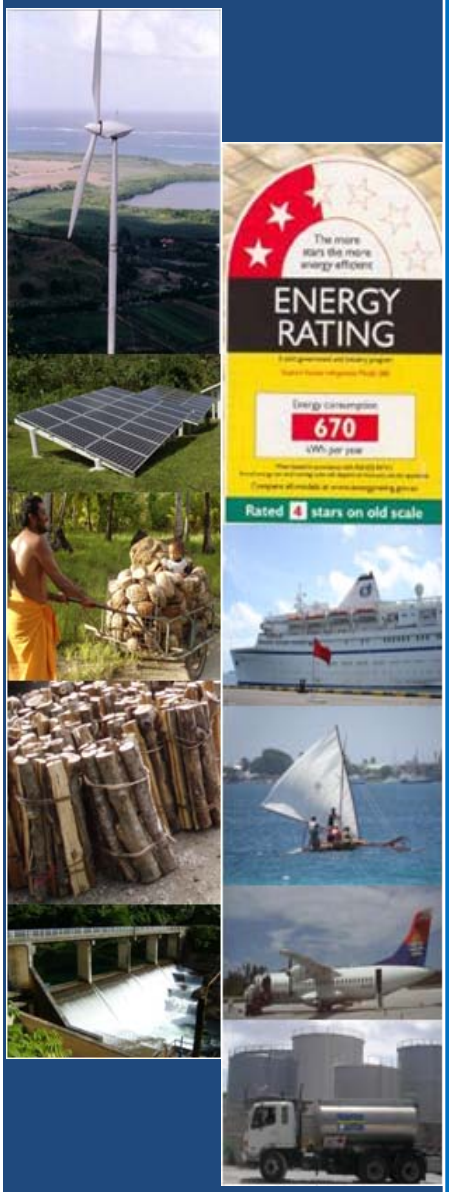

Towards an energy secure Pacific

A Framework for Action on Energy Security in the Pacific

Energy security exists when all people at all times have access to sufficient sustainable sources of clean and affordable energy and services to enhance their social and economic well-being

2010 – 2020


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The Secretariat of the Pacific Community (SPC) led the development of the framework in collaboration with the Council of Regional Organisations in the Pacific (CROP) agencies, partners and members

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SCOPE

This 'Framework for Action on Energy Security in the Pacific' (FAESP) was formulated in response to the call from Pacific Leaders at the 40th Pacific Islands Forum in Cairns (August 2009) for greater energy security.

Their words reinforced an earlier call by Pacific Ministers of Energy at their ministerial meeting in Nuku'alofa (April 2009), which recognised that energy security is an imperative for economic growth and human development. Acknowledging that Pacific economies are the most vulnerable in the world to rising oil prices, ministers stressed the urgent need to reduce this vulnerability through mainstreaming energy security into national planning and budgetary processes; improving energy efficiency and conservation; adopting financially viable renewable energy sources; and, where appropriate, taking regional and subregional approaches to petroleum procurement and coordination of regional services.

The ministers also agreed on the need to review the Pacific Islands Energy Policy (PIEP 2004) and its associated action plan and the key priority areas to be addressed. These included strengthening coordination of regional services and donor assistance, and the delivery of energy services to the region through one agency – the Secretariat of the Pacific Community (SPC) – and through one programme. In addition, ministers called for human capacity development to support national and regional energy programmes; strengthening of national capacity in collection and analysis of energy data and information; support for the regional bulk fuel procurement initiative; and facilitation of investment in sustainable renewable energy technologies, energy efficiency and energy conservation.

Pacific Island countries and territories (PICTs), together with regional and international development partners, provided input to the review of the PIEP 2004 and developed this Framework. The process was coordinated by SPC with oversight and advice from the Pacific Islands Energy Advisory Group[1] (PIEAG). **The Framework is designed to provide guidance to PICTs to enhance their national efforts to achieve energy security and, in line with the principles of the Pacific Plan, to clarify how regional services can assist countries to develop and implement their national plans**.

A separate regional *Implementation Plan for Energy Security in the Pacific* (IPESP) has been developed and was endorsed at the 2011 Inaugural Regional Meeting of Ministers for Energy, Information and Communication Technology and Transport in Noumea. The plan focuses on regional interventions that provide practical support for the implementation of national policies and plans.

DOCUMENT PREPARATION

FAESP was prepared through technical consultation and regional meetings involving representatives from PICT governments, power utilities, non-state actors and the private sector. These representatives came from: American Samoa, Commonwealth of the Northern Mariana Islands, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Guam, Kiribati, Nauru, New Caledonia, Niue, Palau, Papua New Guinea, Republic of the Marshall Islands, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, and Wallis and Futuna.

Regional partners included the International Union for Conservation of Nature (IUCN), Pacific Islands Forum Secretariat (PIFS), Pacific Power Association (PPA), Secretariat of the Pacific Community, Secretariat of the Pacific Regional Environment Programme (SPREP), SPC's Applied Geoscience and Technology Division (SOPAC) and the University of the South Pacific (USP). International and multilateral agencies included the Asian Development Bank (ADB), European Union (EU), World Bank (WB), Renewable Energy and Energy Efficiency Partnership (REEEP), and member development partners including Australia and New Zealand. The 'Energising the Pacific' development partners' working group provided a useful mechanism through

[1] The group consists of CROP agencies, IUCN, PICT representatives including utilities, non-state actors and the private sector.

which to coordinate discussion with many of the development partners above. Other development partner stakeholders came from China, Japan and Italy.

The consultative process was supported by funding made available by the Australian Agency for International Development (AusAID) and the Pacific Islands Greenhouse Gas Abatement through Renewable Energy Project (PIGGAREP) through SPREP, PPA, SOPAC and SPC.[2]

EXECUTIVE SUMMARY

Energy security depends on the availability, accessibility, affordability, stability, and uses of energy. These factors are in turn influenced by multiple sectors, groups and environments. To ensure energy security, all PICT (Pacific Island countries and territories) sectors and regional and international stakeholders need to work together.

The *Framework for Action on Energy Security in the Pacific* (FAESP) outlines a new approach to improving energy security in the region. It acknowledges that national energy policies and plans must be the principal means for achieving energy security and promotes a 'whole of sector' approach, based on the concept of 'many partners, one team'. This approach recognises that numerous stakeholders contribute to energy security in the region and accepts them as equal partners.

The Framework has 11 guiding principles:

1. The importance of leadership, transparency, decision-making and governance
2. National-led solutions supported by regional initiatives
3. A coordinated whole-of- sector approach
4. The need for sustainable livelihoods, and recognition of culture, equity and gender issues
5. The link between sources of energy (primary and secondary) and its uses, and the importance of treating energy as an integrated sector
6. Cost effective, technically proven and appropriate technological solutions
7. 'Environment friendly' energy solutions
8. Evidence-based planning – the importance of energy statistics
9. Appropriate investment in human capital
10. Many partners, one team
11. Financing, monitoring and evaluation

The framework acknowledges the primacy of national energy policies and plans as the principal means for achieving energy security in the Pacific

These principles provide the parameters within which the relevance and appropriateness of regional initiatives should be assessed. They also inform how partners should work together and with PICTs. The principles include consideration of sustainable livelihoods, climate change, and gender and cultural issues as well as the need for improved planning, capacity development and energy efficiency.

The Framework aims to support the efforts of PICTs to work towards ensuring that all their people, at all times, have access to sufficient sustainable sources of clean and affordable energy services to enhance their social and economic well-being. It also brings us closer to achieving our collective goal of an 'energy secure Pacific' and the vision for '*a region of peace, harmony, security and economic prosperity*' as outlined in the Pacific Plan.

[2] SPC engaged the services of Peter Johnston of Environmental and Energy Consultants Ltd, Fiji, to lead the review of PIEP 2004, supported by Rupeni Mario, Senior Energy Adviser (formerly with SOPAC and now with SPC) and Patricia Sachs-Cornish, Planning Adviser, SPC.

In the past, PICT energy supplies have been based on the use of petroleum fuels and indigenous sources such as hydro and biomass. Recently, new renewable energy technologies have provided other means of producing energy. However, changes in both the supply of energy (availability and accessibility) and demand (affordability), including for services, pose an increasing threat to energy security for Pacific populations.

Energy security is affected by numerous socio-economic, physical and technical factors, including population growth, GDP (gross domestic product) and affordability, while supply is affected by cost, existing generation and supply networks (power, LPG (liquefied petroleum gas), petroleum), infrastructure, technical capability to maintain supply technologies, and national policies and regulations. Other factors such as the occurrence of natural disasters also impact on energy security.

Petroleum products will remain the major source of energy for the region for a long time to come. Changes in their availability, quality and cost therefore have a significant impact on small island economies. Investment in clean and affordable energy, with a focus on renewable energy, energy efficiency and conservation, needs to be stepped up to diversify the sources of energy in the region but also to help mitigate the environmental effects of using fossil fuels. Importing higher quality, refined petroleum products may be more expensive but is likely to produce long-term economic benefits in terms of cleaner and more efficient energy. In this regard, the petroleum industry, both internal and external to the Pacific, has the potential to play an important role in improving the supply, quality and affordability of petroleum products available to PICTs.

Urgent action to develop and invest in effective clean energy programmes is necessary, both to improve the ability of PICTs to withstand and adapt to economic shocks, as well as to contribute to wider efforts on climate change mitigation and adaptation.

This Framework outlines seven themes for action to improve energy security. The themes embody the eleven guiding principles described earlier.

1. Leadership, governance, coordination and partnerships
2. Capacity development, planning, policy and regulatory frameworks
3. Energy production and supply
4. Energy conversion
5. End-use energy consumption
6. Energy data and information
7. Financing, monitoring and evaluation

Theme 1 – *Leadership, governance, coordination and partnerships* recognises that working in isolation will not achieve energy security. Nor can the energy sector alone improve the accessibility and security of energy supply and services. Led by government, all sectors and agencies play a role in moving towards energy security. Important partners include the private sector, in particular the petroleum industry in each PICT; power utilities; transport; trade; planning and finance; civil society stakeholders; regional and international agencies; and development/donor partners. This theme emphasises the importance of leadership and team work, and suggests ways in which stakeholders can cooperate to build strong national and regional partnerships to face current and future challenges in meeting energy requirements. It is intended to provide a vehicle through which all partners can engage effectively in overcoming coordination, communication and resource issues.

Theme 2 – *Capacity development, planning, policy and regulatory frameworks* recognises the importance of proper planning and of having a clear vision with a strong and effective policy and regulatory framework to create an environment that is conducive to achieving an energy secure Pacific. Compliance with regulatory frameworks by energy providers and end-users is essential. A strong human resource development plan is necessary to address the capacity constraints identified in the framework. The accessibility and security of

energy supplies and services must be enhanced to assure reliable and affordable energy is available to consumers.

Theme 3 – *Energy production and supply* recognises that petroleum fuel is the primary source of commercial energy in the region, with an increasing contribution coming from renewable sources such as geothermal, hydro, solar and wind energy. However, the majority of rural populations in many PICTs still rely on wood fuel as their primary source of energy. Energy security will be improved when the availability, accessibility, affordability, stability and security of local sources are sustained. Similarly, proper management of the various sources of imported energy is crucial to achieving an energy secure Pacific. Energy security means having sufficient and sustainable sources of clean and affordable energy at all times. It involves diversifying energy sources and adopting an optimum combination of imported and indigenous energy sources.

Theme 4 – *Energy conversion* recognises electric power as a significant secondary source of energy. It also acknowledges the importance of efficient and reliable generation, distribution and transmission of electricity, and its accessibility, particularly for rural areas and remote islands. In this case, energy security involves efficient transformation of energy from one form to another.

Theme 5 – *End-use energy consumption* recognises the importance of productive utilisation of energy, particularly in transport, and the need for energy efficiency and conservation including standards and appliance labelling and, building codes.

Theme 6 – *Energy data and information* recognises the need for robust, timely and accurate energy information. In a region as diverse and vulnerable as the Pacific, there is a need for greater transparency and sharing of energy statistics and data to enhance planning. Often, information is available that could be used to improve energy security, but this knowledge is not shared or linked with other information in useful ways. This framework proposes establishing a regional data repository, building a common set of energy indicators to enable monitoring and evaluation of energy sector activities, and a method for wide and timely collection and dissemination of data and information. Measures of energy access and security could eventually feed into useful economic growth indicators for PICTs.

Theme 7 – *Financing, monitoring and evaluation* recognises the importance of ensuring a coordinated approach to financing the energy sector and of having a robust monitoring and evaluation (M&E) framework to measure performance across the whole sector against agreed milestones at both national and regional levels.

The Framework differentiates between actions that are the responsibility of national governments and those that are the responsibility of regional organisations. To achieve an energy secure Pacific, many of the gains in the energy sector need to be made at the national level, under strong national leadership. Regional initiatives and interventions should help PICTs improve economies of scale in areas that individual countries and territories cannot effectively address, and should supplement, enhance and add value to national capacity.

PART 1 CONTEXT OF ENERGY IN THE PACIFIC ISLANDS

BACKGROUND

Energy security is fundamental to achieving the social and economic development aspirations stated in the Pacific Plan. Energy underpins all aspect of socio-economic development ranging from production, storage and transport to health, education and the sustenance of livelihoods. Without energy, there can be no sustainable Pacific communities. However, PICT capacity to achieve energy security is complicated by the unique geographical characteristics of the Pacific Island region, with small countries and territories dispersed over an area of ocean approximately four times the size of China. In addition, small populations and extremely narrow economic bases work against economies of scale. This is a region where immense distances translate to extremely high unit costs for services and goods, including those relating to the petroleum products that PICTs rely on for much of their energy. National and regional policies on energy and the environment need to acknowledge the cross-cutting nature of energy and to mobilise the involvement of stakeholders outside the sector as part of the solution to achieving an energy secure Pacific.

ENERGY SECURITY IS A CRITICAL DEVELOPMENT ISSUE

Energy security has many links with social and economic development and must therefore be integrated into the development agenda. Economic growth in the Pacific requires that all sectors of society, especially vulnerable groups, enjoy energy security.

Extremely high reliance on imported petroleum fuels for electric power generation and transportation, the high upfront cost of investment in renewable energy technologies, and the near absence of a 'people-focused' strategic vision for energy development at national and regional levels are placing Pacific populations at greater risk of poverty. Increasing poverty has flow-on effects on education and health and ultimately on the socio-economic development and security of PICTs.

Drivers of economic growth such as agriculture, fisheries, forestry, transportation, information and communication technologies, infrastructure development, manufacturing, tourism and hospitality, and other service sectors are dependent on the energy sector for productivity. The Pacific cannot afford the economic, social, political, educational and health-related consequences of energy insecurity.

CALL FOR ACTION

Energy security underpins the Pacific Plan vision of 'a *region of peace, harmony, security and economic prosperity, so that all of its people can lead free and worthwhile lives….'*

Since 2007, Pacific Forum Leaders, Forum Economic Ministers, and Pacific Ministers of Energy have called for effective and appropriate 'Pacific approaches and solutions' to addressing the energy challenges in the region. More specifically, Pacific Ministers of Energy called for a review of the Pacific Islands Energy Policy (PIEP 2004) and its associated action plan; strengthening of regional and donor coordination; and enhancing of delivery of energy services to members through one energy agency and one programme.

Against this background, SPC has engaged with experts in energy from PICTs (power utilities, government stakeholders, planning and finance departments), regional and international agencies, and bilateral and multi-lateral development partners to develop this framework.

ENERGY IN THE PACIFIC ISLANDS

The Asian Development Bank (ADB) study conducted in October 2009 for the period 1990–2006[3] provides the most recent overview of energy supply and consumption in PICTs. According to the study, total energy supply – fossil fuels and local sources such as hydro power and biomass – grew at a rate of 3.8% per year, as summarised in Figure 1 below. For 2006, ADB estimated that fossil fuel made up 85% of the total supply, with oil alone contributing 76%. Biomass sources, shown as 'other' below, were estimated to account for only 10.6% of the region's supply. This is probably a substantial underestimate, in part because very limited measurements of biomass energy use have been made since the 1980s. The 1992 World Bank/UN-led Pacific Regional Energy Assessment (PREA), for instance, estimated biomass as providing 50% of the total supply.

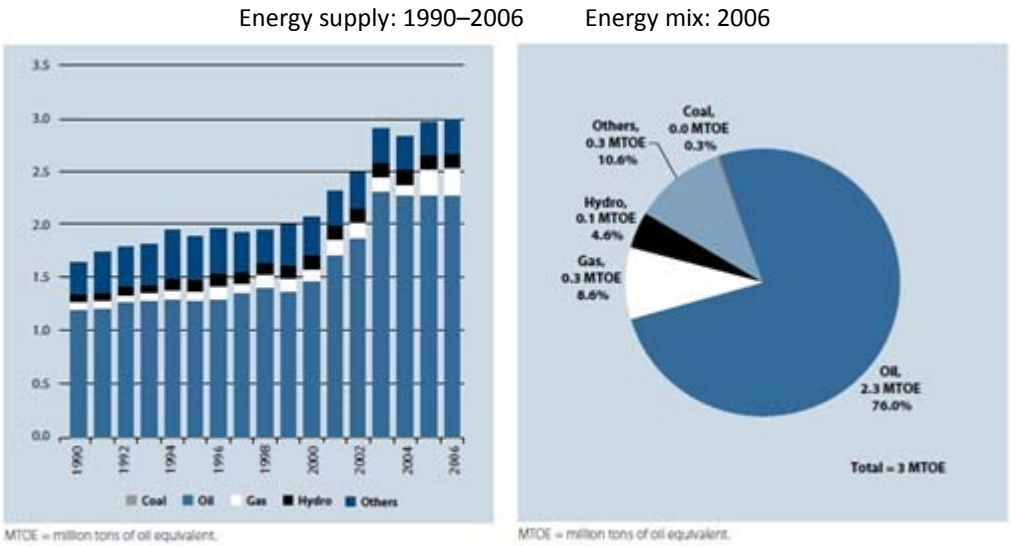

Figure 1: Primary energy supply and mix in Pacific Island countries. (Note: ADB included Timor-Leste as a Pacific Island country but no Pacific territories were included.)

For commercially traded energy (mainly fossil fuels and hydro power), fossil fuels accounted for 95% of the total Pacific Island energy supply in 2006. PICTs vary enormously in size, population, economic structure and the availability of indigenous energy resources. The regional summary above presents a somewhat distorted picture because two countries alone, Papua New Guinea (PNG) and Fiji, account for about 80% of energy supply and final consumption, for both total energy and petroleum only, with PNG at 60% and Fiji at 20%. If PNG and Fiji are excluded, the average energy consumption for other countries grew at 1.2% per year, or about one-third of the average regional rate. Excluding PNG and Fiji, petroleum fuels accounted for almost 99% of commercial energy use in other PICTs. These fuel dependency rates are extremely high when compared with fuel dependency rates of 45% for the Asia/Pacific region overall and about 34% globally.

Although reliable data on energy use in the region are difficult to obtain, the following are indicative of the magnitude of the challenge facing the region:

- Transport accounts for the largest percentage of petroleum use in PICTs – about 42% in PNG, 54% in Fiji, and 75% on average for others;
- Electricity generation typically accounts for 20% or more of PICT petroleum consumption;
- Around 30% of Pacific Island people have access to electricity, ranging from less than 25% in some countries (PNG, Solomon Islands and Vanuatu) to over 95% in others (Cook Islands, Guam, Nauru, Niue, Northern Mariana Islands, Samoa, Tonga, Tokelau and Tuvalu);
- Half or more of the region's energy use is probably based on traditional biomass, with well over half of households relying on it as a primary source of household energy;

[3] Energy Statistics in Asia and the Pacific (1990–2006), ADB, 2009.

- The increase in the price of petroleum from 2002 to early 2008 cost most PICTs about 10% of their gross national incomes, with impacts falling disproportionately on those with low incomes.[4]

ENERGY SECURITY IN THE PACIFIC

Energy security matters because it affects the economy, public health and safety and the environment, and is central to socio-economic development and to everyday life in PICTs. It underpins national infrastructure services, including water, transportation, electronic and telecommunication systems.

Threats to PICT energy security arise from the interaction of a multitude of factors including: for some PICTs, fast growing populations without economies to match; remoteness and distances from main centres and supply chain pathways; vulnerability of energy infrastructure to natural disasters such as cyclones, earthquakes, flooding and tsunamis; inability to take advantage of economies of scale due to small populations and limited industrial activity; old and poorly maintained energy infrastructure, such as electricity generation, transmission and distribution systems; lack of technical and safety standards for energy supply, conversion and consumption systems; pricing policies that do not encourage investment in maintenance; inadequate understanding of the potential of locally available renewable energy sources; and too few examples of successful renewable energy and energy efficiency/conservation initiatives.

Petroleum products will remain a major source of energy for the region for a long time to come. Their availability and cost is therefore very significant for small island economies. Investment in clean and affordable energy, such as renewable energy, can diversify the sources of energy in the region. Equally, investment in energy efficiency and conservation is needed to optimise the utilisation of available energy and help mitigate the environmental effects of fossil fuel use. These actions are also important in strengthening PICTs' resilience to economic shocks.

The petroleum industry, both internal and external to the Pacific, has the potential to play an important role in improving the supply, quality and affordability of petroleum products available to PICTs. Imports of cheaper petroleum products, while more affordable in the short term, are more damaging to the environment in the longer term.

Energy costs and lack of infrastructure to support sustainable livelihoods are already barriers to socio-economic development in PICTs. The near total reliance on imported fuel in almost all PICTs heightens the Pacific's susceptibility to fuel price rises. After recent steep increases, prices have levelled out and to some extent declined, but real fuel prices are typically higher than they were three to four years ago, even after accounting for inflation. Thus, many people are faced with higher energy prices in the midst of a global economic slowdown.

Real GDP growth rates are forecast to remain low or negative in most countries because of weak to moderate economic performance. The near total reliance on petroleum fuels in almost all PICTs (with the exception of PNG and Fiji, which are still highly reliant by global standards) is of concern, especially for smaller island states where there are higher levels of vulnerability. Any increase in petroleum fuel prices is likely to impact negatively on energy security and further increase the hardship of poor and low-income households. This is significant as almost one-third of the total Pacific population lives below national poverty lines.

Regulating the quality, supply and distribution of energy sources and energy use is a challenge for the Pacific. Much needs to be done to put in place regulatory frameworks that are conducive to the sustainable provision of clean and affordable energy.

[4] This estimate is from Living with High Prices: A Policy Brief (ADB, 2008). Other sources are PIREP Regional Overview Report (SPREP, 2005) and Energy Statistics in Asia and the Pacific (1990–2006) (ADB, 2009).

MODEL FOR ENERGY SECURITY IN THE PACIFIC

Figure 2 below provides a conceptual model of energy security in the Pacific. Energy security depends on the availability of energy; accessibility; affordability; stability; and uses. These factors are in turn influenced by multiple sectors, groups and environments. To ensure energy security, all PICT sectors and regional and international stakeholders need to work together.

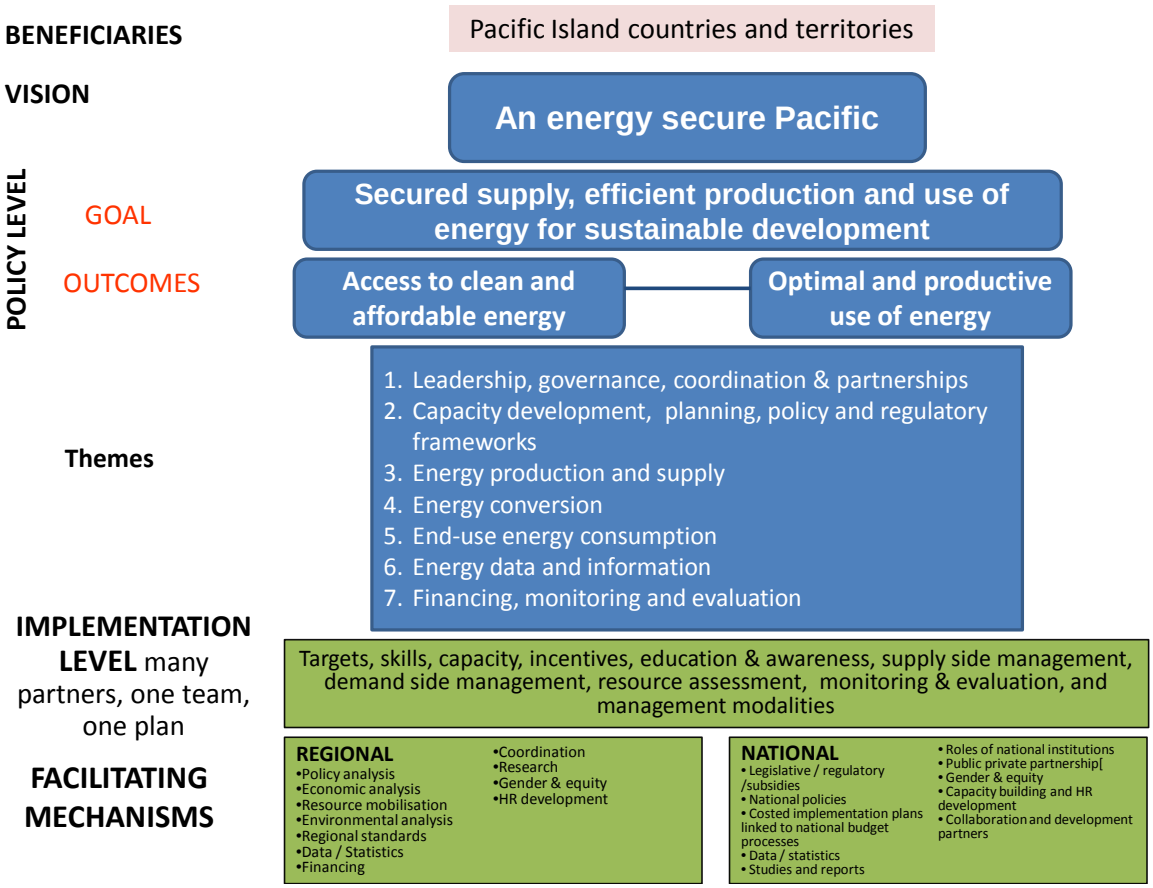

Figure 2: Conceptual model of energy security in the Pacific

FRAMEWORK FOR ACTION ON ENERGY SECURITY IN THE PACIFIC

VISION

An energy secure Pacific

GOAL

Secured supply, efficient production and use of energy for sustainable development

OUTCOMES

i. Access to clean and affordable energy
ii. Optimal and productive use of energy

GUIDING PRINCIPLES

1. Leadership, transparency, decision-making and governance

The bulk of energy in the region, whether in the electrical, transport, farming or forestry sectors, is provided by the private sector. As energy is a key driver of socio-economic development, leadership at the highest level, both nationally and regionally, is crucial to putting in place plans that will achieve energy security for PICTs in the long term. In addition, transparent decision-making, clear governance mechanisms and linkages to national budget processes will help ensure effective implementation of sustainable energy initiatives in PICTs. The role of the private sector should also be recognised and defined within a clear and transparent regulatory framework.

2. National-led solutions supported by regional initiatives

To be effective and sustainable, energy solutions have to be enacted at the national level. This is an area, however, where strategic regional cooperation and to some extent regional coordination can add value to national-level solutions and development outcomes. There will be an appropriate balance between regional and in-country work to improve the understanding of issues, and opportunities and constraints on delivery of effective energy services at country level. In-country efforts will be tailored to the needs of individual PICTs, with special attention paid to the needs of smaller island states. Where of practical use, studies of regional issues will be developed or commissioned and shared with PICTs.

3. Coordinated whole-of-sector approach

Within countries, ensuring energy security requires a coordinated whole-of-sector approach. High-level policy support and the engagement of government sectors such as energy, finance, planning and environment, transport, infrastructure and communication, are required. Industry stakeholders, including all those involved in the provision of energy and energy services, also need to be engaged. In addition to energy plans being based on a whole-of-sector approach, they should be time bound, realistic, measurable and costed. The starting point for energy planning should be the demand for energy services. Regionally, cooperation is essential to ensure a harmonised approach to establishing standards and regional energy security policies and to facilitating trade in petroleum products. PICT energy security can be enhanced through partnerships between island nations, while regional cooperation can address challenges such as energy security policies, trade and investment promotion, research and development, and capacity building.

4. Need for sustainable livelihoods, and recognition of culture, equity and gender issues

Interventions must address inequities in access. They should consider specific gender and cultural needs, and support efforts to reduce poverty within and across countries and territories, based on facilitating

access to adequate, reliable and affordable energy sources and services at all times by all people to sustain their livelihoods.

5. Link between sources of energy (primary and secondary), energy services and uses

An understanding, and delineation of the sources and uses of energy based on a 'commodity chain pathway' approach could lead to a more strategic approach to categorising components of the energy sector and provide greater clarity on inherent challenges and potential solutions. A major impediment to developing solutions is the way in which various aspects of energy, including petroleum, renewable energy (primary energy sources), power (secondary energy source), transport use and energy efficiency and conservation (end-use), are grouped together. Under a commodity chain pathway approach, these aspects of energy can be put into three categories: (i) primary sources and production of energy – petroleum and alternative liquid fuels and renewable energy including supply-side and demand-side; (ii) secondary source of energy or energy conversion – electric power including supply-side and demand-side; and (iii) end-use energy consumption – efficient and productive uses of energy in the transport sector, in particular, but also including households, agriculture, commercial and industrial sectors. The pathway is depicted in Figure 3 below.

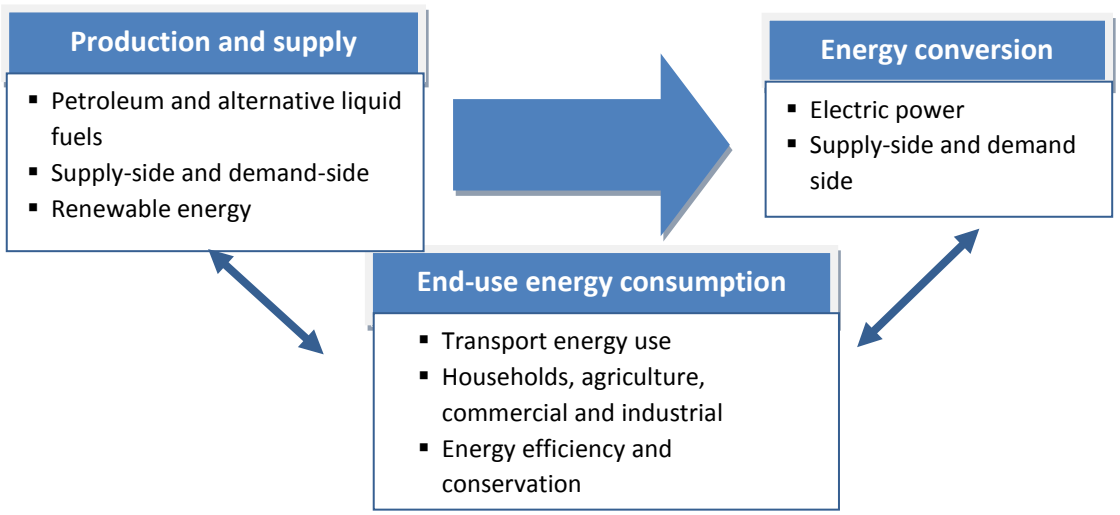

Figure 3: Schematic representation of an energy commodity chain pathway

6. Cost-effective, technically proven and appropriate technological solutions

Energy technologies should be considered when they have been proven in environments similar to those of PICTs. All assessments of proposed investments (whether grant, loan or internally financed) will include assessments of economic and financial viability and social and environmental implications, thus giving PICTs and end users a realistic picture of likely overall benefits and costs. Energy efficiency benefits should be seen as a starting point. Serious efforts will be made to develop practical and effective financial mechanisms for energy.

7. 'Environment friendly' energy solutions

While the region's dependence on petroleum fuels will continue into the future, efforts will be made to adopt strategies that minimise harmful effects on the environment through systematic investment in cleaner fuels, renewable energy technologies, and energy efficiency and conservation. Support to PICTs will respect and protect the region's biodiversity and natural ecosystems. Any advice on energy investments should consider climate change issues such as adaptation, greenhouse gas (GHG) reduction, and where possible, the clean development mechanism (CDM) or other carbon credit/carbon offset benefits. The social, economic and environmental impacts of all proposals or initiatives will be considered. Where there are likely to be negative impacts on biodiversity or land, water or air quality, remedial action will be incorporated. Mechanisms will be developed to improve the likelihood of long-term sustainable operation, to minimise pollutants and waste, and to reduce GHG emissions per unit of energy produced.

8. Evidence-based planning – the importance of energy statistics

Lack of energy statistics at all levels undermines effective planning by PICTs. Accurate, timely and accessible energy data and information are essential for effective decision-making on short and long-term investments in energy solutions. It is common knowledge that energy statistics are guarded for commercial reasons in some quarters. The emphasis will be on working closely with the private sector to improve the availability of timely and accurate energy data, with a view to achieving a 'win-win' solution. Expertise will be sought to assist in the collation and analysis of data, development of minimum development energy indicators, and reporting of energy statistics and information to enhance evidence-based decision-making, particularly in areas such as the true cost of energy (especially of electricity and petroleum fuels), energy imports, energy resources, production and end-use consumption.

9. Appropriate investment in human capital

Effective planning and strategic management of the energy sector at national and regional levels require high-caliber technical expertise, with support from teams of dedicated staff with the appropriate level and mix of skills to deliver services to end-users. Investment is needed to build the capacity of people at various levels, both within and outside the energy sector, to gain the skills needed for planning, management and implementation of national energy plans. The aim is to strengthen the human resource capacity of a range of public and private institutions, including academic and training establishments.

10. Many partners, one team

There are many partners and stakeholders in the energy sector. All have excellent aims with objectives that are primarily aligned to national needs. It is intended that the 'many partners, one team' approach will be a collaborative response to national priority needs and plans. That is, all partners will need to work as one team to implement this framework. This regional arrangement will not affect bilateral and national-level arrangements.

11. Financing, monitoring and evaluation

International and regional commitments to aid effectiveness, which seek better alignment of development assistance (e.g. the Cairns Compact and Accra Agenda for Action), provide the platform for a new approach to financing the energy sector. The principle of one implementation plan, coordinated financing (primarily around national plans and initiatives), and one monitoring and evaluation (M&E) framework are the foundation for the 'many partners, one team' approach. The M&E framework will be closely linked to relevant implementation and financing plans.

NATIONAL AND REGIONAL RESPONSIBILITIES

As far as practical, this Framework will identify which types of issues should be addressed primarily at a regional (or multiple country) level, which ones are a national responsibility, and which ones are probably best addressed through a combination of national and regional approaches. PICTs vary greatly in size, resources and capacities, and therefore regional approaches – in line with the principles underpinning the Pacific Plan – must be flexible and capable of adapting to changing needs and priorities.

National responsibilities

To achieve an energy secure Pacific, many of the gains in the energy sector need to be made at the national level, under strong national leadership. Regional approaches can only supplement or add value to national initiatives. Below are examples of the types of responsibilities that need to be led at the national level, noting that not all apply to all PICTs and that some PICTs may require regional support from time to time in addressing some areas.

1. Energy policies and implementation plans

PICTs are responsible for ensuring that energy considerations are included in national policies and plans and that energy policies/plans are consistent with and mainstreamed into national development plans and budget processes. Regional programmes can support policy and plan development, but determination of specific national goals, integration into national budget processes, finalisation and endorsement by national authorities are all local responsibilities.

2. Roles and responsibilities of national energy sector institutions

Relevant institutions include government ministries/departments/offices, petroleum price monitoring authorities, power utilities, renewable energy service companies (RESCOs), energy efficiency service companies (EESCOs), and energy service companies (ESCOs). Adequate staffing levels and conditions for government staff and government-owned energy enterprises, and adequate resourcing of national institutions for ongoing support of energy sector planning and implementation, are core national responsibilities.

3. Energy pricing, subsidies, legislation and regulation

Energy pricing is a national responsibility, as is the regulation of energy services and enactment of appropriate legislation. National authorities should ensure that energy prices cover the true cost of services, whether entirely through charges to the user or through charges plus subsidies. Subsidies (including cross-subsidies) should be transparent and carefully targeted.

4. Energy data and information

Collecting the data required for energy analyses and decisions, and making it available to analysts (within the constraints imposed by statistical regulations), are national responsibilities. PICTs should make resources available for the routine collection of data, including resourcing institutions that carry out this task. PICTs should also regularly inform the lead coordinating agency (or whichever regional mechanism is established) of the status of national initiatives such as project M&E results, and of pending legislative or regulatory changes.

5. Energy studies and technical reports

Studies and technical reports prepared through regional assistance require PICT commitment to providing the necessary information on national experiences. PICTs are responsible for implementing M&E mechanisms to generate the data and information needed.

6. Relationships between the government and private-sector energy service providers

The private sector plays a huge role in the production and supply of energy in PICTs and must be involved in the planning and implementation of energy solutions in PICTs. Development and enforcement of legal frameworks aimed at improving delivery of energy services (e.g. arrangements for independent power production, power purchase agreements, supportive legislation and regulations) are national responsibilities.

7. Capacity development and human resource

Each PICT is responsible for prioritising its human resource needs and for developing and maintaining national capacity in the energy sector.

8. Priorities for technical assistance

Countries are responsible for clearly prioritising energy assistance needs and keeping development partners informed of any changes in their priorities. PICTs also have a role in coordinating broader assistance (including investment) at the national level. A comprehensive and practical energy sector policy and plan will assist in prioritisation.

9. Collaboration with development partners

PICTs are accountable for the proper use of external assistance and for ensuring that commitments made to development partners are met to the best of their ability (such as sustainable operation and maintenance of energy installations, effective project M&E, agreed levels of fees for end-users, and retention of trained staff for an agreed period of time).

Regional responsibilities

Regional initiatives should help PICTs improve economies of scale and also provide support in other areas that individual countries and territories cannot effectively address. Regional initiatives/interventions should supplement, enhance and add value to national capacity. Below are examples of the types of initiatives that could be coordinated /implemented at the regional level.

1. Economies of scale

Issues, opportunities and constraints for improving petroleum supply arrangements at regional, subregional and, in some cases, national levels can be assessed. Assistance can be provided to individual PICTs or groups of PICTs to develop and implement improved arrangements such as bulk purchase, with relevant advice on wholesale and retail pricing. Regional initiatives and interventions should also help PICTs in areas that individual countries and territories cannot effectively address, and should supplement, enhance and add value to national capacity.

2. Development and synchronisation of standards across the region

Assistance can be provided for developing regional or subregional technical standards for a range of energy technologies, such as biofuel and photovoltaic (PV) systems; fuel storage and handling; and energy efficiency (e.g. in lighting, refrigeration and air-conditioning). Support can also be provided for developing appliance labelling, testing and monitoring services for implementation of agreed standards, along with assistance on implementing the standards.

3. Regional leadership, strategic engagement and advocacy

Assistance can be provided for mobilising resources for the region and for individual PICTs to support implementation of regional and national energy polices and plans. Funding made available through this process would be in keeping with the priorities identified in this Framework and national implementation plans.

4. Capacity development/supplementation and skills transfer

Where practical, energy sector educational and training services can be provided at a sub-regional or multi-country level. This training should be supported regionally and should be of an appropriate standard for Pacific conditions. In general, finance should be made available for scholarships and other programmes for training Pacific Islanders at both sub-degree and degree level in technical, management and policy aspects of energy.

5. *Policy analysis, research and development*

There should be regular dialogue with each PICT on national issues and priorities and regular progress reporting. Most research on energy technologies will be undertaken outside the region. However, there are opportunities for practical, applied R&D that should be supported regionally. Regional tertiary institutes should collaborate with international partners to research and develop technologies that are appropriate and practical for the region. Efforts should also be made to develop a Pacific-specific energy research programme. Work at the regional level could provide practical analytical support to PICTs in a range of technical and policy areas such as (a) the status of new and rapidly developing technologies (sea wave, ocean thermal, biofuel) and their applicability to the region and to individual PICTs; (b) case studies on experiences with energy sector administration and management approaches (renewable energy cooperatives and companies, renewable energy service companies, and energy efficiency service companies); (c) petroleum contracting and financing mechanisms for expanding practical renewable energy or energy efficiency labelling and standards efforts; and (d) the potential for carbon credits/carbon trading in the Pacific.

6. *Systems for data collection, analysis, reporting and information dissemination*

Suitable mechanisms (regional and national) for energy sector data and information collection, consolidation, validation and management can be developed as required to support effective decision-making. Data on renewable energy resources (solar, wind, wave, ocean thermal), supply and demand should be assessed and made available in a useful form, and stored in a regional repository for policy makers and prospective developers.

PART 2 THEMES FOR ACTION TO IMPROVE ENERGY SECURITY

The successful implementation of the Framework will primarily occur at the national level, and will depend on the support and commitment of PICTs, development partners and other stakeholders. Seven themes for action have been established to assist PICTs in their national planning and implementation of efforts to achieve an energy secure Pacific, consistent with the national and regional responsibilities outlined in Part 1. The seven themes are:

1. Leadership, governance, coordination and partnerships
2. Capacity development, planning, policy and regulatory frameworks
3. Energy production and supply
   - 3.1 Petroleum and alternative liquid fuels
   - 3.2 Renewable energy
4. Energy conversion
   - 4.1 Electric power
5. End-use energy consumption
   - 5.1 Transport energy use
   - 5.2 Energy efficiency and conservation
6. Energy data and information
7. Financing, monitoring and evaluation

This regional framework is designed to guide national policies and implementation plans. It acknowledges that the sovereignty of PICTs is paramount and does not override the decisions of countries and territories

Each theme is described in detail below with a rationale, expected outcome, long-term objective(s) and key priorities that will contribute to achieving the vision and goals of the Framework.

THEME 1: LEADERSHIP, GOVERNANCE, COORDINATION AND PARTNERSHIPS

Expected outcome:
Strong leadership, good governance, effective multi-sectoral coordination and partnerships for an energy secure Pacific

1.1 Rationale

The region's prospects for sustainable socio-economic development depend on the availability and accessibility of affordable energy. Much of the energy for power or transportation is currently derived from petroleum fuels, with increasing amounts coming from renewable energy technologies and alternative fuels.

Coordination among PICTs, regional agencies and development partners/donors has been identified by both Pacific energy ministers and leaders as an area requiring improvement. For the 2010–2015 period, a preliminary estimate indicates that over US $300 million in grant aid for the energy sector has been allocated by development partners to PICTs, with considerably more expected through loan finance. As energy costs are likely to grow as a percentage of both imports and exports, energy security will remain a key concern and a priority area for governments and development partners for years to come. Better coordination and integration within CROP (Council of Regional Organisations in the Pacific) and non-CROP agencies, and with development agencies are necessary to ensure a collaborative approach to energy sector support and more effective use of private and government investments, including grant and loan finance. This coordination requires good leadership at the regional level.

Pacific leaders have resolved that regional and donor coordination and delivery of energy services to PICTs should be strengthened and delivered through one lead coordinating agency (SPC) and one regional framework and implementation plan.

Previously, those working in the Pacific energy sector have tended to disregard a key guiding principle of this framework: that different aspects of energy development (e.g. petroleum supply, electricity provision, renewable energy, fuel pricing, and energy efficiency) are interconnected concerns that should be addressed in a unified manner, rather than being treated separately. Therefore, an important feature of improved coordination and cooperation will be to break down the 'silo' approach in which experts work in professional isolation and focus on one technical approach to an issue, ignoring other linkages.

1.2 Long-term objective

A regional implementation plan (involving all key energy-sector stakeholders) that is established and implemented in an effective and coordinated manner to achieve greater energy security.

1.3 Key priorities

i. Regional and subregional coordination.
ii. Commitment of development partners to energy sector development.
iii. Regional and subregional energy initiatives and other programmes relating to climate change, gender issues, socio-economic issues and health.
iv. Strategic engagement with international organisations.

THEME 2: CAPACITY DEVELOPMENT, PLANNING, POLICY AND REGULATORY FRAMEWORKS

Expected outcome:
Strengthened capacity, policy, planning and regulatory frameworks to support coordinated development of the energy sector

2.1 Rationale

Regional capacity development programmes need to be well coordinated and designed to address national capacity constraints. Currently, many educational and training programmes in the energy sector are provided at a sub-regional or multi-country level as part of specific projects, with the training ceasing as the projects conclude. There is a need to involve training institutions to provide training that addresses the specific skill requirements in the energy sector. This can be addressed through a strong human resource development plan for the sector.

Over the past five years, most PICTs have developed national energy policies and some have implementation plans in place. These are generally consistent with broad national development strategies and are a considerable improvement over earlier efforts. However, implementation plans, where these exist, are seldom linked to the national budget process or to sources of finance. Priorities are often not clearly identified, nor are measurable outcomes, timescales, or practical means of fulfilling policy outcomes (e.g. achieving renewable energy targets or increasing access to energy services). Legislation, guidelines, regulations and other administrative and legal tools necessary to implement policies tend to be weak and are not always addressed in energy sector planning. In a few cases, some aspects of energy and climate change policies are inconsistent.

Most PICT energy policies and plans do not consider the role of the private sector in improving energy services. As reviews of national development planning required under the Cairns Compact take place (along with strengthening of public expenditure management, accountability and monitoring), some national energy policies and plans may need to be revised.

At the regional level, policies, strategies and annual work plans of individual organisations with an energy mandate or significant energy sector involvement had no clear link to the earlier Pacific Islands Energy Policy (PIEP 2004) or Pacific Islands Energy Strategic Action Plan (PIESAP). Often, these were only consulted for the purpose of reporting on progress to regional meetings of energy officials and ministers but were not used as day-to-day working documents to guide activities or priorities. The decision taken by Pacific Energy Ministers and endorsed by Forum Leaders to strengthen the coordination of delivery of energy services through one agency, SPC, will help ensure that all future energy initiatives/activities are monitored against this framework and its associated implementation plan.

2.2 Long-term objectives

i. Determination of the best practical mix of energy options tailored to respective PICTs as a basis for regional and national intervention strategies and resulting financing mechanisms.
ii. Enhancement of supportive policies and legislative frameworks, regulations and other legal and administrative tools necessary for effective management of the region's energy sector.

2.3 Key priorities

i. Policies and implementation plans/roadmaps, and M&E frameworks.
ii. Regulations, legislation and other administrative and legal tools.
iii. Human and institutional capacity development.

THEME 3: ENERGY PRODUCTION AND SUPPLY

Expected outcome:
Increased sustainability of current sources of energy and strengthened efforts to explore other sources of clean and affordable energy nationally and regionally

3.1 Petroleum and alternative liquid fuels

3.1.1 Rationale

Oil is the lifeblood of the global economy and PICTs are the most petroleum dependent countries and territories in the world, with oil accounting for 95–99% of national commercial energy use. It is difficult to overestimate the importance of petroleum, the need for secure supplies and the impacts on the region of high oil prices. In 2007, UNDP assessed the vulnerability of 24 Asia/Pacific countries to rising oil prices. Six of the seven most vulnerable were island states. In 2008, the International Monetary Fund (IMF) calculated that several Pacific Island countries could fully deplete their foreign exchange reserves in a matter of weeks if prices remained high.

Refined petroleum fuels are expensive in the region due to low volumes, small markets and varying fuel standards, long supply chains and the limited negotiating strength of individual island countries and territories. Prices are volatile and price monitoring and contract administration may be weak. Necessary infrastructure and inter-island transport are often inadequate and sometimes unsafe.

Opportunities to increase economies of scale through regional or subregional pooling of fuel requirements are currently being pursued by the region as an option for keeping costs down. However, fuel standards and supply contractual issues have to be harmonised across the region to enable such approaches.

Locally produced biofuel is limited in smaller island states to mainly coconut-derived fuels. If biofuel projects are poorly conceived and developed, they can have serious impacts on food security and the environment. There are prospects for reducing petroleum imports through use of local substitutes, but the

region will remain heavily dependent on oil for the foreseeable future. It is therefore vital to improve supply arrangements and efficiency of use. This may not be easy as the major oil companies have been disengaging from, rather than entering the region.

Some analysts predict that global oil production will peak within a few years, followed in the long term by serious supply constraints and consistently high prices – an argument for preparing for an eventual transition from petroleum.

3.1.2 Long-term objective

Reliable (sustainable) supply, safe transportation, and the infrastructure required to store and distribute high-quality, affordable and accessible petroleum fuels (and feasible liquid fuel alternatives) and their efficient use in all PICTs.

3.1.3 Key priorities

i. Harmonised fuel (petroleum and alternatives) standards.
ii. Pacific petroleum project.
iii. Fuel supply and storage arrangements
iv. Alternatives to petroleum fuels for electricity generation and transport

3.2 Renewable energy

3.2.1 Rationale

Renewable energy is an important part of efforts to reduce and complement fuel imports and increase energy security. Practical renewable energy options vary for each PICT and are being pursued with different levels of success. Other than biomass (and hydro power in some PICTs), renewable energy has contributed little thus far to overall energy production, although solar photovoltaic systems are increasingly used for rural electrification in some PICTs and make a small contribution to some electricity grids. A number of PICTs have established targets for renewable energy as a percentage of total energy production by a specified year, but these are not well-linked to available indigenous energy resources, expected costs of development and operation, local training needs, net benefits, budgetary needs, or actions required to achieve the targets. In some cases, the targets are impractical and will be difficult to achieve.

GEF (Global Environment Facility) has had extensive experience with renewable energy enabling activities in less developed countries and concludes that renewable energy 'stands out for its ability to reduce GHG emissions and pollution and to exploit local and decentralised energy sources that are immune to the volatility of fossil fuel markets and bring the added benefits of stimulating employment, technological development, and economic growth. There is no doubt that renewable energies constitute a key element of a sustainable future'.

Most renewable energy investments in the Pacific have been for small-scale uses for rural communities and isolated households, but there has recently been increased emphasis on larger grid-connected systems. Renewable energy and energy efficiency/conservation have been called the twin pillars of sustainable energy. It makes sense to address these pillars as synergistic and complementary but they are seldom assessed together in the Pacific. For remote areas and outer island electrification, in particular, efficiency options should be assessed as part of all renewable energy investment plans. In addition, renewable energy technologies should not be considered in isolation from other forms of energy production, but rather as part of an integrated energy system.

Biomass probably accounts for over half of Pacific energy consumption (far less in monetary terms), being used mainly for cooking and drying, with small amounts for power production. Sooty air from open wood

fires has long been linked to health problems for women, and more recently to significant levels of GHG emissions from black carbon. Governments have supported numerous attempts in the past 30 years to introduce cleaner and more efficient wood-burning stoves within the region. These efforts have met with little success except in the case of large systems for boarding schools. However, recent private-led efforts could be more successful.

3.2.2 Long-term objective

Increased level of investment in proven renewable energy technologies (including biomass) in PICTs, as part of the region's strategic response to mitigating the harmful effects of petroleum fuels on environments and economies and, where feasible, supplementing and replacing petroleum fuels as the predominant source of energy, particularly noting the price volatility of this market.

3.2.3 Key priorities

i. Resource assessment, research and studies.
ii. Investment in renewable energy.
iii. Capacity development.
iv. Higher proportion of renewable energy in the energy mix.

THEME 4: ENERGY CONVERSION

Expected outcome:
Improved production, supply and accessibility of electric power

4.1 Electric power

4.1.1 Rationale

Electricity production accounts for over 20% of petroleum fuel use in the region, and up to 40% in some PICTs. In the Melanesian countries of PNG, Vanuatu and Solomon Islands, overall household electrification rates remain very low at about 20%. For most other PICTs, these rates range from 50% to nearly 100%. In many PICTs, charges for consumers connected to a utility grid do not cover the full cost of generation and supply, resulting in insufficient funds for effective operation and maintenance (O&M). As a result, losses in power systems can be as high as 30%, which is more than double those of developed countries. Rural electrification, through diesel systems supplemented by renewable energy (mostly solar photovoltaic and small hydro and wind systems), tends to be heavily subsidised, but subsidies are often not transparent and the systems may be poorly managed. Electrifying the majority of PICT households to an acceptable standard will be extremely costly in both initial capital costs and O&M, and could appreciably increase petroleum fuel consumption in some countries as diesel generation still tends to be the best available option.

Most PICT power utilities are monopolies, i.e. they are the sole supplier of electricity in the most populated areas. Many have become corporatised within government ministries or are government-owned corporations, with operations and tariffs usually controlled or highly influenced by governments. Regulation has become a contentious issue, with some PICTs establishing or considering regulators or commissions to separate regulatory functions from the generation, distribution and transmission of electricity.

Although the quality of supply from utilities has improved in recent years, unplanned outages and voltage fluctuations are common. Rural supply for villages and government stations is often restricted to several hours daily, and many rural gen-sets remain out of operation for weeks or months after breakdowns due to the unavailability of trained operators, finance and spare parts.

4.1.2 Long-term objective

Reliable, efficient, safe and affordable access to electric power and services for all PICT households and communities

4.1.3 Key priorities

i. System loss quantification and benchmarking.
ii. Tariff structures.
iii. Investment in capacity development.
iv. Reliability of power supply (i.e. reduction of outages and fluctuation).
v. Renewable energy.
vi. Operations and maintenance.

THEME 5: END-USE ENERGY CONSUMPTION

Expected outcome:
Optimal use of energy in all sectors, particularly in transport and electricity

5.1 Transport energy use

5.1.1 Rationale

The state of transport systems in island countries needs to be looked at more closely to ensure efficient energy use in the sector.

Land, sea and air transport account for about half of the petroleum fuel used in the two largest PICTs, increasing to about 75% on average for the others. For road transport, roads are often poor, vehicles are not well maintained, and there has been a trend towards larger, less fuel-efficient vehicles (e.g. SUVs) in recent years. It is difficult to significantly reduce fuel use for transport as consumption is spread across many thousands of vehicles that may have lifetimes of 10 years or more, so capital replacement is slow. Without practical means for more efficient use of fuel in transport, overall petroleum consumption in the region will not decline significantly. However, there are means available to reduce the rate of growth of petroleum consumption for transport.

The International Energy Agency (IEA) predicts that personal transport (i.e. automobiles) is likely to shift globally towards fuel/electric hybrid and fully electric vehicles, but heavy trucks, ships and aircraft – and presumably large buses – will require a lower-carbon diesel replacement to reduce dependence on petroleum and levels of GHG emissions.

In the long term, there are opportunities to save on energy by importing more efficient vehicles for both private and public transport, and in some PICTs for reducing petroleum imports through use of locally produced fuels for blending or replacement. In the short term, improved vehicle operation and maintenance offer the most scope for reducing fuel consumption.

5.1.2 Long-term objective

Environmentally clean, energy-efficient and cost-effective transportation systems within the region

5.1.3 Key priorities

i. Legislation and fiscal arrangements.
ii. Migration to low sulphur fuels.

iii. Energy efficient vehicles and ships.
iv. Advocacy of increased energy efficiency.
v. Improved infrastructure and energy efficiency.

5.2 Energy efficiency and conservation

5.2.1 Rationale

Energy efficiency is the use of less energy to accomplish the same task (e.g. a solar rather than electric water heater) and energy conservation means the practice of using less energy (such as turning the air conditioner off when leaving the office for lunch). From its work in dozens of less developed countries, GEF concludes that it is more cost-effective to invest in end-use energy efficiency improvements, so-called 'demand side-management' (DSM), than to satisfy demand through increases in the energy supply. Of a variety of alternatives, energy efficiency typically shows the highest potential to reduce GHG emissions. A regional overview report prepared for SPREP's 'Pacific Islands Renewable Energy Project' (PIREP) in 2005 concluded that many of the smaller island states could probably reduce GHG emissions more through efficiency improvements than through renewable energy investments. A McKinsey Global Institute study[5] in late 2008 concluded that cost-effective energy efficiency efforts could reduce energy consumption in less developed countries by 22% in 12 years compared to business as usual.

However, an effective national DSM programme is both skill and labour intensive because thousands of homes, factories and businesses must be individually assessed. It also requires a range of policy, institutional and regulatory incentives. Power sector supply-side energy efficiency improvements (supply-side management or SSM) can often provide easier and longer-lasting impacts, at least in the short-term, for a similar level of investment because there are a relatively small number of systems to improve and, in principle, utilities have the skills to maintain SSM improvements over time. SSM and DSM programmes are often identified as the least-cost options for reducing diesel fuel usage (particularly compared with renewable energy options). This is also an area where great gains can be made in reducing dependence on imported fuel while renewable energy options are investigated.

Despite numerous studies, energy audits, demonstration projects and some efforts to improve energy efficiency in the private sector (particularly in relation to tourism and commercial buildings), results have been limited. Even where efficiency investments appear to be attractive, there are few if any mechanisms in place to guarantee technical and financial results. Financial institutions in most PICTs are not able to assess efficiency proposals or develop and implement innovative financial approaches for improving cost-effective efficiency.

Overall, ADB indicates that energy intensity (energy use per constant dollar of gross domestic product) has worsened in the region. From 2000 to 2006, energy consumption grew almost four times faster than GDP in PNG, and 2.5 times faster in Fiji. For other PICTs, GDP grew slightly faster (0.3% per year) than energy use from 1996 to 2006. However, this does not necessarily indicate a measurable improvement in efficiency, as both GDP and energy data for smaller PICTs may not be accurate.

5.2.2 Long-term objective

Efficient and cost-effective production (electricity, biofuels) and end-use of all forms of energy – modern and traditional – throughout the Pacific

5.2.3 Key priorities

i. Capacity development.

[5] Fueling sustainable development: The energy productivity solution. 2008. MGI Perspective.

ii. Enabling regulations and legislation.
iii. Effective partnerships.

THEME 6: ENERGY DATA AND INFORMATION

Expected outcome:
Timely, accessible and accurate energy data and information as a basis for effective planning and decision-making in the energy sector

6.1 Rationale

Energy sector planning and development within PICTs and the region generally lack the benefit of access to current and reliable energy data and information. Although there have been concerted efforts each decade (in 1980, 1990 and 2000) to prepare Pacific Regional Energy Assessments (PREA), by the time the data and information are collated and published they are outdated and contain inconsistencies and inaccuracies. Because of too few human and financial resources, there has been no continuity of data collection at both regional and national levels, which makes it difficult to assess energy supply and demand. Data quality control is also a challenge.

Collection of and access to current and updated energy data and information are important for the main urban and peri-urban areas but also for rural and remote communities where demand is often not well understood or assessed.

Fossil fuels (petroleum products) are the predominant source of energy within PICTs and therefore accurate energy data and information are critical to understanding and managing the supply of these products to the region. The 'Pacific Petroleum Project', which will examine the option of bulk fuel procurement for the region, will generate a significant amount of data and information that needs to be linked to regional and national databases. Hence, there is a need for strengthening regional and national capacity to align this effort and other data collection efforts with central repositories of data that are managed and updated on a regular basis.

6.2 Long-term objective

Current, reliable and timely energy data and statistics are readily available to decision-makers in PICTs at government and industry level to support informed decisions on long-term national energy strategies.

6.3 Key priorities

i. Collation of and access to energy data and information.
ii. Storage of energy data and information.
iii. Interpretation of energy data and information.

THEME 7: FINANCING, MONITORING AND EVALUATION

Expected outcome:
A financing plan that captures all funds flowing into the region's energy sector by funding source and implementation arrangements, supported by a comprehensive monitoring and evaluation framework.

7.1 Rationale

PICTs are highly dependent on overseas assistance in the form of grants and low interest loans for their energy sector investment. Except in the larger PICTs, private investment in energy services is limited

outside of electric power supply in several countries, and petroleum and LPG supply, storage and distribution in most. Investments in government-owned facilities often fail to deliver the expected services sustainably for various reasons, including poor planning, management, operation and maintenance, exacerbated by insufficient operating income from fees and subsidies. The total amount of cross-subsidies (e.g. from urban to rural electricity consumers on larger grids) and other subsidies (e.g. for rural electrification or shipping fuel to remote areas) is often unknown. Subsidy processes lack transparency and are not clearly designed and targeted to achieve specific purposes such as social equity. For individual projects, both urban and rural, there is often little or no routine M&E.

At the regional level, energy advisory services to PICTs from regional agencies are also highly dependent on grant aid from development agencies, with some limited services financed by core funding. The transition to a more secure and cleaner energy sector will continue to need external assistance, but there should be a high level of private investment and financial self-sufficiency in the services provided by regional agencies.

7.2 Long-term objective

Scaled-up, better coordinated financing for clean and affordable energy in the region, with clear outcomes and milestones supported by a results-based M&E framework to measure achievements.

7.3 Key priorities

i. Donor coordination.
ii. Support for national implementation plans.
iii. Financial planning (budgetary processes) at national and regional levels.
iv. Standardised and synchronised M&E indicators for national and regional plans.

PART 3 LINKING THE FRAMEWORK TO THE IMPLEMENTATION PLAN

The long-term objectives and priorities identified within each thematic area of this Framework apply to the Pacific region and require both national and regional commitment to their implementation. This Framework is supported by a regional implementation plan (Implementation Plan for Energy Security in the Pacific – IPESP) comprising specific activities under each theme to support and augment national level activities.

The sovereignty of PICTs is paramount. National policies and plans/roadmaps provide the principal means for achieving energy security in each country. The regional implementation plan will support those areas of national plans/roadmaps in which it can add value to the national development agenda in the energy sector.

The regional implementation plan will link directly to the long-term objectives and key priorities identified for each of the seven themes of this Framework. To enable the impact and effectiveness of regional responses to be measured, the IPESP includes indicators, set targets and milestones for specific regional strategies for each theme.

The implementation plan focuses only on regional interventions, which are aimed principally at supplementing capacity and providing support to national governments and stakeholders in implementing their own policies and plans/roadmaps. The desired outcome is a strengthening of both national and regional contributions to improving the region's energy security.