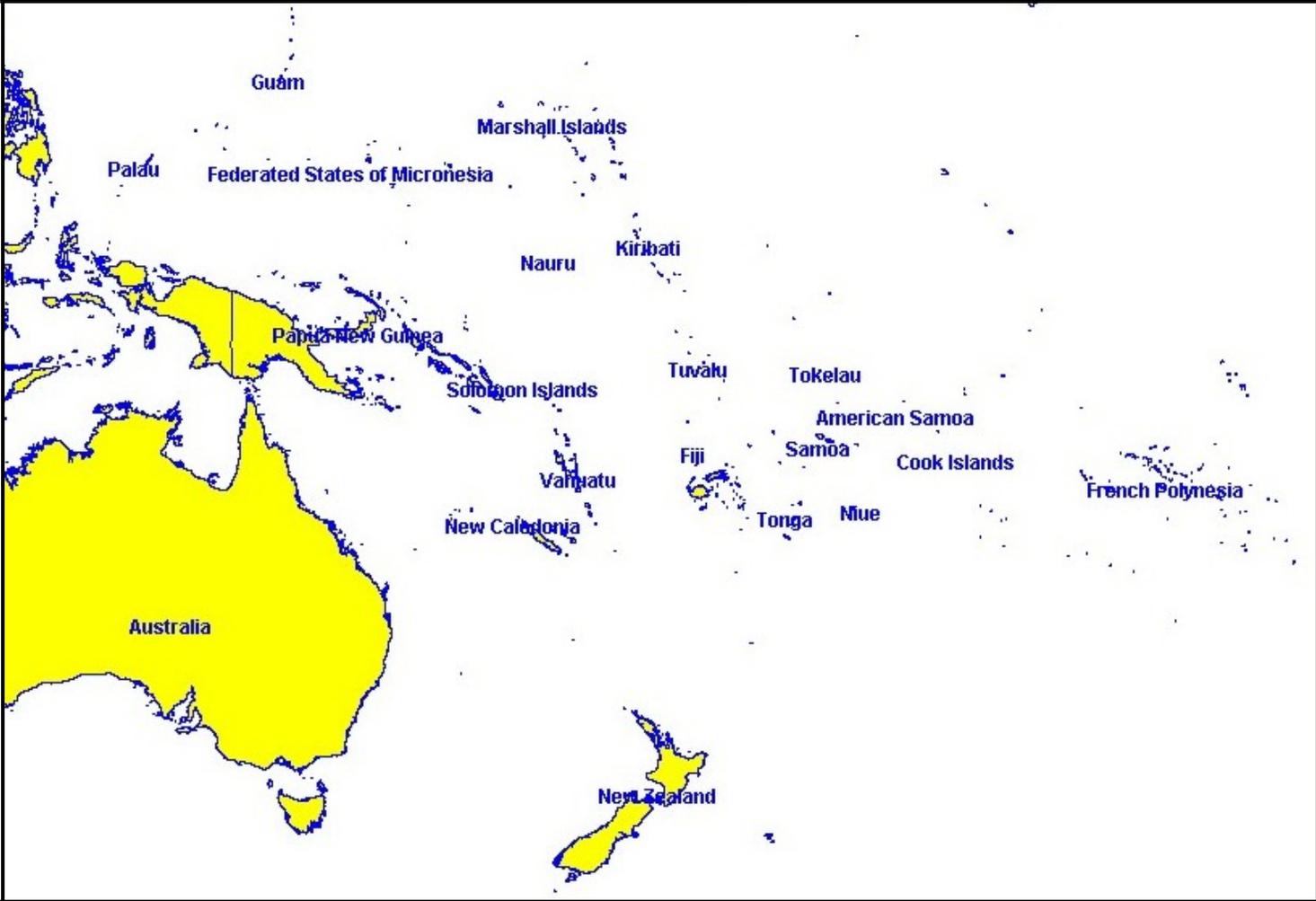
National capacity to plan and manage the energy sector must be developed to improve the region's self-reliance. Adequately trained and educated engineers, technicians, and planners are necessary to provide the region with guidance, policy support, and planning to meet long-term economic and social objectives in the energy sector. The goal for human and institutional capacity is:

### **Adequate human and institutional capacity to plan, manage, and develop the Pacific energy sector**

#### Policies

- 10.1 Provide appropriate energy-related training opportunities regionally at all educational and professional levels.
- 10.2 Promote an interdisciplinary approach to energy training and capacity building programmes that merges the physical sciences (physics, engineering, mathematics) and the social sciences (economics, management).
- 10.3 Accelerate human resource development in the power utilities in the areas of production, transmission and distribution.
- 10.4 Accelerate research and development of energy technologies that are appropriate for adoption within the region.
- 10.5 Increase training and public awareness on alternative and renewable fuels and vehicles, energy efficiency, and conservation through publicity campaigns and school curricula.
- 10.6 Develop community capacity for project planning and management of conventional and renewable energy projects.
- 10.7 Promote, develop and strengthen an enabling environment within the energy sector for all stakeholders, including non-government organisations, local communities especially youth and women, through gender mainstreaming and public awareness on energy-related gender issues.

# The Pacific Region



## **Pacific Island Countries and Territories Physical Data**

[will provide a separate file to go in here]