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# REVIEW OF THE FRAMEWORK FOR ACTION ON ENERGY SECURITY IN THE PACIFIC (FAESP) 2010–2020

October 2019

*In cooperation with:*



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# CONTENTS

<b>ABBREVIATIONS AND ACRONYMS</b>	<b>1</b>
.....	
<b>EXECUTIVE SUMMARY</b>	<b>3</b>
.....	
<b>CHAPTER 1: INTRODUCTION</b>	<b>10</b>
.....	
1.1 Overview of FAESP Review Reporting	10
1.2 Background of the FAESP and the IPESP	12
<b>CHAPTER 2: REVIEW OF FAESP</b>	<b>19</b>
.....	
2.1 The 2014 Midterm Review	19
2.2 Post-Midterm Review	21
2.3 Recent Performance in FAESP Coordination and Implementation	22
2.4 FAESP Input to PICT Energy Policies, Plans and Roadmaps	23
2.5 Energy Data and Measuring Energy Security in the Pacific	27
2.6 Implementing Sustainable Energy in the Pacific	31
2.7 Concluding Remarks on FAESP Performance	33
<b>CHAPTER 3: EMERGING ENERGY ISSUES FACING THE PICTS: 2020S AND BEYOND</b>	<b>34</b>
.....	
3.1 Overview	34
3.2 Discussion of Current and Emerging PIC Energy Challenges and Opportunities	35
3.3 PIC Energy Strategies Considering Risk and Uncertainty	46
<b>CHAPTER 4: THE EVOLVING CONTEXT OF REGIONALISM IN THE PACIFIC</b>	<b>48</b>
.....	
4.1 The Pacific Plan and its Review	41
4.2 The Framework for Pacific Regionalism	49
4.3 Framework for Resilient Development in the Pacific	50
4.4 Strategy for the Blue Pacific Continent	52

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<b>CHAPTER 5: INSTITUTIONAL CHANGES AND MANAGEMENT MECHANISMS FOR A NEW REGIONAL ENERGY FRAMEWORK</b>	<b>54</b>
.....	
5.1 Frameworks Versus Policies	54
5.2 Overview of a New Framework	55
5.3 Separation of Coordination and Collaboration Functions from Project Implementation	57
5.4 Overlapping CROP Agency Energy Mandates	58
5.5 Energy Oversight and Advisory Functions	58
5.6 Core Positions, Data, Energy Security and Resources	59
5.7 Other Considerations and Unresolved Issues	60
<b>CHAPTER 6: ENERGY INITIATIVES APPROPRIATE FOR A REGIONAL APPROACH</b>	<b>62</b>
.....	
6.1 Criteria for Regional Energy Sector Assistance	62
6.2 Energy Initiatives Appropriate for a Regional Approach	62
<b>ANNEXES</b>	<b>75</b>
.....	
1. Terms of Reference	76
2. Schedule of Activities and Possible Adjustments	79
3. List of Reports and Other Documentation	81
4. List of Organisations and Individuals Contacted	93
5. Mandate of Lead Agency for Regional Energy Coordination with Suggested Modifications	101
6. Survey Questionnaires for PICT Energy Offices and Power Utilities	104
7. FAESP Review: Questionnaire for CROP Agencies and PEOG Members	111
8. FAESP Theme 2 Progress Legislation (2011–early 2019)	115
9. Representative Views Expressed on FAESP and Future Regional Energy Needs	117
10. Concerns or Comments of the Technical Implementation Committee and Responses	122

# ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
AIFFP	Australian Infrastructure Financing Facility for the Pacific
BAU	Business as usual
bn	Billion (= 1,000 million)
CARICOM	Caribbean community
COP	Conference of the Parties (UNFCCC)
CROP	Council of Regional Organisations in the Pacific
C-SERMS	Caribbean Sustainable Energy Roadmap and Strategy
DFAT	Department of Foreign Affairs and Trade (Australia)
EE	Energy efficiency
ESMAP	Energy Sector Management Assistance Programme (WB)
EU	European Union
EU PacTVET	European Union Pacific Technical and Vocational Education and Training
EV	Electric vehicle
EWG	Energy Working Group
FAESP	Framework for Action on Energy Security in the Pacific: 2010–2020
FATS	Framework for Action on Transport Services: 2011–2020
FRDP	Framework for Resilient Development in the Pacific
FPR	Framework for Pacific Regionalism
FSM	Federated States of Micronesia
GEM	Geoscience, Energy and Maritime Division (SPC)
GEP	Georesources and Energy Programme (SPC)
GGGI	Global Green Growth Institute
GHG	Greenhouse gas(es)
GIZ	Gesellschaft für Internationale Zusammenarbeit
HCE	Historically centennial events (sea level rise)
IFC	International Finance Corporation (of World Bank Group)
IMF	International Monetary Fund
IPESP	Implementation Plan for Energy Security in the Pacific: 2011–2015
IPP	Independent power producer
IRENA	International Renewable Energy Association
IUCN	World Conservation Union (previously International Union for the Conservation of Nature)
JICA	Japan International Cooperation Agency
kWh	Kilowatt-hour
M&E	Monitoring and evaluation
MCST	Micronesian Centre for Sustainable Transport
MEPS	Minimum energy performance standards

## ABBREVIATIONS AND ACRONYMS

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MFAT	Ministry of Foreign Affairs and Trade (New Zealand)
MTCC-Pacific	Maritime Technology Cooperation Centre – Pacific
MTR	Midterm review
MWh	Megawatt-hour (1,000 kWh)
NDC	Nationally determined contributions (for GHG emission reductions)
O&M	Operations and maintenance
OPERA	Office of the Pacific Energy Regulators Alliance
PALS	Pacific Appliance Labelling and Standards Programme (SPC)
PCREEE	Pacific Centre for Renewable Energy and Energy Efficiency (SPC & Tonga)
PEAG	Pacific Energy Advisory Group
PEOG	Pacific Energy Oversight Group
PIC	Pacific Island country
PICTs	Pacific Island countries and territories
PIDF	Pacific Islands Development Forum
PIFS	Pacific Islands Forum Secretariat
PPA	Pacific Power Association
PPAs	Power purchase agreements
PRDR SE4All	Pacific Regional Data Repository for Sustainable Energy for All (SPC)
PRIF	Pacific Regional Infrastructure Facility
PRP	Pacific Resilience Partnership
PRSD	Pacific Roadmap for Sustainable Development
RE	Renewable energy
RISE	Regulatory indicators for sustainable energy
RMI	Republic of the Marshall Islands
SDGs	Sustainable development goals
SE	Sustainable energy
SEIAPI	Sustainable Energy Industry Association of the Pacific Islands
SEIDP	Sustainable Energy Industry Development Project (World Bank/PPA)
SIDS	Small Island Developing States
SPC	Pacific Community (formerly Secretariat of the Pacific Community)
SPREP	Secretariat of the Pacific Regional Environment Programme
TAG	Technical advisory group
TIC	Technical Implementation Committee (for FAESP review)
tn	Trillion (= 1,000 billion)
TOR	Terms of reference
UNDP	United Nations Development Programme
UNESCAP	UN Economic & Social Commission for Asia and the Pacific
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
USP	University of the South Pacific
VRE	Variable renewable energy
WB	World Bank
WMO	World Meteorological Organization

# EXECUTIVE SUMMARY

## CHAPTER 1: INTRODUCTION

### FAESP overview

FAESP was developed in 2010 by SPC after considerable consultation with PICTs, development partners and Pacific regional agencies. It included six areas of regional responsibility: i) matters dealing with economies of scale; ii) development of harmonised standards; iii) regional leadership, strategy and advocacy; iv) capacity development; v) policy analysis and development; and vi) data collection, analysis and reporting. Activities were implemented across seven themes through a 2011–2015 implementation plan: i) leadership, governance, coordination and partnerships; ii) capacity development, planning, policy and regulatory frameworks; iii) energy production and supply; iv) energy conversion, focusing on electric power; v) energy end-use; vi) data and information; and vii) financing, monitoring and evaluation. The overall focus, as the title suggests, was on improving energy security among the Pacific Island states through coordination, cooperation and collaboration among CROP agencies and development partners for the benefits of PICTs.

### Background

This report reviews the *Framework for Action on Energy in the Pacific* (FAESP: 2010–2020) and provides an outline of a new framework for 2020–2030. The outline is based on: i) responses to recommendations of a preliminary report provided to energy officials and ministers during the Fourth Pacific Regional Energy and Transport Ministers' Meeting held in Apia, Samoa, from 16–20 September 2019; ii) numerous discussions with officials, ministers, development partners and others; iii) the evolving concept of Pacific regionalism endorsed by leaders in recent years; and iv) the decisions of ministers reached during their September Apia meeting. This report provides an approach, not a detailed design of the new framework, which will be prepared during a second phase and presented to Forum Leaders in Vanuatu in August 2020.

## CHAPTER 2: REVIEW OF FAESP

### Midterm review of 2014

Findings from this review of the FAESP are consistent with those of an earlier 2014 midterm review of FAESP's 2011–2015 implementation plan: coordination was ineffective; there was limited

cooperation or collaboration among the regional agencies; progress was significant though limited, but with insufficient information to assess overall results; FAESP was often used to guide CROP regional energy activities, but the implementation plan was not used much; governance through the Pacific Energy Oversight Group (PEOG) and a Pacific Energy Advisory Group (PEAG) were useful for networking and information exchange, but not for cooperation or coordination; and, finally, reporting was inadequate, and no independent monitoring and evaluation (M&E) were carried out. Following midterm review recommendations, SPC commissioned an enhanced implementation study and considered changes to the terms of reference and membership of the advisory and oversight groups, but no changes were made.

### Post-midterm review

There has been no FAESP implementation plan since 2015, no FAESP workplans for other CROP agencies, no systematic reporting (but annual PowerPoint presentations to PEOG/PEAG) and no M&E. SPC developed the Pacific Regional Data Repository for Sustainable Energy for All (PRDR SE4All); an excellent repository for energy reports but without much recent national energy data. In 2012, SPC produced 14 *Country Energy Security Indicator Profiles* based nominally on a 2009 baseline, but these were not updated regularly as planned (due to inadequate data), and the range of indicators used, though some are excellent, does not adequately reflect energy security.

### Key activities

FAESP and the 2011–2015 implementation plan did not include an overall statement on priorities, but the overall goal is “secured supply, efficient production and use of energy for sustainable development”. A key theme is 3.2: “increased level of investment in renewable energy technologies”. Investment in RE for electrification has grown rapidly, although the growth rate is inadequate for meeting ambitious targets (which is not due to SPC’s management of FAESP). A key element of FAESP was assisting countries develop and implement national energy policies or plans. Of at least 24 PICT energy plans and/or reviews in 15 PICTs since 2011, SPC (with or without FAESP CROP partners) was actively involved in 14, or 60%, of these. A UNDP overview of results from assessments of implementation progress of six energy policies/plans indicated a range of implementation (achieved or on track) of 17; 55%, averaging 32% with wide differences by subsector. Poor implementation of policies was due to numerous reasons, including understaffed energy offices, inadequate data and finances, and poor links of plan objectives to budget processes.

### Lessons

This review suggests the need for: i) considerably improved and updated energy data for decision-making (as SPC is well aware and has tried to address) and measuring energy security trends; ii) improved advisory services on developing and implementing energy policies, plans and PICT commitments such as NDCs, which are almost entirely energy-based; iii) improved

mechanisms for governance, reporting, coordination and M&E; iv) a structure more conducive to real cooperation and coordination among a growing number of regional bodies with energy-sector activities; and v) better support from senior SPC management to raise the regional profile of energy.

## **CHAPTER 3: EMERGING ENERGY ISSUES FACING THE PICTs**

Chapter 3 considers the context in which the PICTs will produce and use energy in the 2020s and beyond, which is expected to be significantly different from 2010 when FAESP was conceptualised, particularly: i) support from development partners is more likely than previously to be provided directly to the PICs than through regional organisations; ii) available energy technologies – both for electricity and transport – are advancing rapidly, with costs steadily declining compared to those of petroleum-fuelled systems; iii) the disruptive effects of climate change on small island states are better understood and arguably being experienced sooner than expected; and iv) major carbon-emitting nations are largely failing to achieve commitments made under the 2015 Paris Agreement. The UNFCCC Paris Agreement goal of limiting the global temperature rise to 1.5°C – or even 2.0°C – seems to be increasingly unlikely, with business-as-usual projections suggesting an increase of over 3°C, which will have devastating effects on island states.

Other challenges include: i) the increased difficulty of coordination and collaboration among proliferating new regional or subregional centres/offices or services with a strong energy component; ii) assisting PICs meet their new, more stringent NDC commitments with vastly reduced energy-sector emissions; iii) aligning and managing the NDCs with other commitments, such as SDG 7 on energy; and iv) effectively addressing areas the PICTs have identified but which have had largely marginal results in the past decade: demand-side energy efficiency and transport energy use.

Energy infrastructure can be expected to have a lifetime of 30 years or more, if well-maintained. Considering the expected serious impacts of climate change unless global emissions are rapidly and significantly reduced, it would be prudent for a new regional energy framework to prioritise the development and management of robust climate-resilient energy infrastructure beginning immediately.

## **CHAPTER 4: THE EVOLVING CONTEXT OF REGIONALISM IN THE PACIFIC**

Institutional arrangements for a regional approach to Pacific sectoral development, which were considered appropriate a decade ago, may not be so today. This chapter considers the evolving context of regionalism in the Pacific and possible implications for the nature of a new regional energy framework.

## The FPR and PRSD

The *Framework for Pacific Regionalism* (FPR) was adopted by Forum leaders in 2014, emphasising the sovereignty of national governments, not regional bodies, in deciding regional priorities. The 2017 *Pacific Roadmap for Sustainable Development* (PRSD) was endorsed by leaders to guide a coordinated regional response for the achievement of the 2030 Agenda and the Sustainable Development Goals (SDGs) within the context of PICT national plans and priorities, the 2004 SAMOA Pathway and the FPR. Sectoral regional policies and activities were to be consistent with and subordinate to the overall roadmap.

## The 2017 FRDP

The *Framework for Resilient Development in the Pacific: An Integrated Approach to Address Climate Change and Disaster Risk Management (FRDP) 2017–2030* is a regional guideline for action at the sectoral level to address the cross-cutting issues of climate change and disaster risk management. Although voluntary, it has become a powerful regional coordination mechanism. One of the three FRDP goals – low-carbon development – aims to contribute to a more resilient energy infrastructure, and increase energy security, while decreasing net emissions of greenhouse gases through renewable energy (RE) and increased energy efficiency (EE). The support unit of the FRDP, the Pacific Resilience Partnership (PRP) Taskforce (comprising PIFS, SPC and SPREP) is developing resilience standards, a FRDP M&E framework, and a system of PRP affiliation for entities at the regional, national and subregional levels. The new energy framework is expected to work within the FRDP mechanisms.

## The Blue Pacific strategy

In 2017, Forum leaders endorsed the ‘Blue Pacific’ identity as the core driver of collective regional action. At the 2019 Forum, the region’s leaders endorsed the development of a *2050 Strategy for the Blue Pacific Continent*, with a draft to be presented to the August 2020 Forum meeting. In September 2019, PICT energy ministers “agreed to develop and align energy and transport regional frameworks to the 2050 Strategy for the Blue Pacific Continent”. The Blue Pacific approach emphasises the use of existing mechanisms – aligning with and seeking to build off existing regional and international mechanisms, processes and meetings – not developing new or sector-specific approaches.

# CHAPTER 5: INSTITUTIONAL CHANGES AND MANAGEMENT MECHANISMS FOR A NEW REGIONAL ENERGY FRAMEWORK

Chapter 5 considers institutional arrangements for an effective new regional energy framework considering: i) the findings and lessons from the review of FAESP; ii) the likely climate and

development context of the region's energy sector from 2020–2030 and beyond; and iii) the changing context of regionalism in the Pacific. The new framework must provide a basis not only for real coordination among the relevant regional bodies, but also promote active and ongoing energy-sector collaboration among them and with international agencies. The challenges for CROP agencies and PICTs are likely to be considerable.

The full set of recommendations for the outline of a new energy framework are not repeated here, but in summary:

- It should be a relatively short strategic ten-year document with a clear set of priorities, which is reviewed and updated every three years.
- The FAESP implementation plan should be dropped, replaced by energy components of the individual CROP agency work-plans.
- To the extent possible, reporting should be standardised based on the same data for SDG 7, the SAMOA Pathway, national energy plans/roadmaps and any Pacific NDC Hub requirements.
- M&E and verification of progress should use the FRDP M&E framework, to be finalised in 2021 (with an interim arrangement before then).
- The current FAESP thematic areas should be consolidated and reduced to fewer areas.
- The functions of coordination and project implementation should be separated with a) a separate CROP agency handling each, or b) separation within the CROP lead agency for energy.
- The energy (SPC) and environment (SPREP) mandates are overlapping, impractical and increasingly hard to separate in practice. They should be reconsidered, clarified, revised and endorsed by the ministers responsible for energy and, subsequently, Forum leaders.
- PEOG should be reformulated as the CROP Energy Working Group (EWG) reporting to heads of CROP and, ultimately, through them to Forum leaders. PEAG should be replaced by a small Technical Advisory Group (TAG) similar to the earlier SPC advisory mechanism.
- SPC should reinstate the position of Deputy Director Energy, not dependent on project funding (e.g. core funded), engage a long-term senior petroleum adviser, and ensure sufficient staff and resources for an effective data collection and analysis service.

## Unresolved issues

Several issues are unresolved:

- An effective mechanism is required to foster genuine cooperation, coordination and collaboration. The detailed energy framework design of phase 2 needs to consider practical ways of encouraging, fostering and even requiring cooperation and collaboration in designing, financing and implementing energy initiatives, which are national priorities.

- The role of transport energy in the new framework. There is a separate Framework for Action on Transport Services (FATS) with a new FATS to be developed in 2020. It is important that the new FAESP and the new FATS be consistent and coordinated.
- The Caribbean region has a long-standing regional energy framework, and a new one is currently being developed focusing on climate-resilient energy infrastructure. During phase 2, institutional arrangements for governance, reporting, M&E, development agency coordination, etc., used in the Caribbean should be considered to see if there are lessons applicable to the Pacific.
- Subregional groupings are an important aspect of Pacific regionalism and can play constructive roles in identifying the appropriate areas for energy sector cooperation. Not all PICTs need to participate in every regional energy initiative, but the new framework should not ignore energy issues that are especially important to subregional groups. A related issue is how to more effectively provide assistance through a regional programme to the Pacific territories.
- The role of a regional energy programme in bilateral projects. Bilateral projects are a key source of support to the PICTs in the energy sector. FAESP (and SPC) can play a role in helping to implement them, but this has not been addressed in this review.
- Linkages with ICT/digital development and financial infrastructure. These have not been addressed but may be relevant and can be addressed during phase 2, if appropriate.

## **CHAPTER 6: ENERGY INITIATIVES APPROPRIATE FOR A REGIONAL APPROACH**

Chapter 6 briefly reviews criteria for effective regional assistance that provide practical value to PICTs for issues of priority to the PICTs. The list is not repeated here.

The bulk of the chapter consists of eighteen examples of energy sector initiatives that might appropriately be provided through a coordinated regional effort that can help improve implementation of PICT energy policies and plans and national energy security. The examples are consistent with the new Pacific regionalism and the outcomes and endorsements of ministers during the regional energy officials and ministers' meeting held in Samoa in September 2019. These are:

1. Database development and energy security indicators
2. Capacity development in the energy sector
3. Climate-resilient power generation and distribution for PICT grids
4. Cooperation in energy with CARICOM and Hawaii
5. Electric vehicles: the link to power utilities

6. Energy efficiency improvement within PICT buildings
7. Energy efficiency: improve the low implementation of PIC national goals and NDC commitments
8. Energy use within land and marine transport
9. Financial and management mechanisms for sustainability of outer-island and remote rural electrification
10. Financing a regional energy framework
11. Improving gender balance in the energy sector
12. Implementation of PIC national energy policies and plans
13. Overcoming technical limitations to high penetrations of renewable energy
14. Petroleum advisory services: fuel pricing
15. Petroleum advisory services: fuel storage and distribution infrastructure and miscellaneous
16. Regional standards for ground-based, grid-connected PV systems that are Category 5 hurricane resistant
17. Regional support to US and French territories
18. Renewable electricity: improve the limited implementation of high PIC national goals and NDC commitments.

# 1 | INTRODUCTION

## 1.1 OVERVIEW OF FAESP REVIEW REPORTING

This report provides the findings and recommendations of the first phase of a two-phase study: i) a review of the current *Framework for Action on Energy Security in the Pacific* (FAESP: 2010–2020); and ii) the development of a new Pacific Regional Energy Framework for the period 2020–2030, with strengthened links with the existing and future Pacific Island energy sector development plans and policies. The new framework is to build on the achievements and lessons learned from FAESP and its implementation plan. The initial phase has two components: first, to assess the FAESP; and second, to prepare an outline of the new 2020–2030 regional framework. Phase 2 will develop the new framework in consultation with a wide range of stakeholders, prepare a final draft for a consultation workshop planned for April or May 2020, and finalise the revised framework for endorsement by Pacific leaders in Vanuatu in August 2020.

### Inception report<sup>1</sup>

From 6–15 August 2019, an inception report was prepared, focusing on the review methodology: i) collecting, reviewing and assessing documentation; ii) interviews with a wide range of informants, including a dozen staff of SPC, energy offices, utilities, development partners, CROP agencies and current and past advisers; and iii) the preparation of survey questionnaires. Seven key tasks were identified within the methodology, with numerous sub-tasks:

1. Review the framework, its implementation plan and management, and governance/oversight.
2. Review the concept of energy security for PICs, and SPC's energy security indicators as the basis for quantifying PIC baseline energy security and improvements over time.
3. Review other regional mechanisms for sectoral coordination and extract any lessons for the energy sector.
4. Review PIC national energy policies prepared since FAESP implementation.
5. Review materials on managing under risk and uncertainty with lessons for the energy sector.

<sup>1</sup> *Review of the Framework for Action on Energy Security in the Pacific (FAESP 2010–2020): Inception Report* (SPC/PRIF, 6 August 2019).

6. Review likely challenges facing the PIC energy sector from 2020 and beyond, and possible implications for future regional energy assistance priorities.
7. Develop an outline of a new regional energy security framework for 2020–2030.

For each task there was a discussion of the approach and data sources, risks and related issues that might undermine confidence in the findings, and methods to address the risks and issues. The risks included the lack of provision or time for travel beyond Fiji (except to Samoa for the officials and ministers' meeting) and the expected reluctance of people to respond to emailed survey questionnaires, or (if they do respond) limited useful information unless there is an opportunity to administer the questionnaire in person. A PRIF/SPC Technical Implementation Committee (TIC) reviewed the inception report on 19 August 2019, and made several recommendations for inclusion in subsequent analysis and reporting.

### Preliminary findings

Preliminary findings were consistent with those of a 2014 midterm review<sup>2</sup> of the FAESP implementation plan, which concluded: FAESP coordination was not effective; there was some significant though limited progress but insufficient information to assess overall progress; the FAESP was often used to guide CROP regional energy activities but the implementation plan was not used much; PEOG and PEAG<sup>3</sup> were useful for networking and information exchange but not for cooperation or coordination; and, finally, reporting and M&E were inadequate. A number of recommendations were made to improve delivery. These were subsequently discussed within PEOG and PEAG, and an enhanced implementation study was commissioned and prepared,<sup>4</sup> but some of the recommendations were unclear or poorly substantiated. The enhanced implementation study was to build upon the 2014 midterm review, but, surprisingly, there was no reference to its findings and recommendations, and the study understandably seems to have been ignored. It was never finalised or published.

An FAESP preliminary report,<sup>5</sup> of 6 September 2019, touched on expected key emerging issues in the energy sector for the PICTs, suggested institutional changes to better meet the changing demands, and outlined a number of specific activities or types of activities that are appropriate, and can be cost-effective, for regional action to assist PICTs improve implementation of energy policies and plans, and improve national energy security.

<sup>2</sup> *Midterm Review of the Implementation Plan of the Framework for Action on Energy Security in the Pacific* (PEAG; 19 June 2014).

<sup>3</sup> PEOG and PEAG are the Pacific Energy Oversight Group and Pacific Energy Advisory Group, respectively.

<sup>4</sup> *Enhanced Implementation, Coordination, Monitoring and Evaluation and Reporting for the Framework for Action on Energy Security in the Pacific* (Draft Final Report, January 2015).

<sup>5</sup> *Review of the Framework for Action on Energy Security in the Pacific (FAESP 2010–2020): Preliminary Draft Conclusions and Recommendations* (SPC/PRIF, 6 September 2019).

## This report

The preliminary findings have been elaborated in this final phase 1 report. Initial results were presented for consultation at the Joint Transport and Energy Officials and Ministers' Meeting held in Apia, Samoa, from 16–20 September 2019. The discussions and further interviews led to a number of changes and additional coverage. This report incorporates these changes, most importantly reflecting the formal resolution of the region's energy ministers.<sup>6</sup>

## Accessing the FAESP review reports

The three reports prepared (inception report, preliminary findings and final report) and the reports of the September 2019 ministerial meeting are available for downloading from SPC at the Pacific Regional Data Repository for Sustainable Energy for All (PRDR SE4All) at <https://prdrse4all.spc.int>.

## Annexes to this report

Annexed materials include: i) the terms of reference; ii) the schedule of work; iii) an extensive list of documentation;<sup>7</sup> iv) a list of organisations and people contacted; v) SPC's current mandate as lead CROP energy coordination agency with suggested changes; vi) questionnaires sent to PICT governments and (in slightly different form) power utilities; vii) a separate questionnaire for the Pacific Energy Oversight Group; viii) an overview of FAESP progress on legislation; ix) representative examples of views expressed by those interviewed; and x) concerns or comments of the Technical Implementation Committee with responses.

# 1.2 BACKGROUND OF THE FAESP AND THE IPESP<sup>8</sup>

## The Framework for Action on Energy Security in the Pacific (FAESP)

Pacific Island countries and territories (PICTs) and regional and international development partners provided considerable input to the development in 2010 of the FAESP, with the process led by SPC. FAESP covers the period 2010–2020 and has dual purposes: i) to provide guidance to PICTs to enhance their national efforts to achieve energy security; and ii) to clarify how regional services can assist countries to develop and implement their national energy policies and plans.

<sup>6</sup> *Resolution of Energy Ministers* (Fourth Pacific Regional Energy and Transport Ministers' Meeting; Apia, 19 September 2019).

<sup>7</sup> The list of references is quite long as there is considerable relevant documentation of regional and global energy issues and activities in the past decade, but these are not always readily available. Some materials included were used in the preparation of the review but not all were cited. They provide additional reference material.

<sup>8</sup> This section borrows heavily from the summary of the *Mid-Term Review of the Implementation Plan of the Framework for Action on Energy Security in the Pacific* (Final Report to the Pacific Energy Oversight Group; 19 June 2014).

The FAESP has six areas of regional responsibility, dealing with: i) economies of scale; ii) development and synchronisation of standards across the region; iii) regional leadership, strategic engagement and advocacy; iv) capacity development/supplementation and skills transfer; v) policy analysis, research and development; and vi) systems for data collection, analysis, reporting and information dissemination.

There are seven FAESP themes:

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

For each of these there is a rationale, expected outcome, long-term objective and key priorities. The FAESP states that successful implementation will primarily occur at the national level, and the energy ministers' decision, endorsed by Forum leaders, to strengthen coordination of delivery of energy services through SPC will help ensure that future energy initiatives/activities are monitored against this framework and its associated implementation plan.

### The Implementation Plan for Energy Security in the Pacific<sup>9</sup>

The 2011–2015 Implementation Plan (IPESP) focused on regional interventions, which were aimed principally at supplementing national capacity and providing support to national governments and stakeholders in implementing their own energy policies, plans and roadmaps where “it could add value to the national development agenda in the energy sector”. National plans and related documents were meant to provide the principal means for achieving energy security in each country.

A draft version of IPESP, covering 2011–2015, was endorsed by ministers in April 2011,<sup>10</sup> with ministers noting SPC's intention to further refine<sup>11</sup> the plan.

<sup>9</sup> *Implementation Plan for Energy Security in the Pacific: 2011–2015 (IPESP; SPC, 2011).*

<sup>10</sup> Inaugural Regional Meeting of Ministers for Energy, Information and Communication Technology and Transport (Noumea, April 2011).

<sup>11</sup> This was to more clearly link outputs and impacts with inputs required, indicators, funding sources and implementing partners.

Subsequently, SPC produced a final version, which provides the following for each of the seven thematic areas:

1. **Key priorities:** these are linked to planned activities for the 2011–2015 timeframe.
2. **Regional activities:** formulated generically covering actions and/or activities considered to be a regional responsibility, including passing the Pacific Plan regionality criterion test (i.e., market, subsidiary and sovereignty tests).
3. **Indicators or measurements:** specific indicator(s) or measurement(s) for each theme, to be measured at the national level, then aggregated to provide a regional measure.
4. **Timeframe:** the initial phase for implementation is 2011–2015, with an impact assessment of IPESP anticipated in 2015, and annual reporting by each regional agency with their respective M&E mechanisms.
5. **Indicative costs:** costs are estimated in US dollars (USD), cover only proposed regional activities, with bilateral or national activity costs (and staff costs) excluded. It should be noted that the respective CROP agency work programme and budget will cover staff costs, including specific activity costs.
6. **Lead implementing partner(s):** these are agencies directly involved in the activities in a significant way.
7. **Target PICTs:** these are the priority PICTs for the specific activity.

Other relevant aspects of IPESP include:

- direct links to the long-term objectives and key priorities for each FAESP theme, focusing only on regional interventions to be collectively delivered by participating CROP members;
- a concept of one IPESP financing framework, explicitly not for channelling all regional energy funding into one pool controlled by one organisation, but rather securing IPESP resources in a consultative manner, linked through a combined work-plan;<sup>12</sup>
- regional actions for each theme for 2011–2015 implementation, from which (to the extent practical) CROP agencies were to formulate annual work programmes and budgets as agreed by their governing bodies;
- a review including IPESP impact assessment (anticipated to be every five years), with each CROP agency undertaking its own annual M&E exercise.

## Coordination mechanisms

The IPESP for 2011–2015 included two new coordination mechanisms: i) the Pacific Energy Oversight Group (PEOG); and ii) the Pacific Energy Advisory Group (PEAG), which included lists of

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<sup>12</sup> Conceptually, this was expected to facilitate knowledge of the total regional energy funding available, constituting a “virtual pool” of funds.

membership but not roles and responsibilities. Subsequently, SPC led the preparation of terms of reference (TOR) for both, summarised in Boxes 1.1 and 1.2 below. Formally, according to the agreed TOR, SPC chaired PEOG, but informally the chair rotated among members, at least for a time. This may have led to later confusion among some members regarding their roles.<sup>13</sup> The PEAG chair rotated among the PICTs. The effectiveness of the PEAG and PEOG arrangements are discussed in subsequent sections of this review.

**Box 1.1: The Pacific Energy Oversight Group (PEOG)**  
(As revised in December 2012)

**Purpose:** To ensure that regional energy-related programmes are planned, implemented and coordinated through an integrated and multi-stakeholder approach with ‘many partners, one team’, guided primarily by FAESP and IPESP with the following activities and responsibilities:

- Monitor and review IPESP so it remains current and reflects regional energy priorities.
- Determine areas of complementarity and overlap and potential gaps in the coverage of existing and proposed regional activities and initiatives.
- Develop a regional position and prepare inputs to international fora and processes consistent with FAESP.
- Facilitate and advise regional energy programmes so they are consistent with prescribed FAESP direction.
- Advise on planning, coordination, facilitation and implementation of regional energy-related programmes through joint inputs from PEOG where appropriate.
- Jointly regularly prepare, as opportunity arises, working papers and regional funding proposals that overview priorities and activities.
- Jointly organise, facilitate and contribute to convening a biannual Pacific energy ministers and officials’ meeting as directed and necessary.
- Facilitate and conduct joint activities among PEOG members, openly sharing data, information and technical expertise.
- Report annually to Heads of CROP Meetings and the Pacific Plan Advisory Committee.
- Yearly report on progress with FAESP implementation.

**Membership:** SPC (chair and secretariat) plus PIFS, PPA, SPREP, USP and IUCN Oceania.

<sup>13</sup> TORs were prepared in 2010 and revised in December 2012, both with SPC as chair and secretariat. However, the *Record of the Meeting of the Pacific Energy Oversight Group* (10 November 2011) refers to “an earlier agreement of the Group to revolve the Chair among the participating organizations and alphabetically”.

### Box 1.2: The Pacific Energy Advisory Group (PEAG)

**Purpose:** To deliberate on Pacific energy issues and provide guidance to the PEOG and development partners/donors ... and be guided primarily by FAESP and IPESP with the following activities and responsibilities:

- Provide and share information into monitoring and reviewing of IPESP so that it remains current.
- Reach consensus on areas of complementarity and overlap, and address any potential gaps in the coverage of existing and proposed regional activities and initiatives.
- Ensure that duplication of functions and consequent inefficiencies are avoided.
- Agree on regional position(s) and inputs into international fora and processes consistent with FAESP.
- Provide guidance to regional energy programmes so that they are consistent with the direction prescribed in the FAESP.
- Provide guidance into the planning, coordination, facilitation and implementation of regional energy programmes through joint inputs where appropriate.
- Biannually, report on progress with implementation of FAESP to the regional energy officials' meeting and subsequently to the Pacific energy ministers' meeting through IPESP.

**Membership:** Twenty members as follows: PEOG plus representatives of development partners/donors (2); small island states (1); Polynesian group (2); Micronesian group (2); Melanesian group (2); Francophone group (1); private sector (1); non-governmental/civil society (1); and power utilities (3).

**Other:** Annual meeting, chaired by PICTs on rotational basis, SPC as secretariat. No information on how members are selected or duration of an individual's membership.

## FAESP Indicators

FAESP uses (or used): i) macro-level indicators that are mostly quantitative; and ii) thematic indicators, some of which are qualitative. There are 12 macro indicators (reflecting various aspects of access to energy, affordability, efficiency and productivity and environmental quality) and 24 thematic indicators (reflecting various aspects of the seven FAESP themes), for a total of 36. The 2011–2015 IPESP includes a column 'impacts indicator or measurement', which includes selected macro and thematic indicators. Based on these indicators,<sup>14</sup> in 2012 SPC published Country Energy Security Indicator Profiles for 14 PICs, to establish a 2009 baseline against which FAESP progress on energy security in the countries was to be assessed. Although the baseline data were nominally 2009, for some indicators available data were several years older.

<sup>14</sup> *Indicators for the Framework for Action on Energy Security in the Pacific* (Gerhard Zieroth for SPC; Final Report, March 2011).

## IPESP reporting, monitoring and evaluation

The FAESP and its implementation plan refer to the development and use of standard reporting and monitoring and evaluation frameworks, but no details are specified. There was to be a robust energy sector M&E mechanism adopted and used “to measure performance across the whole sector against agreed milestones at both national and regional levels with standardised and synchronised M&E indicators for national and regional plans”.

Formal reports on implementation progress were prepared by SPC in 2012, 2013 and 2015<sup>15</sup> based on their work plus various information provided by the other CROP agencies. SPC used a template covering each of the seven themes, which included key priorities, regional activities, impact indicator and measurement, indicative cost in USD, lead implementing partners, target recipients, status as of the reporting date, outcomes, and estimated actual cost. These provided a wealth of useful information in a consistent format.

The 2011–2015 report included a graphical summary of progress in energy security, comparing 2009 to 2015,<sup>16</sup> with 12 indicators for four security outcomes (access to energy, affordability, efficiency and productivity, and environmental quality). The indicated changes between the two years were mixed but appear to be positive overall. These are discussed further in section 2.5.

There were to be annual updates of progress considering prevailing and emerging energy sector priorities. Following the 2011–2015 report, there was no formal IPESP reporting but presentations on progress were made by SPC at least annually at PEAG meetings. There was no apparent independent M&E mechanism used to monitor FAESP/IPESP progress.

## Staffing required for the FAESP and its implementation

Implementation of the FAESP was expected by SPC to require a minimum of 21 full-time professional positions within the various CROP agencies. These were: two executives; nine advisers (one each for training and capacity development, policy, petroleum, RE, transport energy efficiency, supply- and demand-side energy efficiency, and database, and two for electric power); and ten energy officers for the same areas plus M&E. By the end of 2015, there were reportedly<sup>17</sup> 12 in place, of whom four were at SPC. No more recent estimates are available.

Conceptual overviews of FAESP and IPESP, its 2011–2015 Implementation Plan, are shown on Figures 1.1 and 1.2 on the next page.

<sup>15</sup> The first two covered April–December 2011 and April 2011–June 2013 (completed in August 2012 and November 2013 respectively). The third and more comprehensive *Progress Report on the Implementation Plan for the Framework for Action on Energy Security in the Pacific 2010–2020 for the Period April 2011 to December 2015* was completed in 2017.

<sup>16</sup> Data were provided as available for the years closest to 2009 (baseline) and 2015 (update).

<sup>17</sup> The 12 included three USP staff who devoted only a part of their time to energy capacity development.

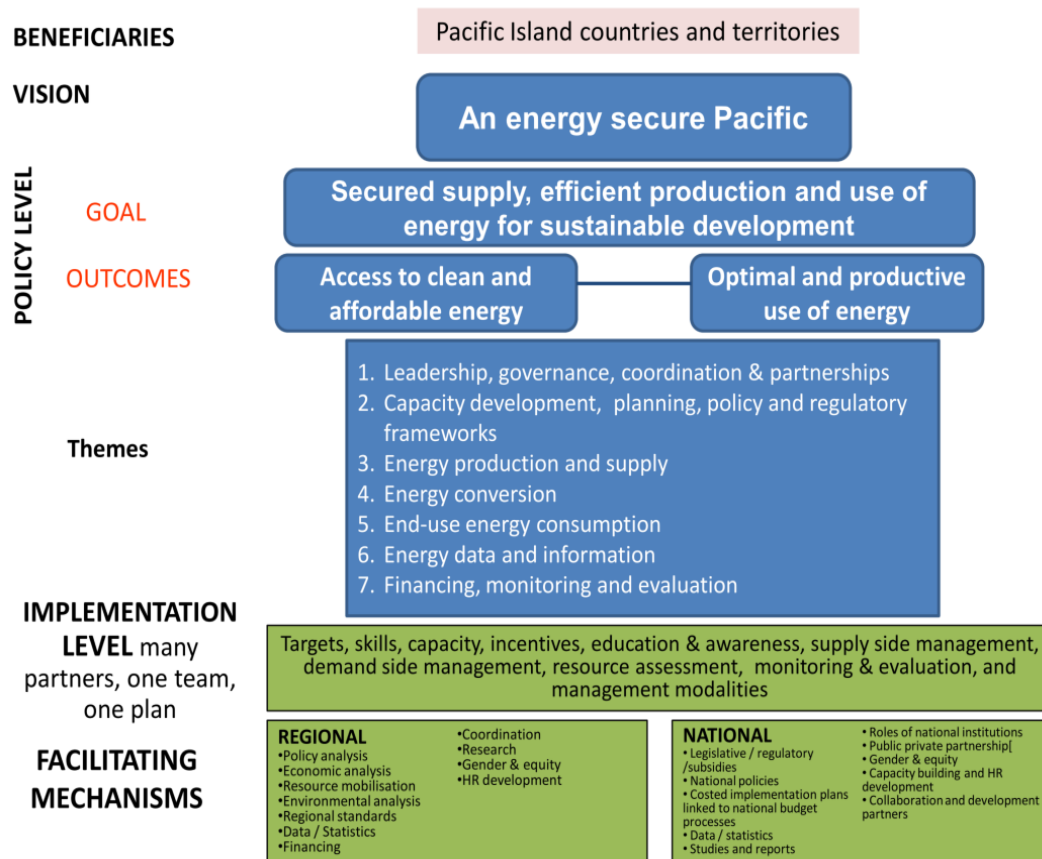


Figure 1.1: Conceptual overview of the FAESP. Source: FAESP 2010–2020 (SPC, 2010).

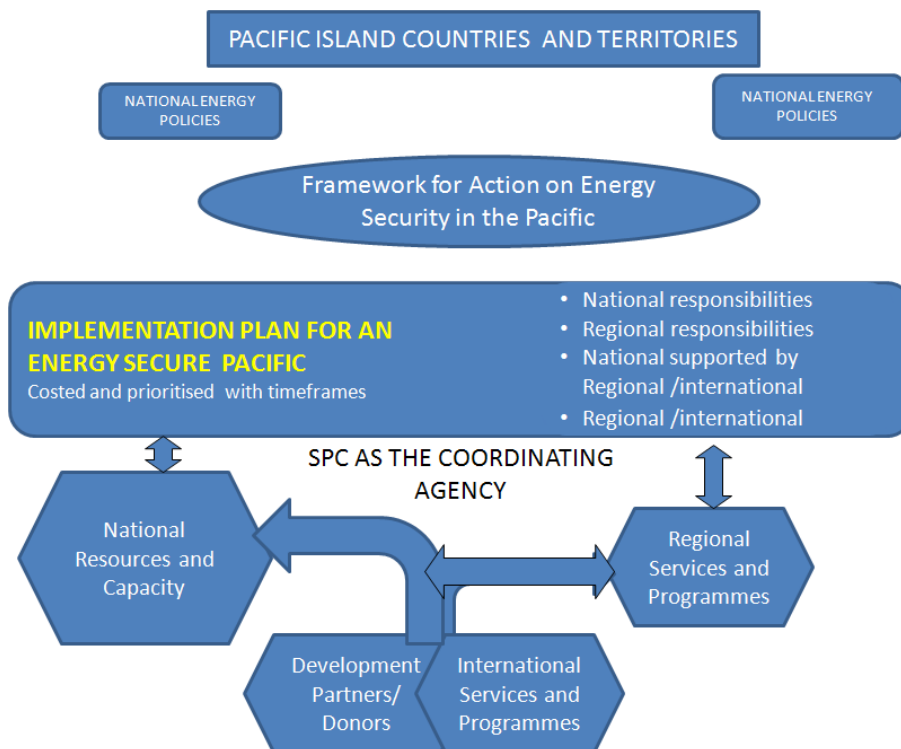


Figure 1.2: Conceptual overview of the FAESP Implementation Plan (IPESP). Source: IPESP 2011–2015 (SPC, 2011).

## 2 | REVIEW OF FAESP

### 2.1 THE 2014 MIDTERM REVIEW

In 2014, a comprehensive midterm review was carried out for the *Implementation Plan for Energy Security in the Pacific (IPESP: 2011–2015)*,<sup>18</sup> which excluded the broader FAESP framework. Among many additional detailed conclusions and recommendations, there were key findings in the following areas, many of which remain relevant in 2019:

1. Effectiveness of coordination:
  - Energy sector coordination was poor but performed “as well as or better than many other sectors”.
  - There was no formal prioritisation among themes, key priorities and regional activities.
  - The functions and roles of a CROP ‘lead coordination agency’ were unclear, with different interpretations hampering coordination efforts.
  - Two differing versions of IPESP were used by CROP agencies, which hindered coordination among them.
  - There was a lack of national ownership of the IPESP compared to the FAESP.
  - There was a potential conflict of interest between the lead agency’s coordinating role and its project implementation activities.
  - There was also a potential conflict of interest for individuals who both implemented activities and monitored their own progress.
  - Terms of reference of the Pacific Energy Oversight Group (PEOG) and the Pacific Energy Advisory Group (PEAG)<sup>19</sup> were unclear, inconsistent, in some areas inappropriate (e.g., some PEAG responsibilities are incompatible with an advisory function) and overlapping in coverage.

<sup>18</sup> *Mid-Term Review of the Implementation Plan of the Framework for Action on Energy Security in the Pacific* (June 2014; by Allan Illingworth of SPC, Thomas Jensen of UNDP and Katerina Syngellakis of GIZ). This was prepared for the Pacific Energy Oversight Group (PEOG).

<sup>19</sup> PEOG membership is shown in Box 1.1, and for a time also included the Pacific Islands Development Forum (PIDF). PEAG is more fluid and consists of PEOG plus representatives of development partners/donors, small island states, Polynesia, Micronesia, Melanesia; private, commercial, industrial and government sectors; non-government/civil society; and power utilities.

- Unlike the earlier CROP Energy Working Group, there has been no reporting to heads of CROP, weakening PEOG's role and effectiveness.<sup>20</sup>
  - PEOG and PEAG were useful for networking and information exchange, but not for cooperation, coordination, planning joint collaborative activities or assessing key issues.
  - Not all key IPESP priorities were linked to actions to address the priority.
  - Reporting, coordination and M&E were poor, with no funds allocated for M&E and coordination and no agreed mechanisms.
2. Progress and results by mid-2014:
- The review noted some significant results, but these were generally limited, with inconsistent and incomplete progress reporting, and only two formal progress reports<sup>21</sup> by 2014, of which only one was circulated to CROP agencies.
  - It was difficult to assess IPESP progress and results based on the available data, so an overall assessment was not attempted.
3. Improving coordination and mainstreaming:
- There were limited indications of mainstreaming of the IPESP into CROP agency key planning and reporting documentation, but the FAESP was sometimes used as a guideline for CROP agency energy activities.
  - Consistent reporting and a comprehensive M&E framework needed to be developed.
  - PEOG should formally replace the CROP Energy Working Group (EWG),<sup>22</sup> reporting directly to heads of CROP and through them to the Forum leaders, raising the profile of the energy sector.
  - A dedicated standing work programme should be established within SPC for the facilitation of regional-level cooperation and coordination among CROP agencies for energy (and implicitly other sectors).
  - A dedicated full-time position should be established within SPC's energy section (adviser level), dealing exclusively with the facilitation of regional-level cooperation, including coordination among CROP agencies.
  - The TOR for PEOG (or its proposed EWG successor) and PEAG should be revised so the former has a strictly oversight role and the latter is strictly advisory.

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<sup>20</sup> Reporting to heads of CROP was within the PEOG TOR but it apparently never happened.

<sup>21</sup> Most IPESP reporting was through brief status updates presented during the PEAG meetings and later uploaded to the PRDR SE4All website.

<sup>22</sup> According to the 2014 MTR, the EWG was never formally disbanded but PEOG in effect took over its role.

4. The implementation plan should be revised, with two suggested options:
  1. *A revised IPESP*: this should be jointly prepared by relevant CROP agencies for collective prioritisation, including ongoing and planned activities, functioning as an energy activity planning tool for individual and collective actions with fewer key priorities, a clear M&E mechanism, and a standardised reporting template with expected outputs, output indicators and responsibilities.
  2. *Discontinue the IPESP*: CROP agencies have at times broadly used the FAESP as a guideline, but have their own internal work planning processes and did not use the implementation plan. Instead, use the revised PEOG and PEAG as mechanisms for consistent action on regular progress reporting.

## 2.2 POST-MIDTERM REVIEW

In 2014, following the midterm review (MTR), SPC commissioned a *Design of an Enhanced Implementation, Coordination, Monitoring and Evaluation and Reporting for the Framework for Action on Energy Security in the Pacific*. The TOR referred to specific issues raised in the review and the need to improve implementation, coordination, M&E and reporting. Preliminary findings were discussed at the 2014 PEAG, which “generally supported the process undertaken in the review. It was of the view that the new plan should be simple.”<sup>23</sup> A draft final report was prepared in early 2015 but it was never finalised, and no information has been located of any further progress or action. The ‘enhanced’ report, surprisingly, did not refer to the conclusions or recommendations of the 2014 MTR. There was apparently no further action to consider or implement MTR recommendations.

In 2015, a workshop was held during the November PEAG meeting to consider changes to the TORs and membership for PEOG (possibly renamed as CROP Energy Security Working Group) and PEAG, based on recommendations of former SPC Director General, Dr Jimmie Rodgers. There is no record available of workshop discussions, but no changes were made.

<sup>23</sup> *Summary Record of Fifth Meeting of PEAG (8–10 December 2014)*. The study is not mentioned in the PEAG record of November 2015.

## 2.3 RECENT PERFORMANCE IN FAESP COORDINATION AND IMPLEMENTATION

Discussions with SPC staff and many others, and a review of extensive documentation, suggests that it is not practical to prepare an accurate assessment of FAESP performance for a number of reasons:

1. SPC's FAESP implementation report for April 2011 through December 2015 indicated progress in a variety of areas and clearly involved considerable work by SPC and contributing CROP staff. However, there has been no similar reporting for 2016–2018 or 2019.
2. The PRDR SE4All is an excellent repository of, and portal for, energy-related documents, but there are limited up-to-date energy data, and these can be difficult to locate.
3. There is no FAESP work-plan within SPC as the lead agency, and no FAESP-specific reporting among other CROP agencies.
4. There is still no standard reporting template or format, no M&E of activities within FAESP, and no prioritisation of activities.
5. There has been no revised, updated FAESP Implementation Plan since the original version developed in 2010 for 2011–2015, and no formal reporting for FAESP after 2011–2015 activities. So, there is no clear work-plan or plans against which to measure progress.
6. A key expectation of FAESP was to report changes in national energy security for the PICs compared to a 2009 baseline prepared for 14 countries. As the energy security reports have not been updated,<sup>24</sup> there is no consistent set of quantitative or qualitative data for measuring progress against the baseline, except for a limited number of indicators for 2015 reported in the most recent (2011–2015) IPESP progress report.
7. Consistent with earlier midterm review findings, most respondents suggest that PEOG still remains useful for networking and information exchange but not for enhanced cooperation, coordination among CROP agencies, or development of joint collaborative activities.
8. Some respondents suggest that PEAG is too informal with no clear membership<sup>25</sup> and no clear function beyond information exchange, as well as insufficient time for meaningful discussions, and often too many participants to act as an effective advisory group.
9. PEOG and PEAG TOR have not been revised since 2012 or clarified. At times, the minutes and informants suggest that PEOG advises while PEAG directs actions; a confusion of respective roles.

<sup>24</sup> SPC has prepared draft reports with updated indicators for 2015. It is understood that SPC plans to finalise and publish these by December 2019. A related issue, discussed later in this review, is the relevance of some of the indicators as reasonable measures of energy security.

<sup>25</sup> Several respondents have said they do not know if they are members or observers and aren't sure if they can contribute to discussions.

10. Recently, the senior energy position at SPC has been effectively downgraded<sup>26</sup> and key positions are unfilled. The bulk of energy staff interviewed report that they believe staffing levels and skills and financial resources are inadequate to implement the FAESP or carry out their mandate as CROP's lead agency for energy coordination.
11. A number of current and former SPC staff say that senior management are uninterested in energy, do not understand the sector or its importance, and that there is no prospect for a well-functioning regional energy service within SPC unless there is substantially more support from 'the top'.

At the national level, it is unclear what should or should not qualify as part of FAESP.<sup>27</sup> While there has been progress towards meeting short-, medium- and long-term targets, "the road to implementing these ambitions has already been long and in many ways troubled"<sup>28</sup> and, "there are worryingly large gaps between the targets and the actual current renewable share of electricity generation figures apparent in each country".<sup>29</sup> Information from various international, regional and national reports could be used to supplement information from SPC on FAESP implementation progress but does not substitute for regular updated reporting by SPC and its CROP partners.

## 2.4 FAESP INPUT TO PICT ENERGY POLICIES, PLANS AND ROADMAPS

One of the dual purposes of FAESP (see section 1.2) was "to clarify how regional services can assist countries to develop and implement their national energy policies and plans", and this current study includes developing "a new Pacific Regional Energy Framework 2020–2030, with strengthened links with the existing and future PICs' energy sector development plans and policies".<sup>30</sup> It would thus be useful to review, as far as practical with the information and time available, FAESP efforts to help PICTs develop, review and implement energy policies and plans.

As indicated in Table 2.1 (see over), at least 26 PICT energy policies/plans and/or reviews of such in 15 PICs and territories have been carried out since FAESP began in 2011, often with multiple plans for the energy sector in one country. The Pacific Community (or SPC with FAESP CROP partners) has been involved in at least 14 of these, or 54% of the total. The list is incomplete and with so many players, there is no reason to expect FAESP partners to be involved in all or most of them. There are additional plans in other sectors (infrastructure, climate change, NDC implementation, etc.) that frequently overlap with, and are sometimes inconsistent with, the national energy policies/plans.

<sup>26</sup> The previous position of Deputy Director (Energy) is now shared between geosciences and energy. There has been no senior petroleum adviser, a highly valued service, or finance to engage one, since 2016.

<sup>27</sup> One person noted that, "Nearly everything to improve energy in the country can be considered a part of FAESP or perhaps nothing is unless there is some SPC involvement." Presumably the person meant SPC or other CROP agency involvement.

<sup>28</sup> *Renewable Energy Opportunities Indo-Pacific* (Entura/Hydro Tasmania, July 2016).

<sup>29</sup> *Developing Renewable Energy for Pacific Small Island Developing States* (ESCAP Policy Brief 42, June 2016).

<sup>30</sup> See Annex 1: Terms of Reference. Much of this is to be completed during phase 2 in early 2020.

**Table 2.1: FAESP input into PICT national energy policies, plans and reviews.**

Year	PIC	Document	Action	FAESP/CROP input
2012	Cook Islands	Renewable Energy Chart Implementation Plan	SPC and UNDP contributed to first draft in 2011	SPC & others
2012	FSM	National Energy Policy vol. 1 & National/State Energy Action Plans 2010 (2012)	North-REP finalised energy policy, drafted by SPC's earlier REP-5 project	SPC North REP
2013	CNMI *	Strategic Energy Plan	USDOJ; no SPC input	No
2013	Fiji	Review of 2006 National Energy Policy	ECA/SMEC, UNDP & GIZ with limited SPC input and review	SPC
2013	Fiji	National Energy Policy 2013–2020 (final draft; Nov 2013)	Never endorsed by Cabinet	SPC
2013	FSM	Chuuk State Energy Action Plan	Document unclear but apparently SPC North-REP input	SPC
2013	Nauru	Energy Roadmap 2014–2020	Multiple agencies including SPC, GIZ, UNDP, PPA, ADB, PIFS, SPREP & IRENA; no reference to FAESP	SPC, PPA, SPREP, PIFS
2013	RMI	Energy Sector Review and Action Plan (June)	SPC & UNDP	SPC
2013	Solomon Islands	Develop 2014 National Energy, EE & petroleum strategies & investment plans	With review of 2007 energy policy ADB formulated RE strategy & investment plans	SPC
2014	RMI	National Energy Policy: 2016–2020 (endorsed 2014)	Reviewed 2009 policy, gap analysis, & prepared new policy	SPC
2014	Solomon Islands	Scaling-Up Renewable Energy in Low-Income Countries Investment Plan	ADB & WB; Climate Investment Funds	No
2014	Vanuatu	Scaling-Up Renewable Energy in Low-Income Countries Investment Plan	ADB & WB; Climate Investment Funds	No
2015	Kiribati	Energy Roadmap (drafted 2015, endorsed 2016)	Two national consultations; draft edited and adopted by government	SPC, PPA & IRENA
2015	Niue	Energy Roadmap, launched Nov 2015	Two national consultations, collation of energy balance & formulation of road map	SPC

**Table 2.1** (continued): **FAESP input into PICT national energy policies, plans and reviews.**

Year	PIC	Document	Action	FAESP/CROP input
2015	Tonga	Energy Roadmap Review 2010–2014	World Bank Asia Sustainable & Alternative Energy Program	No
2016	A. Samoa	Energy Action Plan Sept '16	USDOl.* No SPC input	No
2016	Tokelau	Review of 2004 National Energy Policy & Strategic Action Plan & Development of National Energy Policy & Strategic Action Plan 2016–26	UNDP and IIEC.* No SPC involvement; no reference to FAESP	No
2016	Vanuatu	Energy Road Map Update 2016–2020	World Bank. No SPC input; no reference to FAESP	No
2017	Fiji	NDC Implementation Roadmap (entirely energy)	GGGI	No
2017	Kiribati	Integrated Energy Roadmap (KIER): 2017–2025	IRENA with PPA and SPC	SPC
2017	Nauru	Review of Energy Road Map 2014–2020	ITP Renewables/UNDP with funding from GIZ/EU	No
2017	Samoa	Energy Sector Plan 2017–22	EU-GIZ	No
2018	Kiribati	Scaling-Up Renewable Energy in Low-Income Countries Investment Plan	WB, ADB, EU & New Zealand MFAT	No
2018	FSM	State Energy Master Plans	Castalia/World Bank. All 4 states	No
2018	Nauru	Update of NERM for 2018–20	ITP Renewables/UNDP with GIZ/EU funding	No
2018	RMI	Electricity Roadmap Dec '18	New Zealand MFAT*	No
2018–19	Tuvalu	Review of Tuvalu National Energy Policy (2009)	Ongoing	SPC

\* CCCPIR = SPC/GIZ Coping with climate change in the Pacific Islands Region

CNMI = Commonwealth of the Northern Mariana Islands; US Department of the Interior Office of Insular Affairs

IIEC = International Institute for Energy Conservation-Asia

MFAT = Ministry of Foreign Affairs & Trade

The number of energy plans with FAESP involvement provides no information on the quality of the efforts or success in implementation, but in late 2017 (Table 2.2), UNDP summarised the rate of implementation for six PICT national energy plans.<sup>31</sup>

**Table 2.2: Extent of implementation of selected PIC energy sector plans (2017).**

Country	Energy sector plan or document	Period assessed	Level assessed	Extent of implementation
Nauru	Energy Road Map 2014–2020	2014–2017	Activity	% of planned activities 'Complete' = 47% (preliminary estimate)
Fiji	2006 National Strategic Action Plan	2007–2011	Activity	% of planned activities 'Fulfilled' = 19%
Tonga	Energy Road Map 2010–20	2010–2014	Activity	% of planned activities 'Progressing well' = 28%
RMI	2009 Energy Action Plan	2009–2012	Strategy	% of planned strategies 'Achieved' = 29%
Tokelau	2004 Energy Policy & Strategic Action Plan	2004–?	Strategy	% of planned strategies 'Fully accomplished' = 17%
Vanuatu	National Energy Road Map 2013–2020	2013–2015	Target & objective	% of planned targets or objectives 'Met' and 'On track' = 55%

*Source: Energy Sector Plans in the Pacific Island Region (Thomas Jensen, UNDP, November 2017).*

Some were developed pre-FAESP (e.g., Tokelau) but assessed during the FAESP period (through external evaluations and discussions) as between 17% and 55% implemented (described in the righthand column). The author acknowledges that definitions of success differ and are open to interpretation, but those plans with external reviews provided justification for the ratings. Limited success was due to a range of reasons: lack of energy department capacity; unclear ministerial mandates; poor sharing of needed information; poor communications and cooperation among government departments and state-owned enterprises; poor data; lack of cost–benefit analysis indicating the objectives are realistic; lack of a budget linked to the plan; unclear formal status of the plan; lack of regular reviews with goals adjusted as needed, and others. The available evidence shows that there are significant issues with PICT energy sector policy, strategy and plan development and implementation. The UNDP overview suggests that improved efforts to assist PICTs develop and implement their energy policies is still needed and will remain challenging.

Implementation rates can differ significantly by sector, as shown for the Marshall Islands in Table 2.3. It is understood that sectoral results for other PICTs are similar (e.g., low transport results), but these were unavailable. A review of implementation by sector could suggest where more future effort through regional action might be warranted.

<sup>31</sup> Based on existing reviews of implementation progress, such as *Review of the Nauru Energy Road Map 2014–2020 (2018)*, *Review of the Fiji National Energy Policy – Status of Implementation of the 2006 Energy Policy and Strategic Action Plan and Mainstreaming into National Planning (2013)*, etc.

**Table 2.3: Progress in implementing 2009 RMI energy sector action plan by 2015.**

Thematic area	No. of strategies	Progress on implementation		
		No progress	In progress	Achieved
Policy administration & implementation	13	2	11	0 (0%)
Petroleum & liquid fuels	7	2	2	3 (43%)
Electric power	10	2	5	3 (30%)
Transport & energy use	7	5	1	1 (14%)
Energy efficiency	9	1	3	5 (56%)
Renewable energy	9	1	4	4 (44%)
<b>Overall</b>	<b>55</b>	<b>13</b>	<b>26</b>	<b>16 (29%)</b>

Source: T Jensen, based on Table 9: Summary of key achievements on the 2009 NEP (p. 23).

Energy policy assistance is part of FAESP Theme 2, which also includes the related area of legislative and regulatory assistance. As shown in Annex 8, there has been recent interest among PICs in assistance to develop energy legislation as well as policies. FAESP has been heavily reliant on short-medium SPC project funding for this work, especially from its PALS and North-REP projects.<sup>32</sup> If a key goal (see Annex 1) of the 2020–2030 energy framework is “strengthened links with the existing and future PICs energy sector development plans and policies”, SPC and its CROP partners may require more assured funding to strengthen this assistance.

## 2.5 ENERGY DATA AND MEASURING ENERGY SECURITY IN THE PACIFIC

In 2011, a set of quantitative and qualitative indicators was developed<sup>33</sup> to provide a simple and reliable means to measure changes or achievements in energy security for the PICTs. They were chosen as a workable compromise between comprehensiveness and the effort required to acquire data. In 2012, SPC published a set of 14 *Country Energy Security Indicator Profiles* (2009 data or closest available year) and had planned annual updates, which were stymied due to lack of sufficient data from the countries. Since then, SPC has continued to struggle to obtain the necessary data, and has held several workshops and training sessions with PICT staff to address the issue.<sup>34</sup> Access to accurate, consistent and up-to-date energy data remains a serious issue, with the need for improved data highlighted at numerous meetings of the region’s energy ministers in the past decade, including 2019.<sup>35</sup>

<sup>32</sup> PALS was the Australian-funded Pacific Appliance Labelling and Standards Programme dealing with electrical appliance energy efficiency. North-REP was an EU-funded renewable energy and energy efficiency programme in three North Pacific PICs (FSM, Palau & RMI) managed by SPC on behalf of the countries. Both have ended.

<sup>33</sup> *Indicators for the Framework for Action on Energy Security in the Pacific* (SPC, 2011), which provided training to 20 staff of 12 PICTs in Excel for compiling national energy data.

<sup>34</sup> One example is reported in *Sub-regional workshop on energy indicators for FAESP* (SPC, 2013).

<sup>35</sup> In their 2019 resolution, energy ministers “noted the data management challenges of the Pacific Islands and call on the World Bank to urgently appraise and treat the SPC data funding proposal as a matter of priority”.

Currently, the only consistent energy data collection and publication among CROP agencies participating in FAESP has been through PPA's annual benchmarking exercise for its member utilities since 2011,<sup>36</sup> although SPC includes some data and hundreds of reports on its PRDR website.

The country profiles, if regularly updated, would provide an excellent and consistent overview of national PIC<sup>37</sup> energy use. This section concentrates on one component of the profiles: the data used for estimating changes in PICT energy security at the national level, which is a key component of FAESP (whose title emphasises action on improving energy security). Only the original 2009 profiles have been published in full. As noted in section 1.2 under IPESP reporting, however, SPC has produced graphics comparing 2009 and 2015 with a dozen indicators for four security outcomes (access to energy, affordability, efficiency and productivity, and environmental quality). Five of these are shown in Figure 2.1 on the next page.

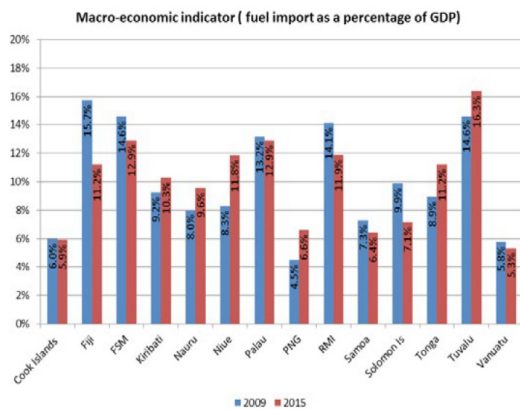
Some are good indicators of trends in energy security, such as: a) petroleum fuel imports as a percentage of GDP as a national indicator (assuming these are net or retained imports); b) energy cost as percentage of household expenditure as a family energy security indicator; and c) embedded CO<sup>2</sup> per capita as a mitigation. Others may not be accurate indicators, such as: d) the percentage of households electrified (if, for example, the grid is highly susceptible to flooding in low-lying areas or the supplier is financially unstable); or e) the average electricity tariff (if costs to the consumer are less than costs of supply,<sup>38</sup> or costs are not shown in constant-value currency). Other indicators (not shown) such as the capacity of bulk fuel storage in months of consumption can be an appropriate indicator if the storage facilities are well-maintained and not subject to severe threats of flooding or climate change.

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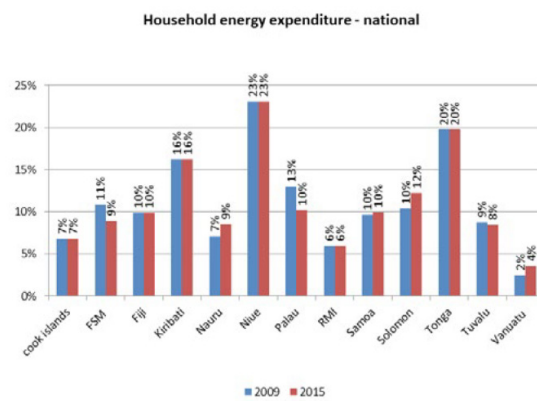
<sup>36</sup> The most recent report (2017 data) is *Pacific Power Association Benchmarking Report 2017* (PPA, March 2019).

<sup>37</sup> The territories were not included in the baseline studies.

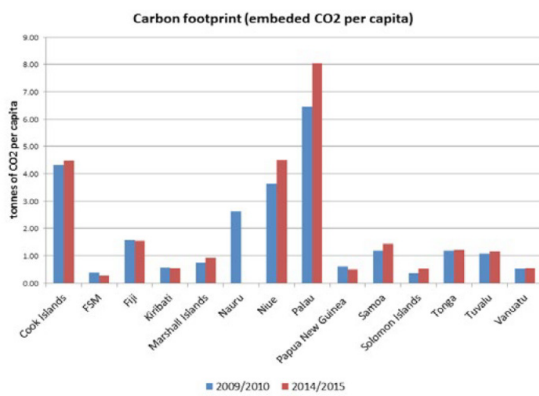
<sup>38</sup> A low electricity tariff may be unsustainable if there is insufficient revenue for effective O&M.



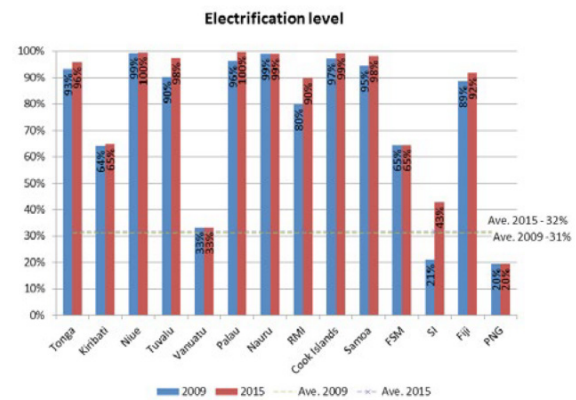
a) Petroleum fuel imports as percentage of GDP.



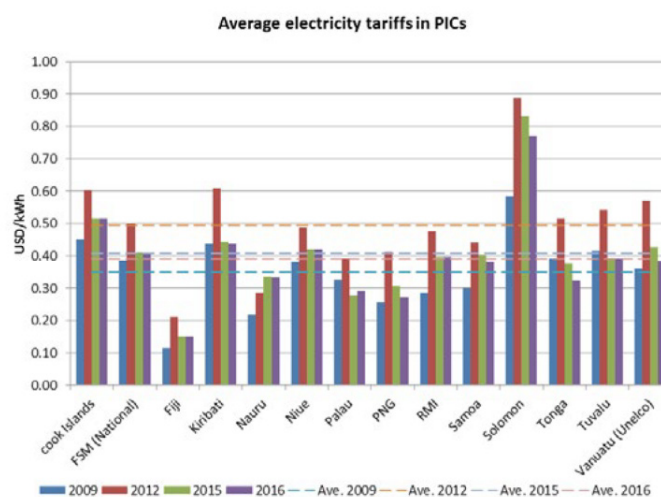
b) Energy cost as percentage of household expenditure.



c) Embedded CO<sub>2</sub> per capita.



d) Percentage of households electrified.



e) Average electricity tariff (US\$/kWh).

Figure 2.1: Examples of SPC energy security indicators (2009 & 2015).

Source: FAESP Progress Report for 2011–2015 (SPC, 2017).

There has been considerable discussion of the concept of energy security in recent years, including its meaning in small island states. Box 2.1 summarises some views.

### Box 2.1: Changing concepts of energy security for island states

**Dimensions of Energy Security in SIDS** (2018): Argues that energy security is especially serious for SIDS. Identifies seven dimensions for conceptualising and assessing energy security: import dependency; energy prices; climate change and resilience; governance; infrastructure; equity; and energy efficiency. It recommends selected strategies and actions to improve energy security, noting that SIDS' energy decisions tend to focus on the project level, whereas energy security, energy diversity and climate change are generally outside the project decision-making process, so key benefits or risks are often not considered.

**Assessing Energy Security: An Overview of Commonly Used Methodologies** (2014): Argues that the classic International Energy Agency (IEA) formulation (focusing on availability, accessibility, affordability and acceptability) does not embed the concepts of risk and resilience or address 'security for whom?', 'security for which values?' and 'security from what threats?' It defines energy security as low vulnerability of vital energy systems, where vulnerability is a combination of risk and resilience.

**Global RE-Based Electricity Generation & Smart Grid System for Energy Security** (2014): PIC energy security requires grid reliability during climate change and avoiding over-reliance on a single source of supply, which entails significant risk.

**Pacific Perspectives on the Challenges to Energy Security and the Sustainable Use of Energy** (ESCAP, 2012): Various studies suggest that assessing PIC energy security should carefully consider the concept from several perspectives (governments, urban dwellers, the poor), and both the short term and longer term, which may require different indicators. A Fiji financial risk assessment suggests that investment in low-cost, low-risk technologies (e.g., solar PV) should be prioritised over investment in hydro.

**Energy Access and Security Strategies in SIDS** (2016): Energy security depends on local contexts and measures, and in the longer term depends on implementable policies with achievable targets, a mix of grid and off-grid electrification and incentives for decentralised power (e.g., PV).

**Energy Security Trade-Offs under High Uncertainty** (WB ESMAP, 2018): Advocates tools, adapted from decision analysis, to complement traditional power sector planning. Energy security necessitates a good understanding of actual risks. Avoid the 'best plan' and implement the option that is most robust to most uncertainties.

**What is Energy Security, and How has it Changed?** (2019): Traditionally, energy security meant adequate supply of energy across the electricity, gas and liquid-fuel sectors. The concept is now increasingly synonymous with resilience: responding to problems quickly and avoiding power outages, responsive to major disruptions.

**Fostering Effective Energy Transition** (World Economic Forum, 2019): Globally, countries have improved energy security based on ability to ensure "uninterrupted availability of energy sources at affordable prices". Energy-secure countries dependent on fuel imports approach energy security through diversification and demand-side strategies, which enhance self-sufficiency.

**Keeping Some of the Lights On: Redefining Energy Security** (2018): Argues that current definitions of energy security consider supply and demand to be unrelated and focus almost entirely on securing energy supply. However, people adapt and match their expectations to a power supply that is limited and not always on. In other words, energy security can be improved, not just by increasing reliability, but also by reducing dependency on energy.

*Sources: Links to access these and other energy security studies are provided in Annex 3 on documentation.*

It is beyond the scope of this review – which provides only an outline of a proposed new 2020–2030 framework – to suggest specific changes to energy security indicators. However, it is recommended that phase 2 consider options for a small number of improved measures. These might include investment in energy infrastructure for climate resilience measures, and the percentage of RE to the electricity grids, bearing in mind: i) the large number of development indicators already used among CROP agencies in a range of sectors and the desirability of minimising additions; ii) the relative ease of obtaining the needed data; and iii) the practicality of PPA adding measures of robust power sector security and/or resilience indicators through its annual benchmarking exercise.

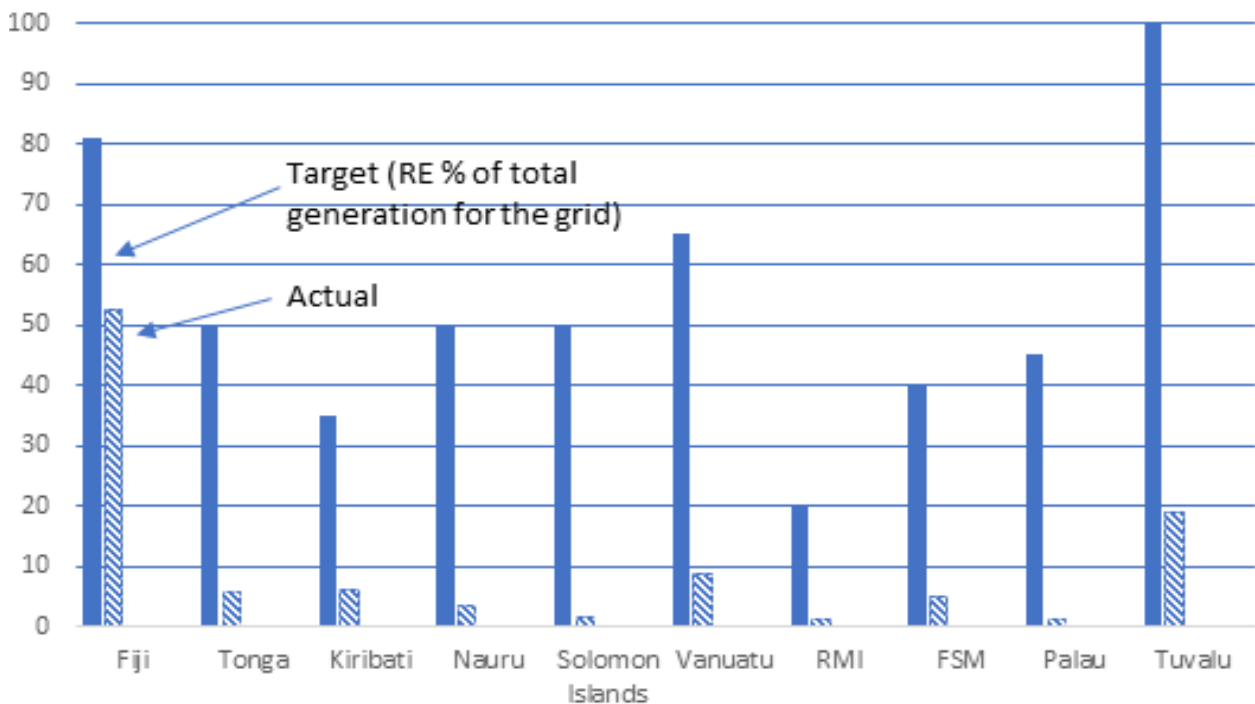
## 2.6 IMPLEMENTING SUSTAINABLE ENERGY IN THE PACIFIC

Although FAESP and IPESP do not include an overall statement on priorities, the overall goal is “secured supply, efficient production and use of energy for sustainable development”. There are key priorities for each theme or subtheme. For Theme 3.2 Renewable Energy, the overall objective is “increased level of investment in renewable energy technologies ...” and priorities include “investment in renewable energy” and “higher percentage of renewable energy in the energy mix”.<sup>39</sup> The relevant indicator is the percentage share of RE nationally for power generation.<sup>40</sup> Considering recent PIC national energy policies, national development strategies, and commitments for Nationally Determined Commitments (NDCs) for emissions reductions under the Paris Agreement (developed after FAESP began), PICs accord a high priority to expanding generation of electricity from renewable sources. The FAESP/SPC Technical Implementation Committee<sup>41</sup> requested that PIC progress in expanding renewable electrification be addressed in this report.

<sup>39</sup> The sources are IPESP section 2.0, page 4, and section 3.2, page 17.

<sup>40</sup> From *Indicators for FAESP* (March 2011), indicator 24 (page 7) for electric power. It is “reliable and accurate for utilities. National totals may not be as accurate as output of stand-alone systems are normally not measured or even counted and rely on educated guesses.”

<sup>41</sup> Technical Implementation Committee comments of 19 August 2019 on FAESP Inception Report of 15 August 2019. Annex 10 provides TIC concerns and comments plus responses.



**Figure 2.2: Renewable energy for electricity generation: targets & 2017 actual.**

Figure 2.2 above illustrates ambitious PIC targets for renewable electricity generation (for various years but typically 2030) and actual achievements by 2017.<sup>42</sup>

Most Pacific countries must significantly increase RE investment to achieve the goals indicated in Figure 2.2, which are already out of date. In September 2019, PICs announced their intentions to enhance their national ambitions/goals in their NDC commitments to be revised in 2020.<sup>43</sup> In addition, Fiji, RMI, Vanuatu and others have pledged net-zero emissions by 2050.<sup>44</sup>

Installation of renewable systems for electricity supply (directly by the utilities or through independent power producers (IPPs)) has grown rapidly in recent years. However, there are no consistent and readily available data on the percentage of electricity to the grid<sup>45</sup> from RE in 2009 or earlier, so progress since FAESP began cannot easily be judged. The RE goals cannot be achieved through better FAESP planning and coordination among CROP agencies, as the availability of assistance from development agencies (grants and loans) is a key factor. However, future frameworks can, and should, provide regular and consistent reporting on achievements of country-driven energy-sector goals.

<sup>42</sup> Data and graph from UNDP Fiji. The sources are NDC commitments, *PPA’s Benchmarking Report 2017* (PPA, 2018) and *A Guide to Investing in Renewable Electricity Generation in the Pacific* (IFC, draft, May 2018).

<sup>43</sup> *2020 NDC Tracker* (Climate Watch, 23 September 2019). The PICs are Fiji, FSM, Kiribati, Niue, Nauru, Palau, PNG, Samoa, the Solomon Islands, Tonga, Tuvalu, Vanuatu. RMI has already updated its NDC with a tougher set of targets.

<sup>44</sup> From: <https://www.190922.RMI.UNSG.Summit.release.&Leaders.statement.FINAL.COMBINED.pdf> | DocDroid

<sup>45</sup> Note that PPA data are only for the main grids of each utility but FAESP indicators cover all RE for electricity, which includes estimates for small grids and off-grid supply where available (though data are unreliable).

## 2.7 CONCLUDING REMARKS ON FAESP PERFORMANCE

These findings are based on extensive documentation reviews and contacts with about 120 people (email, in person, by Skype or phone and combinations) regarding FAESP and future needs. Of these, 17 are current SPC staff, 62 are from PICTs (energy offices, power utilities, local petroleum companies, energy regulators), 43 are from various regional organisations, universities or staff of development partners, and ten are climate change and/or energy consultants who have worked extensively in the PICTs. Questionnaires (attached as annexes 6 and 7) have been emailed to about 85 individuals (mostly staff of energy offices and power utilities) and also to PEOG members (at five CROP agencies plus IUCN and the PIDF), and, where possible, discussed in person with recipients. However, questionnaire responses, as expected, were far too few<sup>46</sup> to draw reasonable conclusions. There were no opportunities to visit PICTs beyond Fiji, but quite a few Pacific Islanders involved in the energy sector were formally or informally interviewed during a workshop<sup>47</sup> held at Pacific Harbour, Fiji, in August 2019, and during the September 2019 energy officials and ministers' meeting in Samoa.

Overall, at least 90 individuals provided valuable information in person, by email or through questionnaires. Representative views expressed, or perhaps more correctly the range of views, are attached as Annex 9. Of course, views differ, as does knowledge of the FAESP, the CROP agencies, the donor community and PICT energy issues, but overall the views expressed were highly consistent and support the above conclusions regarding past FAESP performance. Most respondents feel that SPC's energy team has not had sufficient staffing or financial resources to effectively implement the IPESP, and many stress that their views are not meant to criticise individuals but rather express disappointment that SPC and most CROP agencies have under-delivered compared to expectations. An exception has been the Pacific Power Association (PPA), which was singled out by many as highly effective. It has a focused mandate with member utilities, whose CEOs direct PPA activities. Quite a few noted that coordination of regional activities has generally been ineffective in other sectors, not only energy.<sup>48</sup> Coordination of a broad, wide-ranging ten-year framework involving the CROP agencies, development partners, PICTs and others is clearly challenging.

The PRIF Technical Coordination Committee expressed views, concerns or provided advice on progress of this review at several junctures, including conclusions regarding FAESP performance. These, and responses by the consultant, constitute Annex 10.

<sup>46</sup> About 10% response rate from the PICTs whereas nearly all CROP agencies/PEOG members responded.

<sup>47</sup> *Workshop on Sustainable Electricity Access in Pacific Island Countries: From Targets to Implementation* (29–30 August 2019) organised by the University of New South Wales and the University of the South Pacific. I am grateful to Dr Atul Raturi of USP (who is an FAESP PEOG member and part of the Technical Implementation Committee for this review) for inviting me to participate.

<sup>48</sup> The *Midterm Review of the Framework for Action on Transport Services: 2011–2020* (SPC, 2015) reached conclusions that were quite similar to those of the earlier 2014 FAESP IPESP midterm review.

# 3 | EMERGING ENERGY ISSUES FACING THE PICTs: 2020s AND BEYOND

## 3.1 OVERVIEW

The context in which the PICs produce and use energy in the 2020s and beyond is expected to be significantly different from 2010, when FAESP was conceptualised and developed. For example: i) support from development partners is more likely than previously to be provided directly to the PICs than through regional organisations; ii) available energy technologies – both for electricity and transport – are advancing rapidly, with costs steadily declining compared to those of petroleum fuel systems; iii) the disruptive effects of climate change on small island states are better understood and being experienced sooner than expected; iv) there are far more organisations in the Pacific with active regional or subregional energy-sector programmes or aspirations, suggesting that coordination of regional PICT energy efforts may become more difficult; and v) major carbon-emitting nations are largely failing to achieve commitments made under the 2015 Paris Agreement. The UN Framework Convention on Climate Change (UNFCCC) goal of limiting the global temperature rise to 1.5°C seems to be increasingly unlikely, with business-as-usual projections suggesting an increase of over 3°C, which will have devastating effects on island states and coastal regions. Finally, the context of Pacific regionalism has changed in the past decade, which affects the expected roles of the CROP agencies. Implications for the energy sector framework are discussed in Chapter 4.

Infrastructure with significant energy production or use implications being considered, planned or implemented today – whether electric power generation, land transport, marine transport or energy-efficient buildings, etc. – can generally expect to have a useful life of far longer than the coming decade for a new energy framework. Electricity-generating plant typically operates for 30 years or more



**Figure 3.1: Year when hundred-year floods are expected to occur at least annually in the Pacific.**

(if well-maintained), and this can have implications for the framework. It would be prudent for PICTs to assess planned energy investments for flood-resilience post 2030.

One of the starkest recent warnings,<sup>49</sup> which will affect the choices for PIC energy infrastructure, was released on 24 September 2019, by the Intergovernmental Panel on Climate Change (IPCC). As illustrated in Figure 3.1, local sea levels that historically occurred once per century (historically centennial events, or HCEs), and which can cause severe impacts, are projected to become at *least annual events* in much of the PIC region by 2030, even under the IPCC's *most optimistic emissions reduction scenarios* (emphasis added).<sup>50</sup> With less optimistic (i.e., more realistic) assumptions, annual HCEs will occur even sooner.

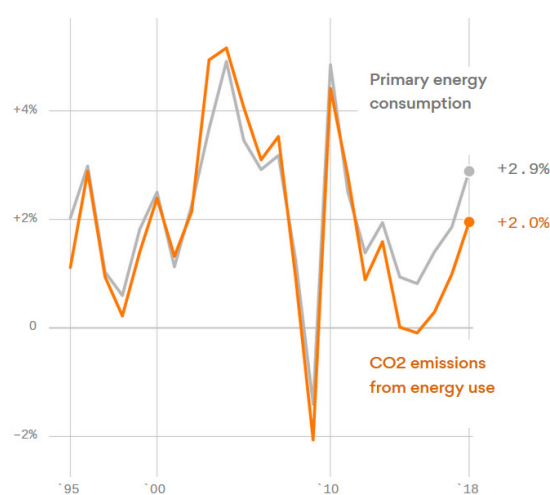
This suggests that a high priority for a new regional energy framework should be the development of robust energy infrastructure that is resilient to the likely effects of climate change in the region.

## 3.2 DISCUSSION OF CURRENT AND EMERGING PIC ENERGY CHALLENGES AND OPPORTUNITIES

A number of global energy-sector issues and trends are expected to have significant impacts in the PICTs over the next decade and beyond, and these can affect the preferred emphases of a new regional framework. Some of these are described below.

### Carbon emissions

Emissions from energy use grew by 2% globally in 2018 (Figure 3.2).<sup>51</sup> Numerous studies indicate that emissions will likely peak well after 2030. Implementing current unconditional<sup>52</sup> NDCs would lead to a global mean temperature rise of 2.9–3.4°C by 2100 relative to pre-industrial levels. The current level of NDC ambition globally needs to be roughly tripled to be in line with the 2°C goal, and increased fivefold for the 1.5°C goal.



Data: BP Statistical Review of World Energy, 2019; Chart: Axios Visuals

**Figure 3.2: Annual growth in energy use and carbon emissions, 1995–2018.**

<sup>49</sup> *The Ocean and Cryosphere in a Changing Climate: Summary for Policymakers* (IPCC, 24 September 2019).

<sup>50</sup> The most optimistic scenario is RCP2.6; a low-greenhouse gas emission, high mitigation future, that in IPCC simulations gives a two in three chance (67%) of limiting global warming to below 2°C by 2100, with a mean increase of 1.6°C and a likely range of 1.1–2.0°C.

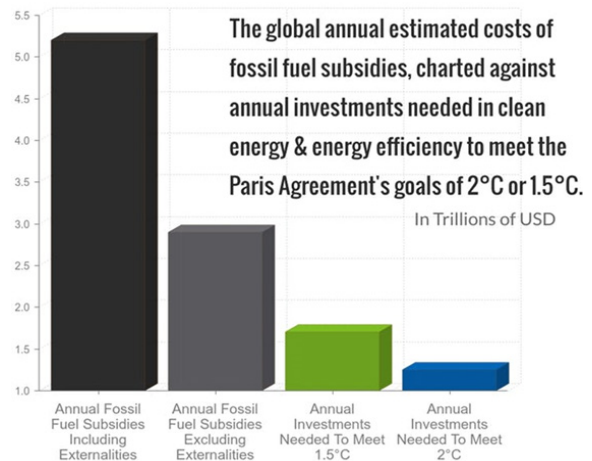
<sup>51</sup> *The world goes the wrong way on carbon emissions* (Axios, 13 June 2019).

<sup>52</sup> *United in Science: High-level synthesis report of latest climate science information* (WMO, et al., 22 September 2019). Implementing unconditional NDCs would reduce these estimates by only 0.2°C in 2100.

### Fossil fuel subsidies

There is limited data on petroleum fuel subsidies in the PICs and the extent to which it could be an issue that should be addressed. In Kiribati, a study<sup>53</sup> calculated that fuel subsidies averaged A\$4.2m from 2011–2015 (under 2015 tax policies), equivalent to 2.2% of GDP. This section looks only at impacts of global fossil, not PICT, fuel subsidies on climate change.

The International Monetary Fund (IMF)<sup>54</sup> has estimated direct annual global subsidies for exploration, production and consumption of fossil fuels as US\$2.7 trillion (\$2,700 billion) in 2015, increasing to \$5.2tn – 6.5% of global GDP – if externalities are included. Even ignoring externalities, subsidies are far higher than the estimated annual investment of about \$1.2tn required to limit likely warming to 2°C, or \$1.6tn for 1.5°C (Figure 3.3).<sup>55</sup>



**Figure 3.3: Fossil fuel subsidies and annual investments needed to reach 1.5 or 2.0°C.**

Fossil fuel subsidies have increased by 11% in the two years since the previous IMF estimate of \$4.7tn (including externalities) in 2015, and there is little expectation that they will decline soon. According to Carbon Tracker,<sup>56</sup> “every oil major is betting heavily against a 1.5°C world and investing in projects that are contrary to the Paris goals”. No major oil company invests to support the goal of keeping well below 2°C. Oil and gas companies have approved \$50bn of investment since 2018 in major projects that undermine climate targets. According to BP,<sup>57</sup> the oil and gas industry globally plan to spend \$5tn from 2019–2029 to explore and develop new reserves.

<sup>53</sup> *Fossil fuel subsidies in the Pacific island context: Analysis of the case of Kiribati* (Ville Peltovuori, SPC, Energy Policy 111, 2017).

<sup>54</sup> *Global Fossil Fuel Subsidies Remain Large – An Update Based on Country-Level Estimates* (IMF Working Paper WP/19/89; May 2019). This was based on data from 191 countries. The largest subsidisers are China, the United States, Russia, the European Union and India.

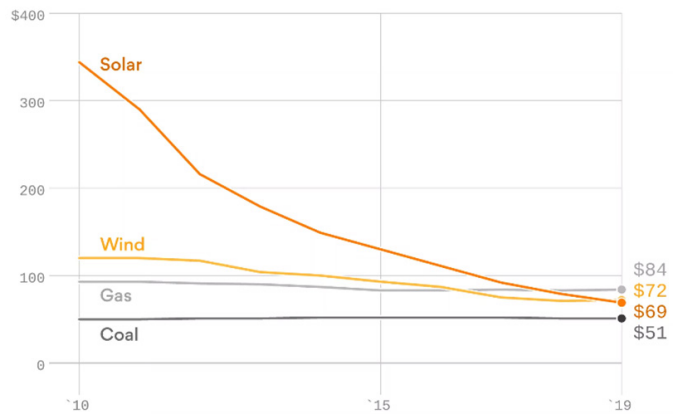
<sup>55</sup> *Fossil Fuel Welfare versus the Climate* (Alex Lenferna, 17 July 2019).

<sup>56</sup> *Oil and gas companies approve \$50 billion of major projects that undermine climate targets and risk shareholder returns* (Carbon Tracker, 5 September 2019).

<sup>57</sup> *BP Statistical Review of World Energy* (68<sup>th</sup> edition, 2019).

### Renewable energy costs

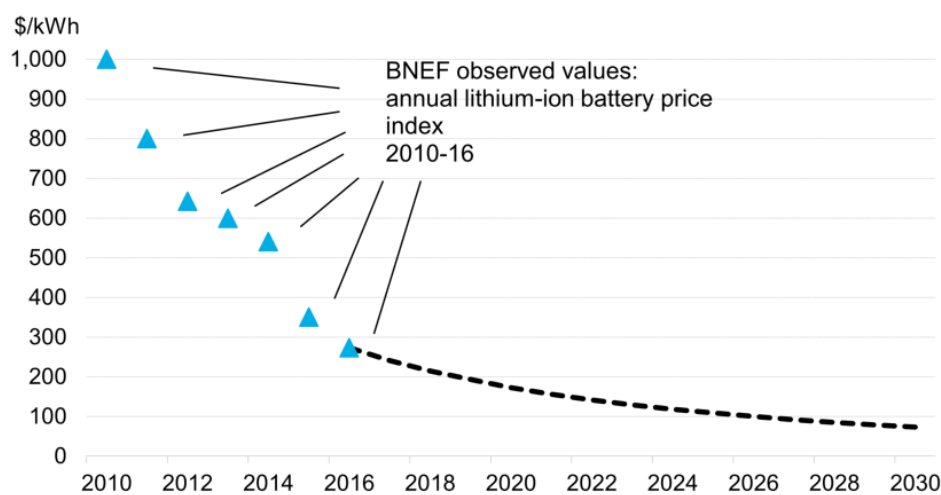
The levelised<sup>58</sup> cost of solar electricity in the Asia-Pacific region has declined from US\$350/MWh in 2010 to \$69 in 2019 (Figure 3.4),<sup>59</sup> and cost declines are expected to continue. Renewable energy for power production (and transport) in the PICs, often highly touted in the past, are expected to be mainstream choices within the early years of a new Pacific energy framework.



**Figure 3.4: Levelised electricity cost - Asia-Pacific, 2010-2019 (US\$/MWh).**

### Battery storage

As solar and wind energy are variable renewable energy (VRE) sources, energy storage is often needed to manage short-term peaks, load balancing and other requirements. High storage costs have been cited as a deterrent to large-scale use of VREs, but costs are rapidly declining. The cost of lithium-ion battery storage, for example, has dropped from US\$1,000/kWh to an estimated \$200 in 2019; a fivefold drop in under a decade. This is expected to decrease to \$90 by 2030 (Figure 3.5),<sup>60</sup> due to technology improvements and fierce competition among major manufacturers, and is expanding the areas in which VRE should be technically and financially suitable in the Pacific.



**Figure 3.5: Li-ion battery costs & projections to 2030 (US\$/kWh).**

<sup>58</sup> Levelised cost is the average total cost to build and operate a generating system over its lifetime divided by total energy output. It can also be considered the average minimum break-even electricity selling price.

<sup>59</sup> *Solar power costs plummet across S Asia & Pacific* (Axios, 2 Aug 2019).

<sup>60</sup> *Lithium-ion Battery Costs and Market* (Bloomberg New Energy Finance, July 2017).

### Global investment in low-carbon electricity

New RE investment (Figure 3.6) was only US\$300bn in 2018, about half of what is needed globally from 2025–2030 to achieve the modest global Paris commitments, which are inadequate and would result in over 3°C warming.<sup>61</sup>

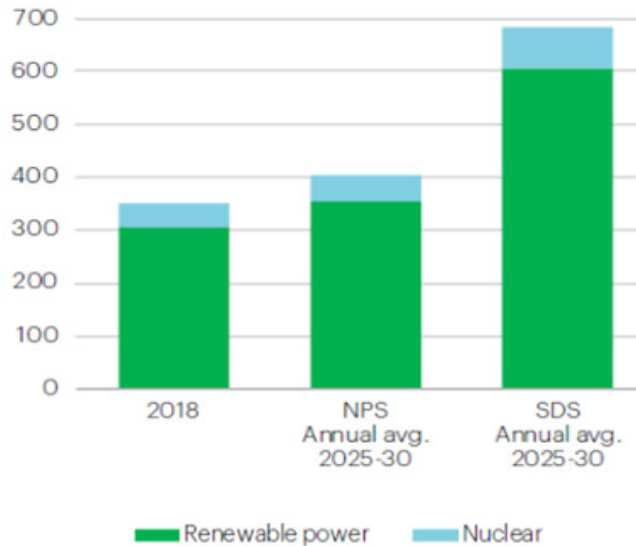
### Increasing private sector investment in PICT electricity generation

When FAESP was written, investment in government-owned power utilities was primarily through development agencies and the utility itself. Today, about 26% of installed PIC generation capacity in the Pacific is RE-based.<sup>62</sup> The Pacific RE market

could require US\$500m in investments by private sector IPPs, as solar PV and wind energy capacity is projected to double in the next three to five years. Power utilities will spend a similar amount upgrading transmission and distribution networks, with storage capacity installed to cope with the intermittency of solar and wind generation. In addition, larger-scale hydro developments in PNG, Fiji and the Solomon Islands will require an additional US\$1bn of investment. Some PIC utilities have limited experience in negotiating and managing power purchase agreements (PPAs) with IPPs, and these arrangements are likely to become more common in the future. This is among the many areas of need for ongoing PIC capacity development in the energy sector.

### Petroleum supply and storage

The Pacific has long been among the most petroleum-dependent regions globally. Despite growing investment in renewable energy, a high degree of dependence on imported refined petroleum fuels is expected to continue for several decades, for both electricity generation and the transport sector. Transport is almost entirely petroleum based, and most PIC power utilities (Figure 3.7) are still about 90% or more dependent on petroleum fuels.

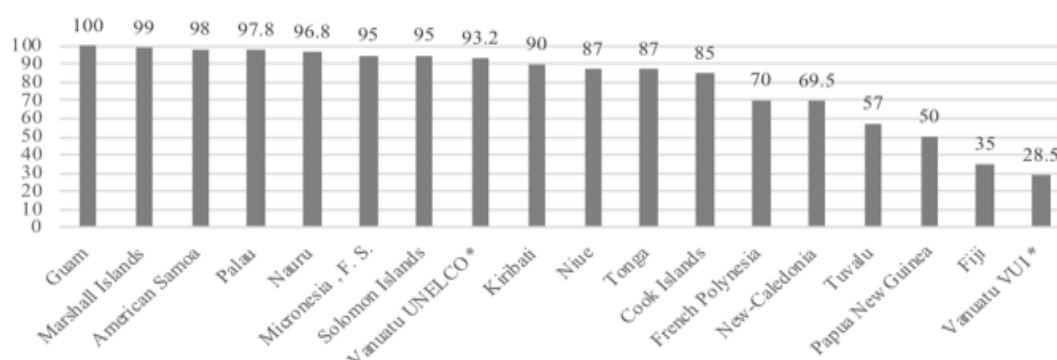


**Figure 3.6: Global investment in low-carbon electricity (US\$ billions per year).**

NPS = IEA new policies scenario (modest increase in RE investment)  
 SDS = Achievement of Paris commitments globally

<sup>61</sup> *World Energy Investments* (International Energy Agency, 2019).

<sup>62</sup> This paragraph is based on information from *3rd Pacific Energy Investors Forum: Report & Forum Outcomes* (PPA and PRIF with IRENA, PCREEE & GGGI, October 2018).



**Figure 3.7: Petroleum dependence for PIC electricity generation (2016).**

Source: *Pacific's Progress in The SDG7 and the Samoa Pathway (SPC & ESCAP, 2019)*



**Figure 3.8: WTI crude oil price in US\$/barrel.**

(WTI = West Texas Intermediate; September 2019)

The PICTs import relatively small volumes, are located at the end of a complex supply chain, and often lack the skills, experience and information to negotiate and manage reasonable oil supply agreements in a changing commercial environment. It can also be difficult to ensure safe operations and management of aging bulk storage facilities, both state and privately owned. These are mostly coastal facilities, often in heavily populated areas, and they will be increasingly vulnerable to flooding and other effects of climate change. Figure

3.8<sup>63</sup> illustrates the rapid (but short-term) price impact of the September 2019 attacks on Saudi refining and storage facilities, when the price rose overnight from \$55 to \$63 per barrel (a 15% increase) before dropping to \$57 after ten days. Future climate-related (or other) disruptions may not recover quickly, and could increase PIC fuel costs significantly and worsen PIC security of fuel supply.

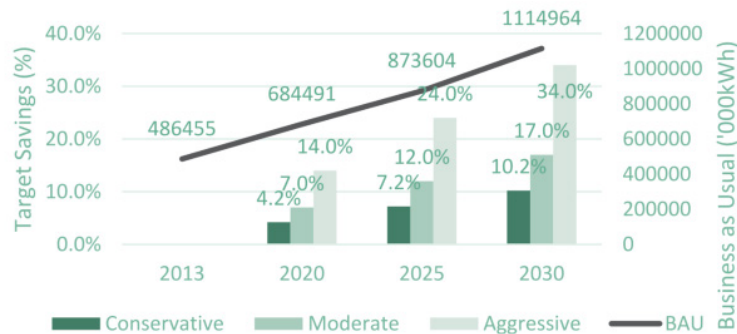
## Energy efficiency

Most, if not all, PICTs have specific goals for improving energy efficiency. At least nine PICs include EE among their NDC commitments.<sup>64</sup> Action on improving EE within electricity and transport has been quite limited, but no documentation has been located that estimates actual progress compared to goals.

<sup>63</sup> From *Axios*, 26 September 2019;

<https://www.axios.com/saudi-arabia-oil-prices-41b0adc7-4750-45f9-829a-b64f8eb490b2.html>

<sup>64</sup> NDC commitments can be found at <https://www.carbonbrief.org/paris-2015-tracking-country-climate-pledges> or at <https://www4.unfccc.int>. For several PICs, EE commitments are implied but not stated.



**Figure 3.9: Potential energy efficiency savings in PNG by 2030 for conservative, moderate and aggressive efforts.**

In 2015, an ADB project established feasible cost-effective energy efficiency targets<sup>65</sup> for residential and commercial electricity use for the Cook Islands, PNG, Samoa, Tonga and Vanuatu. The target is the difference between business-as-usual (BAU) electricity growth compared with conservative, moderate and aggressive EE efforts focusing on equipment and lighting. All five countries could, in principle, achieve residential and commercial EE savings of 7.5% and 10% respectively by 2030, even with a conservative modest effort. With aggressive efforts, savings could be 25–30% and 27–34% respectively. Figure 3.9 illustrates the savings potential in Papua New Guinea in 2030 as 10% (modest effort), 17% (moderate) and 34% (aggressive). Results were similar for the other four countries, but this potential, and the NDC efficiency commitments, are not being achieved among the PICTs.

The Energy Sector Management Assistance Programme (ESMAP) argues<sup>66</sup> that integrating energy efficiency into energy access efforts requires a shift in the way projects are designed, prioritising the provision of reliable energy service at least cost. By reducing supply investments and consumers’ energy costs, smart deployment of energy efficiency can dramatically accelerate energy access while often also reducing overall costs. For example, energy-efficient light emitting diodes (LEDs) radically reduce the size and costs of the solar PV and batteries needed for lighting systems. Energy-efficient appliances can increase the number of connections a mini-grid can support and lower a system’s capital cost requirements. There are synergies between EE and RE that PICTs can better tap in the future.<sup>67</sup>

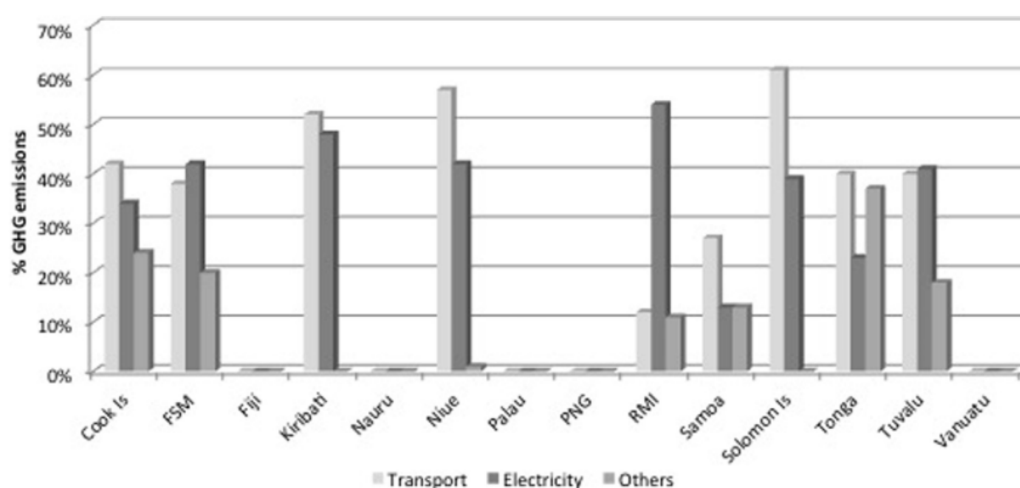
<sup>65</sup> *Development of EE Policy Targets* (Regional Energy Efficiency Workshop: Promoting Energy Efficiency in the Pacific – Phase 2; ADB/IIEC; Apia, 3–5 March 2015).

<sup>66</sup> *Energy Efficiency: A Key Enabler for Energy Access* (ESMAP, WB, 2017): <http://documents.worldbank.org/curated/en/101411494930752208/pdf/115063-BRI-P148200-PUBLIC-FINAL-SEARS-Energy-access.pdf>

<sup>67</sup> Also see *Synergies Between Renewable Energy and Energy Efficiency* (IRENA, August 2017): <https://www.irena.org/publications/2017/Aug/Synergies-between-renewable-energy-and-energy-efficiency>

## Transport energy use

In 2016, the Asian Development Bank<sup>68</sup> estimated that oil comprised 80% of total PIC commercial energy consumption, of which 75% was used for transportation and electricity generation. Recent data are meagre but well over half of this (or over half of electricity and transport GHG emissions, as shown in Figure 3.10<sup>69</sup>) is used for marine and ground transport. The transport sector is referenced in the NDC targets of eight PICs (FSM, Kiribati, Palau, RMI, Solomon Islands, Tonga, Tuvalu and Vanuatu) but only RMI has specified a clear target for reduction of transport emissions. Fiji, the RMI, Samoa, Vanuatu, the Solomon Islands and Tuvalu have agreed to work together to reduce petroleum fuel use in marine transport by up to 40% by 2030 and 100% by 2050.<sup>70</sup> There are currently separate regional frameworks for energy and marine transport,<sup>71</sup> and none for land transport. It has been argued<sup>72</sup> that progress in improving energy efficiency and developing renewable energy in the transport sector is inhibited by the silo nature of the major regional actors. The challenges in overcoming this are likely to be significant.



**Figure 3.10: Estimated PIC emissions for transport, electricity and other sectors (%).**

<sup>68</sup> *Renewable Energy and Sustainable Development in Pacific Island Countries* (ADB, December 2016).

<sup>69</sup> Figure is from *Why aren't PICs transitioning to low carbon sea transport* (Marine Policy, 2017).

<sup>70</sup> *Low Carbon Pacific Maritime Transport* (SPC, 2019).

<sup>71</sup> *The Framework for Action on Transport Services: 2011–2020* (SPC, 2011) covers the marine sector.

<sup>72</sup> Source is paper shown in footnote 70.

## Proliferation of new Pacific centres or services with strong energy links

When FAESP was developed a decade ago, there were few PIC-based regional organisations outside of CROP agencies with energy-specific activities. A key exception – IUCN Oceania – was able to attract considerable finance in 2007–2008 for its Pacific Energy, Ecosystems and Sustainable Livelihoods Initiative, in part because FAESP’s predecessor, the *Pacific Energy Policy and Plan* (PEPP, 2002) “in principle guides the regional organisations involved in energy (SOPAC<sup>73</sup>, SPREP, PIFS and PPA) but has not yet succeeded in ensuring harmonisation and cooperation/coordination among them regarding responsibilities for a particular type of work when potential funding is available”.<sup>74</sup> The field is far more crowded in late-2019, and long-standing weaknesses with cooperation/coordination are likely to become even more difficult to resolve. There are at least eight recently established offices, centres, facilities or services in the region with a strong energy element:

- i. The Pacific Centre for Renewable Energy and Energy Efficiency,<sup>75</sup> based in Tonga initially as a semi-independent SPC project.
- ii. The Pacific Climate Change Centre,<sup>76</sup> based at the SPREP compound in Samoa.
- iii. The Maritime Technology Corporation Centre Pacific,<sup>77</sup> affiliated to the International Maritime Organization (IMO) with SPREP and SPC as host organisations.
- iv. The Micronesian Center for Sustainable Transport;<sup>78</sup> a collaboration between the government of the Marshall Islands (as “a subregional initiative and catalyst for change”) and the University of the South Pacific (USP).
- v. The Office of the Pacific Energy Regulators Alliance (OPERA),<sup>79</sup> initially focusing on the electricity subsector; most likely to be established at SPC with an initial ADB technical assistance grant.
- vi. Energy Fiji Ltd’s planned regional power utility training centre, with support from JICA.
- vii. The Regional Pacific NDC Hub,<sup>80</sup> (the Regional Pacific Nationally Determined Contributions Hub) with 15 PICT members and five international partners.
- viii. The Global Green Growth Institute (GGGI),<sup>81</sup> with a regional office in Fiji, has a strong energy element in its Pacific programme and hosts a Pacific NDG coordinator.

<sup>73</sup> SOPAC, the Pacific Islands Applied Geoscience Commission was incorporated into SPC some years ago.

<sup>74</sup> *Managing the Ecosystem & Livelihood Implications of Energy Policies in the Pacific Island States* (Draft Project Document, C Cheatham for IUCN, 2008).

<sup>75</sup> See <https://www.pcreee.org>

<sup>76</sup> See <https://www.sprep.org/pacific-climate-change-centre>

<sup>77</sup> See <http://mtccpacific.spc.int/>

<sup>78</sup> See <https://www.mcst-rmiusp.org/>

<sup>79</sup> A paper on strengthening OPERA presented during the 2019 Pacific Energy and Transport ministers’ meeting, and the ministerial endorsement, can be found at: <http://prdrse4all.spc.int/node/4/content/fourth-pacific-regional-energy-and-transport-ministers-meeting-18-20-september-2019> along with all other papers from the meeting.

<sup>80</sup> See <https://pacificclimatechange.net/project/regional-pacific-ndc-hub>

<sup>81</sup> See <https://gggi.org/tag/pacific/>

The NDC Hub, the seventh listed above, is not an office or centre in the sense of the others but will be involved in energy services due to strong PIC NDC energy commitments. Improving energy coordination among proliferating bodies will be a challenge.

### Issues identified by the Commonwealth Secretariat

A 2017 study tried to identify the best approach to build resilience in the small, vulnerable Commonwealth Pacific small states by 2050. The chapter on energy<sup>82</sup> looked at ways to overcome significant barriers to improve energy access, energy efficiency, the use of more renewable energy and achieving energy security. The issues identified were consistent with those discussed above, and the report concluded that, “If the identified responses, solutions and contributions to combating climate change (NDCs) can be financed and implemented at the same time as extending access to energy to all of their populations, [the] Pacific small states will achieve real independence through energy and economic security.” However, as highlighted in Box 3.1 (following page), the challenges are significant for several reasons, including insufficient finance for achieving NDC and SDG energy objectives (SDG 7).

The study recommends “renewed and continued efforts to ensure that the appropriate policy responses result in scaled-up action and improved implementation and outcomes”. Specifically, it called for: i) strengthened coordination of regional and national efforts; ii) continued efforts to improve energy information and data on which rational decisions depend, through the PRDR; iii) a wide range of capacity-building initiatives; iv) efficient, fair and cost-reflective electricity supply and tariffs;<sup>83</sup> v) a range of energy efficiency measures (including building codes based on tropical designs and loan mechanisms that encourage efficiency and resiliency); vi) prioritising improved energy use for transport, “which has been largely absent from regional and national responses”; vii) greater efforts so that gender perspectives are genuinely accounted for, rather than cursory references in policies and documents; and viii) an incremental energy development approach, rather than emphasising a single technology ‘winner’ (e.g., EVs, offshore wind, marine energy) based on lower-risk commercially viable and proven technologies.

<sup>82</sup> “Strengthening Communities and Economies through Sustainable Energy” (Chapter 9 of *A Sustainable Future for Small States: Pacific 2050*; Commonwealth Secretariat; September 2017) prepared by former SPC energy adviser, Anthony Polack.

<sup>83</sup> This includes resilient and reliable grids, and legal and regulatory arrangements that encourage emerging technologies (smart grids, electric vehicles, battery storage, etc.).

### Box 3.1: Challenges to achieving Pacific NDCs and SDG 7 by 2050

Whether the current regional and national responses will be sufficient to achieve SDG 7 or many of the NDCs by 2030, or even 2050, will depend on several factors. Increases in energy efficiency will reduce the renewable energy required, while increases in the renewable energy to total energy mix will reduce the amount of fuel imports, as long as the renewable energy targets are maintained. However, the latter is dependent on population growth, which will drive energy demand. Given these factors, three possible scenarios can be envisaged:

In a 'business-as-usual' scenario with current population growth, continued migration to urban areas, growing energy demand, and little improvement in regard to access, energy efficiency and renewable energy, Commonwealth Pacific small states will increase fuel imports and become more dependent on petroleum, increase their vulnerability to macroeconomic impacts (GDP decline), and generate greater GHG emissions.

In a scenario with moderate population growth, some migration to urban areas and other countries outside the Pacific, subdued energy demand, and some improvement to access, energy efficiency and renewable energy, Commonwealth Pacific small states are likely to moderately lower their dependence on petroleum, mitigate macroeconomic impacts to some extent and generate moderate levels of GHG emissions.

In the more optimistic scenario of maintaining population at current levels, including urban and rural population ratios, some migration to neighbouring states, reduced energy demand, and escalated action on access, energy efficiency and renewable energy, Commonwealth Pacific small states will significantly lower their dependence on petroleum, have greater economic independence (GDP increase), and will achieve SDG 7 and the NDCs.

Based on the current trajectory, Commonwealth Pacific small states are likely headed for scenario 1. Current responses are also unlikely to be sufficient to result in scenario 3. This is because even though energy targets, policies and NDCs are in place, there is not enough financing to achieve these targets. If financing is secured, Commonwealth Pacific small states are likely to realise scenario 2, while moving towards scenario 3. However, to fully achieve scenario 3, there needs to be a more concerted effort and more financing than currently exists, particularly to scale up and/or develop effective solutions for cleaner transport, energy conservation and efficiency, and to build institutional and technical capacity.

*Source: A Sustainable Future for Small States: Pacific 2050 (Chapter 9).*

The Commonwealth study<sup>84</sup> also discusses existing, not emergent, challenges facing successful national PIC development planning that are equally relevant to future regional efforts to improve national energy sector plans and their implementation:

- In some smaller PICs, a strong reliance on external support to design national and/or sector strategies and plans often results in little local ownership or commitment to monitor implementation.
- A lack of data and analysis as well as a real and sustained commitment to building adequate databases and using data for comprehensive analysis, policy formulation and planning is evident in most countries. This has led to inadequate identification of targets and indicators, and limited opportunities for effective M&E.

<sup>84</sup> "Development Effectiveness and Co-ordination: Partnerships on Pacific Terms" (Chapter 4 of *Pacific 2050*, cited in ref. 77 above), prepared by Gary Wiseman; a well-known Pacific development practitioner.

- There is clear evidence that PICs often feel overwhelmed by the number of targets and indicators for measuring development progress, for which there is little available baseline data.
- Until the last few years, efforts to address gender inequality have been limited or largely unsupported in most PICs. There is no shortage of ‘commitment on paper’ at regional level by PIC governments, but this has generally not been adequately reflected by action at national level.

Among numerous suggestions to improve the region’s development performance are the following:

- A simple plan with a limited number of measurable targets consistent with likely national resources, that genuinely reflects political priorities, is owned and regularly reviewed by a high-level cross-government agency, and is reported to Cabinet, Parliament and the public.
- Budget processes that specify what they will achieve with the domestic and external funds allocated to them, including a regular account of results.
- Attention to the public financial management systems that convert budgets into actions in the most efficient, accountable and transparent way.

A subsequent 2019 report<sup>85</sup> argues that a successful energy sector transformation that achieves the NDCs is intrinsically linked to the SDGs, particularly SDG 7 on energy. Meeting the challenges that the PICs have set themselves for NDCs requires a greater focus on energy efficiency, as it has the most impact in reducing emissions and can be used to leverage investment in renewable energy. The NDCs need to be turned into investment pipelines of costed actions, with indications of net employment creation, so that finance can be sought from development partners, financial institutions and investors. Policies and legal reform are needed that phase out fossil fuel subsidies and encourage renewable energy and battery storage use. A major challenge, as argued in the 2017 Commonwealth report, is access to sufficient finance. This will require improved planning, management and monitoring, reporting and verification of the SDGs and NDCs to the 1.5°C climate change target. Integration of the NDCs and SDGs into a single national budgeting and planning process should result in more efficient use of resources, avoid overlap and duplication, and achieve greater progress.

Currently, the NDCs and SDG 7 are not well-aligned in most PICs, except for those dealing with RE and EE, as shown in Figure 3.11 on the next page.

<sup>85</sup> *The Commonwealth Sustainable Energy Transition: Pathways and Progress* (Anthony Polack, Commonwealth Secretariat, 2019). When last checked (22 Sept 2019), it had not yet been published.

Table 6.5 NDC and SDG7 alignment of member countries - Pacific

Member country	SDGs mentioned in NDC	7.1 Energy Access	7.2 Renewable Energy	7.3 Energy Efficiency	7.a Co-operation and Investment	7.b Infrastructure and technology	Alignment
Australia	x	x	✓	✓	x	x	40%
Fiji	x	x	✓	✓	✓	✓	80%
Kiribati	x	✓	✓	✓	x	x	60%
Nauru	x	x	✓	✓	x	x	40%
New Zealand	x	x	✓	✓	x	x	40%
Papua New Guinea	x	x	✓	✓	x	x	40%
Samoa	x	x	✓	x	x	x	20%
Solomon Islands	x	x	✓	✓	x	x	40%
Tonga	x	✓	✓	✓	x	x	60%
Tuvalu	x	x	✓	✓	✓	✓	80%
Vanuatu	x	✓	✓	✓	x	x	60%
<b>Total %</b>		<b>30</b>	<b>100</b>	<b>90</b>	<b>20</b>	<b>20</b>	<b>51%</b>

Source: Climate Watch (2019); German Development Institute (DIE et al; 2019); New Zealand determined by the author (2019)

Figure 3.11: Alignment of NDCs with SDG 7 in Commonwealth Pacific countries.

Source: Commonwealth Sustainable Energy Transition (Commonwealth Secretariat, 2019).

### 3.3 PIC ENERGY STRATEGIES CONSIDERING RISK AND UNCERTAINTY

The previous section argues that globally there is little indication of sufficient national efforts among the major carbon-emitting nations to effectively address these emissions, with serious but as yet indefinite impacts of climate change on the PICs. A recent paper in *Nature*<sup>86</sup> demonstrates that there is little chance of preventing more than 1.5°C of global heating unless the already-existing fossil fuel infrastructure is retired; yet the fossil fuel industry intends to accelerate both exploration and production.<sup>87</sup> Similarly, since the 2015 Paris Agreement, the global automotive industry has been among the strongest opponents of regulations to help meet the 1.5°C warming limit. Action to achieve a limit of a 1.5 or 2.0°C rise remains technically possible, but it would be prudent for PIC energy policies, plans and investment choices to assume ineffective global action. This section briefly considers strategies for action under risk and uncertainty.

<sup>86</sup> *Committed emissions from existing energy infrastructure jeopardize 1.5°C climate target* (Nature, vol. 572, 15 August 2019).

<sup>87</sup> Fiat Chrysler, Ford, Daimler, BMW, Toyota and General Motors have lobbied strongly to block, delay and frustrate initiatives to regulate and reduce transport-sector emissions. Source: *Carmakers among key opponents of climate change* (Guardian, 10 October 2019) from the Polluters Project.

Even wealthy countries are not immune from these risks. As this was being written (11 October 2019), about 2.7 million Californians experienced intentional blackouts imposed by their power utility<sup>88</sup> – bankrupt following wildfires exacerbated by climate change – in order to avoid further risks.

A 2018 World Bank study on power-sector energy security under high uncertainty (Box 2.1) stresses the need to understand actual risks, avoid developing a ‘best plan’ to meet a specific forecasted scenario, and implement the option that is the most robust to most uncertainties. Planners should respond to the uncertainties faced, while “striking a balance between the three main policy imperatives of economic efficiency, energy security, and environmental sustainability”. The approach aims to provide an alternative to the ‘predict-then-act’ approach to planning.

In the Pacific, work on vulnerability assessment – as in Kiribati, Tuvalu and the Solomon Islands<sup>89</sup> – can, and should, assist PICs to develop robust energy policies and plans aligned with national adaptation planning. This overview of a new regional energy approach does not consider the issue further but notes (Box 3.2) additional reports that may be useful for CROP agencies and others in developing an approach suitable for the conditions PICTs are likely to face from 2020 and well beyond.

### **Box 3.2: Future PIC energy policies and planning for risks and uncertainty**

The list below is an initial sample of additional approaches that might be useful for developing and implementing PIC energy policies and plans during a period of expected uncertainty and risk. The issues are closely linked to those of Box 2.1 on measuring energy security.

**A Guide for Planning and Strategy Development in the Face of Complexity** (International Development Research Centre – Canada and Overseas Development Institute; UK, 2013).

**Renewable Energy Opportunities Indo-Pacific** (Entura/Hydro Tasmania, July 2016).

**Solutions to Integrate High Shares of Variable Renewable Energy** (IRENA, June 2019).

**SMART Guide and Briefing Paper: A Methodology and Results Paper on the Strategic Mitigation Adaptation Resilience Tool (SMART) for Planning** (ClimateWorks Australia, Sept 2018).

**Horizon to Horizon: A Pacific Island Country Guide to Creating Long Term Climate Resilience, Net Zero Emissions Development and a Sustainable Future** (ClimateWorks Australia, 2018).

*Sources: Links to access these and other related studies are provided in Annex 3.*

<sup>88</sup> *PG&E outages could cost California more than \$2 billion* (Axios, 11 October 2019). The utility, Pacific Gas & Electric, estimates that burying power lines to limit fire risk would cost US\$67 billion.

<sup>89</sup> *How Integrated Vulnerability Assessments Support NAP Processes in the Pacific Region* (International Institute for Sustainable Development, January 2019).

# 4 | THE EVOLVING CONTEXT OF REGIONALISM IN THE PACIFIC

As the 2010 FAESP states, “Energy security has many links with social and economic development and must therefore be integrated into the development agenda.” Institutional arrangements for a regional approach to Pacific sectoral development that were considered appropriate a decade ago may not be so today. This chapter considers the evolving context of regionalism in the Pacific and implications for the nature of a new regional energy framework.

## 4.1 THE PACIFIC PLAN AND ITS REVIEW

FAESP was prepared under the framework of the Pacific Plan,<sup>90</sup> which had an overall goal (with 13 subsidiary goals) of enhancing and stimulating economic growth, sustainable development, good governance and security for Pacific countries through regionalism. The emphasis was on regional cooperation. Within the energy sector, it called for intensified implementation of the Pacific Islands’ Energy Policy and associated strategic action plan to provide available, reliable, affordable and environmentally sound energy for the sustainable development of all Pacific Island communities.

FAESP was underway for barely two years when the Pacific Plan was reviewed in 2013<sup>91</sup> “to assess [its] effectiveness and ensure that it remains the driver of regional efforts for integration and cooperation. [The review] was to build consensus on the future direction of the Pacific Plan and provide a platform for prioritising regional integration and cooperation efforts over the next decade.” It considered: i) the changing social, economic, environmental and political context for Pacific regionalism; ii) what ‘regionalism’ actually means; iii) the unclear translation of the Pacific leaders’ original ‘plan for regionalism’ into a ‘regional development plan’; iv) the institutions and processes surrounding the Plan, particularly with respect to priority-setting; and v) the likely pathways to development in the Pacific, where both growth and poverty have particular characteristics.

<sup>90</sup> *The Pacific Plan for Strengthening Regional Cooperation and Development* (PIFS, 2005; revised 2007).

<sup>91</sup> *Pacific Plan Review 2013 – Report to Pacific Leaders: Executive Summary* (PIFS, 2013).

The review questioned whether the Plan was driving regionalism or reacting to events and imperatives emerging from other national and international forums. Ownership of the Plan was limited at the political level, with Pacific regionalism mostly comprising cooperation, which was regarded as much less than shared governance. The CROP agencies had been seen as the embodiment of regionalism: that regionalism is the product of the CROP agencies' work. However, the review held that regionalism is in the first instance a political, not technical, process and called for a new Framework for Pacific Regionalism, focusing on the bigger picture, including the political processes and settlements needed to progress regional integration. The prioritisation process should focus on fewer, higher-priority issues.

## 4.2 THE FRAMEWORK FOR PACIFIC REGIONALISM

The subsequent *Framework for Pacific Regionalism (FPR)*<sup>92</sup> was adopted by Forum leaders in 2014. It states that potential regional initiatives “should maintain the degree of effective sovereignty held by national governments (countries, not regional bodies, should decide priorities)”. The principle objectives of the FPR are: i) sustainable development that combines economic, social and cultural development in ways that improve livelihoods and wellbeing and use the environment sustainably; ii) economic growth that is inclusive and equitable; iii) strengthened governance, legal, financial and administrative systems; and iv) security that ensures stable and safe human, environmental and political conditions for all.

Based on these objectives, each year, Forum leaders prioritise no more than five regional initiatives in support of deepening regionalism. These are expected to be the impetus for regional collective action that embraces one or more of the following: i) coordination by establishing and managing agreed processes that facilitate regional dialogue and access to (and use of) information; ii) cooperation by developing and committing to coordinated regional and subregional policies and strategies; iii) collaboration by delivering regional public goods and pooled services; iv) harmonisation by entering into specific regional or subregional commitments to common policies, regulations, standards and/or processes; v) economic integration by lowering physical and technical market barriers to enable freer movement of people and goods within and among countries; and vi) administrative/legal/institutional integration by agreeing to common rules, standards and institutions to foster and sustain integration.

In 2017, Forum leaders endorsed a *Pacific Roadmap for Sustainable Development*<sup>93</sup> to guide regional responses for the achievement of the 2030 Agenda and the SDGs within the context of PICT national plans and priorities, the SAMOA Pathway<sup>94</sup> and the FPR. There is no explicit reference to the energy sector, although SDG 7 deals with energy.

<sup>92</sup> *The Framework for Pacific Regionalism* (PIFS, 2014).

<sup>93</sup> *The Pacific Roadmap for Sustainable Development* (PIFS, 2018).

<sup>94</sup> The SAMOA Pathway refers to the SIDS Accelerated Modalities of Action [S.A.M.O.A.] Pathway adopted by SIDS in September 2014 at the third International Conference on Small Island Developing States. See <http://www.sids2014.org/index.php?menu=1537>.

## 4.3 FRAMEWORK FOR RESILIENT DEVELOPMENT IN THE PACIFIC

The *Framework for Resilient Development in the Pacific: An Integrated Approach to Address Climate Change and Disaster Risk Management (FRDP): 2017–2030*<sup>95</sup> was produced as ‘voluntary guidelines for the Pacific region’ to guide action at the sectoral level, including energy, to address the cross-cutting issues of climate change and disaster risk management. It provides high-level strategic guidance to various stakeholder groups on how to enhance resilience to climate change and disasters, in ways that contribute to and are embedded in sustainable development. The three goals of the FRDP are:

1. Strengthened integrated adaptation and risk reduction to enhance resilience to climate change and disasters.
2. Low-carbon development.
3. Strengthened disaster preparedness, response and recovery.

Pursuing goal 2, low-carbon development, “revolves mainly around reducing the carbon intensity of development processes, increasing the efficiency of end-use energy consumption, increasing the conservation of terrestrial and marine ecosystems, and enhancing the resilience of energy infrastructure. This goal will contribute to having more resilient energy infrastructure in place, and to increase energy security, while decreasing net emissions of greenhouse gases.”

The FRDP sees “the greatest opportunities for reducing greenhouse gas emissions in electricity generation and the transport and industrial sectors. Increasing energy efficiency is more cost-effective, including investing in end-use energy efficiency and conservation improvements, such as demand side management. ... Investing in clean and affordable energy can diversify the sources of energy, and thereby strengthen resilience to economic shocks. ... It should also be noted that energy access continues to be an issue in PICTs. Increasing access to clean and affordable energy is an important aspect of sustainable development and should be pursued within the context of low carbon development.”

For low-carbon development, the FRDP lists numerous voluntary priority actions by PICT governments, civil society and communities, the private sector and regional organisations and development partners. Box 4.1 lists those related to energy for the regional organisations and donors.

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<sup>95</sup> *Framework for Resilient Development in the Pacific (FRDP) 2017–2030* (SPC with SPREP, PIFS, UNDP & UNISDR, 2016).

**Box 4.1: Recommended priority FRDP actions for low-carbon energy by regional organisations and development partners**

- a) Implement policies and practices within regional organisations to reduce carbon footprints.
- b) Facilitate adequate and timely financial and other support to achieve low-carbon and resilient development goals including appropriate policy-making and economic modelling.
- c) Facilitate technical and financial support to PICs to carry out their obligations under the UNFCCC Paris Agreement on Climate Change.
- d) Ensure that all initiatives related to low-carbon development respond to country and community priority needs and opportunities in an equitable manner, including being gender responsive.
- e) Assist civil society, community and other non-governmental organisations to participate meaningfully in regional and international advocacy for low-carbon development.
- f) Support and build capacity in research, development and training in specific skill requirements of low-carbon energy technologies and practices in the region.
- g) Support PICTs to identify and utilise opportunities for the transport and industry sectors to reduce their greenhouse gas emissions, including assessing how PICTs might move to more energy-efficient modes of transport, and the associated costs and benefits.
- h) Strengthen regional coordination and cooperation that supports national efforts to reduce energy demand through initiatives such as appliance standards and labelling.
- i) Assist relevant PICTs to establish, implement and maintain monitoring systems that use an appropriate combination of remote sensing and ground-based carbon inventory approaches, in support of strengthening sustainable forest management efforts at national and subnational levels.

In August 2019, the heads of CROP agencies<sup>96</sup> noted the establishment of the Pacific Resilience Partnership (PRP) Taskforce supported by the PRP Support Unit (comprising PIFS, SPC and SPREP). The Taskforce is developing ‘resilience standards of excellence’; an M&E framework for the FRDP; and a system of PRP affiliation for entities at the regional, national and subregional levels supported by DFAT and the EU. As climate change and disaster risk in the Pacific are interrelated, multi-dimensional and complex, coordination across the CROP family is seen as critical, “as addressing climate change requires the expertise and resources of each CROP agency, through genuine and strong partnerships”.

<sup>96</sup> CROP Annual Report to Pacific Island Forum Island Leaders (PIFS, August 2019).

At the subsequent 2019 Forum, leaders also discussed the FRDP and reaffirmed the importance of member-driven, inclusive and coordinated action on climate and disaster resilience. They agreed “to extend the trial period on the Pacific Resilience Partnership (PRP) governance arrangements until 2020 to be informed by a review of the effectiveness and efficiency of the governance arrangements. Leaders further directed the PRP taskforce to further elaborate the FRDP in line with the Paris Agreement, and to finalise the M&E framework by the end of 2021, with a progress update in 2020.”

## **4.4 STRATEGY FOR THE BLUE PACIFIC CONTINENT**

Pacific Islands Forum leaders have embraced Pacific regionalism<sup>97</sup> as, “The expression of a common sense of identity and purpose, leading progressively to the sharing of institutions, resources, and markets, with the purpose of complementing national efforts, overcoming common constraints, and enhancing sustainable and inclusive development within Pacific countries and territories and for the Pacific region as a whole.” In 2017, Forum leaders endorsed the ‘Blue Pacific’ identity as the core driver of collective action to advance this vision. At the 2019 Forum, Pacific leaders endorsed the development of a *2050 Strategy for the Blue Pacific Continent*, with a draft to go to the 2020 Pacific Islands Forum meeting in Vanuatu. It will consider social, cultural, environmental and economic integrity, sovereignty and security in order to “protect people, place and prospects of the Blue Pacific”.

Leaders endorsed the following Blue Pacific principles for collective Pacific Islands Forum dialogue and engagement:

- i. One Blue Pacific – recognising and engaging with the full Forum membership.
- ii. Regional priorities – embedding and progressing the Forum’s regional priorities.
- iii. Partnership approach – joint planning, programming and delivery by both the Pacific Islands Forum and the Forum Dialogue Partner(s).
- iv. Utilising existing mechanisms – aligning with, and seeking to build off of existing regional and international mechanisms, processes and meetings.
- v. Collective outcomes and impact – developing joint outcomes statements and outlining a clear process for follow-up and implementation.

These principles, notably iv) on the use of existing mechanisms, are relevant for the new energy framework approach. Energy sector development, cooperation and coordination is likely to be among the 2020 Forum meeting priorities. This chapter suggests that the evolution from the Pacific Plan to the FPR, and now the Blue Pacific narrative, has been a shift from detailed prescriptive frameworks to high-level regional goals to support political objectives. Sectoral approaches implemented by CROP agencies – whether called plans or policies or frameworks

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<sup>97</sup> See <https://www.forumsec.org/pacific-regionalism/>

– should endeavour to fit in with overall regional approaches for cooperation, coordination, reporting, monitoring and evaluation. The new energy framework must be consistent with, and be seen to be consistent with, the FPR, FRDP and the Blue Pacific concept.

This approach was endorsed by ministers<sup>98</sup> at the energy and transport ministers’ meeting held in Apia, Samoa, in September 2019:

Ministers acknowledged the PRIF-funded review of the Framework of Action for Energy Security in the Pacific (FAESP) 2010–2020 and endorsed the development of a new regional energy framework 2020–2030 to be a regional vehicle for an accelerated progress on the SDGs, SAMOA Pathway, Nationally Determined Contributions (NDCs) and energy roadmaps; and the need for the new energy framework to be supportive of the 2050 Strategy for the Blue Pacific continent.

Furthermore,<sup>99</sup> ministers, “agreed to develop and align energy and transport regional frameworks to the 2050 Strategy for the Blue Pacific Continent”.

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<sup>98</sup> *Apia Outcome Statement* (Fourth Pacific Regional Energy and Transport Ministers’ Meeting; Apia, Samoa, 18–20 September 2019).

<sup>99</sup> *Resolution of Transport Ministers* (Fourth Pacific Regional Energy and Transport Ministers’ Meeting; Apia, Samoa, 18–20 September 2019).

# 5 | INSTITUTIONAL CHANGES AND MANAGEMENT MECHANISMS FOR A NEW REGIONAL ENERGY FRAMEWORK

## 5.1 FRAMEWORKS VERSUS POLICIES

A framework (Box 5.1) is understood to be a set of principles and long-term goals forming a basis for rules and guidelines, providing overall direction for planning appropriate initiatives. It is a path and set of processes, not requiring an end point. A policy<sup>100</sup> is also a system of principles to guide decisions and achieve rational outcomes. It is a statement of intent implemented through specific procedures or protocols. Policies are generally adopted by a governance body within an organisation and can assist in both subjective and objective decision-making. Policies to assist in subjective decision-making usually assist senior management with decisions that must be based on the relative merits of a number of factors, and as a result are often hard to test objectively. In contrast, those policies that assist in objective decision-making are usually operational and can be objectively tested. In practice, a new regional energy framework can be considered to be a broad policy document.

This chapter considers institutional arrangements for an effective new regional energy framework considering: i) the findings and lessons from the review of FAESP (Chapter 2); ii) the likely climate and development context of the region's energy sector from 2020–2030 and beyond (Chapter 3); and iii) the changing context of regionalism at the political level in the Pacific (Chapter 4). The challenges for CROP agencies and PICTs are likely to be considerable.

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<sup>100</sup> This is abridged from <https://en.wikipedia.org/wiki/Policy>.

### Box 5.1: Frameworks, implementation plans and coordination

The following useful definitions are from the FAESP Midterm Review of 2014:

**Framework:** A framework<sup>1</sup> is "... a set of principles and long-term goals that form the basis of making rules and guidelines, and to give overall direction to planning appropriate initiatives". Unlike "... a plan,<sup>2</sup> a framework does not require an agreed end point ... or a comprehensive set of activities that all need to be implemented if the goal is to be achieved. Rather, a framework sets out a path ... and a set of processes." Sources: 1) *Pacific Integrated Regional Strategy for Disaster Risk Management and Climate Change – Options Paper* (John Hay & Cristelle Pratt, Draft, 2013), and 2) *Pacific Plan Review* 2013, vol. 1 (PRIF).

**Implementation plan:**<sup>3</sup> For this review, 'implementation plan' and 'action plan' are taken to mean the same thing and are defined as "... a document that lists what steps must be taken in order to achieve a specific goal". The purpose of an action plan is to clarify what resources are required to reach the goal and formulate a timeline for when specific tasks need to be completed. Source: 3) <http://whatis.techtarget.com/definition/action-plan>

**Coordination:**<sup>4</sup> Coordination has been defined as "... managing dependencies between activities". This definition implies that if there is no interdependence, there is nothing to coordinate. Often, good coordination is nearly invisible, and we sometimes notice coordination most when it is missing. Source: 4) *The Interdisciplinary Study of Coordination* (Malone & Crowston, 1993).

A prudent framework should be compatible with the anticipated expectations globally and for the region's energy sector, which confirm that improved energy security in the PICTs requires a strong emphasis on investment in robust climate-resilient energy infrastructure. This conclusion is not invalidated even assuming strong global action to minimise temperature increases. The new framework must also be consistent with the emerging Pacific concept of regionalism in general and with the September 2019 decisions of energy ministers in particular. Considering the growing number of regional bodies or services with active energy activities or ambitions (as described in section 3.2), the framework must provide a basis not only for real coordination among the relevant regional bodies, but also promote active and ongoing collaboration. An outline of the recommended approach follows.

## 5.2 OVERVIEW OF A NEW FRAMEWORK

The 2020–2030 framework should guide the CROP agencies to carry out high-priority actions that are built upon and respond to national, not CROP agency, needs and priorities. There should be a clear sense of priorities for areas of cooperation (among CROP agencies) and assistance (to PICTs) that can benefit from a regional approach to assist the PICTs develop and implement practical and achievable energy policies and plans and improve their energy security over time. The framework should be sufficiently flexible to respond to changing needs over a period of ten years or more.

## Recommendations

1. The new framework must be consistent with the *Framework for Pacific Regionalism*, the *Framework for Resilient Development in the Pacific* and the 'Blue Pacific' narrative.
2. The framework should be a short strategic document, less comprehensive than FAESP, limited to a focus on achievable aspects of cooperation, coordination and collaboration, with a clear set of limited priorities.
3. Action to significantly improve demand-side energy efficiency in the PICTs, although widely understood to be an essential component of a shift to more sustainable energy, was largely under-developed during FAESP. Alongside renewable energy development, it should be a higher priority for action under the new framework.
4. There should be a strong focus on developing and maintaining robust PICT energy infrastructure, which is resilient to climate change and natural disasters, while steadily shifting away from petroleum-based fuels to sustainable renewable energy.
5. Monitoring, evaluation and verification of progress should use mechanisms under development regionally, specifically the FRDP M&E framework. As this may not be finalised until late 2021, there may be a need for an interim M&E mechanism.<sup>101</sup>
6. The large volume of required reporting on the energy sector should be consolidated to the extent that is practical. There should preferably be a single format based on the same data for SDG 7, the SAMOA Pathway, national energy plans/roadmaps and the Pacific NDC Hub requirements.<sup>102</sup>
7. The seven current FAESP thematic areas should be consolidated and reduced to fewer areas.<sup>103</sup> Details will be considered and developed during phase 2.
8. A ten-year broad framework is recommended, to be reviewed (three-yearly)<sup>104</sup> and adjusted as necessary.<sup>105</sup>
8. The FAESP Implementation Plan (IP) was not used by PEOG/CROP agencies, and there has been no IP developed by SPC since 2011. It was not used by the PICTs as a basis for data collection. It should be dropped, with energy aspects of each CROP agency's own annual work programme used for planning.
10. PRIF has an EWG that meets regularly in Sydney. It is recommended that the EWG alternate meetings as practical between Sydney and the Pacific, and explicitly open the meetings to the relevant CROP agencies and PICTs.

<sup>101</sup> And there should be an opportunity for SPC to contribute to the FRDP M&E framework.

<sup>102</sup> NDC Hub matches the approach whereby regional priorities are set at the national level, with the regional mechanism providing financial and technical support.

<sup>103</sup> Theme 4 'energy conversion' could be renamed electricity generation and supply.

<sup>104</sup> SPC suggests a three-yearly review with adjustments in the third, sixth and ninth year. The final ninth-year review would provide the basis for development of a possible 2030–2040 framework.

<sup>105</sup> It may need adjustment; for example, to be consistent with the forthcoming *Strategy for the Blue Pacific Continent* or other emerging aspects of Pacific regionalism.

## 5.3 SEPARATION OF COORDINATION AND COLLABORATION FUNCTIONS FROM PROJECT IMPLEMENTATION

A common weakness of Pacific regional sectoral frameworks has been limited cooperation. For FAESP, there was satisfactory information sharing but limited coordination of activities of regional agencies and no appreciable collaboration. This has been attributed in part to CROP agencies competing for a limited range of funding. It is difficult for the same agency staff to prioritise regional coordination – and undertake effective cooperation, proactive collaboration and effective reporting and monitoring and evaluation – if they are dependent on, and focused on, short-term project funding. The functions should, as far as practical, be separated, or, alternatively, an effective firewall be established between them.

### Recommendations

This is largely a political choice. There are at least two options to accomplish this:

1. Separate the CROP agencies for coordination and implementation. Considering the economic and political importance of energy, the various mechanisms dealing with aspects of coordination that include energy, the choice of chair of PEAG, and the proliferation of entities with some energy activities in different regional agencies, the Pacific Islands Forum Secretariat (PIFS) is a logical choice for overall sector coordination. In this case, SPC could continue as lead CROP energy-implementing agency.
2. Separate coordination from implementation within the CROP lead energy coordination agency. Under this option, it is recommended that a permanent senior position be created for regional energy cooperation and coordination (including reporting and M&E), supported by staff responsible for coordination of fundraising for regional energy initiatives.

Option 1 may not be feasible as the PIFS has progressively shifted to dealing with higher-level issues, moving away from sectoral matters that are handled by other CROP agencies. However, it deserves consideration because energy is a complex and highly political service in which success underlies development in all sectors. It will be difficult for any other CROP agency to effectively manage coordination when so many Pacific organisations are developing energy initiatives.

Either option requires the allocation of new staff and additional (or reallocated) core finance. However, without a mechanism to separate coordination from project implementation, energy sector coordination and cooperation are unlikely to improve.

## 5.4 OVERLAPPING CROP AGENCY ENERGY MANDATES

Within the current CROP mandates related to energy (Annex 5), “Energy policy and climate change policy [remain] separate where environmental aspects are managed by SPREP and energy sector activities by SPC so as to ensure that the socioeconomic aspects of energy were adequately addressed.” According to a more recent (but undated) CROP document<sup>106</sup> for climate change activities in the region, “Political leadership and effective resourcing are issues generally led and coordinated by PIFS; practical application of adaptation and mitigation activities across many key development sectors is led by SPC, and on some issues by SPREP ... the lead regional coordinating agency in climate change.”

The current energy (SPC) and environment (SPREP) mandates are overlapping, impractical and increasingly hard to separate, particularly as a future energy framework will inevitably emphasise actions to manage climate change impacts on the energy sector. Without an agreement at the level of the Directors General (DGs) of SPC and SPREP to resolve the mandates, and a management mechanism to enforce it, the negative effects of the current arrangements are likely to become exacerbated. It is understood that the DGs, including the incoming SPC DG, discussed this in mid-October 2015. If the mandates have not been resolved, it should be done at the earliest opportunity. CROP has “the primary purpose of improving cooperation, coordination and collaboration between Pacific intergovernmental organisations”,<sup>107</sup> but there is apparently no formal understanding of the roles and responsibilities of coordinating and implementing agencies or the intended degree of cooperation, coordination and collaboration.

### Recommendations

1. The respective SPC and SPREP mandates related to energy should be reconsidered, clarified, revised and endorsed by the ministers responsible for energy and, subsequently, Forum leaders.
2. This understanding of cooperation, coordination and collaboration, and the scope and roles of coordinating and implementing agencies should be clarified by the heads of CROP.

## 5.5 ENERGY OVERSIGHT AND ADVISORY FUNCTIONS

The Pacific Energy Oversight Group (PEOG) and Pacific Energy Advisory Group (PEAG) have been ineffective in their roles of overseeing FAESP and advising SPC on activities and improving coordination.

<sup>106</sup> CROP – *Collaborating to Support Effective Response to Climate Change* (undated).

<sup>107</sup> CROP Charter 2018 (PIFS, 2018).

## Recommendations

1. The TOR and membership of PEOG and PEAG should be re-assessed and changed as appropriate to be consistent with their distinct oversight and advisory functions.<sup>108</sup> PEOG should be reformulated as the CROP Energy Working Group (EWG) reporting to heads of CROP and ultimately through them to Forum leaders. PEAG should be replaced by a small TAG similar to the earlier SPC advisory mechanism. Sharing of information among CROP agencies, PICTs and others should continue through reporting mechanisms at officials and ministers' meetings.
2. The EWG and TAG should be independent from implementation. TOR, membership, chair and reporting should be approved at director level (or other agreed level external to the SPC Georesources and Energy Programme) and reporting should be independent of those implementing activities.

## 5.6 CORE POSITIONS, DATA, ENERGY SECURITY AND RESOURCES

The first element of SPC's mandate as lead CROP energy coordination agency (Annex 5), as endorsed by energy ministers and subsequently Forum leaders, was to "establish a dedicated long-term senior position in the organisation with funding that is not dependent on project funding to effectively facilitate regional energy sector coordination to raise and maintain the profile of energy at all levels". Numerous people interviewed have said that energy at SPC has recently had a low profile regionally, and this should be rectified if it is to become recognised as an effective lead agency. It has been stated<sup>109</sup> that SPC is unlikely to reinstate or recreate a more senior energy position, but it is important to do so if SPC is to be an effective lead energy-coordination agency.

A regional energy framework, which has a core objective of action to improve energy security within the PICTs, requires high-quality, up-to-date data at the country level. It also requires a small number of good indicators, which can serve as a proxy for measuring or estimating changes in national energy security.

<sup>108</sup> The respective dictionary definitions are: i) oversee (PEOG) "to direct (work or workers); supervise; manage"; and ii) advise (PEAG) "to recommend as desirable, wise, prudent, etc".

<sup>109</sup> A senior SPC staff sates that during recent rationalisation of functions, it was apparent that energy is not going to be a programme on its own due to other priorities. ... The Georeosurces and Energy Programme was confirmed and the GEM Division was established. Unless there is a new SPC-wide rationalisation of functions, energy will not be a programme on its own in the next five years.

## Recommendations

1. SPC should reinstate and advertise the position of Deputy Director Energy, not dependent on project funding.
2. PICTs will remain highly dependent on petroleum fuel imports for many years. A petroleum advisory service, which has in the past been cost-effective in restraining fuel costs,<sup>110</sup> should be re-established with core or other long-term funding.
3. As lead energy agency, SPC should ensure sufficient staffing<sup>111</sup> and finance for collecting, collating and assessing (for internal consistency) energy data with regular updates of country-level data. This should be sufficiently detailed for use in the PICTs for developing energy investment projects.
4. A small subset of data (details to be determined) should be developed, regularly collected and used for estimating changes in the energy security of PICTs.

## 5.7 OTHER CONSIDERATIONS AND UNRESOLVED ISSUES

### Mechanisms to foster genuine cooperation, coordination and collaboration

The growing numbers of organisations in the region with some energy role (section 3.2, page 42) should, in principle, not impose substantially greater difficulties for coordination, as most have links to SPC, SPREP or both. In practice, cooperation even among different offices of a single CROP agency can be minimal. The detailed energy framework design of phase 2 needs to consider practical ways of encouraging, fostering and even requiring cooperation and collaboration in designing, financing and implementing national energy initiatives. These might include required annual performance reviews in which promotions (or even retention of a position) were in part determined by documented efforts to cooperate and collaborate. There could be conditions imposed by development agencies. Job descriptions should include and emphasise cooperation and collaboration as high priorities.

### Transport energy and the new framework<sup>112</sup>

In September 2019, transport ministers “agreed to continue implementation of the Framework for Action on Transport Services [FATS] until a new framework is adopted”, and energy and transport

<sup>110</sup> See section 6 of this report for further information and justification.

<sup>111</sup> SPC has been seeking funding since 2017 to resource a proposed data team of five staff plus in-country data officers for a five-year period. This is under consideration by the World Bank.

<sup>112</sup> *Resolution of Transport Ministers (p. 9) and Apia Outcome Statement (p. 8) of the Fourth Pacific Regional Energy and Transport Ministers’ Meeting (Apia, September 2019).*

ministers overall agreed “to task the SPC to consult and explore options for the development of a new framework for transport taking into account the need to address aviation matters. SPC will report on the outcome at the first meeting of transport ministers or officials from 2020 and get advice on the way forward.” It is thus highly likely that there will be both a new FAESP (energy overall) and a new FATS (including marine and possibly aviation energy but presumably excluding ground transport). The new energy framework will probably be completed before development begins on a new FATS. During the final design of a new FAESP (phase 2 in early 2020), it is important to have ongoing dialogue with SPC and others so that the frameworks are consistent and coordinated, and key issues regarding land transport are not omitted.

### Lessons from the Caribbean

The Caribbean region has a long-standing regional energy framework, and a new one is currently being developed focusing on climate-resilient energy infrastructure. During phase 2 of the FAESP review and new framework development, the institutional arrangements for governance, reporting, M&E, development agency coordination,<sup>113</sup> etc., should be considered to see whether there are lessons applicable to the Pacific.

### Subregionalism and energy

Subregional groupings are an important aspect of Pacific regionalism and can play constructive roles in identifying the appropriate areas for energy sector cooperation. Not all PICTs need to participate in every regional energy initiative, but the new framework should not ignore energy issues that are especially important to subregional groups. A related issue is how to more effectively provide assistance through a regional programme to the Pacific territories that have not greatly benefited by FAESP, as some donor funding is restricted to specific countries.

### The role of a regional energy programme in bilateral projects

Bilateral projects are a key source of support to the PICTs in the energy sector. FAESP (and SPC) can play a role in helping to implement them, but this has not been addressed in this review.

### Linkages with ICT/digital development and financial infrastructure

These have not been addressed but may be relevant and can be addressed during phase 2, if appropriate.

<sup>113</sup> Initial discussions suggest that one advantage in the Pacific has been the existence and coordination within PRIF, whereas development agencies in the Caribbean have no formal energy sector coordination.

# 6 ENERGY INITIATIVES APPROPRIATE FOR A REGIONAL APPROACH

## 6.1 CRITERIA FOR REGIONAL ENERGY SECTOR ASSISTANCE

A programme of regional assistance through a CROP agency should be limited to initiatives that provide practical value to PICTs for issues of priority to the PICTs, and which can more effectively be provided through a regional approach than by direct assistance to the country or territory, or through efforts by the country itself. For example, it can be considerably more cost-effective and result in better technical advice to spread the costs of highly specialised but intermittent services across a group of countries or by developing sets of guidelines/voluntary regional standards that can be adapted and adopted at national level.

There are no generally agreed criteria for distinguishing regional assistance to PICs compared to that which is better done at a national level. Various overlapping criteria have been suggested over the years.<sup>114</sup> These are useful, if not always clear in practice, and are consistent with the approach of the IPESP 2011–2015 (page 7):

- Advancing awareness, dialogue and action on sensitive and/or emerging development issues.
- Promoting regional public goods.
- Supporting the management of cross-border externalities and spill-overs.
- Generating and sharing development knowledge, experience and expertise.
- Establishing a shared norm or standard, or a common position on an issue.
- Synergy, such as possibly combining climate change and capacity development assistance that is more effective regionally.

<sup>114</sup> Thanks to Thomas Jensen, UNDP's Regional Energy Programme Specialist, for mentioning these. Some have been edited and others deleted. These are obviously incomplete and are from various UNDP, PIFS and Australian government reports, e.g., *Aid Investment Plan: Pacific Regional 2015–16 to 2018–19* (DFAT Australia, undated).

- Economies of scale. Some of the expertise required to translate fuzzy policies into concrete action (e.g., for legislation, regulations, financial incentives) is inordinately expensive on a country-by-country basis but affordable if spread over a few countries.
- Benefit test. The initiative should bring substantial net benefits, as demonstrated if possible by cost–benefit analysis. (The distribution of benefits across countries and across stakeholders within the region should also be considered.)
- Duplication test. The initiative should not be currently done by another organisation, and there should be no duplication of effort.
- Market test. Is the market providing a service well? If so, involvement by regional bodies should be minimal.<sup>115</sup>
- Sovereignty test. Does the proposed regional initiative maintain effective sovereignty held by national governments? Regional initiatives should shift only the management of services to regional bodies, not policy-making as well. Countries, not regional bodies, should decide priorities.
- Subsidiarity test. Can national governments provide the service well? If so, involvement by regional bodies should be minimal (e.g., primary and secondary education is generally managed by local and national governments, but for small Pacific Island states a regional university is an ideal initiative).

The following have also been suggested but are not appropriate for developing criteria for regional support:

- Any project/programme supported via a donor’s regional funding window (as opposed to donor’s country or global programming, etc.).
- Anything done by a regional organisation (intergovernmental agency, NGO, etc.).
- Promotion of experimentation and innovation also seems inappropriate and brings to mind the early 1980s when the PICs were guinea pigs for various renewable energy technologies. (The PICTs, for example, should stick to commercially proven technologies for any energy projects.)

<sup>115</sup> In a region as variable as the Pacific, there are likely to be some regional services that are appropriate for a subset of PICs (e.g., perhaps the smaller island states) but not others.

## 6.2 ENERGY INITIATIVES APPROPRIATE FOR A REGIONAL APPROACH

It is recommended that a new regional energy framework should prioritise efforts that assist the PICTs in a cost-effective manner to improve their energy delivery and energy security over time and help them achieve their national goals/targets. It suggests more emphasis on support that improves the robustness and resiliency of PICT energy systems to climate change and natural disasters.

The criteria from section 6.1 (the upper bullet points) were used to develop a preliminary list of examples of energy-sector initiatives (following) that might appropriately be provided through a coordinated regional effort that can help improve implementation of PICT energy policies and plans and national energy security. These are listed alphabetically, not in any order of priority or potential for effective delivery of results for the PICTs. However, any or all of them can justifiably be components of a regional programme of action. The examples are not all stand-alone; some are interrelated with others.

An initial draft list was prepared for the preliminary report on FAESP findings prior to the September 2019 officials and ministers' meeting. Each element is consistent with PICT priorities based on PICT national policies, plans, commitments or past assistance requests. Some elements were modified following a regional energy workshop held in Fiji in August 2019.<sup>116</sup> This modified list incorporates information from the regional energy meeting and further discussions with PICT energy officials and ministers. It is consistent with the approach of Pacific leaders on regionalism, and the various resolutions and endorsements of the ministers in Apia in 2019.

### Capacity development in the energy sector

There have been numerous capacity development programmes for energy offices, power utilities, the private sector and others in a variety of areas, often short-term or *ad hoc*. These have included installation and maintenance of PV systems (including solar home systems), introduction to renewable energy systems, linemen training, the responsibilities of boards of directors and a wide range of others. The needs for ongoing training and certification at technician level, policy development, energy system installation, implementing climate-resilient systems, etc., are considerable and are often cost-effective at a regional or subregional level.

**Comment:** The 2019 Apia Outcome Statement and ministerial resolutions (2019 ministerial outcome/resolutions) contained numerous statements in support of expanded regional training efforts for a wide range of sustainable energy topics, including south-south collaboration among PICTs and project management, implementation and M&E.

<sup>116</sup> The *Workshop on Sustainable Electricity Access in Pacific Island Countries: From Targets to Implementation* (USP, UNSW, ITP Renewables, Global Sustainable Energy Solutions, and Clean Energy Solutions Center; Pacific Harbour, Fiji, 29–30 September 2019). The workshop topics, discussions and suggested action areas are broadly consistent with those of this preliminary review, validating the choices as concerns with significant support for regional action, and in some cases improving the wording.

## Climate-resilient power generation and distribution for PICT grids

There has been considerable recent work on distributed electricity generation (often with energy storage), with community mini-grids that are linked to a main grid but can be isolated during natural disasters or outages. Studies suggest<sup>117</sup> that initial capital costs for smaller islands may not be significantly higher than traditional investment in central generation, but the distributed systems are far more resilient to climate change and other disasters. For example, parts of an island with a centralised grid devastated by a cyclone might be without power for several weeks, but with a distributed system, much of the island can still have electricity or be reconnected quickly. Costs to the country, and sometimes to the utility, can be far less than that of a long island-wide power disruption.

**Comment:** This is an example of an area in which PICs might benefit from Caribbean experience. PPA, with World Bank assistance through the Sustainable Energy Industry Development Project (SEIDP), is helping four PIC utilities to develop investment plans for enhanced resiliency. Hawaii also has extensive recent experience with developing small grids for high levels of variable renewable energy (primarily PV), which might be relevant to the PICTs.

The 2019 ministerial outcome/resolutions did not explicitly endorse this approach but supported PPA efforts through the SEIDP to build the capacity of power utilities to enhance their ability to incorporate and manage renewable energy technologies and long-term disaster risk management planning. Ministers “called on development partners and PICTs to strengthen their collaboration through imposing proper policy incentives to ensure the resilience of installed renewable energy infrastructure”.

## Cooperation in energy with CARICOM and Hawaii

There has been a long-term regional energy programme within the Caribbean Community (CARICOM, which is similar to the PIFS). The lead agency for energy (or PIFS) should explore a formal cooperative agreement with CARICOM to share experiences and lessons.

**Comment:** For some years there has been an MOU between the Pacific Power Association and CARILEC (its Caribbean counterpart) for data and information sharing and cooperation. There may be opportunities for cooperation with energy authorities in the state of Hawaii, which has explored regulatory options for electric power appropriate for a small island state, and is developing innovative approaches for high levels of PV integration into small isolated grids. Hawaii-based companies and government agencies have also had a long association with North Pacific PICs (the former UN trust territories).

<sup>117</sup> In general, climate-ready energy infrastructure can typically add 3% to upfront costs but save \$4 overall for every dollar spent. (Source: *Adapt Now: A Global Call for Leadership on Climate Change Resilience* (Global Commission on Adaptation and World Resources Institute, 2019). For a recent project in the Caribbean, the initial cost of a distributed renewable energy system with storage was 8% higher than a centralised option, but this was offset by reductions in overall costs assuming the grid is down 1% of the time. (Source: *Critical Facilities: Where Government and Utility Services Redefine Resilience* (Rocky Mountain Institute, September 2018).

## Database development and energy security indicators

SPC has developed a good regional repository and portal of energy documents relevant to the Pacific; many not accessible elsewhere. However, up-to-date, country-specific energy data, often useful for project development, are limited and not always easy to locate. The 2009 energy security baseline reports have a range of useful data, but much of this is not appropriate for measuring or estimating energy security. There have been several studies since the original FAESP was developed in 2010 of energy security as it applies to island states. These should be assessed and, where practical, several new indicators developed and used in the Pacific to better estimate changes in energy security over time.

**Comment:** The lead agency should work closely with PPA to see if any new power sector indicators can be incorporated into PPA's annual technical benchmarking studies for PICT member utilities. For example, an affordable cost of electricity is not an indicator of security unless the price to the consumer meets full costs of supply. For petroleum fuels, a storage capacity equivalent to several months of demand is not a good security measure unless the storage is well-maintained and capable of withstanding flooding and cyclones. Care must be taken to restrict the data collected as current efforts (not only for energy) tend to overwhelm the PICTs.

The 2019 ministerial outcome/resolutions “noted the importance of data for evidence-based policies and reporting and the new funds that are required for the Pacific Regional Data Repository (PRDR) and energy efficiency”, and called “on the World Bank to urgently appraise and treat the SPC data funding proposal as a matter of priority”.

## Electric vehicles: the link to power utilities

There is strong evidence that a successful electric vehicle (EV) programme requires genuine interest, support and investment from the power utilities. It is not just a transport issue. A significant PIC EV programme would benefit from regional support services to the PICTs considering the costs, benefits and involvement of the utilities.

**Comment:** PCREEE is undertaking an e-mobility transport study. GGGI, ESCAP and others have supported studies of electric buses for PICs. The 2019 ministerial outcome/resolutions “requested SPC/PCREEE [and others] to develop a regional policy document outlining the short-term and long-term vision of PICTs with regard to integrated e-mobility and renewable energy power markets”.

## Energy efficiency: improvement within PIC buildings

Buildings account for roughly 50% of electricity use within the PICs.<sup>118</sup> Currently, PRIF is assessing PIC building codes (for increased climate resilience), and in some countries the possibility of

<sup>118</sup> *Energy Efficiency Guidelines: Residential and Small Commercial Applications* (SEI-API and PPA, 2019).

incorporating minimum energy performance standards (MEPS) at least for new commercial buildings and possibly major renovations. There is an opportunity throughout the region for significant energy savings over time; many additional to utility-based DSM efforts.

**Comment:** In the Caribbean, a voluntary regional standard for MEPS in commercial buildings has been developed and is being incorporated from 2019 into building codes in several countries. There may be opportunities for the Pacific to access and adapt the CARICOM standard for PIC use. A successful and sustainable effort would require training and certification of PIC energy auditors, creating considerable sustained skilled employment. Building codes are developed primarily for structural safety, not energy efficiency. There are many investments in energy efficiency (and comfort) that codes are likely to omit, so they should not be the only approach for improving building energy use.

Through the 2019 ministerial outcome/resolutions, ministers “supported regional efforts in expanding minimum energy performance standards and labelling in the region”, and “supported energy efficiency and conservation efforts in the Pacific by (i) encouraging development partners to mobilise additional investments for energy efficiency and conservation and (ii) promoting private sector engagement in energy auditing and energy efficiency services”.

## Energy efficiency: low implementation of PIC national goals and NDC commitments

PICs have ambitious national goals and specific NDC commitments for GHG emissions reductions, which are almost entirely for renewable energy (RE for electricity generation) and, to a lesser extent, energy efficiency (EE for electricity and transport fuels). There has been limited, if any, real progress in developing, funding and implementing effective demand-side energy efficiency programmes<sup>119</sup> beyond demonstration projects<sup>120</sup> and some energy audits. PIC power utilities generally have financial disincentives to invest in EE, yet EE is often a better investment than RE.<sup>121</sup> There may be a practical regional approach to assist PICTs, and specifically the power utilities, to help implement national EE goals, which are already within national development plans, energy sector plans and policies and PIC NDC commitments.

**Comment:** EE efforts sufficient for achieving NDC and other national goals require the active support and involvement of the power utilities, which in turn requires incentives and, in some cases, possibly regulatory changes. What is currently in the national/public interest may not be in the utility’s (narrow financial) interest. There may be an opportunity to work with the recently formed

<sup>119</sup> SPC completed the PALS project (June 2019) for minimum energy performance standards and energy labelling for various electrical appliances (refrigerators, freezers, air-conditioning units, lights), but there is no information available on actual savings achieved. The legal requirement to only import selected energy-efficient appliances is enforced in Fiji, Samoa, Solomon Islands, Tuvalu and Vanuatu.

<sup>120</sup> For example, ADB’s regional project Promoting Energy Efficiency in the Pacific (PEEP phases 1 & 2) in five PICs (Cook Islands, Papua New Guinea, Samoa, Tonga and Vanuatu), which ended in 2015.

<sup>121</sup> See *Pacific Perspectives on the Challenges to Energy Security and the Sustainable Use of Energy* (ESCAP, 2012).

OPERA, which is expected to serve as the Pacific regional hub for energy sector regulators<sup>122</sup>, and with PPA to better align regulatory powers with government policies and goals. The US state of Hawaii has also studied a range of options for a new regulatory approach, including aspects of improved energy efficiency, which may have relevance to the PICTs.

Through the 2019 ministerial outcome/resolutions, ministers: “i) agreed to ADB’s proposed TA grant to provide initial funding to support the establishment and operation of OPERA and focus on the electricity subsector with future expansion into other subsectors; ii) encouraged ADB and SPC to finalise the host agency for OPERA based on the findings of the TA, and directed SPC and ADB to formulate a sustainable financing mechanism for OPERA; and iii) agreed to call on other PICTs to join OPERA”.

### Energy use within land transport

There are existing policy and technical measures to improve efficiency of transport fuel use for PIC transport and reduce fuel use. Petroleum fuels for transport are a large proportion of retained PIC fuel imports, and are increasing as a percentage of fuel imports as utilities invest in RE. There are opportunities for regional cooperation in addressing this through higher-efficiency vehicles, improved O&M, possibly promoting electric vehicles, and other measures.

**Comment:** The Pacific Centre for Renewable Energy and Energy Efficiency (PCREEE) is assessing opportunities for electric vehicles within the region through its E-mobility study for land transport.

Through the 2019 ministerial outcome/resolutions, transport ministers “agreed to continue implementation of the *Framework for Action on Transport Services* [FATS] until a new framework is adopted”, which is expected to include marine (and possibly air) transport energy. Regional energy initiatives through FATS and the new energy framework should be carefully coordinated through SPC.

### Energy use within marine transport

There are existing policy and technical measures to improve efficiency of marine transport energy use. There are opportunities for partly replacing petroleum fuels through sail-assisted technologies, solar PV systems and possibly biofuels.<sup>123</sup>

**Comment:** There are some efforts within the region but are not well-coordinated or financed. The new Maritime Technology Cooperation Centre (MTCC) Pacific, with four-year funding from the International Maritime Organization (IMO), reportedly has pilot projects on ‘uptake of ship energy-efficient technologies and operations’ and ‘fuel consumption data collection and reporting’. The joint RMI/USP Micronesian Centre for Sustainable Transport (MCST) is initially

<sup>122</sup> The PICs with designated regulator offices are Cook Islands, Fiji, Palau, Papua New Guinea, Samoa, Tonga and Vanuatu.

<sup>123</sup> See *Renewable Energy Options for Shipping – Technology Brief* (IRENA, 2015).

focusing on sustainable shipping solutions for the Pacific. As noted, marine energy issues are to be addressed through a new FATS, and will not be included in any depth in the overall energy framework.

Through the 2019 ministerial outcome/resolutions, transport ministers “endorsed an agreement for the region to work towards reducing GHG emissions by 40% in 2030 and by 100% by 2050”.

### Financial and management mechanisms for sustainability of outer island and remote rural electrification

In some PICs, remote off-grid or mini-grid electrification is handled by the main power utilities, but elsewhere by government entities, households or service companies. Capital costs are high, O&M is often poor, fees are often low or even non-existent, and lifetimes of installations are often brief. There have been studies of approaches to sustainability that have, and have not, functioned well in the Pacific and elsewhere.<sup>124</sup> A useful service would include the compilation and updating of such assessments with practical advice to the PICTs. More important is an ongoing service to help the PICs establish sustainable management and O&M for remote electrification systems.

**Comment:** A regional programme could work with utilities, energy service companies, energy departments and planning agencies to support sustainability of remote and outer-island rural electrification through the PPA (for utility-based rural electrification) and perhaps SPC (government mini-grids, solar home systems). This should include installation, operation and maintenance of rural electrification systems. This was not explicitly addressed by ministers during the 2019 ministerial meeting.

### Financing a regional energy framework

An effective regional effort for energy, which measurably improves energy security for the PICTs, will not be inexpensive. In the past, dating back to the 1980s, there have been numerous studies of the likely costs and benefits of bulk petroleum fuel supply for the region overall or for subregional subsets of PICTs.<sup>125</sup> Despite considerable effort, none have eventuated. There have also been suggestions, again as far back as the 1980s, for a regional tax on petroleum products imported to the PICTs to support a concerted effort to finance energy advisory services largely through PICT efforts. One suggestion has been a US\$0.01/litre charge on all retained petroleum fuel products to each PICT, to finance a regional energy effort. It is suggested that this approach be reconsidered, not necessarily at the charge indicated above.

**Comment:** There are no doubt numerous difficulties in practice with this approach, but it could finance petroleum services and a great deal of the cost of implementing robust and climate-resilient RE systems and large improvements to the region’s efficiency of energy use. Success

<sup>124</sup> See *Outer Islands Solar Electrification in Tonga: A Case Study* (Government of Tonga, 2015).

<sup>125</sup> For example, the *Pacific Plan* included an initiative on bulk fuel procurement.

would depend on the generosity of PNG and Fiji (with by far the bulk of petroleum fuel use in the region) who would, in effect, subsidise sustainable energy development for the region overall. If pursued, it would probably be best done through the PIFS because it would require endorsement by leaders. During the 2019 ministerial energy meeting, ministers recognised the need to strengthen regional petroleum advisory services, but finance was not discussed.

### Gender imbalance<sup>126</sup>

Women constitute 50% of the region's brainpower. What percentage of national and regional professional staff within the energy sector are women?<sup>127</sup> What are the opportunities through a regional approach to attract and retain more professional women in the energy sector within PICs?

**Comment:** There is insufficient data and time during this review to adequately address this issue further. It is understood that SPC has done some work on gender within energy, and PPA has a website portal on women within the power sector. A regional initiative could assess the numbers of Pacific women in the energy sector at various levels (electric power utilities, fuel suppliers, CROP agencies, governments, NGOs, development partners, consulting services, etc.) and obstacles to professional training, retention and advancement. There may be useful lessons from regional programmes to attract and retain women in energy from other regions. During the 2019 ministerial meeting, ministers endorsed SPC's effort in reviving the Pacific Energy and Gender Network and the development of the revised strategic action plan 2020–2030. This is to include a gender-based analysis of the energy sector.

### Development and implementation of PIC national energy policies and plans

With support from activities carried out within FAESP (and through other assistance in which SPC was not involved), a number of PICs have developed energy policies and plans; however, implementation has been uneven and often poor. A number of energy policies and plans seem to be aspirational rather than practical, and are not often linked to the budget process. There should be a regional service specifically for assisting PICTs review, assess and refine their policies and plans with the objective of improving implementation.

**Comment:** The new regional energy framework is to include “strengthened links with the existing and future PICs energy sector development plans and policies”. The 2019 ministerial meeting recognised the need for evidence-based policies.

<sup>126</sup> Interestingly, this consultant's initial group discussion at Geosciences and Energy at SPC was with eight women in various professional or support capacities. There were no men (though two were away from the office).

<sup>127</sup> Within the power sector, PPA's most recent benchmarking data show that 96% of technical positions, and 75% of senior positions, are held by men.

## Overcoming technical limitations to high penetrations of renewable energy<sup>128</sup>

In addition to the need for more finance to help PICs meet their NDC targets related to renewable energy, there are technical challenges to cost-effectively integrate high penetrations of renewables (50% or greater) into grids. Storage is an important element that PICTs are using to help integrate variable solar energy and maintain or increase grid stability, but there are a number of additional approaches that should also be considered. These include expanding and upgrading energy networks, improved forecasting of solar and wind energy, and use of responsive appliances (air-conditioning, water pumps, idle diesel generators). Early feedback suggests that some of the battery projects in PICs have encountered some technical challenges as well.

**Comment:** Energy networks and researchers are undertaking significant work in Australia and elsewhere to address these issues. One idea that has been floated is a regional service to assist with energy storage and renewable energy integration (possibly a Pacific Renewable Integration and StoragE – PRISE initiative). Batteries have been called the unanalysed petroleum (or petroleum of the future) in PICTs – there is a ubiquitous need for batteries, but they are also expensive and imported. In the 2019 meeting, there were several ministerial statements encouraging the need to “accelerate the region’s transition to renewable energy and energy-efficient economies”.

The Apia Outcome Statement “reaffirmed climate change as the single greatest threat to the livelihoods, security and wellbeing of the peoples of the Pacific and their commitment to progress the implementation of the Paris Agreement, and their vision for a 100% renewable energy generation in the Pacific Islands region, and called for closer coordination and alignment of the regional efforts on sustainable energy by SPC, UNESCAP, SPREP and other development partners”.

### Petroleum advisory services: fuel pricing

The PICTs will be highly dependent on imported petroleum fuels for years to come, and there is considerable scope for efficiency improvements in the supply chain as well as cost reductions. SPC and others have, from time-to-time, offered valuable regional petroleum advisory services, including advice on contract negotiations and assistance to PICTs on monitoring fuel prices. As staff responsible for negotiating, monitoring or regulating fuel prices often shift to other employment, and contractual arrangements can change quickly, there is a demand for ongoing training and regular advice. SPC has not provided a substantive service since 2016. The savings can easily exceed ten times the cost of advice, but the service is uneconomic if not done at a regional level. One study showed a significant level of subsidy for petroleum fuel use in one PIC. This would be worth assessing in other PICTs as well so that subsidies are transparent and can, in time, be removed.

<sup>128</sup> Thanks to Brian Spak, Leader, Grids & Renewables Integration of CSIRO, Australia, for this suggestion.

**Comment:** The 2019 ministerial meeting “noted that SPC’s Petroleum Advisory Services is the only regional programme that provides [such] services to the PICTs [but] due to funding constraints since 2017, ... service was greatly [downsized]”. Ministers “recognised the need to strengthen the regional petroleum advisory service at SPC to better serve the needs of PICTs and called on development partners to immediately assess and support the delivery of this regional petroleum advisory service”.

Although a regional petroleum advisory service can contribute substantially to PIC energy cost savings, currently it seems to not be attractive to donors for project funding and, to be sustained over time, probably requires finance from the lead energy agency’s core budget. SPC no longer has access at affordable cost to Platt’s; a standard reporting service on petroleum product prices, which is essential for monitoring compliance with PIC petroleum fuel contracts. (Negotiations are underway for a less expensive subset of Platt’s data.) This sort of service can only be effective if well-financed. It is estimated that providing the required high-quality advice for petroleum pricing and storage would cost about US\$250,000 per year (staff, travel, consultancies). There are no recent data available on retained imports of petroleum fuels to the region. However, based on 2009 imports, a modest tax of US\$0.01/litre at the time would have raised roughly US\$20 million for Forum island countries alone, and about double that if the US and French Pacific were included.

### Petroleum advisory services: fuel storage and distribution infrastructure and miscellaneous

In the past, SPC has offered advisory services that assess the value and safety of fuel storage and distribution facilities. Numerous PIC storage facilities and pipelines are in low-lying areas (often heavily populated or near to businesses, markets, etc.) at serious risk of flooding and storm damage with consequent pollution of land and water. The risks and their mitigation are not being effectively addressed. Past PIC experience suggests that assessing fuel storage and distribution, and recommending required improvements to meet international standards, could provide immense economic and social benefits; for example, preventing or reducing serious, arguably immeasurable, threats to life, property and continuity of essential energy supplies. The service can only be provided cost-effectively at a regional level.

**Comment:** There was discussion during the 2019 regional energy meeting of concerns over safety of bulk petroleum storage facilities.<sup>129</sup> Although it is the responsibility of the petroleum companies to maintain their facilities to a safe standard, it appears there has been limited investment in many PICs for nearly 50 years. This is a worrying issue and is unlikely to be addressed without a regional advisory service. Some PICs would like additional services, such as studies of the viability of increasing natural gas supplies, biofuels for blending with petroleum fuels and fuel standards.

<sup>129</sup> External to the meeting, there were indications of possible PRIF support to help address this issue.

## Regional standards for ground-based, grid-connected PV systems that are Category 5 hurricane resistant

Some PIC grid-connected PV systems have been badly damaged, and others could fail, as they have not been designed, procured, inspected and/or installed to a standard sufficient for withstanding cyclones (Category 5 and even 3 or 4). A regional standard should be developed and adopted, with development partners that finance PV systems requiring the systems to be consistent with the standard, and installers to be trained and certified in it.

**Comment:** The Caribbean (CARICOM) has a regional Category 5 standard for PV systems that might be suitable for adaptation to the Pacific with incorporation into standards and guidelines being developed by PPA and SEIAPI (the Sustainable Energy Industry Association of the Pacific Islands), with World Bank assistance.<sup>130</sup> Some PV systems being installed in the Pacific are consistent with, or even exceed, the Caribbean standard, but this is not a legal requirement.

## Regional support to US- and French-affiliated islands

FAESP was to strengthen regional and donor coordination in delivering energy services to island states affiliated to the US and France and others.<sup>131</sup> There has been limited assistance to some of them through SPC or SPC-coordinated efforts other than attendance at workshops and some past petroleum advisory services. A new framework embracing them would require new funding support and perhaps a French-speaking energy staff member at the CROP coordinating agency for energy.

**Comment:** Much PIC regional support has been through funds available only to independent states, often ADB/WB members.

## Renewable electricity: limited implementation of high PIC national goals and NDC commitments

PICs generally have national goals and specific NDC commitments for GHG emissions reductions for delivering high levels of renewable electricity to the power grids, and many PICs have announced more stringent commitments by 2020. There are often additional goals in national energy policies and plans. Although there has been a significant increase in the installed capacity of PV in the Pacific, particularly for grid-connected systems, most PICs are unlikely to achieve their goals without more intense efforts through direct investment by the utility and/or from IPPs. Independent advice to governments and utilities on how to achieve the goals (or review and revise them if they are not achievable) might be delivered efficiently through a regional approach. The new energy framework should work closely with the Pacific NDC Hub mechanism to help PICs refine and implement their NDC commitments.

<sup>130</sup> The guidelines are available at <http://www.seiapi.com/guidelines/>.

<sup>131</sup> These could include Tokelau (linked to New Zealand) and Pitcairn (UK).

**Comment:** PRIF has prepared reports on the cost (and trends) of solar PV in the Pacific and on the rapidly changing technology and costs of battery storage. IRENA and others have prepared various reports on RE for the PICs and small island developing states (SIDS) in general. There have been *ad hoc* reviews by advisers on proposed, often unsolidified, power purchase agreements (PPAs) that do not always protect the interests of the PIC and/or the utility. A regional service might include independent advice on the terms and conditions of proposed draft PPAs, the practicality of national policies and plans, and policy or regulatory changes needed to implement them.

| ANNEXES

# ANNEX 1: TERMS OF REFERENCE

## OBJECTIVE AND PURPOSE OF THE ASSIGNMENT

The technical assistance intends to assist the Pacific Community (SPC) conduct a review of the FAESP 2010–2020 and develop a new Pacific Regional Energy Framework 2020–2030, with strengthened links with the existing and future PICs' energy sector development plans and policies. The first phase of the consultancy will assess the FAESP and prepare an outline of the new Framework 2020–2030. The results of phase 1 will be shared for consultation at the Joint Transport and Energy Ministers' Meeting to be held in Apia, Samoa, in September 2019.

The second phase, which is not part of this contract, will integrate the findings and recommendations from the review process of FAESP in the development of the new Framework 2020–2030, consult relevant stakeholders, prepare the final draft to be ready for the regional consultation workshop that will be convened in April/May 2020, and finalise the revised framework for endorsement by the Pacific leaders in August 2020.

The Framework for Action on Energy Security in the Pacific (FAESP): 2010–2020 was developed through a consultative process involving the Pacific Island countries and territories (PICTs), members of the Council of Regional Organisations in the Pacific (CROP), development partners and interested individuals and agencies. It was endorsed in August 2010 at the 41st Pacific Islands Forum in Port Vila, Vanuatu. The Framework was developed to replace the Pacific Islands Energy Policy of 2004, and to strengthen regional and donor coordination in delivering energy services to PICTs. It was designed to provide guidance to PICTs to enhance their national efforts to achieve energy security in line with the principles of the Pacific Plan (2004). Leaders then agreed to “strengthen regional cooperation and integration in areas where the region could gain the most through sharing resources of governance, alignment of policies and delivery of practical benefits”, and, specifically, to “provide available, reliable, affordable and environmentally sound energy for the sustainable development of all Pacific Island communities”.

The objectives of the FAESP were to be realised through the Implementation Plan for the Framework for Action on Energy Security (IPESP): 2011–2015, as well as the baseline energy security indicators for measuring the impacts of the FAESP and its IPESP. The Implementation Plan was developed in June 2010 and was reviewed in a regional consultation meeting in December 2010. The IPESP and associated energy security indicators (36 in total) that the FAESP is measured against were endorsed at the inaugural regional meeting of ministers of energy,

information and communication technology (ICT) and transport in April 2011. It was also agreed that the baseline data would be for Y2009. Energy security indicator profiles of 14 PICTs for 2009–2012 have been developed. A midterm review of the IPESP was carried out in 2013, and the final report was completed in 2014.

The Pacific Energy Advisory Group (PEAG), at its ninth meeting on 19–20 November 2018, in Suva, Fiji, agreed to commission a review for the FAESP and develop a new energy security framework for the next decade (i.e., 2020–2030), building on the achievements and lessons learned from FAESP and IPESP. As the lead regional energy agency for the Pacific, SPC was requested to coordinate the review and to work with partners to secure the necessary funding for this initiative and ensure a new framework is in place by 2020. PRIF is assisting SPC by providing a consultant that will lead the review of FAESP 2010–2020 and develop the new Framework 2020–2030.

## SCOPE OF WORK

The TA involves two phases, wherein the consultant will only focus on phase 1 in this contract:

**Phase 1:** assess the FAESP and prepare an outline of the new Framework 2020–2030. The results of phase 1 will be shared for consultation at the Joint Transport and Energy Ministers' Meeting to be held in Apia, Samoa, in September 2019.

The work will involve:

- a) liaising with SPC as the primary beneficiary of this review and relevant regional partners/donors;
- b) data collection and online surveys;
- c) desk top research (to review existing documents and collect anecdotal evidence);
- d) country visits (confirm regional and country-specific data and engage with key stakeholders);
- e) prepare methodology to conduct review and assessment;
- f) conduct preliminary review of data collected;
- g) utilise lessons learned on effectiveness of FAESP to guide investments and implementation of plans;
- h) propose ideas on focus areas, guiding principles, strategic plan and overall mechanism to achieve the energy security needs of the Pacific in the next decade based on the review of FAESP and emerging priorities and opportunities in the Pacific region; and
- i) recommend a draft outline showing the broad strokes of the new regional energy framework.

**Phase 2 (not part of this contract):** integrate the findings and recommendations from the review process of FAESP in the development of the new Framework 2020–2030; consult relevant stakeholders; prepare the final draft to be ready for the regional consultation workshop that will be convened in April 2020; and finalise the revised framework for endorsement by the Pacific leaders in August 2020.

## DETAILED TASKS AND/OR EXPECTED OUTPUT

1. **Inception report:** Work-plan, methodology and schedule of activities, comments on scope of work, country missions schedule and recommendations for adjustments, if needed.
2. **Draft report:** 'Review of FAESP 2010–2020 – Final Report' and outline of new Framework 2020–2030 covering the assignment objectives, scope and detailed tasks. The text of the report is expected to be preceded by an executive summary not exceeding five pages.
3. **Meeting notes:** From all meetings along with contact details of persons consulted.
4. **Presentation materials:** For the Joint Energy and Transport Ministers' Meeting.
5. **Final report:** Revised after PRIF Technical Implementation Committee comments.
6. **Project completion report:** Summary of project activities, issues, challenges and lessons learned, and recommendations for follow-up initiatives.

**Travel:** In-country missions to Fiji for one week and Samoa for one week. PCO may, after consultation with SPC, change duration of country missions, as needed.

**Minimum qualification requirements:** The consultant will have the following qualifications and experience:

- Relevant qualifications and experience in conducting similar strategic reviews.
- Familiar with energy and climate (low-carbon and low-emission) policies, strategies, roadmaps and action plans in PICTs.
- Experience working with regional energy organisations and/or development partners in PICTs will be an advantage.
- A minimum of five years' demonstrated experience in the energy sector, including in developing countries and preferably in the Pacific.
- Experience in multi-stakeholder work environments and consultation processes.
- Experience producing reports containing data and data analysis.
- Experience reporting to international development agencies is desirable.

# ANNEX 2: SCHEDULE OF ACTIVITIES AND POSSIBLE ADJUSTMENTS (FROM INCEPTION REPORT)

## SCHEDULE OF ACTIVITIES AND COUNTRY MISSIONS

As shown in the schedule below, throughout the period of the consultancy, the work will be carried out in Suva, Fiji, except for 29–30 August at the Pearl, Pacific Harbour, Fiji, for a workshop, and the week of 15–21 September in Samoa for the Energy and Transport Ministers' Meeting. As the consultant is based in Fiji, Fiji-based interviews are expected to continue throughout August and early September.

Period	Main activities
Tues 6–Fri 16 August: Inception period	<ul style="list-style-type: none"> <li>Gathering and reading materials</li> <li>Initial discussions with SPC staff, available PEOG &amp; PEAG members, CROP agencies and others</li> <li>Writing inception report</li> </ul>
Mon 19 August	<ul style="list-style-type: none"> <li>Teleconference of PRIF Technical Implementation Committee</li> </ul>
Tues 20–Wed 28 August	<ul style="list-style-type: none"> <li>Continue reviewing materials, interviewing development partners, any available PIC energy department staff, and others</li> <li>Writing of draft review report</li> </ul>
Thurs 29–Fri 30 August	<ul style="list-style-type: none"> <li>Attend USP/University of New South Wales 'Workshop on Sustainable Electricity Access in Pacific Island Countries: From Targets to Implementation' (Pearl Hotel, Fiji) to interview PIC energy office staff, utility staff, USP staff, World Bank and other attendees</li> </ul>
Mon 2–Fri 13 Sept	<ul style="list-style-type: none"> <li>Summarise preliminary results of survey</li> <li>Continue writing draft report and complete it</li> </ul>
Sun 15–Sat 21 Sept	<ul style="list-style-type: none"> <li>Attend Energy and Transport Ministers' Meeting in Samoa</li> <li>Interview various energy officials, development partners, etc.</li> <li>Continue and complete survey questionnaire report (adding those attending the meeting)</li> </ul>
Mon 23 Sept–Thurs 17 October*	<ul style="list-style-type: none"> <li>Final and follow-up interviews, as required</li> <li>Complete final report</li> </ul>

\* The final report is due by 17 October but the contract period continues through 31 October, if necessary.

## **COMMENTS ON SCOPE OF WORK**

The requirement to submit a draft report in five working weeks (6 August–9 September) is quite demanding, so the draft final report may be incomplete. The additional month following the ministerial meeting should be sufficient to complete the work.

The TOR require development of an outline of a regional energy framework for 2020–2030. However, major investment decisions made in 2020 (or 2030) will greatly affect patterns of energy use, fuel imports, energy costs, energy security and resilience for 30 or more years. A ten-year planning framework may be too short.

## **RECOMMENDATIONS FOR ADJUSTMENTS**

The Pacific Centre for Renewable Energy and Energy Efficiency (PCREEE), based in Nuku'alofa, Tonga, is shared by the SPC (as a project) and the Government of Tonga. The Director (formerly Deputy Director of Energy at SPC) remains SPC staff (co-financed by UNIDO), and is a key source of institutional memory within SPC for FAESP and energy matters in general. Two other positions are funded by SPC (one staff member, one intern). Time and resources permitting, it might be useful to visit PCREEE, unless the director attends the September Samoa meeting.

# ANNEX 3: LIST OF REPORTS AND OTHER DOCUMENTATION (UPDATED: 7 OCTOBER 2019)

This annex is in two parts:

- a) Regional (Pacific and Caribbean) and international reports and general energy materials.
- b) A sample of Pacific Island countries and territories' national energy policies and plans prepared since the FAESP was adopted in 2010.

## REGIONAL AND INTERNATIONAL REPORTS

**2020 NDC Tracker** (Climate Watch, 23 September 2019);

<https://www.climatewatchdata.org/2020-ndc-tracker>

**3rd Energy Investors' Forum Outcome** (PRIF and PPA with IRENA, PCREEE & GGGI, October 2018) <https://www.theprif.org/file/6797/download?token=c4VUepcr>

**A Framework for Action on Energy Security in the Pacific FAESP 2010–2020** (SPC, 2011);

<https://edd.spc.int/en/download/finish/11-reports/360-energy-framework-final>

**A Guide for Planning and Strategy Development in the Face of Complexity** (Overseas Development Institute – UK, & International Development Research Centre – Canada; 2013);

<https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8287.pdf>

**A Guide to Investing in Renewable Electricity Generation in the Pacific** (IFC, draft, May 2018); [https://www.upngcore.org/wp-content/uploads/2018/06/IFC-Guide-to-Investing-in-Renewable-Electricity-Generation-in-the-Pacific-DRAFT\\_18May2018-.pdf](https://www.upngcore.org/wp-content/uploads/2018/06/IFC-Guide-to-Investing-in-Renewable-Electricity-Generation-in-the-Pacific-DRAFT_18May2018-.pdf)

[https://www.upngcore.org/wp-content/uploads/2018/06/IFC-Guide-to-Investing-in-Renewable-Electricity-Generation-in-the-Pacific-DRAFT\\_18May2018-.pdf](https://www.upngcore.org/wp-content/uploads/2018/06/IFC-Guide-to-Investing-in-Renewable-Electricity-Generation-in-the-Pacific-DRAFT_18May2018-.pdf)

**Apia Outcome Statement** (Fourth Pacific Regional Energy and Transport Ministers' Meeting; Apia, Samoa, 18–20 September 2019);

<https://pacificcommunity.cmail20.com/t/j-l-clyiudd-jildhkhklt-r/>

**A Policy-oriented Approach to Energy Security** (J Kucharski & H Unesaki; Procedia Environmental Sciences; Vol. 28, 2015); <https://doi.org/10.1016/j.proenv.2015.07.005>

**Adapt Now: A Global Call for Leadership on Climate Change Resilience** (Global Commission on Adaptation and World Resources Institute; 2019); <https://gca.org/global-commission-on-adaptation/report>

**Addressing the Diversity Challenge in Energy Sector Recruitment** (Bipasha Baruah, IEA Analyst, 1 July 2019); <https://www.iea.org/newsroom/news/2019/july/addressing-the-diversity-challenge-in-energy-sector-recruitment.html>

**Advances in Electricity Storage Suggest Rapid Disruption of US Electricity Sector** (IEEFA, June 2019); <https://www.ieefa.org/wp-content/uploads/2019/06/Advances-in-Electricity-Storage-Suggest-Potential-Rapid-Disruption-of-U.S.-Electricity-Sector-1-1.pdf>

**Agreed Revised Terms of Reference – PRP Taskforce & Members** (November 2018); <http://www.resilientpacific.org/wp-content/uploads/2018/11/Agreed-Revised-Terms-of-Reference-Taskforce-and-Members.pdf>

**Aid Investment Plan: Pacific Regional 2015–16 to 2018–19** (DFAT Australia, undated); <https://dfat.gov.au/about-us/publications/Documents/pacific-regional-aid-investment-plan-2015-19.pdf>

**Apia Outcome Statement** (Fourth Pacific Regional Energy and Transport Ministers' Meeting; Apia, 18–20 September 2019); [https://www.prdmse4all.spc.int/sites/default/files/4\\_pretmm\\_ministers\\_outcome\\_statement\\_final.pdf](https://www.prdmse4all.spc.int/sites/default/files/4_pretmm_ministers_outcome_statement_final.pdf)

**Assessing Energy Security: An Overview of Commonly Used Methodologies** (A Månsson, B Johansson & Lars Nilsson, Energy, Vol. 73, 9 July 2014); <https://www.sciencedirect.com/science/article/pii/S0360544214007725>

**Aviation Emissions and Noise Impact Continue to Climb** (Euroactiv; 29 January 2019); <https://www.euractiv.com/section/aviation/news/aviation-emissions-and-noise-pollution-continue-to-climb/>

**BP Statistical Review of World Energy** (68<sup>th</sup> edition, 2019); <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2019-full-report.pdf>

**Caribbean Sustainable Energy Roadmap and Strategy Operational Report** (C-SERMS, April 2018); <https://drive.google.com/file/d/1KFeTNU9CrcPcvGTeWyGtfY97tDmakQt4/view>

**Caribbean Sustainable Energy Roadmap and Strategy: Baseline Report and Assessment** (Worldwatch Institute with GIZ & Inter-American Development Bank for CARICOM; 29 Nov 2015); [https://c-serms.org/wp-content/uploads/2018/04/C-SERMS\\_Baseline\\_10.29.2015.pdf](https://c-serms.org/wp-content/uploads/2018/04/C-SERMS_Baseline_10.29.2015.pdf)

**Caribbean Community Energy Policy** (CARICOM; approved March 2013); <https://caricom.org>

**Climate Action Tracker Update** (June 2019); [https://climateactiontracker.org/documents/537/CAT\\_2019-06-19\\_SB50\\_CAT\\_Update.pdf](https://climateactiontracker.org/documents/537/CAT_2019-06-19_SB50_CAT_Update.pdf)

**Carmakers Among Key Opponents of Climate Change** (Guardian, 10 October 2019); <https://www.theguardian.com/environment/2019/oct/10/exclusive-carmakers-opponents-climate-action-us-europe-emissions>

**Committed Emissions from Existing Energy Infrastructure Jeopardize 1.5°C Climate Target** (Nature, Vol. 572, 15 August 2019); <https://doi.org/10.1038/s41586-019-1364-3>

**Critical Facilities: Where Government and Utility Services Redefine Resilience** (Rocky Mountain Institute, Sept 2018); Part 1: <https://rmi.org/government-utility-redefine-resilience/> and Part 2: <https://rmi.org/critical-facilities-part-two/>

**CROP – Collaborating to Support Effective Response to Climate Change** (undated); <http://www.spc.int/sites/default/files/wordpresscontent/wp-content/uploads/2017/01/Response-to-Climate-Change.pdf>

**CROP Annual Report to Pacific Island Forum Island Leaders** (PIFS, August 2019); <https://www.forumsec.org/council-of-regional-organisations-of-the-pacific/>

**CROP Charter 2018** (Forum Secretariat, 2018); <https://www.forumsec.org/wp-content/uploads/2019/02/crop-charter-v9.pdf>

**Development Aid for Energy in SIDS** (A Atteridge & G Savidou; Energy, Sustainability & Society; March 2019); <https://link.springer.com/content/pdf/10.1186%2Fs13705-019-0194-3.pdf> (open access paper)

**Development of a Regional Electric Mobility (E-Mobility) Policy and Program for the Pacific Island Countries and Territories (PICTs): TOR;** [https://sidsdock.org/main/wp-content/uploads/2019/06/TOR\\_PCREEE-E-Mobility.pdf](https://sidsdock.org/main/wp-content/uploads/2019/06/TOR_PCREEE-E-Mobility.pdf)

**Development of EE Policy Targets** (Mahesh Patankar, Regional Energy Efficiency Workshop: Promoting Energy Efficiency in the Pacific-Phase 2 (PEEP-2; ADB/IIEC; Apia, 3–5 March 2015))

**Development of Minimum Energy Performance Standards for Public and Commercial Buildings in CARICOM Countries** (2016); [https://drive.google.com/drive/folders/1PckBrl8x67X-vjfkV\\_yzyJy9puE2vYgb](https://drive.google.com/drive/folders/1PckBrl8x67X-vjfkV_yzyJy9puE2vYgb)

**Dimensions of Energy Security in Small Island Developing States** (Utilities Policy, Vol. 53, August 2018); <https://www.sciencedirect.com/science/article/pii/S0957178717302308>

**Empowering Low Emission Development in the Pacific** (white paper, USAID, March 2018); [https://prdrse4all.spc.int/sites/default/files/2018\\_usaid\\_rali\\_series\\_-\\_promoting\\_solutions\\_for\\_leds\\_pacific\\_islands.pdf](https://prdrse4all.spc.int/sites/default/files/2018_usaid_rali_series_-_promoting_solutions_for_leds_pacific_islands.pdf)

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## PIC AND PICT ENERGY POLICIES OR PLANS (INCOMPLETE LIST)

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[https://www.prdrse4all.spc.int/sites/default/files/kiribati\\_integrated\\_energy\\_roadmap\\_2017.pdf](https://www.prdrse4all.spc.int/sites/default/files/kiribati_integrated_energy_roadmap_2017.pdf)

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**Marshall Islands Energy Roadmap** (IRENA, Dec 2018); <https://islands.irena.org/-/media/Files/IRENA/Sids/NavigatingourEnergyFutureMarshallIslandsElectricityRoadmapDecem.ashx>

**Nauru Energy Road Map 2018–2020**; [http://prdrse4all.spc.int/sites/default/files/undp\\_nerm\\_report.pdf](http://prdrse4all.spc.int/sites/default/files/undp_nerm_report.pdf)

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**Review of the Nauru Energy Road Map 2014 – 2020** (IT Power for Government of Nauru; 2018); [https://prdrse4all.spc.int/sites/default/files/nerm\\_review\\_150118.pdf](https://prdrse4all.spc.int/sites/default/files/nerm_review_150118.pdf)

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**Tonga Energy Road Map (TERM) Review / Implementation Plan 2010–2014** (Asia Sustainable and Alternative Energy Program, World Bank, 2015)

**Updated Vanuatu National Energy Road Map 2016–2030**; <http://prdrse4all.spc.int/sites/default/files/verm2016-30.compressed.pdf>

# ANNEX 4: LIST OF ORGANISATIONS AND INDIVIDUALS CONTACTED

The following have been interviewed in person or by phone, where practical, and/or sent email messages and questionnaires. Some interviews were informal and brief.

## SECRETARIAT OF THE PACIFIC COMMUNITY – CROP LEAD ENERGY COORDINATOR (INTERVIEWED ONE-ON-ONE)

SPC staff & contact	Comments
Akuila Tawake <a href="mailto:akuilat@spc.int">akuilat@spc.int</a>	Assistant Director, Georesources & Energy (GEM)
Allan Illingworth <a href="mailto:allani@spc.int">allani@spc.int</a>	Manager, Manager Performance Programming & Systems, GEM; FAESP midterm review team leader
Amelia Caucau	Project Manager EU PacTVET
Andrew Jones, Dr. <a href="mailto:andrewj@spc.int">andrewj@spc.int</a>	Director Geoscience, Energy & Maritime (GEM)
Atishma Lal <a href="mailto:AtishmaL@spc.int">AtishmaL@spc.int</a> >	Programme Information Assistant
Charles Inggs <a href="mailto:charlesi@spc.int">charlesi@spc.int</a> .	GEP Funding Strategy Adviser (short-term assignment)
Frank Vukikomoala <a href="mailto:FrankV@spc.int">FrankV@spc.int</a>	Energy Database Officer
Koin Etuati <a href="mailto:KoinE@spc.int">KoinE@spc.int</a>	Energy Policy Officer
Makereta Lomaloma <a href="mailto:MakeretaS@spc.int">MakeretaS@spc.int</a>	Team Leader Policy & Governance (GEM)
Malinda Mathers	Project Manager PACRES
Pooja Pal <a href="mailto:PoojaP@spc.int">PoojaP@spc.int</a>	Administrative Assistant
Raksha Ben <a href="mailto:RakshaB@spc.int">RakshaB@spc.int</a>	Programme Finance Officer
Shanupriya Sharma	Programme Finance Officer
Solomone Fifita <a href="mailto:SolomoneF@spc.int">SolomoneF@spc.int</a>	Manager, PCREEE, Nuku'alofa, Tonga
Sylvie Goyet <a href="mailto:sylvieg@spc.int">sylvieg@spc.int</a>	Director, Climate Change & Environmental Sustainability
Thierry Nervale <a href="mailto:thierryn@spc.int">thierryn@spc.int</a>	Assistant Director, Transport (GEM)
Tirisa Wainibalagi <a href="mailto:tirisaw@spc.int">tirisaw@spc.int</a>	Assistant Petroleum Officer

## PICT GOVERNMENT DEPARTMENTS AND ELECTRIC POWER UTILITIES

**Q** = Questionnaire sent      **QR** = Questionnaire with response

**E** = Email correspondence      **I** = Interviewed in person

**Note:** Most who were sent the questionnaire did not respond

PICT	Person & contact	Comments
<b>American Samoa</b>		
ASPA (utility)	Wallon Young, Acting Executive Director <a href="mailto:wallon@aspower.com">wallon@aspower.com</a>	Q
Office of Petroleum Management	Sione Lotullua Loudiali "Kava", Petroleum Officer <a href="mailto:captain_kava@hotmail.com">captain_kava@hotmail.com</a>	Q, I
<b>Cook Islands</b>		
TAU (utility)	Apii Timoti <a href="mailto:atimoti@electricity.co.ck">atimoti@electricity.co.ck</a>	Q
TAU board	Noora Mata <a href="mailto:mata@vaikoi.com">mata@vaikoi.com</a>	Q
Office of the Prime Minister	Tangi Tereapii, Director Renewable Energy Development, <a href="mailto:tangi.tereapii@cookislands.gov.ck">tangi.tereapii@cookislands.gov.ck</a>	Q, I
<b>Federated States of Micronesia (FSM)</b>		
CPUC (utility)	Yolanda Mori <a href="mailto:yolanda.mori@cpuc.fm">yolanda.mori@cpuc.fm</a>	Q
Dept of Resource & Development	Hubert Yamada, Assistant Secretary – Energy <a href="mailto:huberty08@yahoo.com">huberty08@yahoo.com</a>	Q
CPUC (utility)	Kasio Kembo Mida Jr, CEO <a href="mailto:Kembo.mida@cpuc.fm">Kembo.mida@cpuc.fm</a>	Q
KUA (utility)	Fred Skilling, General Manager <a href="mailto:kua@mail.fm">kua@mail.fm</a>	Q
PUC (utility)	Nixon T. Anson, CEO <a href="mailto:nanson@mypuc.fm">nanson@mypuc.fm</a>	Q
YSPSC (utility)	Faustino Yangmog, General Manager <a href="mailto:sapthiy@gmail.com">sapthiy@gmail.com</a>	Q
FSMPC (national petroleum company)	Jared Morris, CEO <a href="mailto:JMorris@fsmpc.com">JMorris@fsmpc.com</a>	Q
<b>Fiji</b>		
Dept of Energy	Mikaele Belena, Director <a href="mailto:mikaele.belena@moit.gov.fj">mikaele.belena@moit.gov.fj</a>	Q, I
Dept of Energy	Joji Wata <a href="mailto:joji.wata@moit.gov.fj">joji.wata@moit.gov.fj</a>	Q, E
EFL (utility)	Hasmukh Patel, CEO <a href="mailto:hasmukh@efl.com.fj">hasmukh@efl.com.fj</a>	Q
EFL (utility)	Karunesh Rao <a href="mailto:karuneshrao@efl.com.fj">karuneshrao@efl.com.fj</a>	Q, E, I
FCCC (fuel & electricity regulator)	Joel Abraham, CEO <a href="mailto:eo@fcc.gov.fj">eo@fcc.gov.fj</a>	Q, E
<b>French Polynesia</b>		
Ministre en charge des énergies	Heifara Garbet, Conseiller Technique <a href="mailto:heifara.garbet@equipement.min.gov.pf">heifara.garbet@equipement.min.gov.pf</a>	Q
Électricité de Tahiti	François-Xavier de Froment, CEO, <a href="mailto:Francois-xavier.defroment@edt.engie.com">Francois-xavier.defroment@edt.engie.com</a>	Q
<b>Guam</b>		
Guam Energy Office	Lucy Kono-Hubert <a href="mailto:lucybk@teleguam.net">lucybk@teleguam.net</a>	Q
GPA (utility)	John M. Benavente, General Manager <a href="mailto:gpagm@ite.net">gpagm@ite.net</a>	Q

<b>Kiribati</b>		
Infrastructure & sustainable energy	Lindsey John Davison, Director <a href="mailto:director@mise.gov.ki">director@mise.gov.ki</a>	Q
As above	Kireua Kaiea, Energy Planning Unit <a href="mailto:kbkaiea@mise.gov.ki">kbkaiea@mise.gov.ki</a>	Q R
PUB (utility)	Wayne Brearley <a href="mailto:ceo@pub.com.ki">ceo@pub.com.ki</a>	Q
Energy	Tiaon Aukitino <a href="mailto:aukitino@gmail.com">aukitino@gmail.com</a>	Q, E, I
<b>Nauru</b>		
Nauru Utilities Corporation (NUC)	Abraham Simpson, CEO <a href="mailto:abraham.simpson@nuc.com.nr">abraham.simpson@nuc.com.nr</a>	Q, I
Dept Environment	Bryan Star, Director <a href="mailto:bryanstar007@gmail.com">bryanstar007@gmail.com</a>	Q
DCIE (Energy)	Midhun Ajaykumar <a href="mailto:directorofenergycienauru@gmail.com">directorofenergycienauru@gmail.com</a>	Q
<b>New Caledonia</b>		
Govt of NC	Bastian Morvan - <a href="mailto:bastian.morvan@gouv.nc">bastian.morvan@gouv.nc</a>	Q
EEC (utility)	Philippe Mehrenberger, Director General <a href="mailto:Philippe.MEHRENBARGER@eec.nc">Philippe.MEHRENBARGER@eec.nc</a>	Q
<b>Niue</b>		
Infrastructure – Communications, Utilities & Transport	Andre Maurice Siohane Director General <a href="mailto:andre.Siohane@mail.gov.nu">andre.Siohane@mail.gov.nu</a>	Q
Energy regulator	Speedo Hetutu <a href="mailto:info.utilities@mail.gov.nu">info.utilities@mail.gov.nu</a>	Q
<b>Northern Mariana Islands</b>		
Dept. of Lands	Pete Tenorio, Director <a href="mailto:pete.tenorio@dpl.gov.mp">pete.tenorio@dpl.gov.mp</a>	Q
CUC (utility)	Gary Camacho, Executive Director <a href="mailto:gary.camacho@cucgov.org">gary.camacho@cucgov.org</a>	Q
<b>Palau</b>		
Palau Public Utilities Corporation (PPUC)	Gregorio Decherong, CEO <a href="mailto:g.decherong@ppuc.com">g.decherong@ppuc.com</a>	Q
Palau Energy Office	Tutii Chilton, Executive Director <a href="mailto:energy@palaunet.com">energy@palaunet.com</a>	Q, I
Palau Energy Office	Gerald Tulop <a href="mailto:energyadmin@palaunet.com">energyadmin@palaunet.com</a>	Q
<b>Papua New Guinea (PNG)</b>		
PNG Power	Mairawesi Pulayasi <a href="mailto:MPulayasi@pngpower.com.pg">MPulayasi@pngpower.com.pg</a>	Q
Dept ICT & Energy	Vore Veve Acting Deputy Secretary <a href="mailto:vore_veve@datec.net.pg">vore_veve@datec.net.pg</a>	Q
Dept ICT & Energy	Alu Alu	I
ICT & Energy (regulation)	Rebecca Kiagi <a href="mailto:r_kiagi@yahoo.com.au">r_kiagi@yahoo.com.au</a>	Q
<b>Republic of the Marshall Islands (RMI)</b>		
MEC (utility)	Jack Chong-Gum, CEO <a href="mailto:jack.chonggum@mecrmi.net">jack.chonggum@mecrmi.net</a>	Q
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EPC (utility)	Perelini Perelini, Head of Project Management Unit	I
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Solomon Power	Janendra Prasad <a href="mailto:janendra.prasad@solomonpower.com.sb">janendra.prasad@solomonpower.com.sb</a>	Q
Dept of Energy	John Korinihona, Director <a href="mailto:jkorinihona@mines.gov.sb">jkorinihona@mines.gov.sb</a>	QR, E
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Govt of Tokelau	Jovilisi Suveinakama, General Manager, Apia <a href="mailto:jovilisi@lesamoa.net">jovilisi@lesamoa.net</a>	Q
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	Ofa Sefana <a href="mailto:ofasefana@yahoo.com">ofasefana@yahoo.com</a>	Q
<b>Tuvalu</b>		
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<b>Vanuatu</b>		
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UNELCO (utility)	Marc Perraud, Managing Director <a href="mailto:marc.perraud@engie.com">marc.perraud@engie.com</a>	Q
<b>Wallis and Futuna</b>		
Service de l'environnement	Atoloto Malau, charge des energies renouvelables <a href="mailto:senv@mail.wf">senv@mail.wf</a>	Q
EEWF (power utility)	David Eyssartier, Managing Director <a href="mailto:David.EYSSARTIER@eewf.wf">David.EYSSARTIER@eewf.wf</a>	Q

## REGIONAL & INTERNATIONAL ORGANISATIONS, MISCELLANEOUS ORGANISATIONS

(Includes CROP agencies, bilateral and multilateral development agencies, NGOs, private sector)

**Q** = Questionnaire sent

**QR** = Questionnaire with response

**E** = Email correspondence

**I** = By phone or in person

Organisaton	Contact	Comments
Asian Development Bank (ADB)	Anthony Maxwell <a href="mailto:amaxwell@adb.org">amaxwell@adb.org</a>	Tech implementation committee, E
Caribbean Community (CARICOM) Energy Unit	Devon Gardner, Director <a href="mailto:energy@caricom.org">energy@caricom.org</a>	E (No reply)
Commonwealth Scientific & Industrial Research Organisation (CSIRO Energy)	Brian Spak, Leader Grids & Renewables Integration, <a href="mailto:brian.spak@csiro.au">brian.spak@csiro.au</a>	E, I
European Union	Adrian Nicolae, Team Leader Climate Change, Sustainable Energy & Waste <a href="mailto:Adrian.NICOLAE@eeas.europa.eu">Adrian.NICOLAE@eeas.europa.eu</a> Adrien Bullier, Programme Manager <a href="mailto:Adrien.Bullier@eeas.europa.eu">Adrien.Bullier@eeas.europa.eu</a> Atesh Gosai, Programme Manager, Climate Change, Energy & Circular Economy <a href="mailto:Atesh.Gosai@eeas.europa.eu">Atesh.Gosai@eeas.europa.eu</a>	I I I
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International Renewable Energy Agency (IRENA)	Arieta Gonelevu <a href="mailto:ARakai@irena.org">ARakai@irena.org</a> <a href="mailto:arietagonlevu@gmail.com">arietagonlevu@gmail.com</a> Apisake Soakai <a href="mailto:apisake.soakai@gmail.com">apisake.soakai@gmail.com</a> , former Pacific IRENA adviser, Suva	Both have long energy experience in the region; E, Q (both)
International Union for Conservation of Nature (IUCN)	Paula Katirewa <a href="mailto:Paula.Katirewa@iucn.org">Paula.Katirewa@iucn.org</a> Energy, climate change & ecosystems Ireimi Dau <a href="mailto:lfereimi.DAU@iucn.org">lfereimi.DAU@iucn.org</a> ,	QR I PEOG member I
ITP Renewables	James Hazelton <a href="mailto:jhazelton@itpau.com.au">jhazelton@itpau.com.au</a> Julia McDonald <a href="mailto:Julia.McDonald@itpau.com.au">Julia.McDonald@itpau.com.au</a>	E, I 2019 PRIF energy training needs study I PIC PV studies
Japan International Cooperation Agency (JICA)	Tadayuki Ogawa: <a href="mailto:ogawa.tadayuki@friends.jica.go.jp">ogawa.tadayuki@friends.jica.go.jp</a>	E FL/JICA energy training initiative
Pacific Centre for Renewable Energy and Energy Efficiency (PCREEE)	See SPC	
Pacific Islands Development Forum (PIDF)	<a href="mailto:Francois.Martel@pidf.int">Francois Martel, Secretary General francois.martel@pidf.int</a> <a href="mailto:Viliame.Kasanawaga@pidf.int">Viliame Kasanawaga,</a> Team Leader Research & Policy, <a href="mailto:viliame.kasanawaga@pidf.int">viliame.kasanawaga@pidf.int</a> Nikhil Lal, Coordinator Programme Management <a href="mailto:Nikhil.lal@pidf.int">Nikhil.lal@pidf.int</a> >	I, P EOG members Q, I I
Pacific Islands Forum Secretariat (PIFS)	Cristelle Pratt, Deputy Director General (unavailable due to travel) <a href="mailto:crisp4t@gmail.com">crisp4t@gmail.com</a> <a href="mailto:Scott.Hook*, Dr.scottmhook@gmail.com">Scott Hook*, Dr.scottmhook@gmail.com</a>	E Q, I
Pacific Power Association (PPA)	Andrew Daka <a href="mailto:andrewd@ppa.org.fj">andrewd@ppa.org.fj</a> Executive Director Gordon Chang <a href="mailto:gordonc@ppa.org.fj">gordonc@ppa.org.fj</a> Dep. ED Wairarapa Young <a href="mailto:rapa@ppa.org.fj">rapa@ppa.org.fj</a>	QR, I PEOG member PPA manages WB's I, Sustainable Energy Industry Development Project
Secretariat of the Pacific Regional Environment Programme (SPREP)	Kosi Latu, Director General Rupeni Mario <a href="mailto:rupeni_m@sprep.org">rupeni_m@sprep.org</a> Espen Ronneberg, Climate Change Adviser <a href="mailto:espenr@sprep.org">espenr@sprep.org</a>	I Q Former SPC staff QR

Sustainable Energy Industry Association of the Pacific Islands (SEIAPI)	Bruce Clay, President of Executive Committee <a href="mailto:bruce@clayenergy.com.fj">bruce@clayenergy.com.fj</a> Geoff Stapleton, Secretariat <a href="mailto:gges@bigpond.com">gges@bigpond.com</a> Amit Singh <a href="mailto:amit@cbspowersolutions.com">amit@cbspowersolutions.com</a>	Working agreement with SPC & PCREEE; E Involved in PACTVET Q, I
UN Economic & Social Commission for Asia and the Pacific (UNESCAP)	Timothy Westbury <a href="mailto:westbury@un.org">westbury@un.org</a>	Long history with energy in PICs
United Nations Development Programme (UNDP)	Kevin Petrini <a href="mailto:kevin.petrini@undp.org">kevin.petrini@undp.org</a> Team Leader, Resilience /Sust Develop Thomas Jensen <a href="mailto:thomas.jensen@undp.org">thomas.jensen@undp.org</a> Regional Energy Programme Specialist	E, I E, I FAESP midterm review; PEOG member
University of New South Wales	Renate Egan Dr, Australian Centre for Advanced Photovoltaics <a href="mailto:r.egan@unsw.edu.au">r.egan@unsw.edu.au</a> Anna Bruce, Dr <a href="mailto:a.bruce@unsw.edu.au">a.bruce@unsw.edu.au</a>	E, PV expert
University of the South Pacific (USP)	Atul Raturi, Dr. <a href="mailto:atul.raturi@usp.ac.fj">atul.raturi@usp.ac.fj</a> Peter Nuttall, Dr. <a href="mailto:peter.nuttall@usp.ac.fj">peter.nuttall@usp.ac.fj</a>	Q, E, I PEOG member Q, E, Adviser, Micronesian Center for Sustainable Transport
US Department of Energy	Jennifer Decesaro, islands energy program <a href="mailto:Jennifer.Decesaro@ee.doe.gov">Jennifer.Decesaro@ee.doe.gov</a>	I, PRIF; Caribbean energy
World Bank Group	Kamlesh Khelawan <a href="mailto:kkhelawan@worldbank.org">kkhelawan@worldbank.org</a>	I, PIC electricity sector
<b>Private consultants:</b>		
Petroleum adviser	Alan Bartmanovich <a href="mailto:petroleum_adviser@yahoo.com">petroleum_adviser@yahoo.com</a>	E, Former SPC senior petroleum adviser
Energy & climate consultant (Commonwealth Secretariat & others)	Anthony Polack <a href="mailto:polack@live.com">polack@live.com</a>	E, Q Former SPC energy project staff; former energy adviser Vanuatu
Climate change & energy consultant	Brian Dawson <a href="mailto:dilker2@bigpond.com">dilker2@bigpond.com</a> >	E, Former SPC (climate) and PIFS (energy) adviser
Financial consultant (ADB, formerly PPA director)	Chris Cheatham <a href="mailto:chrischeatham1@gmail.com">chrischeatham1@gmail.com</a>	E, I Regarding power sector security indicators
Power sector consultant, MFAT	David Wright <a href="mailto:wright829@gmail.com">wright829@gmail.com</a>	Former head of Tonga Power (no reply)
Renewable energy consultant	Herb Wade, Dr <a href="mailto:herbwade@sprynet.com">herbwade@sprynet.com</a>	I, E 40+ years on PIC energy issues & RE
Energy & climate change consultant	Mahend Kumar, Dr <a href="mailto:kumar.mahendra@gmail.com">kumar.mahendra@gmail.com</a>	E, QR Former energy adviser, RMI; formerly ADB
Fisheries consultant	Robert Gillett <a href="mailto:gillett@connect.com.fj">gillett@connect.com.fj</a>	I, E discussed coordination in PIC marine sector

## ANNEX 4

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Development consultant	Scott Hook, Dr <a href="mailto:scottmhook@gmail.com">scottmhook@gmail.com</a>	I, E Former PIFS; recent PEOG member
NGO consultant	Suliana Siwatibau <a href="mailto:siwatibausuliana@gmail.com">siwatibausuliana@gmail.com</a>	I, E Former Fiji Director of energy; on gender issues

*Notes:*

**PEAG = Pacific Energy Advisory Group:** PEOG + representatives of: development partners/donors, small island states, Polynesia, Micronesia, Melanesia; private, commercial, industrial and government sectors; and non-government/civil society; and power utilities

**PEOG = Pacific Energy Oversight Group:** Participating CROP agencies + IUCN + PIDF

# ANNEX 5: MANDATE OF LEAD AGENCY FOR REGIONAL ENERGY COORDINATION WITH SUGGESTED MODIFICATIONS

The 2009 Energy Ministers' Meeting established the broad framework for a regional energy programme still valid today. The following text is from *Proceedings of the Pacific Energy Ministers' Meeting and Regional Energy Officials' Meeting* (Nuku'alofa, Tonga, 20–24 April 2009); <http://prdrse4all.spc.int/node/4/content/fourth-pacific-regional-energy-and-transport-ministers-meeting-18-20-september-2019>. Subsequently, the region's leaders endorsed the ministers' decisions at the Fortieth Pacific Islands Forum in August 2009.

They endorsed five key priority action areas:

1. In noting the progress in the implementation of the Regional Institutional Framework (RIF) and the implications on energy, ministers recommended and agreed:
  - a. that regional and donor coordination delivery of energy services to Pacific island countries be strengthened and delivered through one energy agency and through one programme contributing to the development of a stronger energy sector and improved service to member countries; and
  - b. that there was a need to ensure that energy policy and climate change policy remained separate where environmental aspects are managed by SPREP and energy-sector activities by SPC, so as to ensure that the socioeconomic aspects of energy were adequately addressed.
2. Ministers underlined the need to strengthen human capacity development initiatives to support national and regional energy programmes, including gender mainstreaming; and further noted ongoing need to focus on development of apprentice schemes for power utilities and alternative energy technologies.

3. Ministers expressed the need to review and, as appropriate, strengthen national capacity in energy data and information gathering and collation, management, dissemination and analysis on economics, social and environment to better inform national and regional energy planning and policy choices where this should be incorporated into the one energy agency.
4. Ministers acknowledged progress in the implementation of the regional bulk fuel procurement initiative and called upon CROP agencies to continue to support PICs to move the initiative to implementation.
5. Ministers encouraged the necessary actions that would facilitate investment in sustainable renewable energy technologies and in energy efficiency and energy conservation initiatives.

## ROLE OF THE LEAD AGENCY FOR COORDINATING THE REGIONAL ENERGY SECTOR (SPC)

Ministers agreed that “the key role of the lead coordination agency for the regional energy sector is that of providing leadership for, and improving the profile of, energy as a key priority sector in the Pacific Islands region”. In this regard, the lead coordination agency will have the following responsibilities (the eight elements listed in the left column below). The mandate is broadly appropriate but it may be time to reconsider it. Possible changes for consideration are shown in the right column below and on the next page.

Current mandate	Suggested modification
Add new one	Report annually to Forum leaders (through the PEOG or a new CROP Energy Security Working Group) on the status of energy security in the region, key actions taken or underway and key issues facing the sector (as suggested by midterm review).
Clarify overlapping energy and environment mandates. See item 1b. in the five action areas above.	Clarify the respective CROP agency mandates for energy and environment, particularly as building and maintaining more robust and climate-resilient energy infrastructure will be a priority for the foreseeable future; so, separate and distinct energy and environment mandates are unworkable in practice.
1. Establish a dedicated long-term senior position in the organisation with funding that is not dependent on project funding to effectively facilitate regional energy-sector coordination to raise and maintain the profile of energy at all levels.	Change to: Establish a dedicated long-term senior energy position and sufficient specialist positions in the organisation with core funding to effectively facilitate regional energy-sector coordination, to raise and maintain the profile of energy. One position should probably be dedicated full-time to coordination.

2. Overall responsibility for analysis of trends in the energy sector, issues and challenges, and identify opportunities for strategic engagement by the region at national, regional and international levels.	Clarify “strategic engagement”. Clarify and justify an international role for the lead energy agency. What is this role?
3. Proactively undertake social, economic and policy research and analysis on the energy sector (petroleum, transportation, renewable energy, energy efficiency and energy conservation, energy infrastructure, power) and provide policy responses and strategic solutions to members and key stakeholders, to inform their own decision-making processes.	<ul style="list-style-type: none"> <li>• Perhaps change “petroleum” to “petroleum and other liquid fuels”, which could include biofuels, LPG, etc.</li> <li>• “Transport” should be “marine and land transport” unless transport is removed from the mandate and reassigned elsewhere. (Air transport fuel use is largely dependent on the aircraft purchased, and carriers will tend to buy highly efficient planes they can afford.)</li> <li>• “Members” is unclear. The PICTs?</li> </ul>
4. Coordinate the development of a joint, regional energy sector work-plan with an appropriate M&E and prioritised framework that involves all stakeholders to effectively implement the regional energy policy and plan.	Perhaps change “all stakeholders” to “key stakeholders”? Everyone is an energy user and stakeholder.
5. Develop and sustain a comprehensive, coordinated and shared approach to data collection, analysis and dissemination in the energy sector.	Add “annually updated” after comprehensive. Combine with 6. below.
6. Develop and sustain a common energy data and information system.	Clarify “common”. Common to all PICTs? Add “which can effectively serve as a measure of changes to energy security for the PICTs”.
7. Focal point for development partner interaction and coordinate resource mobilisation and allocation for the delivery of regional energy services.	Consider if this is practical for an agency that competes with others for limited funds for implementation. In any case, donors will choose their own focal points.
8. Establish and facilitate mechanisms that will involve key energy stakeholders in strategic analysis of emerging challenges and opportunities, as well as the oversight, decision-making and/or management of issues in or affecting the energy sector.	This overlaps with 2. The practical meaning of “oversight, decision-making and/or management of issues in or affecting the energy sector” is unclear and appears to be a sovereign national matter.

# ANNEX 6: SURVEY QUESTIONNAIRES FOR PICT ENERGY OFFICES AND POWER UTILITIES

Two versions of a questionnaire were distributed to the PICs: i) a general version for PIC government staff and a few others who have recently worked for the governments in an energy-related capacity; and ii) a slightly revised version for electric power utility staff. Results have not been summarised as the response rate was under 10%, so a summary would be unrepresentative. It was anticipated that the response rate would be low, based on previous experiences with emailed questionnaires, but a higher rate of response was hoped for.

## GENERAL QUESTIONNAIRE FOR ENERGY DEPARTMENT STAFF & OTHERS

*(The font size and the space available for responses has been reduced in this annex to reduce the number of pages; however, the content is unchanged from the questionnaires distributed.)*

### Introduction

The Pacific Regional Infrastructure Facility (PRIF) is supporting: i) a review of the Framework for Action on Energy Security in the Pacific (FAESP) 2010–2020 (phase 1: August–October 2018); and ii) development of a new regional energy framework for 2020–2030 (phase 2: late 2019–Aug 2020), “with strengthened links with existing and future Pacific Island energy sector development plans and policies”. The phase 1 review report, the review of FAESP and an outline of the 2020–2030 regional framework, will be presented at the Transport and Energy Ministers’ Meeting in Apia in September 2019.

SPC is the lead coordinating agency within the Council of Regional Organisations of the Pacific (CROP), and has the mandate for coordination of regional energy services and donor assistance, and the delivery of energy services to the region.

The purpose of this questionnaire is to provide an opportunity for PICT national energy focal points, energy departments and power utility staff, members of the Pacific Energy Oversight Group (PEOG) the Pacific Energy Advisory Group (PEAG), and others, to provide written input to the review. In addition to this questionnaire, there are various other consultations underway.

It would be appreciated if this questionnaire can be completed and emailed to Peter Johnston johnston@unwired.com.fj by the end of August. Apologies for the short time available to respond as the study only began on 6 August and the draft final review report must be completed before mid-September.

**Your reply will be kept in confidence. No individual response will be quoted in the reporting.**

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Institution, company or country: \_\_\_\_\_

FAESP was “designed to provide guidance to PICTs to enhance their national efforts to achieve energy security and ... to clarify how regional services can assist countries to develop and implement their national plans”.

**1) For your PIC (or those you have worked in), have services through FAESP and its Implementation Plan 2011–2015 (and any subsequent implementation plans) resulted in:**

- i. no services to develop and implement energy plans and policies?
- ii. minimal services?
- iii. adequate services?
- iv. very good or excellent, high-quality services?
- v. don't know or unaware of FAESP.

**2) If your country (or those you have worked in) has had assistance in developing energy plans or policies since 2010, did SPC:**

- i. play a lead role (direct assistance)?
- ii. help coordinate assistance from others (CROP agencies, IRENA, etc.)?
- iii. or was SPC largely uninvolved?

Was the result a practical policy or plan? Please explain below.

**3) Has there been assistance directly through SPC or its coordination efforts (with the Pacific Power Association or others) to implement the energy plans or policies? If so, has this been effective? Please explain below.**

**4) By 2012, SPC prepared energy security reports for 14 PICs with a 2009 baseline.**

- i. Has there been assistance through SPC directly or its coordination efforts to estimate improvements in energy security since then?
- ii. Do you feel that national energy security (overall or in specific PICs) has improved since 2010 when FAESP began?

**5) In addition to energy policies and plans, has SPC effectively provided practical support in other areas, such as petroleum services, data and information, renewable energy, energy efficiency, etc.? Has reporting and monitoring and evaluation been adequate? Please explain below.**

**6) SPC's mandate as lead coordination agency for energy has 8 components. These are summarised below. (Please refer to the annex to this questionnaire for a more detailed list.) To your knowledge, has the mandate broadly been carried out satisfactorily?**

Component of SPC's energy mandate:	Yes	No
i. Provide a dedicated long-term senior energy position at SPC.	<input type="checkbox"/>	<input type="checkbox"/>
ii. Analyse energy trends, issues and challenges, and identify engagement opportunities.	<input type="checkbox"/>	<input type="checkbox"/>
iii. Coordinate social, economic and policy research/analysis on the energy sector and policy responses and strategic solutions.	<input type="checkbox"/>	<input type="checkbox"/>
iv. Coordinate development of a joint, regional energy sector work-plan with monitoring & evaluation (M&E) and prioritised framework.	<input type="checkbox"/>	<input type="checkbox"/>
v. Develop and sustain comprehensive energy data collection, analysis and dissemination.	<input type="checkbox"/>	<input type="checkbox"/>
vi. Develop and sustain a common energy data and information system.	<input type="checkbox"/>	<input type="checkbox"/>
vii. Act as a focal point for development partner interaction, coordination and resource mobilisation.	<input type="checkbox"/>	<input type="checkbox"/>
viii. Strategic analyses of emerging energy challenges and opportunities, plus oversight, decision-making and/or management of the issues.	<input type="checkbox"/>	<input type="checkbox"/>

If you have additional comments on the mandate and its achievements, please respond further below.

**7)** Do you feel that SPC has had sufficient resources (staff and finances) from 2010 to the present to effectively carry out its mandate? If not, what has been lacking? Please explain below.

**8)** There may be new energy-sector challenges facing the PICs in the 2020–2030 timeframe and beyond, or challenges that are more difficult than expected back in 2010 when the FAESP was written. Please list any likely new challenges below.

**9)** What should be the key differences between the 2010–2020 FAESP and a new 2020–2030 framework in order to improve energy security and better align with national energy policies and plans? (You can check as many boxes as you like.) This might include:

i. including new challenges that can best be addressed through a regional approach	<input type="checkbox"/>
ii. new mechanisms for better management	<input type="checkbox"/>
iii. an improved system of reporting, monitoring and evaluation	<input type="checkbox"/>
iv. revised oversight and/or advisory groups to improve or replace PEAG (advisory group) and PEOG (oversight group)	<input type="checkbox"/>
v. new mechanism for coordination with development partners	<input type="checkbox"/>
vi. mechanisms to encourage cooperation and joint initiatives (that go beyond sharing of information) or	<input type="checkbox"/>
vii. other suggestions or recommendations.	<input type="checkbox"/>

Please elaborate below if you have specific suggestions.

**10)** If there are specific energy issues that you feel can be effectively addressed through a regional approach (if well-resourced) to improve energy security at a national level, please indicate these below. (These could include such things as: i) regional PV standards for Category 5 cyclone resilience; ii) regulatory or legal changes to encourage or require utilities to address demand-side management (and provide financial incentives to do so); iii) technical guidelines for distributed generation, energy storage and mini-grids linked to a main grid to improve energy security during natural disasters; iv) regional standards for power purchase agreements, minimum energy performance standards in buildings, etc., or others you would like to add.)

**Thank you for your assistance. Your input is important to improve the review.**

### **Annex: Role of lead agency (SPC) for coordinating the regional energy sector**

The key role of the lead coordination agency for the regional energy sector is that of providing leadership for, and improving the profile of, energy as a key priority sector in the Pacific Islands region. In this regard, the lead coordination agency will have the following responsibilities:

- i. Establish a dedicated long-term senior position in the organisation with funding that is not dependent on project funding, to effectively facilitate regional energy-sector coordination to raise and maintain the profile of energy at all levels.
- ii. Overall responsibility for analysis of trends in the energy sector, issues and challenges, and identify opportunities for strategic engagement by the region at national, regional and international levels.
- iii. Proactively undertake social, economic and policy research and analysis on the energy sector (petroleum, transportation, renewable energy, energy efficiency and energy conservation, energy infrastructure, power) and provide policy responses and strategic solutions to members and key stakeholders, to inform their own decision-making processes.
- iv. Coordinate the development of a joint, regional energy-sector work-plan with an appropriate M&E and prioritised framework that involves all stakeholders to effectively implement the regional energy policy and plan.
- v. Develop and sustain a comprehensive, coordinated and shared approach to data collection, analysis and dissemination in the energy sector.
- vi. Develop and sustain a common energy data and information system.
- vii. Focal point for development partner interaction and coordinate resource mobilisation and allocation for the delivery of regional energy services.
- viii. Establish and facilitate mechanisms that will involve key energy stakeholders in strategic analysis of emerging challenges and opportunities, as well as the oversight, decision-making and/or management of issues in or affecting the energy sector.

## QUESTIONNAIRE FOR ELECTRIC POWER UTILITY STAFF

(As for 1) above, the font size and space available for responses has been reduced in this annex to reduce the number of pages; however, the content is unchanged.)

### Introduction

(Essentially the same as the general questionnaire, so not repeated here.)

**1)** For your utility (choose one), have services through FAESP (through SPC or PPA or others) and its Implementation Plan 2011–2015 (and any subsequent implementation plans) resulted in:

- i. no services to develop and implement energy plans and policies?
- ii. minimal services?
- iii. adequate services?
- iv. very good or excellent, high-quality services?
- v. don't know or unaware of FAESP.

**2)** If your utility has had assistance in developing power sector plans or policies since 2010, did SPC:

- i. play a lead role (direct assistance)?
- ii. help coordinate assistance from others (CROP agencies, IRENA, etc.)?
- iii. or was SPC largely uninvolved?

Was the result a practical policy or plan? Please explain below.

**3)** Has there been assistance directly through SPC or its coordination efforts with PPA to implement the energy plans or policies? If so, has this been effective? Please explain below?

**4)** By 2012, SPC prepared energy security reports for 14 PICs with a 2009 baseline.

- i. Has there been assistance through SPC directly or its coordination efforts to estimate improvements in energy security since then?
- ii. Do you feel that national energy security (overall or in specific PICs) has improved since 2010 when FAESP began?

**5)** In addition to energy policies and plans, has SPC effectively provided practical support in other areas, such as data and information, renewable energy, energy efficiency, etc.? If so, has reporting and monitoring and evaluation been adequate? Please explain below.

**6)** SPC's mandate as lead coordination agency for energy has 8 components. These are summarised below. (Please refer to the annex to this questionnaire for a more detailed list.) Has the mandate broadly been carried out satisfactorily, as far as you know?

Component of SPC's energy mandate:	Yes	No
i. Provide a dedicated long-term senior energy position at SPC.	<input type="checkbox"/>	<input type="checkbox"/>
ii. Analyse energy trends, issues and challenges, and identify engagement opportunities.	<input type="checkbox"/>	<input type="checkbox"/>
iii. Coordinate social, economic and policy research/analysis on the energy sector and policy responses and strategic solutions.	<input type="checkbox"/>	<input type="checkbox"/>
iv. Coordinate development of a joint, regional energy sector work-plan with monitoring & evaluation (M&E) and prioritised framework.	<input type="checkbox"/>	<input type="checkbox"/>
v. Develop and sustain comprehensive energy data collection, analysis and dissemination.	<input type="checkbox"/>	<input type="checkbox"/>
vi. Develop and sustain a common energy data and information system.	<input type="checkbox"/>	<input type="checkbox"/>
vii. Act as a focal point for development partner interaction, coordination and resource mobilisation.	<input type="checkbox"/>	<input type="checkbox"/>
viii. Strategic analyses of emerging energy challenges and opportunities, plus oversight, decision-making and/or management of the issues.	<input type="checkbox"/>	<input type="checkbox"/>

If you have additional comments on the mandate and its achievements, please respond further below.

**7)** Do you feel that SPC has had sufficient resources (staff and finances) from 2010 to the present to effectively carry out its mandate? If not, what has been lacking? Please explain below.

**8)** There may be new energy-sector challenges facing the PICs and their utilities in the 2020–2030 timeframe and beyond, or challenges that are more difficult than expected back in 2010 when the FAESP was written. Please list any likely new challenges below.

**9)** What should be the key differences between the 2010–2020 FAESP and a new 2020–2030 Framework in order to improve energy security and better align with national energy policies and plans? (You can check as many boxes as you like.) This might include:

i. including new challenges that can best be addressed through a regional approach	<input type="checkbox"/>
ii. new mechanisms for better management	<input type="checkbox"/>
iii. an improved system of reporting, monitoring and evaluation	<input type="checkbox"/>
iv. revised oversight and/or advisory groups to improve or replace PEAG (advisory group) and PEOG (oversight group)	<input type="checkbox"/>
v. new mechanism for coordination with development partners	<input type="checkbox"/>
vi. mechanisms to encourage cooperation and joint initiatives (that go beyond sharing of information) or	<input type="checkbox"/>
vii. other suggestions or recommendations.	<input type="checkbox"/>

Please elaborate below if you have specific suggestions.

**10)** If there are specific power-sector issues that you feel can be effectively addressed through a regional approach (if well-resourced) to improve energy security at a national level, please indicate these below. (These could include such things as: i) regional standards for Category 5 cyclone resilience; ii) regulatory or legal changes to encourage or require utilities to address demand-side management (and provide financial incentives to do so); iii) technical guidelines for distributed generation, energy storage and mini-grids linked to a main grid to improve energy security during natural disasters; iv) regional standards for power purchase agreements, minimum energy standards in buildings, etc., or others you would like to add.

**Thank you for your assistance. Your input is important to improve the review.**

**Annex: Role of lead agency (SPC) for coordinating the regional energy sector**

(Same as in general questionnaire; not repeated here.)

# ANNEX 7: FAESP REVIEW: QUESTIONNAIRE FOR CROP AGENCIES AND PEOG MEMBERS

This is identical to the questionnaire used in the 2014 midterm review. It has gone to the following CROP members: Pacific Islands Forum Secretariat (PIFS), Pacific Power Association (PPA), Secretariat of the Pacific Community (SPC), Secretariat of the Pacific Regional Environment Programme (SPREP) and the University of the South Pacific (USP). It was also sent to the International Union for the Conservation of Nature (IUCN; a PEOG member) and the Pacific Islands Development Forum (PIDF; a former CROP agency and a PEOG member).

**Name of CROP Agency:** \_\_\_\_\_

**Contact details of person filling out the questionnaire**

Name: \_\_\_\_\_

Title: \_\_\_\_\_

\*Note: if space provided is not sufficient, please attach additional pages as required.

## Usefulness

1. **Is the Framework for Action on Energy Security in the Pacific (FAESP) 2010–2020, including its vision, goal, outcomes, guiding principles, national and regional responsibilities and themes, reflected in the Strategic Plan (or similar) of your agency?**

YES  
 NO

2. **Is the associated Implementation Plan for Energy Security in the Pacific (IPESP) 2011–2015, including priorities, regional activities, lead agency/agencies and indicators, taken into consideration when your agency undertakes programming including annual work planning?**

YES  
 NO

3. If the answer above (Q2) is 'yes', please inform in what way:

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4. If the answer above (Q2) is 'no', please briefly explain why:

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5. Does the IPESP 2011–2015 add value vis-à-vis your own agency's programming, including annual work planning?

<input type="checkbox"/>	YES
<input type="checkbox"/>	NO

6. If the answer above is 'yes', please briefly explain in what way the IPESP adds value vis-à-vis your own agency's programming, including annual work planning:

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7. If the answer above (Q5) is 'no', please briefly explain why and provide recommendations for improvements:

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**Coordination**

8. The Pacific Energy Oversight Group (PEOG)<sup>1</sup> and the Pacific Energy Advisory Group (PEAG)<sup>2</sup> were established to coordinate the implementation of the FAESP 2010–2020, including the associated IPESP 2011–2015. Overall, have the PEOG and PEAG been effective in coordinating the implementation of the IPESP 2011–2015?

<input type="checkbox"/>	YES
<input type="checkbox"/>	NO

9. If the answer above is 'yes', please briefly explain why:

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<sup>1</sup> Consisting of the participating CROP agencies plus IUCN.

<sup>2</sup> Consisting of "...PEOG and representatives of development partners/donors, small island states, Polynesia, Micronesia, Melanesia, private, commercial, industrial and government sectors, non-government/civil society and public utilities".

If the answer above is 'no', please briefly explain why and provide recommendations for improvements:

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10. Is participation by your agency in PEOG useful?

<input type="checkbox"/>	YES
<input type="checkbox"/>	NO

11. If the answer above is 'yes', please briefly explain in what way:

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12. If the answer above is 'no', please briefly explain why and provide recommendations for improvements:

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13. Is your agency aware of the other CROP agencies' annual work programmes and budgets in the area of energy?

<input type="checkbox"/>	YES
<input type="checkbox"/>	NO

14. SPC is the designated CROP 'lead coordinating agency' for FAESP 2010–2020, including the associated IPESP 2011–2015. Has SPC performed the role as the CROP 'lead coordinating agency' effectively?

<input type="checkbox"/>	YES
<input type="checkbox"/>	NO

15. If the answer above (Q15) is 'yes', please briefly explain why:

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16. If the answer above (Q15) is 'no', please briefly explain why and provide recommendations for improvements:

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General comments on IPESP coordination arrangements:

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**Monitoring**

17. Does your agency use the indicators ('Macro Indicators' and 'Theme Indicators') associated with the IPESP 2011–2015?

<input type="checkbox"/>	YES
<input type="checkbox"/>	NO

18. If the answer above is 'yes', please briefly explain how:

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19. If the answer above is 'no', please briefly explain why and provide recommendations for improvements:

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20. Does your agency share progress reporting with other CROP agencies?

<input type="checkbox"/>	YES
<input type="checkbox"/>	NO

21. If yes, then how often do you share progress reporting?

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22. General comments on IPESP monitoring:

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Any final thoughts:

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Thank you for your time in filling out this questionnaire.

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## ANNEX 8: FAESP THEME 2 PROGRESS LEGISLATION (2011–EARLY 2019)

This annex was developed by SPC to document progress (key achievements) within FAESP Theme 2: Capacity development, energy planning, policy and regulatory frameworks. It has been edited for brevity. Work on “Policies and/or implementation plans including monitoring and evaluation frameworks developed and operational” has been covered in the main report and is not repeated here. The annex is restricted to “Required regulation, legislation and other administrative and legal tools for an energy secure nation developed and in place.”

Year	PIC	Focus of legislation	Status	CROP input
2014	Tonga	Electric appliance labelling and standards regulated under the <i>Consumer Protection Bill 2014</i>	The revised Consumer Protection Bill (CPB) incorporating labelling and standards was approved by Cabinet in 2015. However, the CPA required further changes relating to multi-sector regulators requiring time to review. MEPSL component of the CPB was included in the <i>Energy Sector Bill 2017</i> .	World Bank & SPC
2014	FSM	<i>Net Metering Act</i>	Approved and signed into law.	SPC North-REP
2014	Palau	New energy legislation: <i>Palau Energy Act</i>	Approved and signed into law.	SPC North-REP
2015	Cook Islands	Amendment to <i>Energy Act 2014</i> to formulate Energy (Standards & Labelling) Regulations 2015	Regulations drafted but not implemented.	SPC PALS
2015	Samoa	New legislation ( <i>Energy Efficiency Act 2017</i> and <i>Energy Efficiency Regulation 2018</i> ) for appliance labelling and standards	Approved by Parliament in 2017 and in effect.	SPC PALS

Year	PIC	Focus of legislation	Status	CROP input
2015	Kiribati	Electric appliance labelling and standards regulated under the <i>Consumer Protection Act 2001 – Minimum Energy Performance Standards and Labelling Regulations 2019</i>	Regulations awaiting Cabinet approval.	SPC PALS
2015	Tuvalu	Electric appliance labelling and standards included in new <i>Energy Efficiency Act 2016</i>	Approved by Parliament in 2016 and in effect.	SPC PALS
2015	Solomon Islands	Electric appliance labelling and standards regulated under <i>Consumer Protection Act</i> and <i>Customs and Excise Act</i>	<i>The Consumer Protection (Approved Standards for Restricted Electrical Products) Regulation 2016</i> was endorsed in 2016. <i>Customs and Excise (Restricted Imports Amendment Order 2017)</i> was approved in 2017 and in effect.	SPC PALS
2014	Vanuatu	New legislation: <i>Energy Efficiency of Electrical Appliances, Equipment and Lighting Products Act 2016</i> and <i>Electrical Appliance, Equipment and Lighting Products (Importation Control Regulation 2017)</i>	Act passed in parliament in 2016; regulation approved in 2017 and in effect.	SPC PALS
2017	Niue	Review of <i>Niue Electric Power Supply Act 1960</i>	Draft revised <i>Electric Power Supply &amp; Energy Amendment Act 2018</i> developed and at discussion stage.	SPC- PALS & IUCN
2017	Tonga	<i>Tonga Energy Bill</i>	The Energy Sector Bill that includes labelling and standards was approved in principle by Cabinet in 2017, but 8 other energy-related Acts require updating and merging into the Energy Bill and work is ongoing.	GOT, EU & SPC PALS
2018	Samoa	<i>Samoa Energy Management Bill 2018</i>	Awaiting parliamentary approval.	GIZ- ACSE Project
2017– 2018	Tuvalu	Review of <i>Tuvalu Petroleum Ordinance 1965</i>	Gap analysis report and policy reform documents sent to DOE to disseminate to AG's office.	SPC
2019	Kiribati	<i>Kiribati Energy Sector Bill</i>	Gap analysis report and Policy Reform paper to support AG's office to draft the <i>Kiribati Energy Sector Bill</i> disseminated.	SPC
2019	Solomon Islands	<i>Solomon Islands Petroleum Act</i> review	Planned: TOR and timeline discussion.	SPC

# ANNEX 9: REPRESENTATIVE VIEWS EXPRESSED ON FAESP AND FUTURE REGIONAL ENERGY NEEDS

In some cases, the statements below are paraphrased, especially when several people made essentially the same statement; however, they are indicative of the range of views expressed.

<b>What are key areas of activity that a new regional energy framework should prioritise?</b>	
"Energy people get distracted by new technologies, or certain brands of technologies, when general principles are more important, like energy efficiency first, don't use the Pacific as guinea pigs, try and make tariffs cost reflective, use solar PV flat panels before getting fancy, etc."	Former SPC energy project staff; national adviser
"There are so many policies and plans and frameworks already. Help PICTs to review and actually implement energy policies and plans, not just help prepare more aspirational documents that sit on shelves unused."	Several PICTs and others
"Petroleum. The returns economically are high and someone needs to ensure future climate resilience of the facilities."	Several PICTs and others
"Energy data and its analysis. PRDR SE4All is really good as a library of documents, but not for accessible, up-to-date of use for decision-making. SPC is best suited to do this."	Several PICs and others
"They need more qualified and visionary staff if they can claim to provide regional leadership in energy."	PIC energy adviser
"I think the officials and ministers should prioritise a few key areas and then the framework and resources should be developed accordingly."	PIC energy official
"Clearly, renewables and energy efficiency would be the emphasis in support of countries' planned decarbonisation by 2050 as per the Paris Agreement."	PIC energy adviser

<p>"The problems faced with the FAESP were also with the ICT and transport frameworks. The context of regionalism – and what SPC, PRIF and PIFS [should do] – is changing. They need to see that the centralised 'big picture' [approach] failed because it did not match country priorities. Instead, the NDC Hub matches current priorities being set at the national level by developing a regional mechanism for financial and technical support. The new energy approach should be about the strategic engagement of energy in the context of sustainable development, building and maintaining resilient energy infrastructure, climate change mitigation and transparency in fossil fuel subsidies. ... Call it an Energy Chart and keep it short and focused."</p>	Senior CROP adviser
<p><b>What institutional arrangements should be changed in a future energy framework?</b></p>	
<p>"[There should be] more attention to the US and French-linked PICTs. Some have benefited from SPC petroleum contract advice but not much else. Energy staffing should include a French speaker so they can really be part of the framework."</p>	SPC staff; similar from territory staff
<p>"It should focus on coordination, not implementation, which it tries to do and does poorly."</p>	Senior CROP agency staff
<p>"Completely rethink PEAG and PEOG and reinstate the old CROP energy working group that reports to the Forum, not just energy officials and ministers."</p>	Several observers
<p>"Need for more financing for implementation and perhaps greater private sector partnership."</p>	PIC energy adviser
<p>"SPC does not have any senior staff member responsible for energy. The position has been downgraded. There should be a small group of highly professional staff funded long term from core resources, supported by a few generalist staff and projects – project funding will always be required. But projects should be very selective: keep it at SPC if it really supports key regional functions or else the projects should be with PPA or SPREP or PCREEE or USP."</p>	Similar views from a few people in CROP agencies, SPC and PICs
<p><b>Can a regional approach effectively improve energy services or security at a national level?</b></p>	
<p>"The premise is that a regional approach is justified. Has this been demonstrated adequately? Not really. Why not focus on national assistance and omit a new regional framework?"</p>	Two development partner staff
<p>"Perhaps the CROP energy activities (SPC, PPA, others) should focus on analyses and advice but avoid managing in-country projects best done by the government. When agencies compete for limited funds, as they will, it is very hard to prioritise coordination and also help direct funds to other agencies."</p>	Development partner
<p>"Although we prefer to work directly with the PICs, we recognise that some services are best provided at a regional level and need to be supported."</p>	Development partner
<p><b>Overall, has SPC effectively delivered on its energy mandate?</b></p>	
<p>"No. Delivery has mostly been poor. SPC has lacked real senior leadership, adequate staff numbers and finance."</p>	Many SPC staff
<p>"In my area I think we have delivered reasonably well."</p>	Two SPC staff
<p>"I'm unsure. I haven't seen enough evidence to know what SPC actually does as a coordinator, but I have used the FAESP when developing a work-plan and have developed a proposal with SPC input (but not the energy team)."</p>	A PEOG member

"No. The energy mandate and SPC's role are irrelevant to us. There is a piece of paper (FAESP) but no real coordination or cooperation. SPC uses our work and claims it has coordinated when they had no substantive role. I'm sorry but that is my blunt opinion."	CROP agency
"Overall, the services were adequate and sometimes very good. However, since 2013, they are considerably less active as the lead CROP agency for energy. SPC has backtracked on its regional role with insufficient staff and resources."	PIC energy office
"I doubt that it can deliver as the PICs request more and more services, but the core energy budget is low so delivery is dependent on short-term project finance, which is donor-driven and may not match the mandate."	Development partner
"In [my area of work] our delivery has been poor despite adequate resources."	Two SPC staff
"They need to do much better technically on data."	Adviser on data issues
"Have the PICs improved energy security in the last decade? A key part of SPC's responsibilities is to measure and report this and they have baseline data for 2009 and nothing since. Nothing. There is no measuring of progress."	An energy adviser in the region
"Considering the resources available to SPC, the staffing and funds for energy have been sufficient to carry out the mandate."	SPC staff
"Of the eight components of its energy mandate, SPC has delivered satisfactorily on only two: i) data and information; and ii) a focal point for energy."	PIC energy official
"SPC is supposed to coordinate, collaborate, develop joint proposals, etc. I have seen no evidence of this."	PEOG member
"Recently, SPC has been very weak in petroleum advice and energy for transport despite more donors and new opportunities for finance."	Two PIC energy offices
"Implementation of the Pacific Appliances Labelling and Standards programme, which was done exceptionally well for [my country]."	PIC senior energy staff
"I haven't actually seen the mandate."	Two SPC staff
"There has been nothing from FAESP or SPC to estimate improvements in our energy security."	PIC energy director
"It seems SPC has largely been absent from any strategic initiatives, plans or activities. There has been little proactiveness, to the extent people wonder if the Regional Framework still exists."	North Pacific energy office
"The services of SPC, EU and GIZ on some solar PV systems has been poor. There have been tendering problems, acceptance of substandard equipment, inadequate installations and failures during storms."	Several PICs, advisers, and CROP staff
"Compared to some other CROP regional programmes, FAESP has been reasonably successful."	PIC energy director
"I never heard of FAESP, or I'm not aware of any SPC energy role except meetings."	Staff of three PIC energy offices
"One well-funded [donor-funded sustainable energy project] implemented by SPC has not delivered at all. It has been a disaster."	Three advisers, SPC staff and others

<b>The TOR for the review specifies that the new regional energy framework is to have strengthened links with existing and future PICT energy sector plans and policies. Have national plans developed since 2011 began been strongly linked to FAESP?</b>	
"All PIC energy policies, legislation/regulations were linked to FAESP. New policies etc., have some connection to FAESP; either as a guiding principle or the use of FAESP energy security indicators, etc."	SPC staff
"We did not consider FAESP at all in our current energy policy or plan."	Two PICs
"SPC played a lead role in our energy policy and helped get other input. We will ask them to review our current policy."	PIC energy office
"SPC helped us develop our policy but provided no implementation assistance. We had better support from ADB and World Bank with no SPC involvement."	Senior energy staff of two PICs
"I didn't see much evidence of this. ... No involvement of the SPC with the recent energy act, roadmap; low emissions strategy, etc."	Pacific energy office
<b>Have the energy oversight (PEOG) and advisory (PEAG) mechanisms been effective?</b>	
"I don't know (not involved, haven't seen reports, unaware of their TOR)."	Several SPC staff
"Very good at information exchange but no effective oversight or technical advice or collaboration with others."	Many such comments
"No. A programme or specific section of a CROP agency cannot effectively oversee itself. PEOG/PEAG have been handled by EDD or GEM within SPC but they should be monitored at a higher level or externally."	Several PEOG or PEAG members
"No. The terms of reference are overlapping and too broad. The members don't seem to understand their role. The process is too informal with no mechanism for independently advising SPC or providing constructive criticism."	Several PEAG members
"I was not aware they existed until a month or so ago."	SPC GEM staff
<b>The roles of SPC and PCREEE</b>	
"Some see SPC as the past (they handle the 'legacy' energy projects) and PCREEE as the future (they'll manage the new RE and EE work). PCREEE seems in effect to be independent of SPC in Suva."	Development partner
"I feel uncomfortable about PCREEE. They seem to be attracting significant funding that should come to us (in Suva) or be coordinated with us. Our roles compared to PCREEE are unclear. They are SPC and not SPC."	SPC staff
"PCREEE is an SPC project; you cannot distinguish between them and us (in Suva) except they have additional direct sources of finance."	SPC staff
<b>Future energy role of SPREP compared to SPC?</b>	
"It's strange. On one hand we have worked together on proposals but SPREP seem to want to become the key CROP energy agency."	SPC staff
"Some at SPREP consider SPC FAESP delivery as poor enough that there may be an opening for SPREP to re-establish a strong energy presence under the justification of climate resilience."	Development partner
"Their respective roles are ambiguous. SPC is supposed to handle energy overall and economics of energy. SPREP deals with environmental aspects including climate change but these are not separate areas. The mandates need to be clarified."	Two development agency and SPC staff

"My discussions with SPREP clearly show a desire to expand into energy work through NDC mechanisms and their new climate centre."	CROP staff member
<b>Support for energy commitment from senior SPC management?</b>	
"There has never been a genuine commitment from senior management to the energy programme and not much attempt to understand the importance to the region of energy compared to health or fisheries or agriculture."	Several former senior SPC advisers
"I feel that SPC (Noumea) actually undermined our efforts [in my area of work] rather than supported initiatives that delivered to the PICTs' results that delivered considerably more than they cost."	PICT government agency
<b>Should a regional energy framework include petroleum services?</b>	
"Yes, there are really no services now but in the past SPC (and others) were really effective in helping lower fuel prices. Our staff change and fuel contractual arrangements change so we desperately need ongoing assistance. Please support this."	Several PICTs
"Yes, but it requires a good budget and specialist skills, both over a few years not just during a brief period. It should be done right or not done at all."	Several PICs and advisers
"Our bulk oil storage and distribution facilities are old and poorly maintained. In some PICs, maybe less in territories, we need help in requiring the owners to rectify this, before there is a bad flood or a hurricane releasing toxic chemicals."	Several PICs and others
"SPC has ceased its previous monthly role of monitoring and tracking fuel pricing. Earlier they assisted greatly. We hope that SPC will rethink its role and be more active in this area."	PIC energy office
<b>Coordination within energy among PRIF partners?</b>	
"They criticise the PICs and CROP agencies but they do not coordinate well among themselves on energy investments."	Two PIC energy offices
"Two solar projects for [one PIC] from [a PRIF member] are essentially independent projects. Only the demands of the utility for treating [them] as complementary is causing [the development partner] to even consider how the projects affect each other."	Adviser to a PIC
"Coordination among development partners in the energy sector is far better in the Pacific than in the Caribbean, where there is nothing similar to PRIF. It is an excellent vehicle for donor cooperation and can help avoid overlaps and duplication."	Donor country energy official

# ANNEX 10: CONCERNS OR COMMENTS OF THE TECHNICAL IMPLEMENTATION COMMITTEE AND RESPONSES

SPC and PRIF have established a Technical Implementation Committee (TIC) to assist and provide guidance or clarifications regarding the FAESP review. Membership is as follows: SPC (Akuila Tawake), UNDP (Thomas Jensen), ADB (Anthony Maxwell), WB (Mits Motohashi), JICA (Tadayuki Ogawa), PPA (Andrew Daka), USP (Atul Raturi), GGGI (Katerina Syngellakis) and SPC-PCREEE (Solomone Fifita).

Comments or concerns raised from the TIC (upper rows below) have been edited for brevity, with a response in the lower rows. Where the response says 'will be addressed' or similar words, the changes were subsequently made.

## INCEPTION REPORT (15 AUGUST 2019)

**Electricity from RE:** The PICs have made significant progress in expanding renewable electrification through renewable sources of energy to the grid, and this should be addressed in the next report.

**Response:** This was addressed to the extent practical in Section 2.6 (of draft final report) with a discussion of the PIC goals for electrification through RE and achievements, but there were no data readily available for an earlier base year on which to base progress.

**Achievements in implementing FAESP at national level:** The review should include the achievements of the countries in achieving FAESP objectives overall.

**Response:** There was no formal SPC reporting on FAESP beyond 2015, very little reporting to SPC, which would allow such an assessment, and insufficient data available at SPC's energy database <http://prdrse4all.spc.int/>. Even if the data were available, it would require a comprehensive country-by-country, sector-by-sector assessment, which is beyond the scope of work. Additionally, the boundaries of 'FAESP' are fluid, and establishing causality (what was the FAESP contribution to the activity?) is challenging.

**Overall comments on what final report should address:** The review should address the following: SPC's funding and inability to keep staff or implement energy activities; preference of ADB, WB, etc., to implement projects and their preference for bilateral assistance as opposed to regional; the proliferation of agencies with RE activities; donor (MFAT, DFAT) preference to support their private sectors at expense of the CROP lead energy agency; long time required (many years) for some donor funding to materialise; and the desirability of SPC to continue supporting PICs to identify areas where SPC and countries can collaborate and jointly prepare proposals.

**Response:** Attempts have been made to consider these as time permitted.

**Energy security indicators:** These should be coordinated with those of PPA's annual benchmarking reports.

**Response:** Agreed. PPA has been asked to consider adding or amending some indicators so they are more indicative of energy security (e.g., ratio of cost of electricity supply and average tariff, not just the tariff).

**Criteria for accepting an activity as suitable for a regional approach:** This should be addressed in the final report.

**Response:** Agreed. This has been added as section 6.1 in draft final report.

**Better coordination between power utilities and government planners:** Consider how to improve coordination between government planning staff and the power utility. Each utility has a development plan, usually not well-coordinated with national goals.

**Response:** Yes, there is a need for better links with the finance ministry, but it is difficult to achieve this through a regional framework. At the regional level, the new energy regulators' alliance (OPERA) could be for considering and advising on regulations to better align utility plans with government goals and commitments. This will be discussed in the final report.

**Power purchase agreements:** There appears to be circumstantial evidence that some Pacific PPA agreements are unfavourable to the utility purchasing the electricity. Can the report consider this?

**Response:** Yes. The draft final report suggests that advice on PPA arrangements is an example of a service that would be suitable for a regional approach.

## PRELIMINARY DRAFT CONCLUSIONS AND RECOMMENDATIONS (6 SEPTEMBER 2019)

<p><b>Separating coordination and project management within a CROP lead agency:</b> Extremely difficult to separate as there are no funds for coordination but there are for project management.</p>
<p><b>Response:</b> No doubt it will be difficult and SPC faces financial challenges regarding its core budget. The current approach seems to encourage the CROP agencies to compete for the same pool of resources. Suggestions from the TIC on other ways to address this would be welcome.</p>
<p><b>NDC Hub coordination:</b> How NDC Hub, SPREP Climate Change Centre, SPC's PCREEE and the MTCCC will work with each other needs to be looked at.</p>
<p><b>Response:</b> Yes. This will be addressed in phase 2, as phase 1 is only an outline of a new framework, not its full development.</p>
<p><b>Overlapping SPC &amp; SPREP mandates for energy:</b> Nervous with word 'mandate'. Preferable to use 'lead (coordination) agency'. The rest are supporting agencies.</p>
<p><b>Response:</b> The formal mandates were endorsed by energy ministers in 2009 and Forum leaders in 2010. It is understood that the Directors General of SPC and SPREP, and the incoming SPC DG, agree that this needs to be resolved and will discuss it during October 2019. Also note that CROP – Collaborating to Support Effective Response to Climate Change (undated) makes specific reference to their mandates. See: <a href="http://www.spc.int/sites/default/files/wordpresscontent/wp-content/uploads/2017/01/Response-to-Climate-Change.pdf">http://www.spc.int/sites/default/files/wordpresscontent/wp-content/uploads/2017/01/Response-to-Climate-Change.pdf</a></p>
<p><b>Proliferation<sup>1</sup> of regional centres with energy mandate:</b> A TIC member proposed a paper to be presented to ministers to direct the entities to work on a cooperation framework to be endorsed by ministers out of session.</p>
<p><b>Response:</b> Excellent idea, which should be followed up.</p>
<p><b>FAESP achievements:</b> These can only be meaningfully seen in the energy security indicators (updated Country Energy Security Profiles) supposed to be completed in 2015 (2009 baseline was published). Some 2015 drafts completed. SPC funding proposal to World Bank would support regular updates, strengthening national data collection capacity and analysis, etc. With national capacity strengthened, regional compilation, etc., can be easily done.</p>
<p><b>Response:</b> Yes, agreed. An SPC presentation during the Sept 2019 energy/transport ministerial meeting illustrated changes in national energy security (mixed but on balance positive) for 12 indicators from the 2009 baseline to 2015. This is being addressed in the final report.</p>
<p><b>Rising fossil fuel subsidies:</b> Undermine Paris Agreement goals: Is that so in the PICs? Is there evidence to support this?</p>

<sup>1</sup> These include at least Maritime Technology Corporation Centre Pacific (MTCCP), Center for Sustainable Transport (MCST), Pacific Climate Change Centre (PCCC) and the SPC's Pacific Centre for Renewable Energy and Energy Efficiency (PCREEE).

<p><b>Response:</b> This referred to rising global direct and indirect subsidies for fossil fuels since the Paris Agreement as documented in several reports by the International Monetary Fund. The point was insufficient efforts globally to reduce GHG emissions, which will affect the PICTs. This will be clarified in the final phase 1 reporting.</p>
<p><b>New annex:</b> It is suggested that an annex with illustrative quotations from questionnaires and those interviewed be added. The FAESP midterm review included this and it was very informative.</p>
<p><b>Response:</b> This has been added as suggested.</p>
<p><b>Proposed future focus on adaptation rather than mitigation:</b> Be very cautious shifting focus from mitigation to adaptation. The current focus is on access, 50% RE by XXX, etc. Impacts on affordability and reliability, energy independence, etc., are yet to be analysed.</p>
<p><b>Response:</b> Recent IPCC and other reports strongly suggest that the disruptive impacts of climate change will be severe on the PICs, even under optimistic scenarios regarding global emission reductions. As energy infrastructure is typically planned to operate for 30 years or more, it is important that energy infrastructure be robust, designed for climate resilience, which is the sense of 'adaptation' meant. The final report should clarify that this is not meant to refer to specific funding opportunities, which may be limited to either 'adaptation' or 'mitigation'. In some cases, referring to an investment as either adaptation or mitigation doesn't necessarily change the project design or focus.</p>
<p><b>Proposed three-yearly review and update of new energy framework:</b> See whether this review can also coincide with the regular reviews of the NDCs.</p>
<p><b>Response:</b> Three-yearly was suggested by SPC but, yes, it is preferable if it is consistent with other related reviews such as NDCs.</p>
<p><b>Why is a new framework needed?:</b> Why not instead a policy or a strategy document? FAESP's predecessor was the <i>Pacific Islands Energy Policy and Plan</i>; (<a href="http://prdrse4all.spc.int/system/files/piepp_october_2002.pdf">http://prdrse4all.spc.int/system/files/piepp_october_2002.pdf</a>). It is suggested that this issue – a framework, policy or strategy document – be discussed, including pros and cons of each, so that the reasons to continue with a framework document be made clear/explicit.</p>
<p><b>Response:</b> The consultant asked the same question of PRIF and several development agencies in early August, and it is a legitimate question. The TOR specifies a framework. Although the term was not defined, it was assumed that the new approach was meant to be conceptionally similar to the FAESP. As the draft final report is due less than ten workdays from the receipt of this concern, it may be too late to address it. If it is a concern of the TIC and PRIF overall, it is suggested that this be clarified in the TOR for phase 2, which are yet to be finalised.</p>
<p><b>Is energy security to be the focus of the new energy framework?:</b> If yes, why? Why not other possible relevant focus area(s)? Why was energy security the focus of the 2010–2020 energy framework? It would be very useful to include such background information.</p>

<p><b>Response:</b> According to the TOR, in November 2018, “the PEAG ... agreed to commission a review for the FAESP and develop a new energy security framework for the next decade”, so, yes, the TOR does clearly specify security as the continued focus. This is reiterated several times elsewhere in the TOR. The current consultant was involved in the development of background papers and working drafts in early 2010, which subsequently resulted in the FAESP. At the time of his involvement (or possibly shortly afterwards), various consultations and meetings resulted in a three-volume series of draft documents: i) the <i>Pacific Islands Regional Energy Policy for Action</i> (meant to be long term; 20+ years); 2) a medium-term <i>Pacific Islands Regional Energy Strategy (2011–2016)</i>; and 3) a <i>Pacific Islands Regional Energy Implementation Plan 2011–2016</i> (to be reviewed annually). The consultant is not aware of when or why energy security formally became the 2010–2020 focus. It is, however, noted in the current TOR that FAESP “was designed to provide guidance to PICTs to enhance their national efforts to achieve energy security in line with the principles of the Pacific Plan (2004)”, but I am unsure whether this answers the question.</p>
<p><b>The scope of the new framework should be CROP agencies and possibly also development partners/donors (i.e., not PICTs):</b> This issue needs to be discussed and clarified.</p>
<p><b>Response:</b> Referring once more to the TOR, the new framework is to have “strengthened links with the existing and future PICs’ energy-sector development plans and policies”, which is understood to mean a focus on the needs of the PICs/PICTs, not the development community. The outcome statement of the Sept 2019 ministerial meeting refers to “assisting countries”, and the analysis and measurement of “progress against countries’ priorities and targets”. The 2019 energy ministers’ resolution refers to supporting “countries undertake revisions to enhance their NDCs”, “building capacity in the countries”, “enhanced collaboration between Pacific Island countries and territories and SPC”, and similar resolutions, suggesting a PIC focus. Perhaps the consultant has misunderstood the intent of the concern raised?</p>
<p><b>Outcomes of the Sept 2019 ministers’ meeting:</b> Consider mentioning relevant decisions including hyperlinks for outcome statement and resolution.</p>
<p><b>Response:</b> Yes, this will be done. These were unavailable when the preliminary draft was completed.</p>
<p><b>Overlapping mandates for energy and environment:</b> Refer to the CROP paper <i>Collaborating to Support Effective Response to Climate Change</i>, which refers to mandates. See: <a href="http://www.spc.int/sites/default/files/wordpresscontent/wp-content/uploads/2017/01/Response-to-Climate-Change.pdf">http://www.spc.int/sites/default/files/wordpresscontent/wp-content/uploads/2017/01/Response-to-Climate-Change.pdf</a></p>
<p><b>Response:</b> Thanks. This will be in the draft final report.</p>
<p><b>Proliferation of regional centres/services with an energy mandate:</b> Include Pacific NDC Hub, Office of the Pacific Energy Regulators Alliance (OPERA), and EFL’s (Energy Fiji Ltd.’s) planned regional power utility training centre.</p>
<p><b>Response:</b> Noted. This will be done.</p>

**Clarify PEOG membership in section 2.1:** Unclear. According to the TORs, de facto membership in 2013/2014 or de facto membership today? In 2013/2014, during the midterm review, the following were members: SPC, PIFS, PPA, SPREP, USP and IUCN. However, in 2019 it appears that the following are PEOG members: PIFS, USP, SPREP, PPA, GIZ, PIDF, IUCN, GGGI and SPC. Please clarify.

**Response:** Section 2.1 refers specifically to the findings of the midterm review, so membership was as noted above in 2013–2014. I don't think it requires clarification.

**Required specialist staffing of SPC for energy:** Consult and reference the *Report of the Expert Reference Group: Assessment of SPC's core business and delivery of services to members in the long term* from 2012.

**Response:** Thank you. This will also be done.

**Buildings account for roughly 50% of electricity use within PICs:** Please provide a reference.

**Response:** Okay, this will be added to draft final report.

## PHASE 1 DRAFT FINAL REPORT (17 OCTOBER 2019; RESPONSES RECEIVED BY 25 OCTOBER)

There were quite a few minor comments on typos or requests to clarify text. These were adjusted but are not commented on here.

**Executive summary:** energy staffing: The summary of institutional changes (Chapter 5) recommends that "SPC should reinstate the position of Deputy Director Energy." During recent rationalisation of functions, it was apparent that energy is not going to be a programme on its own due to other priorities. ... the Georeosurces and Energy Programme was confirmed and the GEM Division was established. Unless there is an SPC-wide rationalisation of functions, I don't see energy as a programme on its own in the next five years.

<p><b>Response:</b> As an independent adviser, I feel that the most senior energy position must be at a higher level than at present if there is to be a revitalised and improved regional energy programme, so the recommendation is unchanged. A good deal of Chapter 3, summarising the seriousness of the challenges facing PICTs in the energy sector from 2020 and well afterwards, is implicitly arguing for a strong regional energy programme headed at a senior level. Of course, the choice is SPCs. I suggest the intention to maintain energy at the current level be confirmed (or changed) early during the phase 2 framework design.</p>
<p><b>Executive summary:</b> Unresolved issues: Add a new point v) highlighting the importance of bilateral projects. SPC energy experts can also assist PICTs to implement national energy projects funded by donors. A great example is the FSM SEAM project funded by the EU.</p>
<p><b>Response:</b> I'm not sure this needs to be addressed in the development of a regional programme but it has nonetheless been added.</p>
<p><b>Section 1.2 Staffing required for the FAESP and its implementation:</b> There is an area in the report about SPC coming up with 22 staff to implement the FAESP. That is not true.</p>
<p><b>Response:</b> If this was suggested in a draft, it was unintentional. The 2011–2015 Implementation Plan states (section 4) that a minimum of 21 full-time positions were needed within CROP agencies (not within SPC) to implement the IPESP, and this is reiterated in the 16 October draft report.</p>
<p><b>Section 2.2 Workshop in 2015 to revise PEOG &amp; PEAG TOR and membership:</b> The 2015 PEAG agenda and outcomes do not reflect this. It could have been a different meeting.</p>
<p><b>Response:</b> The workshop was held during the 2015 PEAG (and the presentation has been provided to the TIC). It was not included on the agenda and discussions are not summarised in the outcome report.</p>
<p><b>Section 2.2 Enhanced implementation study:</b> This report was discussed during the 2014 PEAG meeting, which was reflected in the meeting outcomes report, not in 2015.</p>
<p><b>Response:</b> Preliminary findings (which I have not seen) were discussed during the 2014 PEAG, but the draft final report, to which I referred, was completed in 2015 and possibly never discussed by the 2015 PEAG. In any case, it was never endorsed. The text has been clarified.</p>
<p><b>Section 3.2 Proliferation of new Pacific centres or services with strong energy links:</b> There are others additional to the seven listed, including GGGI.</p>
<p><b>Response:</b> GGGI has a strong PIC energy programme, and this has been added.</p>
<p><b>Section 5.2 recommendation 8 is inconsistent with recommendation 9:</b>        8: "Although a ten-year broad framework is recommended, it should incorporate a shorter-term (three-year) rolling plan, reviewed and adjusted as necessary."        9: "The FAESP implementation plan (IP) was not used by PEOG/CROP agencies, and there has been no IP developed by SPC since 2011. It was not used by the PICTs as a basis for data collection. It should be dropped, with energy aspects of each CROP agency's own annual work programme used for planning."</p>

**Response:** Agreed. The text was badly phrased and did not provide the intended recommendations. No. 8 has been revised as follows: "A ten-year broad framework is recommended, to be reviewed (three-yearly) and adjusted as necessary." No. 9 is unchanged.

**Section 5.6 Core positions:** You write "As lead energy agency, SPC should ensure sufficient staffing and finance ..." This should come under the responsibility of the proposed 'Energy Coordination Adviser'.

**Response:** I've not considered staffing in any detail, just a broad approach. I think this should be addressed during phase 2.

**Section 6.2 Electric vehicles: the link to power utilities:** What are the implications of this (a new regional policy on e-mobility) vis-à-vis the new framework? Is it envisaged/expected that additional such regional subsector policy documents be prepared before and/or after the new framework is in place?

**Response:** I cannot answer this and suggest that it be addressed with PRIF and SPC before the phase 2 TOR are finalised.

**Section 6.2 Gender imbalance:** The text omitted the ministerial endorsement of SPC's effort in reviving the Pacific Energy and Gender Network and the development of the revised strategic action plan 2020–2030, which includes a gender-based analysis of the energy sector.

**Response:** Apologies, I didn't see that endorsement and it has been added.