ENERGY FOR SUSTAINABLE DEVELOPMENT

Pacific Regional Submission to the 14th Session of the Commission on Sustainable Development (CSD14)

Background Paper

April 2006

The submission has been prepared to reflect on progress made in the implementation of Agenda 21, the programme for the further implementation of Agenda 21 and the Johannesburg Plan of Implementation in the national and regional situations in the Pacific. The paper is based on the earlier Pacific region background paper where the specific areas were: Policy and Planning; Power Sector; Transportation; Renewable Energy; Petroleum; Rural Areas and Remote Islands; Energy Efficiency and Energy Conservation; Financing the Energy Sector; Energy and Gender, Energy and Poverty; and Energy Partnerships and Initiatives and have been retained in this paper.

The preparation of this paper has been coordinated by the Council of Regional Organisations of the Pacific (CROP) – Energy Working Group (EWG) members, comprising Pacific Islands Forum Secretariat (PIFS), Pacific Power Association (PPA), South Pacific Applied Geoscience Commission (SOPAC), Secretariat of the Pacific Community (SPC), Secretariat of the Pacific Regional Environmental Programme (SPREP), United Nation Development Programme (UNDP) and the University of the South Pacific (USP), with inputs from the Pacific island countries and territories.

CONTENTS

LIST OF ACRONYMS

ADB	Asian Development Bank
ADO	Automotive Diesel Oil
CDM	Clean Development Mechanism
CROP	Council of Regional Organisations of the Pacific
CSD14	14th Session of the Commission on Sustainable Development
CTA	Technical Centre for Agricultural and Rural Cooperation – ACP EU Cotonou Agreement
DSM	Demand Side Management
EU	European Union
EUEI	European Union Energy Initiative
EWG	Energy Working Group
GEF	Global Environment Facility
MDGs	Millennium Development Goals
MOGAS	Motor Spirit (unleaded)
MSME	Micro, Small and Medium Enterprise
NZAID	New Zealand Aid Programme
PEG	Pacific Energy and Gender Network
PESTRAN	Promotion of Environmentally Sustainable Transportation in the Pacific Islands project
PNG	Papua New Guinea
PICTs	Pacific Island Countries and Territories
PIEP	Pacific Islands Energy Policy
PIEPSAP	Pacific Islands Energy Policy and Strategic Action Planning project
PIESAP	Pacific Islands Strategic Action Plan
PIESD	Pacific Islands Energy for Sustainable Development
PIFS	Pacific Islands Forum Secretariat
PPA	Pacific Power Association
REEP	Renewable Energy and Energy Efficiency Project
REM	Regional Energy Meetng
REP-PoR	Regional Energy Programme for Poverty reduction
SIDS	Small Island Developing States
SOPAC	South Pacific Applied Geoscience Commission
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Programme
SSM	Supply Side Management
UNDESA	United Nations Department of Economics and Social Affairs
UNDP	United Nations Development Programme
UNESCAP	United Nations Economic and Social Commission for Asia and Pacific
USDOI	United States Department of Interior
USP	University of the South Pacific
WSSD	World Summit on Sustainable Development

I. EXECUTIVE SUMMARY

1. The Pacific region acknowledges the vital role of energy in achieving sustained economic growth, especially for the least developed countries, and recognises the complexities and interdependencies inherent in addressing energy issues within the context of sustainable development. This executive summary recaps on the uniqueness of the Pacific region and in particular highlights progress made in the respective areas.

2. The challenges and constraints of sustainable development in the energy context can be summarised to include:
   - 70% of the regional population is without access to electricity, but access varies widely, from 10% to 100% at the national level.
   - Demographics vary widely between countries, but often feature small, isolated population centres.
   - 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.
   - 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 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 non-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, institutional and technological capacity to respond to these challenges.
   - While women are significant energy users, they are poorly represented in energy policy, planning, and development.

3. The Pacific Island Countries and Territories (PICTs) share many of the same concerns of other counties in the other regions. In the following specific categories, recommendations are listed only where they differ from the widely circulated papers considered at regional UN-system meetings.

4. Policy and Planning – the development of the Pacific Islands Energy Policy (PIEP) and the Pacific Islands Energy Strategic Action Plan (PIESAP). At the national level, national energy policies and strategic action plans are currently being formulated with funding assistance from the Government of Denmark through the Pacific Islands Energy Policy and Strategic Action Planning (PIEPSAP) project.

5. Power Sector – access to electricity continues to be an issue in the Pacific region with an estimated 70% of the people not having access, with many of them living on remote islands or in isolated rural areas. The region however, has made progress in developing its power sector through capacity development, performance benchmarking and efficiency programmes.

6. Transportation – the transport sector provides an essential service which contributes to creating an environment that enables economic and social development. The increasing demand for fuel and the environmental impacts of emission from transportation fuel have stimulated research and development on alternate fuels and energy efficiency. In addition to some private sector initiatives on biofuels (coconut oil) and the proposed GEF medium-sized project on sustainable transportation, there still requires external technical and funding assistance.

7. Renewable Energy – almost all PICTs have adopted strategies for promoting renewable energy. The challenge still remains in the development, designing, dissemination and sustainable utilisation of renewable energy technologies. Despite some progress in promoting renewable energy applications in recent years, numerous constraints and barriers including costs continue to exist.

8. Petroleum – the Pacific region continues to face the dilemma of rising fuel prices; security of supply particularly, to remote locations; affordability at the community level; and the issue of waste oil. A cost benefits analysis on bulk purchasing, storage and distribution has recently been completed.

9. Rural Areas and Remote Islands – the provision of energy services to rural areas and remote islands remains inadequate despite efforts by regional and national organisations/governments. Access and affordable energy services still remains an issue with rural areas and remote islands.

10. Energy Efficiency and Energy Conservation – many PICTs have been relatively slow in adopting energy efficiency practices and designs. This has been attributed to a number of factors including the lack of access to energy efficient technologies. In addition to current initiatives such as ADB through REEP and SSM, UNDESA on DSM and GEF with PESTRAN there is an urgent need of implementation.

11. Financing the Energy Sector – despite some progress made in the Pacific region, there remain barriers in securing funding for the development of the energy sector.

12. Energy and Gender – streamlining gender into energy has been progressed through the formation of the Pacific Energy and Gender Network (PEG). Advancement in the implementation of the PEG Strategic Action Plan is currently constraint with the limited access to funding.

13. Energy and Poverty – there is a strong correlation (up to a point) between use and access to modern forms of energy, and poverty or hardship – a term often preferred in the Pacific.

14. Energy Partnerships and Initiatives – the emergence of partnerships with the Pacific is an encouraging trend and an opportunity to enhance transition towards sustainable development. There is ample room for further and strengthened collaboration in order to facilitate replication of successful experiences and consolidate and exchange knowledge.

II. PREAMBLE

15. This submission to the Fourteenth and subsequently to the Fifteenth Session of the Commission on Sustainable Development aims to build on priority areas already identified by PICTs and are predominantly consistent with those identified by the international community concerning the sustainable development of Small Island Developing States. It also provides a measure of progress in regional and national actions, lessons learned and identifies where future perspectives exist to further enhance the sustainable development of the energy sector in the Pacific.

16. Energy is vital to achieving sustainable development in the Pacific region and is a fundamental input to most economic and social activities. In addition it is a prerequisite for development in other sectors such as education, health, and communication. 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.

17. In the Pacific region, the island countries and territories land areas range in size from about 10 km^2 for Tokelau to nearly 463,000 km^2 for Papua New Guinea. Populations range from 1500 people to over 5 million, speaking in the order of 1,000 different languages, spread across 180 million km^2 of ocean or about 36% of the world's surface. The distances within the island countries can be large. Kiribati, for example, has only 85,000 people living on 33 widely scattered low atolls (800 km^2 of land) spread over 4200 km from east to west and 2000 km north to south.

18. Pacific island countries and territories (PICTs) are no different to any other SIDS where their ability to effectively manage their energy sector is constrained by their unique characteristics of small size, fragility, natural vulnerability, and limited human and financial resource base to mention but a few.

19. The challenges and constraints of sustainable development in the energy context can be summarised to include:
    (a) 70% of the regional population is without access to electricity, but access varies widely, from 10% to 100% at the national level.
    (b) Demographics vary widely between countries, but often feature small, isolated population centres.
    (c) Pacific Island countries comprise a wide range of ecosystems, predominantly influenced by marine systems that make infrastructure development difficult and environmental impacts significant.
    (d) Most Pacific island countries do not have indigenous petroleum resources but have a range of renewable energy resources that are generally under utilised.
    (e) Environmental vulnerability through climate change and sea level rise is very high, particularly for small islands and low-lying atolls.
    (f) Environmental damage, habitat loss and pollution resulting from development and use of conventional energy sources have significant effects on fragile island ecosystems
    (g) Economic vulnerability due to heavy reliance on imported fossil fuels.
    (h) 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.
    (i) The development of renewable energy resources has been limited by the non-availability of capital, suitable financing mechanisms, appropriate technology, effective institutional mechanisms, and the challenges of developing systems for small remote markets at reasonable cost.

(j) There is limited scope for market reforms considering the variation in size and density of markets; therefore, appropriate alternatives vary between countries.
(k) The region has limited human, institutional and technological capacity to respond to these challenges.
(l) While women are significant energy users, they are poorly represented in energy policy, planning, and development.

20. Through the Council of Regional Organisations of the Pacific (CROP) Energy Working Group (EWG), specific emphasis was placed on the development of a regional position paper for the energy sector. This was presented at the 9th Session of the Commission on Sustainable Development (CSD9) and subsequently was adopted as a background paper to the CSD9 report. Using this regional position paper the CROP-EWG coordinated the development of the Pacific Islands Energy Policy and Plan (PIEPP) that was endorsed by Energy Officials at the Regional Energy Meeting in Rarotonga in 2002. This documented was further revised and updated in the Regional Energy Meeting in Madang in 2004. Resulting in the endorsement of the "Pacific Islands Energy Policy" (PIEP) and the "Pacific Islands Energy Strategic Action Plan" (PIESAP). The PIEP provides an overall framework for guiding energy activities of CROP within the region as well as a generic structure that individual PICTs can adopt as a framework for the development of their own national energy policies.

21. The Pacific Plan endorsed by the leaders at the Pacific Islands Forum Meeting in October 2005 under Section IV "Regional Priorities" – subsection "Sustainable Development" includes the "Implementation of the PIEP and associated strategic action plan to provide available, reliable, affordable, and environmentally sound energy for sustainable development of all PICTs".

22. The Pacific region has made substantial gains in some areas of human development, but progress in achieving the Millennium Development Goals (MDGs) varies significantly across the region. There are also significant differences within PICTs with respect to achievement of development goals, indicating that the benefits of development are not distributed as widely nor as equally as they need to be. Global warming and climate change continue to be significant issues for the PICTs. This emphasises the importance of minimising use of fossil fuel through efficiency and conservation measures.

23. Through the initiative of the CROP-EWG and other mechanisms within the region the Pacific has been able to remain abreast of developments and interventions that were made through the CSD and WSSD processes in relation to the global agendas.

24. As part of the Pacific regional portfolio a Pacific Type II Energy Partnership Initiative was developed and launched in Johannesburg in 2002 where the overall objective is the implementation of PIEP. Within other Pacific islands umbrella Type II Initiative the PIESD has lead to the establishment of two energy partnerships: (i) the "Pacific Islands Energy Policies and Strategic Action Planing (PIEPSAP) Project between the Danish Government, UNDP and SOPAC, under the framework of the European Union Energy Initiative EI; (ii)"(EU) Improving the efficiency of power production, transmission and distribution to decrease costs and fuel consumption through reducing power system losses in power utilities and to enhance the skills of power utility staff," with the Pacific Power Association (PPA). Both these linking the PIESD to the European Union Energy Initiative (EUEI). The ADB partnered the PPA in commencing power utility performance benchmarking. In addition there is an energy partnership between the United States Department of the Interior (USDOI) and the PPA to also address and improve the efficiency of power production, transmission and distribution to decrease costs and fuel consumption through reducing power system losses in power utilities and to enhance the skills of power utility staff, in the US-Affiliated Pacific Islands. Other potential partnership initiatives are currently being explored (e.g. NZAID, UNESCAP).

25. Aside from the obvious opportunities to reduce the use of fossil fuels through increasing the percentage of energy supplied from renewable energy technologies, there are many other areas where significant cost savings can be made. These include the opportunities available through energy efficiency and conservation both from the perspective of supply side and demand side energy management but often require the need for at least some moderate investment before being able to realise a return or benefit. Energy consumption patterns in most countries indicate that the government sector is one of the highest consumers of energy. The transport sector is also a high consumption area where significant reductions in energy use are possible including the opportunity to reduce exhaust emissions.

26. The vulnerability and specific needs of PICTs are apparent as they share a common aspiration for economic development and improved living standards while at the same time remain strongly committed to conserving the natural and cultural heritage upon which their future depends.

27. The future for the energy sector in the Pacific will predominantly focus on continuing to reduce countries reliance on the use of fossil fuels through a range of mechanisms such as ongoing improvement in energy efficiency. This will continue to require support in a number of sub-sectors within the broader energy sector so as to ensure that the basic parameters are available for future success.

28. Although inputs/support is being provided in key priority areas there still remain a significant number of barriers that will need to be addressed so as to ensure that the longer-term sustainability within the energy sector can be effectively established and maintained and these include institutional aspects, technical, capacity building, financial and private sector participation in energy sector development.

III. PROGRESS TOWARDS ENERGY FOR SUSTAINABLE DEVELOPMENT IN THE PACIFIC

29. Based on the thematic areas within the PIEP, the following sections, with specific highlights in the boxes, provide a measure of progress as a result of regional and national actions. This includes lessons learned and identifies opportunities for the further enhancement of sustainable development of the energy sector in the Pacific.

A. Policy and Planning

30. The general lack of importance accorded to energy issues in the PICTs in particular among policy makers as well as planners outside the energy sector presents great challenges both at national and regional levels. Nevertheless the region has made some progress to address integrated cross-sectorial partnerships, establishment of appropriate institutional arrangements, development of adequate financial mechanisms and defining the roles of public and private stakeholders including encouraging their participation.

31. The development of the PIEP was based on the Pacific Islands Regional Energy Paper prepared and submitted to the CSD 9 in 2001. The initial version of the PIEP was finalised at the Regional Energy Meeting (REM2002) in Rarotonga, Cook Islands. Subsequently at the request of the Pacific Island Forum Leaders, the PIEP was reviewed and affirmed at the Regional Energy Meeting (REM2004) in Madang, Papua New Guinea. The vision of the PIEP is "available, reliable, affordable, and environmentally sound energy for the sustainable development of all Pacific island communities" and has been published and printed, and being used by the PICTs.

PACIFIC PLAN

The Pacific Plan endorsed by the leaders at the Pacific Islands Forum Meeting in October 2005 under Section IV "Regional Priorities" – subsection "Sustainable Development" includes the "Implementation of the PIEP and associated strategic action plan to provide available, reliable, affordable, and environmentally sound energy for sustainable development of all PICTs".

32. Assessing development issues, formulating and implementing effective policies, and monitoring results require a wide range of timely, accurate and consistent data. In the Pacific region, data tends to be available years later, sometimes through second or third hand sources and rarely verified for errors or consistency. Time-series datasets tend to be limited, inaccurate and inconsistent and not sufficient for determining trends. In general, the quality of energy sector data, whether for commercial energy, such as electric power and petroleum, or non-commercial, such as wood or other biomass, is relatively poor. Specific effort is required in this area to establish data sets that can be used with confidence and is available in a timely manner.

33. Currently, only the Cook Islands, Marshall Islands, Tuvalu and Tokelau have national energy policies with official endorsement by Cabinet. The policies were developed through a process of extensive stakeholder consultation. Other PICTs are at varying stages in regard to the establishment of national energy policies which ranges from draft policies to reviewing and updating, and development from scratch. Annex 1 provides a summary of the status of national energy policies in the region.

34. Although a significant amount of assistance in the past has been provided in the region on the development of national energy policy statements and also rural electrification policy statements and guidelines, there has generally been inconsistency and a lack of commitment given by individual PICTs to the adoption and implementation of energy policies and operational guidelines.

PACIFIC ISLANDS ENERGY POLICY AND STRATEGIC ACTION PLANNING PROJECT

As part of the Pacific regional portfolio a Pacific Type II Energy Partnership Initiative was developed and launched in Johannesburg in 2002 where the overall objective is the implementation of PIEP. Within other Pacific islands umbrella Type II Initiative the PIESD has lead to the establishment of energy partnerships such as the "Pacific Islands Energy Policy and Strategic Action Planning (PIEPSAP) Project between the Danish Government, UNDP and SOPAC.

PIEPSAP aims to improve the capacity of Pacific island countries to develop practical national energy policies, and the strategic action plans to implement the policies toward achieving "available, reliable, affordable, and environmentally sound energy for the sustainable development for all Pacific islanders."

The approach is "a Menu of Options under a Regional Umbrella". Energy policy development and energy planning is addressed by a menu of options that acknowledges the specific situation in each Pacific island country while maintaining and intensifying cooperation and exchange of information at a regional level.

B. Power Sector

35. Access to electricity varies widely within the Pacific region. It is estimated that approximately 70% of the people do not have access to electricity, with many of them living on remote islands or in isolated inland rural areas. This is a greatly different picture to the global situation where approximately 30% are without access to modern energy services.

36. Aside from a relatively limited amount of electricity that is generated from hydropower in the region the balance is provided from diesel fuel. There is still a high demand in the region for access to energy resources and energy services and as a number of these resources are unevenly distributed there remains the ongoing need to ensure their efficient use, that resources are not over exploited and that they are utilised in an efficient manner. There is the continuous need to ensure that energy services are available, is reliable, safe and affordable.

POWER SECTOR INITIATIVES IN THE PACIFIC

Human Resource Development has been a key focus with the power utilities in the Region. This has been enhanced through a 3-year capacity building programme with funding from the USDOI and the Government of France. It is clear that training has to be focussed on addressing quantifiable and justifiable needs within the power utilities.

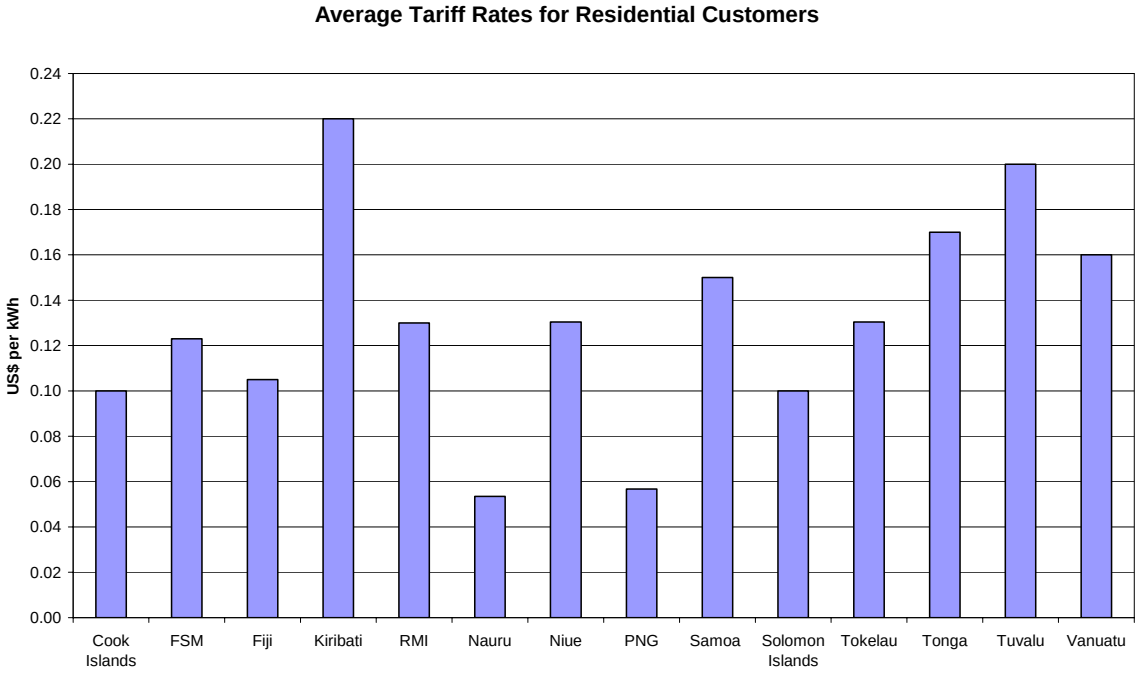
Supply Side Management, the improvement in efficiencies of generation, transmission and distribution of utilities within the region are being addressed, with funding support from the USDOI, and Government of France, and assisted in the future by the EU.

Renewable Energy Workshops for Power Utility Engineers have been conducted for the Utilities in the Northern and Southern areas of the region, to address the majority of utilities who are responsible for rural electrification and outer island electrification, as there will be a greater emphasis on the use of renewable energy.

Performance Benchmarking of Power Utilities has commenced with funding support from the ADB. This is invaluable if real improvements are to be achieved with the operations of utilities.

Demand Side Management, improving the efficiency of energy utilisation leads to a reduction of energy consumption per unit product or activity. With funding support from the UNDESA, projects were designed to promote and demonstrate the benefits of DSM. These are being implemented with the Fiji Electricity Authority and the Samoa Electric Power Corporation.

37. Most Power Utilities in the Pacific were formerly part of government institutions and attached to the public works department. However, many have become corporatised state-owned enterprises within the last decade or so. In principle, the Power Utilities establish their own tariffs but in practice, the cabinet (or equivalent body) must approve any increases / variations – Figure below is an illustration of residential tariff variation in the Pacific region. Generally, the Power Utilities do not cover their true costs through charges to the consumer and are subsidised by the government or donors. Utilities selling electricity below cost tend to have inadequate funds for maintenance and expansion, and high generation and transmission losses. Hence such an arrangement, where true costs are not recovered, the long-term sustainability is questionable and specific attention should be given to ensuring that appropriate legislation and price control and regulatory mechanisms are developed, implemented and enforced.



Source: UNDP Asia-Pacific Regional Energy Programme for Poverty Reduction (REP-PoR); Pacific Rapid Assessment and Gap Analysis Report; November 2005 and Power Utilities; the above tariffs are average numbers for the residential customers, 2002

C. Transportation

38. Transportation is an essential service which contributes to creating an environment that enables economic and social development. It accounts for about 50% of the region's use of imported fossil fuel with national shares varying from 34% to 70%. Transportation in the Pacific region practically relies 100% on imported fossil fuels. The demand for petroleum fuels for transport continues to rise by about 2 – 3% per year.

39. The energy aspect of the transport sector in the region has frequently been neglected and therefore needs to be incorporated into long-term national and regional sustainable development plans. National-level policies can focus on increasing efficiency, managing transportation demand, developing markets and technologies for alternative fuels and vehicles and putting in place adequate emission control measures with effective enforcement procedures.

40. The environmental impact of transportation fuels related to carbon dioxide and other polluting emissions have stimulated research and development on alternative fuels for transportation. The available alternative fuels that have attracted interest and for which the technology is being tested and developed in the Pacific are electricity, liquefied petroleum gas, ethanol and coconut/palm oil.

COCONUT OIL AS AN ALTERNATE FUEL IN THE PACIFIC

There are great opportunities to utilise coconut oil as a biofuel in the region. Coconut oil can be blended with diesel fuel and under certain conditions totally replace it. The use of coconut oil as fuel substitute in both transport and electricity generation sector within the Pacific Islands is increasing. Other benefits include the support of local agro-industries and decrease in greenhouse gas emissions.

Feasibility studies on the use of coconut oil as a biofuel are being carried out in Fiji, Marshall Islands, Samoa and Vanuatu. Present results indicate that the local cost of fuel is the real driver behind these developments. Motorists in the region have successfully blended coconut oil with diesel to decrease costs per km. There is the need to restructure the coconut industry and embark on a coconut replanting scheme to enable coconut oil as a sustainable alternative to diesel.

41. The major policy objectives in the transportation sector are to ensure the efficient and effective use of transportation system to strengthen growth in economic activity, ensure that energy policies do not adversely affect the ability of the transportation system to meet the needs of all sectors of society for mobility and accessibility and mitigate the adverse impacts of transportation-related activities on human health and productivity, and environmental quality.

TRANSPORTATION COSTS

The cost of freight and timely delivery of goods have been an issue in the region and remains so, particularly in the rural areas and outer remote islands where the cost of basic food items and goods are high when compared to the urban centres.

Airfares within the region are high, particularly when traveling between the north and south Pacific. Lower discounted fares are offered only when there is another airline serving the same route.

There is the dilemma of managing the charges for freight and fares against the cost of maintenance of infrastructure and managing relationships with the public service providers.

The high cost associated with transportation is often attributed to the increasing fluctuating costs of imported fossil fuel which the transport sector in the Pacific relies upon.

42. Increasing energy efficiency in the transport sector is achievable through the promotion of fuel-efficient vehicles, a measure that can be implemented within a short-term period, but requires mobilising support and cooperation from the vehicle industry. The Pacific must adopt import policies that encourage the entry of fuel-efficient vehicles. Another strategy is to develop mass transport systems, which is a long-term strategy requiring significant infrastructure development and huge investments.

PROMOTION OF ENVIRONMENTALLY SUSTAINABLE TRANSPORTAION IN THE PACIFIC ISLANDS

Current government resources and allocations of ministerial funding for energy efficiency in transport in the region vary from practically none to something minimal. The promotion of environmentally sustainable transport activities will hence continue to be restricted to various passive activities without external assistance.

The Promotion of Environmentally Sustainable Transportation in the Pacific Islands (PESTRAN) project fits-in well with the criteria for, and requirements of, the GEF's OP11 and to the climate change strategic priority on modal shifts in urban transport and clean vehicle/fuel technologies (SP-6). GEF has provided seed-funding for developing a medium-sized project that has focussed on Fiji, Samoa and Vanuatu.

The intended goal of PESTRAN is the reduction of GHG emissions from the transport sector in the region. The purpose of the project is the promotion of environmentally sustainable ground transportation systems for improving energy use efficiency in transport, and for improving public transportation systems. These will be realized through the implementation of strategic and relevant interventions that would shift current transport practices towards more efficient systems, facilitate increased investments to such systems and the formulation and implementation of regulatory frameworks that supports the energy efficiency in the transport sector of these countries in line with their objective of enhancing socio-economic growth.

D. Renewable Energy

43. The general need is for increased development and utilisation of renewable energy sources through practical institutional structures, better financial schemes, better trained engineers and technicians, improved system efficiency, and well-structured demonstration and training activities / programmes.

44. Nearly all PICTs have adopted strategies for promoting renewable energy. The challenge in the development, utilisation and dissemination of renewable energy technologies, such as solar, wind, ocean, wave, geothermal, biomass and hydro power, is on a scale wide enough to significantly contribute to the development of PICTs. Despite some progress in promoting renewable energy applications in recent years, numerous constraints and barriers including costs continue to exist.

PACIFIC ISLANDS GREENHOUSE GAS ABATEMENT THROUGH RENEWABLE ENERGY PROJECT

The planned Pacific Islands Greenhouse Gas Abatement through Renewable Energy Project (PIGGAREP) is being developed through a UNDP/GEF funded SPREP-executed MSP: the Pacific Islands Renewable Energy Project (PIREP). The PIGGAREP is aimed at reducing the growth rate of GHG emissions from fossil fuel use in the Pacific Island Countries through the widespread and cost effective use of their renewable energy resources. It consists of various activities whose outputs will contribute to the removal of the major barriers to the widespread utilization of renewable energy technologies. PIGGAREP is expected to bring about in the region: (1) Increased number of successful commercial renewable energy applications; (2) Expanded market for renewable energy technology applications; (3) Enhanced institutional capacity to design, implement and monitor renewable energy projects; (4) Availability and accessibility of financing to existing and new renewable energy projects; (5) Strengthened legal and regulatory structures in the energy and environmental sectors; and, (6) Increased awareness and knowledge on renewable energy and renewable energy technologies among key stakeholders.

45. There is the general need to a more effective dissemination of information on renewable energy technologies and practices in the Pacific. Also required is technical advice and continuous training to ensure that a particular choice provides optimum return to the respective economies.

E. Petroleum

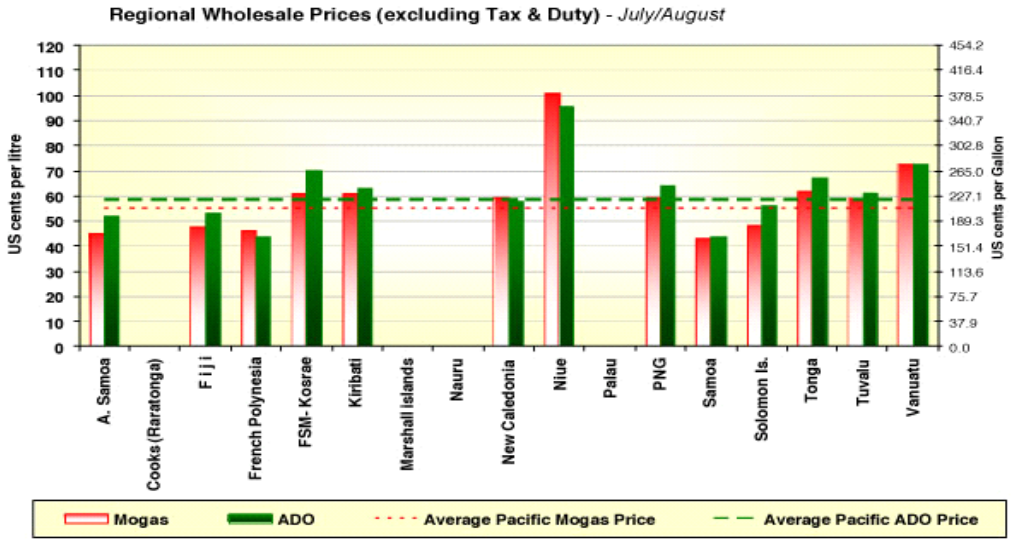
46. Petroleum products dominate the energy supply system in the Pacific. Competition in fuel supply is limited by fuel storage terminal monopoly ownership. Fuel distribution arrangements within countries vary widely with many PICTs choosing price regulation to ensure that fuel prices remain fair and equitable.

47. 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.

WHOLESALE PRICES OF MOGAS AND ADO

Only Samoa maintains much real control over petroleum imports and pricing. By owning all storage and distribution facilities and by taking advantage of external petroleum expertise on a continuing basis since the 1980s, Samoa has maintained a competitive supply system that has given it the lowest landed prices (i.e. excluding import duties and taxes) for the PICs. Several PICs have mechanisms for wholesale and retail price control on petroleum products but the price caps are established largely by the landed prices charged by the international suppliers and have little real regulatory effect.

The figure below shows the July/August 2005 comparison of duty and tax-free prices of motor spirit (mogas or petrol) and automotive diesel oil (ADO) in most PICs capital cities. The price differentials often do not reflect the market size or cost of supply, suggesting that there may be opportunities – as Samoa has demonstrated – to lower prices.



Source: Pacific islands Forum Secretariat Pacific Fuel Price Monitor 12 (4 November 2005)

48. The environmental impacts of waste oil is another matter of concern as it has 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.

49. An important and urgent challenge to the Pacific is to find alternatives to petroleum products and improve the efficiency of their use to insulate economies from oil price fluctuations as experienced in 2005. Energy policy frameworks, including donor and lending institution policies, in most Pacific island countries remain unfavourable to full exploitation of renewable energy resources; in particular power development programmes tend to favour fossil-based power generation facilities.

PETROLEUM SUPPLY OPTIONS

The Pacific region on the other hand has progressed with the completion of a cost benefit analysis on bulk purchasing, storage and distribution of petroleum products.

The petroleum issue has also been addressed as a main feature during the annual conference of Power Utilities in the region. There is the fuel price risk management programme currently being addressed with specific activities such as the "development of proposals or strategies for bulk purchasing, storage and distribution of petroleum" as referenced in the Pacific Plan.

F. Rural Areas and Remote Islands

50. The majority of people having no access to modern energy services live in rural areas and remote islands. They often rely on biomass as their primary energy source as petroleum products are often not available at affordable prices or supply chains are irregular and unreliable.

51. Issues confronting rural commercial energy are wide ranging. The provision of energy services to rural areas and remote islands remains inadequate due to the often dispersed and isolated nature of the population. Access to these rural areas or remote islands can be difficult due to the lack of adequate infrastructure or services and the ability to contribute towards the payment for these services is hindered by low-income levels. Although, in a number of PICTs, there has been an integrated approach to rural development (energy, health, education, agriculture and environment) the successes and penetration is still relatively limited.

52. Urban electrification and main island grid systems function reasonably well. However, in many PICTs rural electrification lacks clear policies and the quality of service is often poor. Where explicit policies do exist, there are often ambiguities regarding the role of the national power utility. Subsidies for rural electrification tend to be high but typically are not often recognised by officials. Policies regarding customer charges for rural electrification are often ad hoc, with communities or households in the same geographical area experiencing very different costs and standards for similar electrical services.

53. In many countries in the region, the provision of rural electrification to islands and remote communities throughout the country has been an explicit policy objective for several decades. In some Pacific island countries the percentage of households electrified exceeds 90% (e.g. Cook Islands, Nauru, Niue, Palau, Samoa, Tokelau, Tonga and Tuvalu). However, in others (Solomon Islands, Vanuatu, PNG), less than 10% of households in remote islands or away from the Power Utility grids are electrified and the growth in rural electrification has been slow.

54. Clear policies, better institutional arrangements, consistent and transparent subsidy arrangements and reconsideration of tariff policies would contribute towards improving the rate of rural electrification substantially in some Pacific island countries. Rural electrification has traditionally been cross-subsidised by the urban centres. Fiji for instance, has taken the initiative to review their 1993 Rural Electrification Policy. The review process has identified barriers and proposed numerous options towards effective and clear implementation guidelines.

G. Energy Efficiency and Energy Conservation

55. There is a wide sectoral variation in the consumption of energy throughout the Pacific. 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.

56. Energy audits and studies have provided a basis for advising energy intensive consumers on means to reduce energy consumption and energy intensity. Adoption of energy saving or energy efficiency measures has been mainly on a voluntary basis. The Pacific region continues to be relatively poor at adopting energy efficiency practices and designs. This stems from the lack of policy, lack of information and education, and the fact that there has been a reticence of consumers and energy suppliers (such as the Power Utilities) to make investment up front to achieve future savings. Where there are subsidies and true costs are not reflected in tariff there is obviously likely to be a lack of incentive to conserve energy.

57. In addition, there are other barriers to optimizing energy efficiency: the lack of access to energy efficient technologies and financial resources, as well as market related and institutional issues.

58. However, the region to some extent has pursued means to improve productivity through energy efficiency and conservation programmes between the private sector, consumers and governments, by increasing public awareness and improving access to information.

CURRENT ENERGY EFFICIENCY EFFORTS IN THE REGION

- The Asian Development Bank funded Renewable Energy and Energy Efficiency Project (REEP) is assessing opportunities for at least one renewable energy investment project and one energy efficiency project each for Fiji and Samoa. The efficiency project will emphasise institutional and capacity development.
- SOPAC, with support from the United Nations Department of Social and Economic Affairs (UNDESA) is undertaking a Demand Side Management Programme with the governments and power utilities of Fiji and Samoa.
- SOPAC with funding from GEF in 2005 developed a medium-sized project document for "Promotion of Environmentally Sustainable Transportation in the Pacific Islands" covering Fiji, Samoa and Vanuatu.
- The Pacific Power Association Supply Side Management Programme continues with its member utilities.

H. Financing the Energy Sector

59. The PICTs continue to face problems in securing funding for development of the energy sector, in particular for the rural communities. Within individual countries there is the lack of commitment to longer-term investment and support for programmes, which therefore restricts development.

60. The energy sector within the region is seen as one of the sectors that continues to drain national economies considering that the greater percentage of import costs are for fossil fuels on which the energy sector is reliant.

61. The problems relating to the financial viability of Power Utilities have affected timely improvements in efficiency in the generation, transmission and distribution of electricity, as well as in the management of demand. It has also been found that regional energy programmes in the past decade have heavily focussed on (off-grid) renewable energy (programmes) and therefore this imbalance to some extend have caused the main utility generation and its associated needs to have being neglected.

I. Energy and Gender

62. Interest in gender can be traced back to the Pacific Platform for Action for the Advancement of Women, adopted in 1994 by the 22 governments and administrations served by the Secretariat of the Pacific Community (SPC) as part of the Noumea Declaration where the importance of women's participation in national and regional development activities[1] was formally recognised.

63. In the global context these Pacific activities are consistent with Principle 20 of the Rio Declaration and Chapter 24 of UN Resolution, Agenda 21, which stresses the vital role women play in the management of the environment and natural resources and calls for the full participation of women in sustainable development programmes.

64. In addition, the recent outcomes of the World Summit on Sustainable Development (WSSD) process reinforced the importance of women's proactive role and gender mainstreaming as mechanisms for poverty eradication.

65. The formation of the Pacific Energy and Gender Network (PEG) enabled the development of education and awareness materials on energy and gender. It is envisioned that this will bring about initiatives to improve access to affordable, efficient and environment-friendly energy technologies to reduce drudgery and illness of Pacific women and children; and encourage participation of vulnerable groups such as Pacific women and youth in energy decision-making and projects. The PEG, since its establishment, has convened a regional meeting in December 2005 that endorsed a PEG Strategic Action Plan and Terms of Reference. PEG has also been engaged in regional and international forum that further formed linkages and support from ENERGIA, the Asia Gender and Energy Network, Netherlands Government through the Technical Centre for Agricultural and Rural Co-operation (CTA) and recently in preparations towards CSD 14 – the PEG submission to the CSD14 process is appended as Annex 3.

J. Energy and Poverty

66. Although considered an irrelevant concept in the Pacific a decade ago, poverty (or hardship, a term often preferred in the Pacific) has emerged as a significant concern. It is internationally recognised that there is a strong correlation (up to a point) between increased use, or at least access to, modern forms of energy and wealth as measured by GDP per capita or development as measured by the UNDP's Human Development Index (HDI).

67. Rural household energy use surveys in Fiji showed a strong correlation between household expenditure (or to a lesser extent income) and the consumption of modern energy forms such as kerosene, LPG and electricity. Those who used the most fuel wood were the households with less income. Papua New Guinea, Solomon Islands and Vanuatu have the lowest HDI rankings and also the highest percentage of households that cook primarily with wood or other biomass.

68. Several of the ADB's Pacific island country participatory assessments indicated energy, particularly provision of electricity, as a specific service that had reduced hardship in recent years.

CONSTRAINTS

"ADB believes that significant constraints to growth and poverty reduction in the Pacific lie in the area of policy and institutions, especially weaknesses of economic and social institutions … [that] is broader than merely the organisations and structures that frame economic and social behaviour; it also encompasses the 'rules of the game' by which that behaviour is carried out. ... These include constitutions, laws and regulations as well as trust, informal rules and social norms."

Extracted from: UNDP Asia-Pacific Regional Energy Programme for Poverty Reduction (REP-POR); Pacific Rapid Assessment and Gap Analysis; November 2005

[1] The *Pacific Platform for Action* was the Pacific contribution to the Global Platform for Action that was endorsed in Beijing in 1995.

69. Some of the key energy-poverty issues and linkages, in the Pacific context, are: the increasing cost of commercial energy products in particular petroleum products; limited house-hold electrification in particular in rural areas; rugged terrain and/or isolation of villages and households; widespread use of traditional biomass micro-credit financing for cooking; limited demonstration of effective models for improving energy access to rural areas in particular in Melanesia; limited options real income generating energy activities serious data limitations for both poverty and energy parameters in particular at primary data level; and limited projects; integration of energy considerations in development of sectors other such as health, water, forestry and agriculture/food security. Basically looking from a regional perspective there is; limited access to affordable, reliable and environmentally sound productive modern energy services.

70. As examples of how to move forward the introduction of new and renewable energy technologies such as improved woodstoves to reduce exposure to smoke from extensive use of biomass for cooking, solar photovoltaics for better and longer hours of lighting and national bio-fuel programmes to replace a significant proportion of imported diesel or petrol that creates a great deal of rural employment and income generation are some of the improvements that could contribute to reducing hardship.

ASIA-PACIFIC REGIONAL ENERGY PROGRAM FOR POVERTY REDUCTION

UNDP has launched a new programme called the Regional Energy Programme for Poverty Reduction (REP-PoR). REP-PoR focus on enhancing equitable access to appropriate, reliable and affordable energy services to reduce human and income poverty. The important areas of work that REP-PoR will have its center of attention are Asia-Pacific regional and global issues that have a direct impact on the poor, as well as challenges that countries faces in achieving the MDGs targets. In this context, the REP-PoR will undertake broad-based interventions in three thematic areas of priority: improving access to energy services to the poor and unserved; promoting efficient use of energy focusing on micro, small and medium enterprise (MSME); and increasing access to financing for sustainable energy, including innovative mechanisms such as CDM and adaptation mechanisms.

K. Energy Partnerships and Initiatives

71. Under the Type II Initiatives the Pacific Islands Energy for Sustainable Development (PIESD), launched in Johannesburg within a portfolio of other Pacific islands umbrella Type II Initiatives, has contributed to the establishment of energy partnerships. There are still partnership opportunities that the Pacific region should continue to develop that will contribute to its efforts to develop sustainably.

72. The emergence of energy partnerships across regions, and within the Pacific is an encouraging trend, and an opportunity to enhance transition towards sustainable development. There is ample room for further and strengthened collaboration in order to facilitate replication of successful experiences and consolidate and exchange knowledge.

73. In addition to the key role played by Pacific island governments at local and national level, other local and national stakeholders with important roles to play as facilitators, initiators, or implementers are urged to provide the necessary support to the transition towards energy for sustainable development.

IV. CONTINUING CHALLENGES

74. Managing competing national / regional priorities for sustainable development with limited resources at the disposal of Government, local decision-makers and Regional Organisations. The quest for additional financing and new partnerships to overcome this challenge will therefore remain a priority.

75. The need to strengthen integrated decision-making and implementation to ensure a well-coordinated, multi-sectoral approach to enhance sustainable development through energy efficiency and alternative energy.

76. To improve accessibility and affordability of modern energy services to rural areas and remote islands.

77. The attention to the strengthening of institutional and human capacity for the energy sector at the national and regional level.

78. The need to strengthen energy data collection and analysis is critical for effective monitoring and assessment.

79. To increase the share of renewable energy in the total energy supply through further development, introduction and use of renewable energy technologies.

80. The adoption of energy efficient practices and designs with consumers and energy suppliers.

V. REFERENCES

- Pacific Regional Submission to CSD9 – Energy and Sustainable Development; December 2000.
- Pacific Islands Energy Policy.
- Pacific Islands Energy Strategic Action Plan.
- Regional Overview Report, Volume 1 – Pacific Islands Renewable Energy Project (PIREP).
- SIDS Submission to CSD14.

V. ANNEXES

ANNEX 1 STATUS OF NATIONAL ENERGY POLICIES IN THE PACIFIC

Country	Policy Framework
Cook Islands	There is a National Energy Policy framework being endorsed by Cabinet in 2003.
Federated States of Micronesia	A draft national energy policy was prepared in August 1999 and provisionally adopted at the FSM Economic Summit in September 1999. There is no formal National Energy Policy for FSM but there are some policy statement e.g. the National Climate Action Plan which aims to promote the use of renewable energy technologies as a climate change mitigation option.
Fiji	Fiji does not have a national energy policy but it does have in existence a Corporate Plan. In 1993, Cabinet endorsed a Rural Electrification Policy (REP) that remains in force. Under the Renewable Energy Programme, any rural village or settlement can request government assistance for electrification.
Kiribati	There is presently an Energy Issues and Guidelines document (2002) which has not been endorsed by Cabinet. On the other hand, there are a number of legislations (Acts of Parliament), such the Public Utilities Act (CAP 83 of 1977, revised 1998); the Prices Ordinance (CAP 75 of 1976; revised 1981) that provides for the Minister to make regulations regulating the retail prices of prescribed commodities – currently the only petroleum products under retail price control are benzene and kerosene.
Marshall Islands	The policy statements have been endorsed by Cabinet in April 2003. There is a Strategic Development Plan Framework 2003 – 2018 ('Vision 2018') with some energy content.
Nauru	There is a draft Nauru Development Plan: 2002 – 2006. Assistance to further develop its National Energy Policy is currently being addressed.
Niue	Adopted policy in 1995 and have requested a review of the policy statements.
Papua New Guinea	The most recent policy documents are a draft National Energy Policy Statement (GoPNG, 2001) and National Energy Policy Guidelines of 2001 (GoPNG, 2001a). There are several Acts of Parliament that deal directly or indirectly with energy issues. These include: Electricity Supply (Government Power Stations) Act 1970 (revised 1973 & 2002); Electricity Industry Act of 2002 – formerly the ELCOM Act; and the Environmental Act of 2000.
Samoa	In 2005 a draft National Energy Policy has been developed through a wide consultation process. The current version was built on an earlier draft National Energy Policy Statement prepared in 1996.
Solomon Islands	There is the National Energy Policy Guidelines and National Energy Policy Statement prepared in 1995. These documents are currently being reviewed and are anticipated to be indorsed by government in 2006. Also, there is a Master Power Development Plan for the Solomon islands prepared with assistance of the Japanese Government.
Tokelau	A National Energy Policy and Strategic Acton Plan (NEPSAP) was endorsed by Cabinet late 2004.
Tonga	A draft National Energy Policy has been prepared and planned to be tabled for consultation with relevant stakeholders in 2006.
Tuvalu	The policy statements have been endorsed by Cabinet in 2005.
Vanuatu	There is a draft National Energy Policy which was never formally endorsed by the government but to some extent still guides the Energy Unit in formulating plans and programmes.
Palau	There is no formal energy policy framework.

Source: Pacific Islands Energy Policy and Strategic Action Planning Project.

ANNEX 2 AN OVERVIEW OF THE POWER UTILITIES IN THE REGION

Country	Utility organisation & reforms	Cost of services	HH electrified
Cook Islands	TAU is govt owned utility. Privatisation attempted in 1990s, but unsuccessful. Bids were much lower than govt had expected. 13 outer island systems run by island councils	Costs are high in Rarotonga and very high elsewhere. ADB unsure how prices are to be regulated	35 % in 1994; 99% in 2004
Federated States of Micronesia	All four state utilities are govt-owned and corporatised: CPUC, KUA, PUC & YSPSC. ADB currently advising FSM.	Historically, free or supplied at very low cost. Even after corporatisation, prices do not fully cover costs	30% in 1993; 54% in 2000 (46% via utilities)
Fiji Islands	FEA corporatised & fully govt. owned. Serves only islands of Viti Levu, Vanua Levu & Ovalau. Considering various private proposals for supply	ADB says relatively high charges but stable for 10 years. National tariff with heavy subsidies from Viti Levu to other two FEA islands	50% in 1994; 67% in 1996 (57% via FEA)
Kiribati	PUB is govt owned & supplies only South Tarawa. PWD supplies on Kiritimati. SEC supplies on other outer islands	Large, cross-subsidy from electricity to water and sewerage is long-standing financial drain on Tarawa.	29% in 1993; estimated at 60% in 2005
Marshall Islands	MEC operating on Majuro, Jaluit & Wotje, with govt meeting revenue shortfalls outside Majuro. KAJUR operates only in Ebeye	MEC is profitable; no longer receives govt subsidies for Majuro. Dispersion of islands over large distances means high cost for outer islands	50% in 1994; 63% in 1999 (only 13% away from Majuro & Ebeye
Nauru	NPC is govt owned and supplies the entire island	A9¢/kWh (domestic) & 13¢ (other) is far lower than cost. No govt or hh bills paid since 2002	unknown in 1994; nearly 100% in 2003
Niue	NPC is govt-owned corporation reporting to Secretary for Govt.	NZ 30¢/kWh (48¢ for air con). This is heavily subsidised	unknown in 1994; ~ 100% in 2003
Palau	Supplies Koror, Babeldaob, Kayangel, Peleliu & Angaur	Complex national tariff with urban consumers subsidising rural islands	unknown in 1994; ~ 97% in 2004
Papua New Guinea	Elcom corporatised into govt owned PNG Power. Responsible for power throughout PNG	Complicated tariff structure. Large tariff increases since 2000 but PNG Power under considerable financial stress	22% in 1994: < 10% in 2003 (P Moresby ~ 63%)
Samoa	EPC is govt-owned & corporatised. ADB advising on staff & finance	Charge is below cost & gap is widening; Upolu subsidises Savai'i	90% in 1994; 93% in 2001
Solomon Islands	SIEA is govt owned. No corporatisation plans yet formulated	High cross subsidies from Honiara to all other areas. Charges do not cover costs.	15 % in 1994; 16 % in 1999 (11% via SIEA)
Tokelau	Power separate for each of 3 islands. Procedures & structure being developed	Charges of NZ 30-50¢/kWh but costs NZ$1.0 - 1.8 excluding capital costs	unknown in 1994; ~ 100% in 2003
Tonga	Shoreline private utility serves Tongatapu & main islands of Ha'apai, Vava'u & 'Eua. In principle, TEPB regulates	Charges cover costs & differ by island. Tariffs rose at AAGR of 11% mid 1998 - mid 2003	unknown in 1994; ~ 79% in 1996 80 % in 1999 estimated ~ 95% 2005
Tuvalu	TEC is govt-owned & corporatised; serves nearly all islands	Tariffs below full cost on Funafuti & much below cost away from Funafuti. In real terms, charges far less than in 1982	unknown in 1994; > 95 % in 2003
Vanuatu	UNELCO is private sector monopoly operating on Efate, Santo Tanna & Malekula islands	ADB describes charges as among highest in world (but actually comparable to many PICs)	unknown in 1994; 19% in 1999 (61% of urban hh)

Source: UNDP Asia-Pacific Regional Energy Programme for Poverty Reduction (REP-PoR); Pacific Rapid Assessment and Gap Analysis Report; November 2005.

Notes:

- The information in the Table above has been updated from the PIREP Regional Report (SPREP 2005) by the REP-PoR Consultants.
- The percentage of households electrified as indicated in the Table does not necessary represent the entire country as rural electrification services in some countries are provided for by other ministries/departments.

ANNEX 3 PACIFIC ENERGY AND GENDER NETWORK PAPER TO CSD14

ENERGY AND GENDER IN THE PACIFIC

14th Session of the Commission on Sustainable Development (CSD14 / 15)

PACIFIC PREPARATIONS

This paper provides background information, ongoing implementation activities and initiatives in Energy and Gender in the Pacific Region. Further the paper highlights constraints, challenges and lessons learnt concerning the energy and gender linkages, with the expectation that this material will be taken into account in the discussions during CSD14 and in the recommendations made at CSD15.

The paper is coordinated by Pacific Energy and Gender Network (PEG), hosted by South Pacific Applied Geoscience Commission (SOPAC). The paper has been endorsed by member countries at the 2005 Regional Strategic Planning Awareness Raising Workshop – Pacific Energy and Gender Network, 5-9 December, Nadi, Fiji Islands. Acknowledging ENERGIA and Technical Centre for Agricultural and Rural Co-Operation (CTA) for their support to this paper.

This paper is also incorporated into the Regional Pacific Energy Submission paper to CSD 14, which is coordinated by the Council of Regional Organisations of the Pacific (CROP) – Energy Working Group.

CONTENTS

INTRODUCTION & BACKGROUND On CSD 14/15

The United Nations Commission on Sustainable Development (CSD) was established by the UN General Assembly in December 1992 to ensure effective follow-up of United Nations Conference on Environment and Development (UNCED), also known as the Earth Summit.

The Commission is responsible for reviewing progress in the implementation of Agenda 21 and the Rio Declaration on Environment and Development; as well as providing policy guidance to follow up the Johannesburg Plan of Implementation (JPOI) at the local, national, regional and international levels. The JPOI reaffirmed that the CSD is the high-level forum for sustainable development within the United Nations system.

The CSD meets annually in New York, in two-year cycles, with each cycle focusing on clusters of specific thematic and cross-sectoral issues, outlined in its new multi-year programme of work (2003-2017). The 2006 / 2007 cycle has the following details.

Cycle	Thematic Cluster	Cross-cutting Issues
2006 / 2007	• Energy for Sustainable Development • Industrial Development • Air Pollution / Atmosphere • Climate Change	Poverty eradication, Changing unsustainable patterns of consumption and production, Protecting and managing the natural resource base of economic and social development, Sustainable development in a globalizing world, Health and sustainable development, Sustainable development of SIDS, Sustainable development for Africa, Other regional initiatives, Means of implementation, Institutional framework for sustainable development, Gender equality, and Education

The CSD has opened its sessions to broad participation from both governmental and non-governmental actors, and it supports a number of innovative activities, such as the Partnerships Fair, the Learning Centre and a series of panels, roundtables and side events. The High-level segment features dialogue among Ministers, and Ministers also hold a special dialogue session with Major Groups.

As a functional commission of the UN Economic and Social Council (ECOSOC), CSD has 53 member States (about one third of the members are elected on a yearly basis). Each session of the CSD elects a Bureau, comprised of a Chair and four vice-Chairs.

The Review Session– CSD 14

The fourteenth session of the UN Commission on Sustainable Development (CSD-14) will meet at UN Headquarters in New York from 1-12 May 2006. As the first year of the second implementation cycle, CSD-14 will review progress in the following areas: Energy for Sustainable Development; Industrial Development; Air pollution/Atmosphere; and Climate Change.

Policy Session – CSD 15

The second implementation cycle under the thematic clusters of Energy for Sustainable Development; Industrial Development; Air pollution/Atmosphere; and Climate Change continues at CSD-15 (30 April - 11 May, 2007) with the Policy Session, when the Commission will decide on measures to speed up implementation and mobilize action to overcome obstacles and constraints, and to build on lessons learned. CSD-15 will be preceded by the Intergovernmental Preparatory Meeting (26 February - 1 March 2007).

ONGOING IMPLEMENTATION ACTIVITIES AND INITIATIVES IN ENERGY AND GENDER IN THE PACIFIC REGION

Availability of energy is a key concern in meeting both basic and development needs for every country. The use of energy is a necessary and vital ingredient of socio-economic development and economic growth. In general, energy can contribute to widening opportunities and empowering people to exercise choices. On the other hand, its absence can constrain men, women and youths from contributing to development. Thus, linkages have been established between energy and major socio-economic global issues such as poverty and hardships, gender disparity, population, food security, health, environment, economy, and security.

Interest in gender can be traced back to the Pacific Platform for Action for the Advancement of Women, adopted in 1994 by the 22 governments and administrations served by the Secretariat of the Pacific Community (SPC) as part of the Noumea Declaration where the importance of women's participation in national and regional development activities[1] was formally recognised.

In the global context these activities are consistent with Principle 20 of the Rio Declaration and Chapter 24 of UN Resolution, Agenda 21, which stresses the vital role women play in the management of the environment and natural resources and calls for the full participation of women in sustainable development programmes. In addition, the recent outcomes of the World Summit on Sustainable Development (WSSD) process reinforce the importance of the women proactive role and gender mainstreaming as mechanisms for poverty eradication.

The UN Millennium Declaration and the Millennium Development Goals, define the overarching aspirations of contemporary sustainable development thinking, and make unequivocal reference to the need for a gender perspective in all development activities as a key element in promoting sustainability of the environment, societies and economies. Millennium Development Goal 3 targets specifically the promotion of gender equality and the empowerment of women. Although the goal is valuable in themselves, they are also central to achieving all the other Millennium Development Goals.

In the regional context, as a follow-up to the Economic and Social Commission for Asia and the Pacific (ESCAP) workshop, held in Perth, Western Australia in June/July 2001 and the Regional Energy Meeting held in Rarotonga, Cook Islands in 2002, the South Pacific Applied Geoscience Commission (SOPAC) acquitted the mandate to assist in coordinating initiatives related to the development and implementation of an action plan for women and energy.

Pacific Energy and Gender Network (PEG)

To set the first milestone, SOPAC convened the regional workshop on "Gender, Energy and Sustainable Development" in Nadi, Fiji Islands from 4-8 August 2003. Recommendations resulting from the workshop included (i) mainstreaming gender into energy and policy planning, (ii) improving networking at national and regional level with relevant stakeholders, (iii) strengthening information dissemination in order to increase awareness of energy and gender issues, (iv) provision of technical assistance, (v) improved gender and energy training and (vi) capacity building at different levels on (a) fund raising and (b) analysing gender impact of the use of different energy sources and technical choices.

[1] The *Pacific Platform for Action* was the Pacific contribution to the Global Platform for Action that was endorsed in Beijing in 1995.

Among the identified actions, participants prioritised the establishment of a network through a coordinating "hub" and agreed that a body named "*Pacific Energy and Gender (PEG) Network*" be established and initially hosted by the SOPAC Secretariat.

After endorsing the establishment of a regional gender and energy network, Pacific Energy and Gender Network (PEG), the participants at the workshop defined its mandate and scope as follows:

Agreed Recommendations on the Establishment of the Pacific Energy and Gender Network (PEG)

(i) That the region chooses to endorse and establish a regional gender and energy network, Pacific Energy and Gender Network (PEG).

(ii) That the PEG Network includes and welcomes all countries, and all peoples and their organizations that have gender and energy interests in this Oceania region.

(iii) That the PEG Network becomes, through this workshop a strategy and action, in the Pacific Islands Energy Policy and Plan (PIEPP) in order to further gender equity and sustainable energy development in the region.

(iv) That this PEG Network is formally established through a coordinating "hub" and initially be hosted by SOPAC.

(v) That the "hub" or Secretariat for PEG Network exists as a separate function to the host organization with the option that the "hub" of the Network rotates throughout the region and be hosted by different organizations with suitable capacity.

(vi) That the PEG Network would welcome regional, national and community organizations to membership and would provide encouragement and opportunity for community based representation.

(vii) That a small, representative working group be established, by this workshop to plan, oversee and be responsible for the operationalizing of the PEG Network.

(viii) That the PEG Network through this workshop chooses to accept the invitation extended to the Oceania region, to join the broad international gender and energy network known as ENERGIA.

In the Regional Energy Meeting (REM 2004) held in Madang, Papua New Guinea from November 29 – 3 December 2004, the energy officials recommended as follows:

- *We endorse the further development of the Pacific Energy and Gender Network Work Programme through national and regional initiatives.*

Pacific Energy and Gender Network's Accomplishments and On-Going Initiatives

PEG's ongoing activities include incorporating energy / gender articles into the quarterly Pacific Energy Newsletter (PEN), other regional / international newsletters, mainstreaming gender into regional / national energy policies and building awareness on energy / gender linkages.

Through funding support from partners and donors (Technical Centre for Agricultural and Rural Co-operation [CTA] and ENERGIA), a key project on building awareness on gender and energy issues in the Pacific region was initiated in 2004. The following were the outputs of the project and distributed in the region:

- Posters in three languages (English, Fijian and Hindi)
- Flyers with "game" in three languages (English, Fijian and Hindi)
- Radio programme developed for six Pacific Island Countries, in English and seven local languages (Fijian, Hindi, Kiribati, Samoan, Solomon Pidgin, Tuvaluan and Vanuatu Bislama). The radio spots developed focuses on 3 themes – one spot on energy efficient appliances and bulbs, another on solar energy and the third on gender angle. All three spots underline importance of energy and how it improves livelihoods of the community.
- Video programme (20 mins) *Linkages Between Energy and Gender In the Pacific* in English. It presents successful rural sustainable energy projects such as Driti Community Solar Refrigeration project (Fiji Islands), Lakhan Family Biogas project (Fiji Islands), Atata Community Solar project (Kingdom of Tonga) and Palau Entrepreneur Laundromat experience. The video has already been launched on national television – *Fiji TV* on *The Pacific Way* programme. It is expected that more opportunities will be sought for this video to be played over other national television channels in the region.
- A PEG website has been developed: http://www.sopac.org/About+PEG
- An Online Contact database of personnel in the field of energy and gender for the Pacific region has been developed: http://www.sopac.org/PEG+Database
- Pacific Energy and Gender Annotated Bibliography has been developed and published. This document summarises the most important materials on gender/ or energy, which refers to the Pacific region, whether written from within or outside the region.
- A mailing list for PEG network has been created: http://www.dgroups.org/groups/cta/PEG. The Dgroups provides online tools and services needed to support the activities of the network. It is expected that the PEG Dgroup will further develop once all on the contacts on the online contact database is incorporated into the Dgroup.

The *Regional Strategic Planning and Awareness Raising Workshop – Pacific Energy and Gender Network (PEG)*, 5-9 December, 2005, Nadi, Fiji Islands, delivered the following outputs:

- Pacific Energy and Gender Network (PEG) Strategic Action Plan (PEGSAP) 2006-2008 (attached as Annex 1)
- Regional paper to present at Commission of Sustainable Development CSD 14/15 and at the World Summit of Rural Women 2006 in Africa;
- Increased understanding and capacity in dealing with gender / poverty issues in the energy sector (training – ENERGIA modules adopted to Pacific);
- PEG Terms of Reference
- Common Ground Ideas that are Achievable in the Period 2006-2008, were also generated during the workshop (attached as Annex 2)
- Published and disseminated workshop proceedings.

ENERGY AND GENDER ISSUES IN THE PACIFIC REGION

[1] Energy has a vital role in achieving sustainable development in the Pacific Region. It is fundamental input to most economic and social activities and a prerequisite for development in other sectors such as education, health, and communications.

[2] It is recognised that women and youth are important stakeholder in the energy sector and their participation is vital to achieve sustainable development.

[3] While women and youth are significant energy users, they are poorly represented in energy policy, planning and development.

Major Constraints and Challenges

[4] Pacific Island countries 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.
- Market access is limited by lack of appropriate technologies to meet quarantine requirements of overseas markets.
- 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.
- The increasing oil prices and Pacific Island countries heavy reliance on fossil fuel raises energy security as well as environmental sustainability concerns for the region.

[5] Pacific island countries and territories have special concerns arising from their situation:

- 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 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 non-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, institutional and technological capacity to respond to these challenges.
- While women are significant energy users, they are poorly represented in energy policy, planning, and development.

[6] Pacific Islands Countries at the 2005 Regional Strategic Planning Awareness Raising Workshop – Pacific Energy and Gender Network, 5-9 December, Nadi, Fiji Islands reaffirmed the constraints and challenges identified at the 2003 workshop. as follows:

- Addressing energy linkages with gender is not a priority for government
- insufficient research and information on energy and gender linkages in the Pacific;
- lack of gender analysis of energy projects in the Pacific;
- limited technical, human and institutional capacity for gender analysis;
- women in the Pacific are generally unaware or uninterested in energy and gender linkages;
- limited representation of women in the energy sector;
- cultural restrictions influencing gender roles; and
- unequal participation of men and women in decision-making.

[7] Increase in political instability in some parts of the region has direct impact on the socio-economic condition of a country. Good Governance has been acknowledged as a prerequisite for sustainable development.

[8] Donor requirements do not always correspond to the social and economic needs of the communities.

[9] Government national budgets do not adequately provide for such initiatives as energy and gender projects. This is generally due to energy / gender not recognised as a national priority in terms of government development plans.

[10] The inefficient use of conventional and unconventional energy resources in the region and the need to educate and build awareness on energy efficiency and conservation.

Lessons Learnt

[11] The need to mainstream gender into national energy policies and planning, including the provision of assistance on the implementation of existing policies at all levels from government to community.

[12] That relevant NGOs in the Pacific Region be encouraged to include energy as one of their terms of reference, with a clear focus on gender and energy for sustainable development.

[13] The use of participatory methods in all Island Countries to enhance and commence data collection on gender and energy.

[14] To strengthen community based networks developed by community people where the purpose is to support community electrification in the Pacific through advocacy, networking, training and implementation support

[15] Recognising the need to increase awareness of energy and gender issues, especially at the rural community level, the dissemination of information was considered important and needs to be strengthened.

[16] Identify and provide financial support including micro-credit facilities for work in the energy and gender field, and the development of appropriate and client oriented technologies.

[17] The need for improved gender and energy training and capacity building at different levels through a range of methods, specifically:

- Gender and energy curricular to be included at all education levels, from primary to tertiary level;
- Encourage more female students in technical disciplines; and

[18] In noting that training will be required if gender mainstreaming is to be successfully integrated into energy activities, the following priority training need were identified

- Gender awareness training in government, energy officers, and other stakeholders
- Gender training at community level.
- "Train the Trainer" training within communities to facilitate sustainable development; and
- Seek training opportunities for women in energy technologies.

[19] Community participation which is inclusive of men, women, youth and children is critical for electrification at the rural level.

[20] That language used in energy and gender policy statements be clear, appropriate, gender sensitive and inclusive.

[21] The need to use appropriate language in promoting energy awareness and capacity building in communities.

[22] To identify funding for a workshop on energy and gender awareness.

[23] The need to document and report on the gender impact of different energy types, technology choices and the economic feasibility of projects to be a requirement.

[24] To promote productive use of energy in the rural areas especially income generating activities or small business for women.

[25] National governments to take practical initiative in addressing the alternative energy sources and gender issues with all stakeholders.

[26] Financial institutions to direct resources to regional and national education institutions to build capacity and appropriate technologies for energy resources that encourage gender participation and representation.

[27] Countries need assistance to promote the use of renewable energy to ensure some kind of fuel-security measure established for the Pacific.

Case Studies

Fiji Case Study- Driti Village Solar Refrigeration Project

A successful case study demonstrating how a solar refrigerator project improves livelihoods of communities is Fiji Department of Energy project *Driti Village Solar Refrigeration Project* at Bua.

In 2004, the Fiji Department of Energy installed 9 solar panels to the Refrigerator house, this enabled the Driti Community to store their harvested fish in the refrigerator to be sold later. The project further increased flow of income for the Driti Village, as compared to previously when they could only harvest limited fish.

The Solar Refrigeration project is managed by Women's Committee. One of the requirements of the project is that the committee pays a monthly repair and replacement fee of FJD 30. The committee thus established a bank account through the ANZ Rural Banking service whereby the monthly operational and maintenance fee is to be deposited.

Through this project the women and youths of the village are empowered through the technical training in terms of managing the project, and the extra income earned going towards education and other needs.

This case study is featured in the PEG video – *Linkages Between Energy and Gender In the Pacific*.

Tuvalu Case Study– Shortage in Petroleum Supply – 2005 Scenario

Petroleum is supplied to the country by BP through a local coastal tanker, usually every 2 months. Bulk shipment in October 2005 came in almost after 3 months [*Figure 1*].

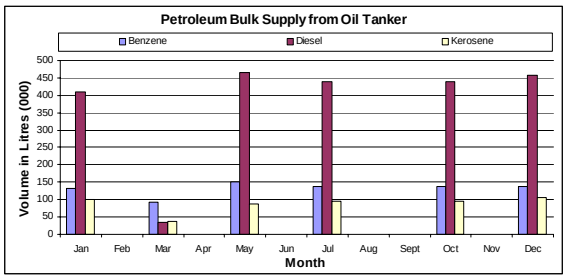


Figure 1

The volume of residual petroleum fuel left in stock before the next trip of the oil tanker often runs out [*Figure 2*].

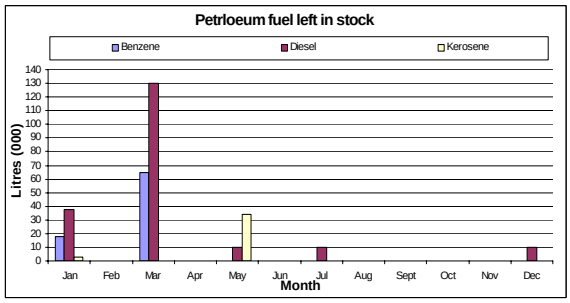


Figure 2

Besides the bulk shipment every 2 months, BP provides additional petroleum fuel in containers of 200 liters drums shipped in by regular general cargo vessel that delivers every month. This supply is a temporary measure to cover the shortage that may be foreseen by the wholesale supplier in considering the rate of consumption and next trip of the oil tanker.

Considering the number of times Tuvalu ran out of petroleum fuel in 2005, it is not difficult to imagine the huge losses that incurred by government as well as the private sectors in goods and services.

The storage capacity of tanks at the BP is the main cause of the deficient supply. Therefore, additional tanks are required at the BP deport to take up sufficient petroleum supply until the next call of the local coastal tanker. Without the additional supply of fuel brought in by the general cargo vessel on a monthly call could have resulted in prolong period without fuel and everything could have been in chaos.

CONCLUSION

This paper provides background information, lessons learnt concerning the gender aspects of energy, and case studies with the expectation that this material will be taken into account in the discussions during CSD 14 and in the recommendations made at CSD 15. This paper is also incorporated into the Regional Pacific Energy Paper to CSD 14.

Women and youths must be recognised as important stakeholder in the energy sector and their participation is vital to the achievement of sustainable development. Empowerment through capacity building and technical training will increase capacity of communities, including women and youths to effectively participate in energy policy-making, energy projects, programmes and decision-making bodies.

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ANNEX 1 – Pacific Energy and Gender Network Strategic Action Plan (PEGSAP) 2006 - 2008

The Pacific Energy and Gender Network Strategic Action Plan (2006 – 2008)

The purpose of the Pacific Energy and Gender Network Strategic Action Plan (PEGSAP) is to contribute towards mainstreaming gender in the energy sector.

Its goal is: **Gender equity in all aspects of energy development**

The strategies and actions included in PEGSAP will strengthen the proposed gender mainstreaming activities contained in the Pacific Islands Energy Strategic Action Plan (PIESAP) thus contributing to the Pacific Islands Energy Policy vision of: *"Available, reliable, affordable, and environmentally sound energy for the sustainable development of Pacific Island communities".*

The activities of the action plan is based largely on the discussions and recommendations of SOPAC member countries at the Regional Workshop on Gender, Energy and Sustainable Development held in Nadi in August, 2003. At this meeting member countries discussed the challenges and proposed future actions for addressing energy and gender nationally and regionally. Among these was the establishment of the "Pacific Energy and Gender Network" (PEG) that was mandated to mobilise individuals and groups committed to achieving gender equality in energy use in the Pacific. The 2005 Regional Strategic Planning Awareness Raising Workshop reaffirm the challenges identified at the 2003 workshop. The PEGSAP will be coordinated by the PEG Network to achieve its mandate in the Pacific Islands region.

Challenges to mainstreaming gender in the energy sector in the Pacific as indicated by the member countries at the 2003 Nadi regional workshop are summarised as follows:

- Addressing energy linkages with gender is not a priority for government;
- insufficient research and information on energy and gender linkages in the Pacific;
- lack of gender analysis of energy projects in the Pacific;
- limited technical, human and institutional capacity for gender analysis;

- women in the Pacific are generally unaware or uninterested in energy and gender linkages;
- limited representation of women in the energy sector;
- cultural restrictions influencing gender roles; and
- unequal participation of men and women in decision-making.

The Pacific Energy and Gender Network Strategic Action Plan is made up of six key strategies that respond to the above challenges.

1. Incorporate gender concerns into energy policies and plans nationally and regionally.
2. Raise awareness on energy and gender linkages in the Pacific Islands region.
3. Conduct research and analysis on energy and gender linkages in the Pacific islands region.
4. Build the capacity of energy decision makers, project officers, NSAs, village electrification councils and local communities in incorporating gender sensitive participatory approach and gender mainstreaming tools to energy project planning, implementation, monitoring and evaluation.
5. Increase the representation of women in energy education and training programmes and decision-making committees.
6. Strengthen networking and cooperation with relevant international, regional and national groups and institutions.

ACRONYMS

SOPAC	South Pacific Applied Geoscience Commission
PIFS	Pacific Islands Forum Secretariat
PIEP	Pacific Islands Energy Policy
PIESAP	Pacific Islands Energy Strategic Action Plan
NEO	National Energy Office
CROP EWG	Council of Regional Organisations in the Pacific – Energy Working Group
PEG	Pacific Energy and Gender Network
PEN	Pacific Energy News
PRETI	Pacific Renewable Energy Training Initiative
NSAs	Non State Actors
REP-PoR	Regional Energy Programme for Poverty Reduction
USP	University of the South Pacific
CTA	Technical Centre for Agricultural and Rural Cooperation, Netherlands
ACP-CE	

NOTE

- The term “Lead Organisation” refers to the organisation that will take a lead role in the specified activity.
- The term “Stakeholders” refers to other organisations that have or may have an interest in the specified activity.
- The term “men and women” refers to men and women of all ages.

Pacific Energy and Gender Network Strategic Action Plan
(2006 – 2008)

Strategy 1: Incorporate gender concerns into energy policies and plans, nationally and regionally.

Activities	*Lead organisation [Stakeholders]*	*Indicators [Means of verification]*	*Assumption/Risks [Mitigation]*	*Time Frame*
1.1 Review national and regional energy policies and plans to identify gender gaps in energy.	SOPAC (PEG & PIEPSAP) [NEO, CROP EWG]	• Documentation of review on gender gaps in the energy policies and plans • Number of countries covered in the review	• Policies and plans already implemented or in draft do not sufficiently address gender issues • Countries are developing draft energy policies and plans	2006
1.2 Incorporate gender concerns into the development of regional and national energy policies and plans particularly in the areas of: i) Decision-making; ii) Training access; and iii) Project participation	SOPAC (PEG) [PIFS, NEO, CROP EWG]	• Gender issues effectively integrated into three (3) draft National Energy Policies and Plans.	• Countries are developing draft energy policy • Energy policy decision-makers recognise the importance of incorporating gender concerns into energy policies and plans • National policies yet to be endorsed • Ministry responsible for women and women's organizations will be engaged in the energy policy and plan development • Tools and guidelines for mainstreaming gender are available to all stakeholders	2006 – 2008
1.3 Conduct national workshops to sensitize politicians, planners and other high level stakeholders on energy and gender issues	NEO [NSAs, SOPAC (PEG, PIEPSAP)]	• 1 national workshop conducted per country	• NEO are willing to conduct the workshops • Funding available for conducting workshops	2006 - 2008
1.4 Use high level regional forums to address and promote energy and gender issues in Pacific island countries	SOPAC (PEG) [PIFS, CROP EWG, NEO, NSAs]	• 2 high level regional forums that cover energy and gender issues in their agendas	• Countries will prioritise energy and gender issues • Funding Availability to host regional high level forums	2006 – 2008

Strategy 2: Raise awareness on energy and gender linkages in the Pacific Islands region.

Activities	*Lead organisation [Stakeholders]*	*Indicators [Means of verification]*	*Assumption/Risks [Mitigation]*	*Time Frame*
2.1 Design public awareness campaign materials on energy and gender in the Pacific with an emphasis on: i) Rural communities; ii) Participation of women; iii) Energy efficiency and conservation; iv) Basic technology safety; and v) Installation, operation and maintenance of energy systems.	SOPAC (PEG) [PIFS, CTA, NEO, NSA, CROP EWG, UNDP (REP-PoR), Ministries of Women & NSAs, public broadcasting agencies]	• Pacific energy and gender public awareness campaign materials are in place and distributed to countries.	• Resource availability • Selected topic relevant to national energy interest	2006
2.2 Implement Pacific Energy and Gender Public Awareness Campaign in local language via the following means: village meetings; community theatre outreach; church, women and youth meetings; and the mass media	SOPAC (PEG) [NEO, CTA, NSA, CROP EWG, UNDP (REP-PoR), USP Centres, Libraries (national, local and schools), local governments and village councils, NSAs, public broadcasting agencies]	• Awareness raising activity report • Copies of awareness materials produced	• Funds, and resources to produce materials available • Resource material relevant and understood by local communities • Message in resource materials adequately understood by stakeholders	2006
2.3 Develop and disseminate an annual PEG newsletter and continue to include gender issues / articles in Pacific Energy Newsletter (PEN)	SOPAC (PEG) [NEO, CTA, NSA, CROP EWG]	• 1 annual PEG Newsletter • Pacific energy and gender articles appearing regularly in PEN	• Resource availability • PEG network members regularly contribute articles	2006 – 2008

2.4 Develop and integrate energy and gender into curricular for primary, secondary, tertiary and vocational institutions	SOPAC (PEG) [USP, Education Dept, CROP EWG, NEO]	• Energy and gender integrated into relevant curricular • Number of consultation with Ministry of Education	• Educational institutions supportive of proposed curricular • Funding available	2006 – 2008
2.5 Incorporate gender mainstreaming resource tools and guidelines into PRETI framework	SOPAC (PEG) [CTA, CROP EWG, SOPAC (PRETI)]	• PRETI curriculum contains gender mainstreaming guidelines.	• Tools developed and ready before PRETI framework finalised • Funding availability	2006 – 2008
2.6 Continue to add to Pacific Energy and Gender Annotated Bibliography list	SOPAC (PEG) [USP, PIFS, NEO, NSA, CROP EWG]	• Number of publications added to Pacific Energy and Gender Annotated Bibliography list	• Relevant publications available and accessible	2006 – 2008

Strategy 3: Conduct research and analysis on energy and gender linkages in the Pacific islands region.

Activities	*Lead organisation [Stakeholders]*	*Indicators [Means of verification]*	*Assumption/Risks [Mitigation]*	*Time Frame*
3.1 Conduct a national gender impact assessment of two current rural energy projects in the Pacific (The assessment to be based on the resource tools and guidelines in Activity 4.1)	SOPAC (PEG) [PIFS, CROP EWG, NEO, NSAs]	• 2 participatory surveys conducted • Impact assessment of 2 current rural energy projects carried out.	• Resource and expertise available to conduct a gender impact assessment • NEO time and resource capacity to coordinate or assist in the assessment. • Documentation and gender disaggregated data of rural energy projects available • NEO and community willing to cooperate • Funding available	2006 – 2007
3.2 Produce analytical papers on current Pacific energy and gender issues	SOPAC (PEG) [USP ENERGIA, NEO, CROP EWG]	• Three (3) analytical papers written on energy and gender in the Pacific	• Impact assessment of rural energy projects carried out • Participatory surveys carried out • Data and expertise available regionally • Funding available	2006 – 2007

Strategy 4: Build the capacity of energy decision makers, project officers, NSAs, village electrification councils and local communities in incorporating gender sensitive participatory approach and gender mainstreaming tools to energy project planning, implementation, monitoring and evaluation.

Activities	*Lead organisation [Stakeholders]*	*Indicators [Means of verification]*	*Assumption/Risks [Mitigation]*	*Time Frame*
4.1 Develop resource tools and guidelines for mainstreaming gender into the design, implementation, monitoring and evaluation of energy programmes and projects in the Pacific 4.1a For decision makers and project officers on energy and gender linkage and gender mainstreaming in energy project cycle 4.1b For project officers and implementers on gender sensitive participatory project planning, monitoring and evaluation	SOPAC (PEG) [PIFS, ENERGIA, UNDP (REP-PoR)]	• Resource tools and guidelines developed	• International counterparts willing and able to assist in the development of the resource guideline • Technical expertise and resources to develop guidelines available	2006 – 2007
4.2 Field test both resource tools (as in 4.1a and 4.1b) developed in 2 Pacific Island countries and make necessary changes and improvement based on the test	SOPAC (PEG) [PIFS, SOPAC, NEO, SOPAC (PEG), community, CROP EWG]	• Final adopted version of the training modules	• Funding available • Collaboration from local partners and communities	2006 – 2007

4.3 (a) Conduct regional 'Training of Trainers' for decision makers and project officers on energy and gender linkages and gender mainstreaming in energy project cycle 4.3 (b) Conduct regional training of trainers for project officers and implementers on gender sensitive participatory project planning, monitoring and evaluation.	SOPAC (PEG) [PIFS, SOPAC (REP-PoR), ENERGIA, PEG]	• 2 trainers per country • Workshop Report • Participant evaluation report	• Funding available • Technical expertise available • Training programme relevant to stakeholders	2007
4.4 Adapt, translate and use the training modules at national level.	SOPAC (PEG) [NSA, NEO, SOPAC (PEG) UNDP (REP-PoR), CROP EWG]	• Workshop Report • Existence of national training modules in local languages. • Number of training activities using the modules.	• Funding available • Energy authorities accept importance of training workshop	2007
4.5 Promote the involvement of men and women in energy projects	SOPAC (PEG) [NEO, Community, CROP EWG]	• Gender-disaggregated data of people involved in the management of energy projects	• Gender balanced participation in the management of energy projects acceptable to community	2006 – 2008

Strategy 5: Increase the representation of women in energy education and training programmes and decision-making committees.

Activities	*Lead organisation [Stakeholders]*	*Indicators [Means of verification]*	*Assumption/Risks [Mitigation]*	*Time Frame*
5.1 Promote through the media initiatives encouraging gender balanced representation in energy related courses in educational institution and organisations.	SOPAC (PEG) [USP, Education Department, CROP EWG; national & International agencies & institutions]	• Activity reports on the publicity of gender-disaggregated data of student enrolled and completed energy-related courses • Participation of energy sector in national career expo (Educational Institutions) • Provision of posters, pamphlets to students and parents during career exposé. • Gender equity in the awards of scholarships	• Initiatives encouraging women in energy training exist • Relevant gender disaggregated data available and accessible • National Government implements energy and gender policies	2006 – 2008
5.2 Promote and encourage the involvement of women in PRETI to ensure gender balanced participation	SOPAC (PEG) [NEO, ESCAP, National Women's Machinery, PRETI, CROP EWG]	• National database of men and women engage and working in energy sector • Number of women trained under PRETI	• Funding and scholarships are available • Samples, prototypes and Manuals are available on renewable energy projects • Governments promote gender and renewable energy projects	2006 – 2008

5.3 Promote representation of women at national and rural energy decision making bodies	SOPAC (PEG) [NEO, Community, CROP EWG]	• Women & NGO's represented at regional, national and community energy committees • Equitable representation of men & women at national and community level (Energy Committees)	• National and community energy committees exist • Women keen to participate in committee meetings	2006 – 2008

Strategy 6: Strengthen networking and cooperation with relevant international, regional and national groups and institutions

Activities	*Lead organisation [Stakeholders]*	*Indicators [Means of verification]*	*Assumption/Risks [Mitigation]*	*Time Frame*
6.1 Participate in international, regional, and national meetings, conferences and workshops.	SOPAC (PEG) [PIFS, ENERGIA, NEO, Communities, CROP EWG]	• Meeting reports/records disseminated to all network members.	• Members have a vested interest in the network • Proper communication facilities are available to all members • All members committed to network activities	2006 – 2008
6.2 Convene one regional meeting every two years.	SOPAC (PEG) [CROP Members, NEOs]	• Energy and gender meeting convened.	• Funding is available	2006 – 2008
6.3 Convene two meetings with NSAs, village electrification councils and religious groups at national level.	NEO [PIFS, ENERGIA, NEO, APACE, NSA SOPAC (PEG); Communities, CROP EWG]	• Meetings convened. • Increase number of membership of national and local groups in PEG	• NSAs, village electrification councils and religious groups that work on energy and gender in the Pacific exist • Funding availability	2006 – 2008
6.4 Promote the involvement of NSAs, village electrification councils, and religious groups with PEG	SOPAC (PEG) [SIVEC, VanVec, MIVEC, PNG Vec, CROP EWG]	• Increase in the number of active council members • Increase in the number of activities undertaken by councils	• Local communities interested to strengthen councils • NEO committed to purpose and function of councils • Expertise available	2006 – 2008

6.5 Organise collaborative activities with existing regional and~~,~~ international networks such as ENERGIA, DIMITRA.	SOPAC (PEG) [ENERGIA, DIMITRA, Regional and international networks]	• Information exchange • Collaboration and resource sharing between networks • PEG represented in other network meetings, conferences and vice versa • MOU with ENERGIA finalised.	• Networks proactive to collaborate	2006 – 2008

ANNEX 2 – Common Ground Ideas

Common Ground Ideas that are Achievable in the Period 2006-2008

Member countries at the 2005 Regional Strategic Planning Awareness Raising Workshop through Mind Mapping exercise came up with ideas of how to go about achieving the desired results envisioned to be achievable for 2008, called "common grounds" ideas and are listed below. The common ground ideas are also linked to Pacific energy and Gender Network Strategic Action Plan (PEGSAP) 2006-2008.

- Engendered energy sector
- 80% of Pacific people have access to affordable modern energy services by 2008
- 10% increase in the use of renewable energy
- Government to increase funding for energy projects
- Ready available data for energy planning/policy decisions
- Gender and energy to be addressed in national energy policies
- Increase and promote investment of /renewable/appropriate technologies (small scale industries) in the Pacific region – (increase demand through awareness and education; increase supply of technology
- Data collection on renewable energy development completed and compiled
- Strengthen Network globally, regionally and nationally
- By 2008 great numbers of men and women would have been trained in various skills and technologies in many different fields of energy production
- Renewable energy and gender energy linkages taught in schools (all level)
- That all currently draft energy plans and policies be adopted and implemented by 2008
- Pacific Energy and Gender Network Strategic Action Plan (PEGSAP) 2006 – 2008 implemented
- Each country presents a demonstration project that is gender sensitive (planning, implementation, management, monitoring and evaluation); uses renewable locally available energy sources; community-based; locally managed and economically empowering and documented by 2008
- Available gender and energy data analysis
- By 2008 energy and gender balance be achieved
- RE Project In-country up and running
- Promote equality and gender in working environment
- NGOs involved more in energy activities

ANNEX 4 PACIFIC ISLANDS ENERGY POLICY

PACIFIC ISLANDS ENERGY POLICY (PIEP)

November 2004

PACIFIC ISLANDS ENERGY POLICY (PIEP)

November 2004

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) and inputs to the relevant sections of the PIEP by members of the Energy Working Group.

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.

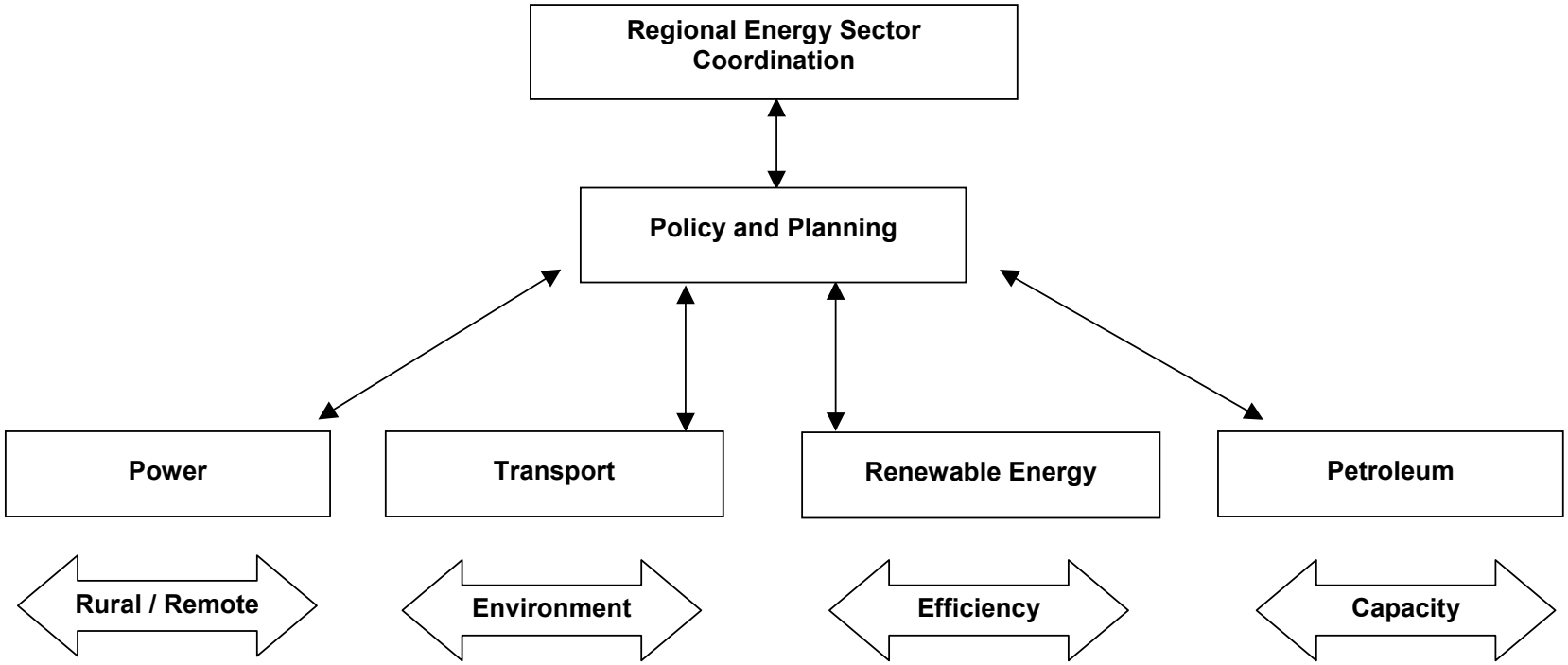
- The development of renewable energy resources has been limited by the availability of capital, suitable financing mechanisms, appropriate technology, effective institutional mechanisms, and the challenges of developing systems for small remote markets at reasonable cost.
- There is limited scope for 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).

The Pacific Islands Energy Policy is therefore considered as a strategic document that will assist in contributing towards achieving the Millennium Development Goals (MDGs) and provides a common and representative position for the Pacific region that will compliment and support the development of an enabling environment for the implementation of the Barbados Plan of Action (BPoA) and Mauritius Strategy (MS).

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, indicators 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 demand 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.

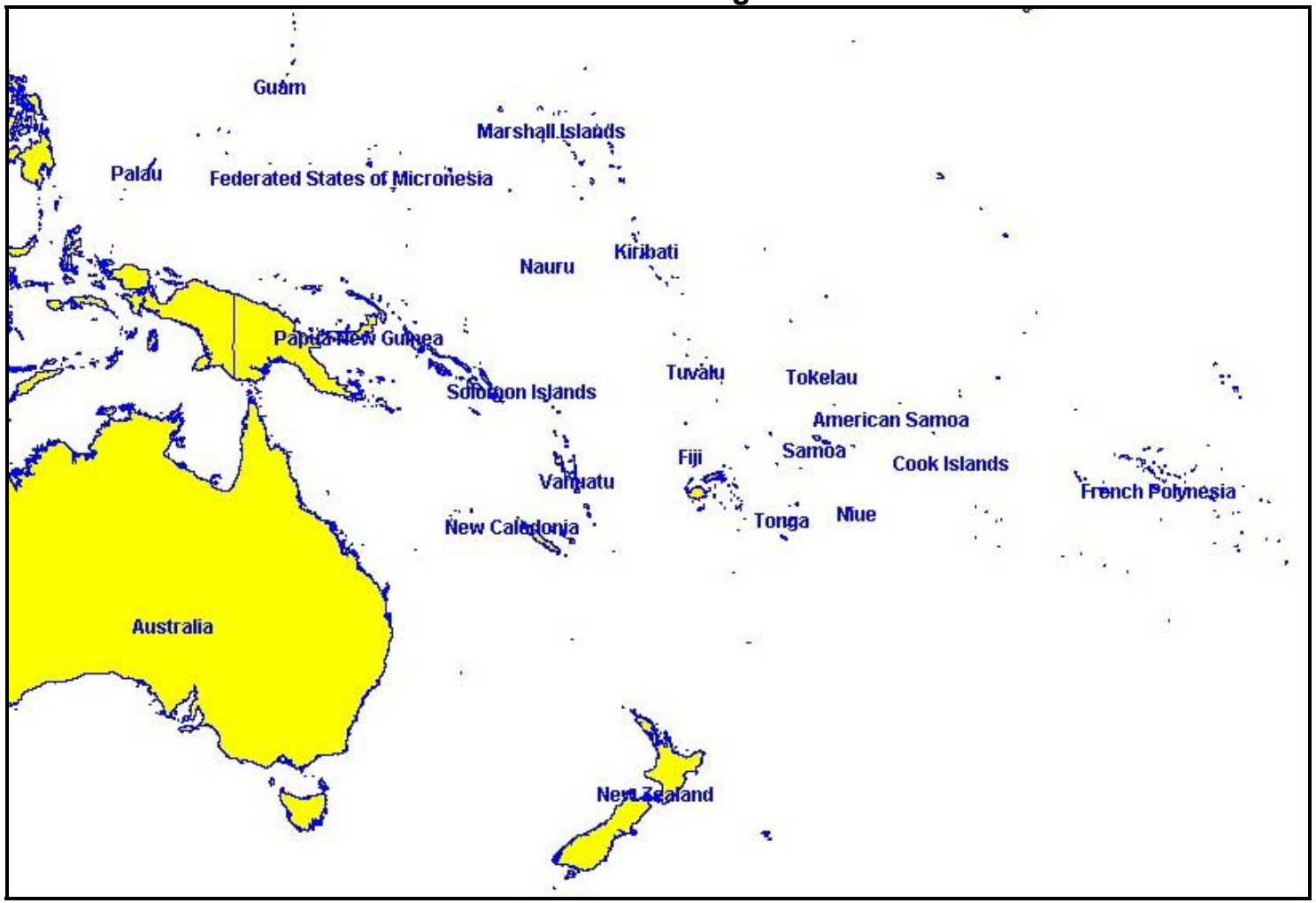
10.4 Accelerate research and development of energy technologies that are appropriate for adoption within the region.

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 – Sheet 1

Country / Territory	Land Area [km^2]	Coastline [km]	Number of Islands	EEZ Area [km2]	Total Population 2000 / [Est 2004]	Geography
American Samoa	200	116	7 (2 Atolls & 5 Volcanic Islands)	390,000	57, 291 / [57,900]	Volcanic islands with rugged peaks and limited coastal plains, two coral atolls.
Cook Islands	240	120	15 (7 Atolls & 8 Volcanic Islands)	1,800,000	19500 / [21200]	Low coral atolls in the North and elevated hilly volcanic islands in the South.
Federated States of Micronesia	702	6112	607	2,978,000	107 000 / [108,150]	Islands range geologically from high mountainous islands to low coral atolls.
Fiji	18,272	4,637	332	1,260,000	814,000 / [880,800]	Mostly volcanic islands - Viti Levu [10,390 sq. km] and Vanua Levu [5,556 sq. km].
French Polynesia	3,521	2,525	118 Islands & Atolls	5,030,000	231,400 / [266,300]	Mixture of rugged high islands and low lying islands with reefs.
Guam	541	126	1	218 000	154,805 / [166,100]	One large island; peak of a submerged mountain located in the Marianas Trench.
Kiribati	811		33	3,600,000	84,494 / [100,800]	Islands are low-lying atolls, except for Banaba which is a phosphate rock.
Marshall Islands	181	370	1152 Islands 30 Atolls	2, 131, 000	51,600 / [57,700]	Low coral atolls and limestone islands.
Nauru	21	30	1	320 000	11,500 / [12,800]	Single raised coral island with phosphate plateau in centre.
New Caledonia	18, 576	2,254	1 Main Island & Many Isle & Atolls	1, 740, 000	211,000 / [213,700]	Coastal plains and interior mountains, numerous small islands and atolls.

Pacific Island Countries and Territories Physical Data – Sheet 2

Country / Territory	Land Area [km^2]	Coastline [km]	Number of Islands	EEZ Area [km2]	Total Population 2000 / [Est 2004]	Geography
Niue	259	64	1	390,000	1,900 / [2150]	Steep limestone cliffs with a central plateau.
Northern Marina Islands	477	1,482	14	N/A	[78250]	Southern islands limestone with coral reefs, Northern islands are volcanic.
Palau	488	1,519	300 Plus Islands	629,000	19,129 / [20,000]	Varies types, volcanic, reef and atoll, low platform and high limestone.
Papua New Guinea	462 243	5,152	Main Land Mass & 1400 Islands	3,120,000	5,190,786 / [5,420,300]	Largely volcanic high islands and coastal lowlands.
Pitcairn Islands	47	51	5	N/A	46	Volcanic with a rocky coastline
Samoa	517	403	2 Large Islands Plus a number of small islands	120 000	169,000 / [177,700]	Coastal plains with a volcanic, rocky, rugged mountainous interior.
Solomon Islands	28,446	5,313	6 Main Islands & 992 Islands/Atolls	1,340,000	459,000 / [523,600]	Rugged mountains with some smaller islands, low coral atolls and reefs.
Tokelau	10	101	3 Atolls & 165 sq km of lagoons	N/A	1,500 / [1,405]	Low lying atolls enclosing large lagoons.
Tonga	699	419	170	700,000	100,000 / [110,200]	Combination of uplifted limestone or limestone overlying a volcanic base.
Tuvalu	26	24	9 (5 Atolls and 4 Coral Islands)	1,300,000	10,500 / [11,500]	Very low lying coral atolls and islands.

Vanuatu	12,190	2,528	80 Plus Islands	710,000	191,900 / [202,600]	Scattered archipelago of volcanic mountainous islands.
Wallis & Futuna	274	129	3 Main Islands & 20 Islets	N/A	15,500 / [15,880]	Volcanic islands with low hills.